# Issues in the Left Periphery of Modern Irish 

by

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Abstract<br>Issues in the Left Periphery of Modern Irish<br>Kenji Oda<br>Doctor of Philosophy<br>Graduate Department of Linguistics University of Toronto

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Although the syntax of the left periphery of the Irish clausal architecture has been the subject of considerable research within the generative paradigm, many questions remain unresolved. The general goal of this thesis is to explore some of these understudied territories. Specifically, I consider two distinct, but ultimately related phenomena: headless relative clauses and dependent verbal morphology.

I will make four major claims: The first two concern the syntax (and semantics) of the headless relative clause. First, despite the fact that the particles that appear in resumptive relative clauses and in headless relative clauses are morpho-phonologically identical as $a^{N}$, headless relative clauses are derived by movement, not by means of resumption, and thus the particles in these two constructions are not the same. Second, headless relative clauses are amount relative clauses, in the sense of Carlson (1977); and thus I claim, adopting Grosu and Landman's (1998) notion of complex degree, that the element that undergoes $\mathrm{A}^{\prime}$-movement in a headless relative clause is a complex degree, causing degree-abstraction in the semantics. The maximalization operator then applies to the degree-abstracted relative CP. I argue that it is this operator that triggers the appearance of the particle $a^{\mathrm{N}}$ in the headless relative construction.

The latter two claims concern the morphosyntax of the left periphery of Irish syntax: First, I claim that there are two tense features in a single finite clause domain of Irish, and that the so-called dependent forms of irregular verbs are the surface realization of
the two tense features. This account provides a stepping stone to my final claim that a feature agreeing with the maximalization operator, but not the operator itself, is realized in the headless relative particle $a^{N}$ and that the particles found in resumptive relative clauses and in headless relative clauses are in fact distinct Vocabulary Items and thus they are homophonous.

This thesis thus fills a gap in the descriptive account of Irish syntax, and provides new insights to the theory of relativization.

## Acknowledgements

In a fair number of occasions in the last little while, I was asked: So, how do you feel now that it's all done? My reply to this question has been consistent. "I don't know." Quite honestly, I don't know. To be a bit more precise, I have mixed feelings which are very hard to express verbally. Certainly I feel very strange about the fact that I am typing this acknowledgements section, which implies that it's really done, though I thought at one point this would never happen.

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## Chapter 1

## Introduction

### 1.1 Main Issues

This thesis addresses two particular aspects of the grammar of Modern Irish, a Goidelic language with VSO word order. The general goal is to explore understudied territories in the left periphery of Modern Irish clausal architecture. Specifically, I consider two distinct, but ultimately related phenomena: headless relative clauses and dependent verbal morphology. The study contributes to a better understanding of the syntax of Modern Irish, in particular of the left periphery of the clause, and of headless relative clauses in general.

I will make the following claims: First, despite the fact that the particles that appear in resumptive relative clauses and in headless relative clauses are morphophonologically identical, headless relative clauses are derived by movement, not by means of resumption, and thus the particles in these two constructions are not the same (Chapter 4). Second, headless relative clauses are amount relative clauses, in the sense of Carlson (1977), and thus the element that is extracted in a headless relative clause is a degree. On this point, headless relative clauses in Irish differ from their canonical headed counterparts (Chapter 5). Third, there are two tense features in a single finite clause domain, which accounts for
the surface appearance of the preverbal particles and the so-called dependent/independent alternation of irregular verbs (Chapter 6).

### 1.2 Some Disclaimers

### 1.2.1 The Language

As this work concerns only a very small part of Irish grammar, I do not provide a descriptive or theoretical account of Irish syntax in general. For information about Irish syntax, either descriptive or theoretical, see Ó Siadhail (1989), Ó Dochartaigh (1992), Carnie (1995), Doyle (2001), Mac Congáil (2004), Ó Baoill (2010), among others.

As well as the Official Standard (An Caighdeán Oifigiúil), there are three major dialectal groups in Modern Irish: Ulster Dialect, Connacht Dialect, and Munster Dialect. Although the title of this thesis refers to Modern Irish, I do not provide a detailed crossdialectal survey of the constructions in question. Most of the data given here (particularly parts dealing with headless relative clauses) comes from elicitation with speakers of the Ulster(/Donegal) varieties. Thus, some properties discussed here may not be entirely consistent with findings in other (Munster and Connacht) varieties. An investigation of any such differences awaits future work. It should also be noted that the headless relative construction in Irish has a slightly marginal flavour. Speakers often had a hard time deciding on a judgment, and it is often the case that speakers of the same variety do not necessarily agree about certain sentences.

The data regarding the verbal morphology in Chapter 6 represents the so-called Standard Variety, which appears in Hughes (2008). Although some minor modifications may be necessary to account for non-standard variations, I believe that for the most part, the analysis put forward in this work applies to most of the dialectal variations.

### 1.2.2 The Theory to Be Used in This Thesis

The main goal of this work is not to make theory-internal innovations within a specific theoretical approach, but rather to use theory as a window to see and describe the phenomena at stake in an explicit and precise manner.

I adopt the framework of the Minimalist Program (MP), a variant of the Principles and Parameters approach, which sets as its ultimate goal to explain the Poverty of Stimulus problem (Chomsky, 1995 and thereafter). It should be borne in mind, however, that I am not taking a particular stance on this theoretical choice. Except for some discussions on the morphology of the preverbal particles, which require the notion of Late Insertion, I believe that the insights presented here translate easily into other frameworks of the generative (or structuralist) paradigm. Those who lack prior knowledge of the Minimalist Program are referred to Adger (2003), Hornstein et al. (2005), and Radford (2009), for accessible introductions.

The aspects of the Minimalist Program particularly crucial to this work are 1) that it is a structuralist model, and that 2) it is a derivational model. MP is structuralist in that it sees structural relations to be a core mode of explanation, as opposed to functionalist views, which take grammatical functions to be irreducible primitives. For a structuralist, any functional explanation should be reduced to structural terms. Thus, while we may use terms such as subject or direct object for convenience, underlyingly we assume that those terms are configurationally derived; a subject is an element which occupies the specifier position of T (ense) P (hrase), and the object is the complement of V(erb) P (hrase).

MP is a derivational (as opposed to representational) model in that it assumes that a grammatical construct is accounted for by a series of derivational steps. Ungrammaticality is mainly characterized by the fact that no legal derivation which would produce such a structure is available. There are two main structure-building operations: Merge (or External Merge) and Move (or Internal Merge). Merge is an operation which combines
two elements in the grammatical workspace to create a new and complex element. The operation is recursive, in that the newly built complex element may undergo further instances of Merge. The operation of Merge entails that any structure built by this system is binary-branching in the tree representation:
(1) a. ... Tom ...is ... Canadian ... $\quad \Rightarrow$
b. ...Tom... $\overbrace{\text { is Canadian }}^{\alpha} \quad \Rightarrow$
c. ...


In (1a), there are three syntactic objects, Tom, is, and Canadian. If is Merges with Canadian, the structure in (1b) is created. If this complex element, $\alpha$, Merges with another object Tom, the structure $\beta$ in (1c) is created. Move differs from Merge in that some object embedded within a complex syntactic object $\alpha$ moves (to a position c-commanding its original position). Thus, if is in (1) Moves and re-Merges with $\beta$, we achieve the following structure:


The steps demonstrated here are grossly over-simplified derivations for a simple sentence Tom is Canadian, in (1c), and its interrogative counterpart Is Tom Canadian?, shown in (2).

As well as the structure-building operations Merge and Move, there is another operation, Agree. We assume here the Probe and Goal model of Agree motivated in recent work in the Minimalist Program (Chomsky, 2001 and thereafter). If some element in a complex structure has an uninterpretable feature, it probes its sister object. If a matching feature (a goal) is found, then the uninterpretable feature is valued/checked. If any uninterpretable feature remains unchecked by the end of the derivation, the structure is said to crash, which is one kind of ungrammaticality. Agree is often thought to be a prerequisite for Move, though Agree does not always result in Move.

MP assumes a modular grammar:

## (3) Minimalist Model of Grammar



There are two interface levels that are tied to syntax: Logical Form (LF), a gateway to the Conceptual-Intentional System that deals with meaning, and Phonetic Form (PF), a gateway to the Sensorimotor system that deals with sound/form. Structures derived by syntactic computation are ultimately sent off to LF and PF. It is further assumed that at some point in the course of a derivation, a structure is split into a syntacticsemantic representation and a phonological representation and each of those is sent off to the relevant interface. This point of split is called Spell-Out (or Transfer in later work). This leaves open the possibility that some structure-building operations (in particular, Move) may take place after the split without phonological consequences. Such operations are often called covert movement or LF movement.

As well as the Minimalist model of syntax, this work (in particular, Chapter 6) assumes Distributed Morphology (DM) (Halle and Marantz, 1994; Harley and Noyer, 1999).

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The notion of DM most important here is late insertion. Late insertion simply means that syntactic elements do not enter a syntactic derivation with morphophonological forms, or with encyclopedic meaning. Syntactic elements are spelled out at a later stage by the process called Vocabulary Insertion.

### 1.3 Organization of This Work

This thesis is written to be read from the beginning to the end. However, readers who are very familiar with some of the concepts discussed in this work (particularly in earlier chapters) may well skip some chapters. For those who might wish to do so, I provide here a brief outline of each chapter.

Chapters 2 and 3 provide some background essential to understanding the later chapters. Chapter 2 provides descriptive characterizations of Irish relative clause constructions. The first part deals with the two relativization ( $\mathrm{A}^{\prime}-$ )particles of the language and also the two types of relativization strategies. In the second part, we focus on the headless relative clauses, the first main topic of this thesis. The purpose of this chapter is to lay out an overview of the core problems of relative clauses in Irish without relying excessively on theoretical jargon, so that even readers not familiar with generative theoretical linguistics, or those new to the world of Irish linguistics, would receive some benefit reading this chapter, even though they might not be interested in the technical points made later on. Chapter 3, on the other hand, deals with theoretical aspects of relativization in Irish. Relativization in Irish is not a phenomenon new to generative linguistics, nor is it a topic upon which there is a general consensus. There is considerable literature on this topic, and within it there is a fair amount of disagreement, as well as some agreement. The aim of this chapter is to provide the theoretical background necessary for understanding the following chapters, by reviewing some recent work (mostly post Government and Binding theory). I also argue that McCloskey (in particular, the
theoretical instantiation in his 2002 analysis) is on the right track and thus the use of his analysis as the starting point of the later chapters is justified. The last section of this chapter provides a very brief overview of recent analyses of relativization (in particular in English), and shows that the analysis that McCloskey (2002) presents is consistent with the analyses of relative clauses from a purely theoretical viewpoint.

Chapters $4-6$ are the meat ${ }^{1}$ of this work: The goal of Chapter 4 is to show that Irish headless relative clauses employ the extraction strategy, and not resumption. Although I assume that the analyses of the wh-extraction relative construction and the resumptive relative construction proposed by McCloskey (2002) are generally correct, I offer some refinements to his analysis that is based on the feature [Op(erator)], because a raising analysis of the head nominal is possible in Irish. Chapter 5 argues that headless relative clauses are amount relatives. The first section provides a brief description of amount relative clauses. In the subsequent section, I provide arguments for the amount relative analysis of headless relative clauses in Irish. The final part of this chapter consolidates the observations and provides a structural account of the Irish headless relative clause. The main point here is that, as Grosu and Landman (1998) argue for English cases, the headless relative construction involves abstraction of complex degree and the operation of maximalization, and the (pseudo)-partitive construction is involved in a headless relative clause. Adopting the analysis of pseudo-partitives of Schwarzschild (2002, 2006), I argue for a structure of Irish pseudo-partitive phrases whereby the numeral expression and the measure expression form a constituent which is extracted in the case of headless relative clause formation. Chapter 6 deals with the morphosyntax of the left periphery of Irish clausal architecture. In the first half of the chapter, I provide an analysis of dependent verbal morphology within the framework of Distributed Morphology. It is argued there that both $\mathrm{T}^{0}$ and $\mathrm{C}^{0}$ in Irish can carry tense features,

[^1]and that dependent forms spell out both of these. The latter part of the chapter is a consolidation of the entire thesis, addressing the last piece of the puzzle; the morphosyntactic makeup of the headless relative particle $a^{\mathrm{N}}$. There it is argued that the particle spells out the agreement feature of the maximalization operator, not the maximalization operator itself. It is further argued that despite their superficial identity, the $a^{\mathrm{N}}$ particle in the headless relative clauses and the $a^{\mathrm{N}}$ particle in the resumptive relative clauses are in fact merely homophones, realized by distinct vocabulary items.

## Chapter 2

## The Phenomena

### 2.1 Introduction

This chapter provides a description of headless relative clauses in Irish, comparing them to ordinary relative clauses. Irish permits both resumption and extraction in ordinary relative clauses, and it is far from obvious which type headless relative clauses belong to. We shall also see that under certain circumstances, Irish headless relative clauses seems to have phonologically overt "heads".

### 2.2 Headless Relative Clauses

This section gives a description of the headless relative clause construction of Irish, an example of which is given in (1):
(1) Headless Relatives in Irish
a. Sin [a bhfuil [__] agam].
that $\mathrm{a}^{\mathrm{N}}$ be.PRES.DEP at.me
'That's (all) I have.' (Mac Mathúna and Ó Corráin, 1997:361)
$\begin{array}{ll}\text { cf. Tá an leabhar agam. } \\ \text { be.PRES the book at.me } \\ & \text { 'I have the book.' (lit. the book is at me.) }\end{array}$
b. Bhí súile [a raibh [__] sa teach] air.
be.PAST eyes $\mathrm{a}^{\mathrm{N}}$ be.PAST.DEP in.the house on.him
'The eyes of [everyone who was in the house] were on him.'
(McCloskey, p.c.)

By headless relative clause I mean a relative clause whose nominal "head" is not phonologically overt, as in the English examples in (2a). ${ }^{2}$ This contrasts with a 'regular' relative clause, as in (2b), which has an overt head noun (italicized in (2b)) and a relativizer, such as a wh-word or the complementizer that in English:
(2) a. Headless Relative Clause in English

I will bring [what I bought during my trip to Greece.]
b. Headed (i.e., Regular) Relative Clause in English

I will bring [the wine which/that I bought during my trip to Greece.]

The cross-linguistic prevalence of the headless relative construction suggests that it derives from some fundamental aspect of the grammar, most probably available in UG. However, that does not mean that instantiations of the construction in different languages necessarily have the same structure.

### 2.2.1 The Terminology

Let us define the terminology used in this work to discuss relative clauses. First, the term nominal (or noun or NP) head is used for the nominal constituent which is modified by a

[^2]clausal element. In English, the clausal element follows the nominal head. Thus, the noun wine is the nominal head of the relative clause construction in example (2b). Crucially, it is not necessarily a 'head' in the X-bar theoretic sense. ${ }^{3}$ The term relative "clause" is not tightly defined, as it may or may not include the head nominal, though it is normal to use the term to refer to the clausal constituent without the head nominal. Relative clauses are often introduced by a relativizer, an element which signals their status as a relative clause. In English, the complementizer that or a wh-item are considered to be relativizers. It is a language-specific choice whether an overt relativizer must surface with a relative clause; relativizers are often left out in English relative clauses.

The term headed is used to describe a relative clause which has an overt nominal head. Headless relative clauses lack a phonologically overt nominal head, as shown in (2a) as well as the Irish examples in (1).

Headed relative clauses can be further divided into two subcategories; restrictive and non-restrictive. A restrictive relative clause restricts the meaning of the head nominal, just as "intersective" adjectives do.
(3) a. the [Adj Canadian] [lady]
$\approx$ 'a unique entity $x$ such that $x$ is a lady and $x$ is Canadian'
b. the [lady] [RelativeClause who was at the party last night].
$\approx$ 'a unique entity $x$ such that $x$ is a lady and $x$ was at the party last night'
Non-restrictive (or appositive) relative clauses, on the other hand, are demarcated by a comma in writing or by a different prosodic pattern in speech, and they do not restrict the head nominal, but rather invoke an "off-topic" nuance, which may be paraphrased as "by the way ...:"
(4) I met that boy, who was wandering in front of the library.

[^3]Since relative clauses of this type do not restrict, they can occur with a proper noun.
(5) a. The next conference will take place in Toronto, which is the largest city in Canada.
b. * The next conference will take place in Toronto which is the largest city in Canada.

In addition, they give rise to different interpretations from those with restrictive relatives when they co-occur with a quantificational element:
(6) a. The teacher will meet all the boys who failed the exam. Restrictive $\approx$ 'for all $x$ such that $x$ is a boy and $x$ failed the exam, the teacher will meet $x$.'
b. The teacher will meet all the boys, who failed the exam. Non-Restrictive $\approx$ 'for all $x$ such that $x$ is a boy, the teacher will meet $x \ldots$ and, by the way, it happens to be the case that they all failed the exam.'

### 2.3 Irish Relativizing Particles

Let us first go over some fundamental properties of ordinary Irish relative clauses to facilitate the discussions to follow in later chapters. We first look at some morphosyntactic aspects of headed relative clauses in Irish, and then in the following section, we will consider their core syntactic properties. We begin with a pre-theoretical description, and then briefly review the standard generativist account, proposed by McCloskey (2002).

Most notably, Irish has two ways of forming a relative clause; the extraction (gap)
strategy and the resumption strategy. ${ }^{4,5}$ These strategies are used in other constructions in the language, such as wh-questions (7b) and clefts (7c), but our primary concern here is relative clauses, exemplified in (7a).
(7) a. an fear a chonaic sí the man $a^{\mathrm{L}}$ saw she 'the man who she saw'

Relative Clause

Wh-movement
c. (Is) Seamus a chonaic sí.
cOP Seamus $a^{\text {L }}$ saw she
'It is Seamus who she saw.'

Relative clauses and other $\mathrm{A}^{\prime}$-constructions are marked by one of two preverbal particles, represented as $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ in this work. Crucially, the former signals $\mathrm{A}^{\prime}$-extraction, whereas the latter signals resumption. Observe the contrast in (8):
a. an scríbhneoir a mholann na mic léinn [__] gap
the writer $a^{L}$ praise the.PL students
'the writer whom the students praise' A'-gap
b. an scríbhneoir a molann na mic léinn [é]
the writer $\quad a^{N}$ praise the.PL students him 'the writer whom the students praise'

Resumptive pronoun
(McCloskey, 1979:6)

The difference between (8a) and (8b) is purely syntactic; in (8a) the particle is $a^{\mathrm{L}}$ and

[^4]the variable site is a gap, whereas in (8b), the particle is $a^{\mathrm{N}}$, and the variable site is a resumptive pronoun.

At first glance, these particles might seem to be phonologically and orthographically identical. Both are written as ' $a$ ' and pronounced as $/ \partial / .{ }^{6}$ However, they have different morphophonological and morphosyntactic properties.

Phonologically, the two particles trigger different types of mutation. The gap particle $a^{\mathrm{L}}$ triggers lenition (thus the superscript "L") of the initial consonant of the following verb. This mutation roughly corresponds to fricativization or spirantization in phonology, which is orthographically indicated by the addition of the letter $h$ after the letter of the mutated consonant. ${ }^{7}$ This effect can be seen on the verb mholann 'praise' in (8a). Here the initial consonant $/ \mathrm{m} /$ is lenited to $/ \mathrm{w} /$ (or $/ \mathrm{v} /$ in Southern varieties), and written as $m h$. The resumption particle $a^{\mathrm{N}}$, on the other hand, triggers what is traditionally called eclipsis, which is roughly translated as voicing and/or nasalization (thus the superscript "N"). Orthographically this effect is marked by the addition of the letter whose sound represents the result of the mutation; for example, $c / \mathrm{k} /$ is changed to $g c / \mathrm{g} /, f / \mathrm{f} /$ to $b h / \mathrm{w}, \mathrm{v} /$ and $b / \mathrm{b} /$ to $\mathrm{mb} / \mathrm{m} /$. Eclipsis is not overtly seen in (8b) since the consonant $/ \mathrm{m} /$ happens not to be an eclipsable segment.

In addition to this phonological difference, there are two morphological properties that distinguish the two $\mathrm{A}^{\prime}$-particles. The first is that the resumptive particle $a^{\mathrm{N}}$ shows tense inflection between non-past $a^{\mathrm{N}}$ and past $a r$, whereas the gap particle $a^{\mathrm{L}}$ is constant regardless of its tense environment. The second morphological property has to do with the "dependent" form of certain verbs. A dependent form is found in a handful of irregular verbs, and when the form is available in the paradigm, the resumptive particle

[^5]$a^{\mathrm{N}}$ requires it. In contrast, the gap particle $a^{\mathrm{L}}$ does not require the dependent form. These properties are discussed and analyzed in depth in Chapter 6.

A few minor points must be mentioned before moving to the next section: First, another particle go (gur in the past tense) marks ordinary complementation of a finite clause without any dependencies.
(9) Deir sé go bhfuil an aimsir go hiontach anois. says he go is.DEP the weather wonderful now 'He says that the weather is wonderful now.'

Second, when the three particles, $a^{\mathrm{L}}, a^{\mathrm{N}}$, and $g o$ appear with negation, they all become nach (nár in the past tense).
(10) a. an fear [nach dtuigeann [__] an scéal] the man $a^{L}$.NEG. understand the story 'the man that doesn't understand the story' Extraction
b. an fear [nach n-insíonn tú an scéal dó]
the man $a^{\mathrm{N}}$.NEG tell you the story to.him
'the man that you do not tell the story to (him)' Resumption
c. Deir sé [nach dtuigeann sé an scéal].
says he go.NEG understand he the story
'He says that he does not understand the story.' No A'-dependency
(McCloskey, 1979:12)

The table in (11) summarizes the paradigms of the three particles.

| Paradigms of go, $a^{\text {L }}, a^{N}$ |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $a^{\text {L }}$ | GAP |  | $a^{\mathrm{N}}$ | Resumption |  |
|  | Affirmative | Negative |  | Affirmative | Negative |
| Non-past | $a^{\text {L }}$ | nach | Non-past | $a^{\mathrm{N}}$ | nach |
| Past | $a^{\text {L }}$ | nár | Past | $a r$ | nár |
| go | Complementation |  |  |  |  |
|  | Affirmative | Negative |  |  |  |
| Non-past | go | nach |  |  |  |
| Past | gur | nár |  |  |  |

## 2.4 "Headed" Relative Clauses in Irish

Let us now turn to the syntactic properties of headed relative clauses in Irish. Recall that there are two ways to form relative clauses, as well as other $\mathrm{A}^{\prime}$-related constructions. One is called extraction, in which a gap is found where the head nominal is understood within the relative clause. The other is resumption, where a pronominal element corresponding to the head nominal is found in the relative clause. This section provides a brief sketch of the two relativization strategies.

### 2.4.1 Relativization Strategies and Functions

Both extraction and resumption strategies are used in headed relative clauses, either restrictive or non-restrictive:

## (12) Restrictive Relative Clause

a. Sin an fear a cheap Síle a chonaic sí [__] that the man $a^{\mathrm{L}}$ thought Síle $a^{\mathrm{L}}$ saw she 'That's the man who Síle thinks that she saw.'
b. Sin an fear ar cheap Síle go bhfaca sí é that the man $a^{\mathrm{N}}$.PAST thought Síle go saw she him 'That's the man who Síle thinks that she saw (him).' Resumption

## Non-restrictive Relative Clause

a. Extraction

Bhuail mé le Seán, a cheapaim a-tá [__] ina amhránaí met me with Seán $a^{\mathrm{L}}$ think.1SG $a^{\mathrm{L}}$-is in.his singer
ar fheabhas.
excellent
'I will meet Seán, who I think is an excellent singer.'
DO

## b. Resumption

Bhuail mé le Seán, a gceapaim go bhfuil sé ina amhránaí met me with Seán $a^{\mathrm{N}}$ think.1SG go is.DEP he in.his singer
ar fheabhas.
excellent
'I will meet Seán, who I think (he) is an excellent singer.'
DO

In some instances, both extraction and resumption strategies are acceptable. In such circumstances, they do not convey any significant difference in terms of meaning, except that the resumption strategy may be used to resolve a possible ambiguity which may arise when the extraction counterpart is used (McCloskey, 1977a). The sentences in (14) illustrate the point:
a. an buachaill a phóg an cailín the boy $\quad a^{\text {L }}$ kissed the girl 'the boy who the girl kissed' or 'the boy who kissed the girl'
b. an buachaill ar phóg an cailín é the boy $\quad a^{\mathrm{N}}$.PAST kissed the girl him 'the boy who the girl kissed (him)'

Since in Irish, finite clauses have a strictly VSO word order, and common nouns do not overtly make the nominative/accusative distinction, it is not possible to know whether the subject or the object of the relative clause corresponds to the head noun (an) buachaill '(the) boy' in (14a), and thus the phrase is ambiguous out of the context.

This ambiguity does not arise in (14b), because the resumptive pronoun inside the relative clause is unambiguously the object, as it follows another argument an cailin 'the girl' and it is in the accusative form é (compare the nominative form sé 'he'). Note, however, that this description does not mean that use of a resumptive pronoun in the direct object position is possible only when extraction causes ambiguity. McCloskey (1985:64) points out that resumption in the direct object position is possible even when the context clearly suggests that the subject cannot be linked to the head noun:
a. fá dhaoine $_{i}$ a shiúil [__] an saol agus a chaill [__] a about people $a^{\mathrm{L}}$ wandered the world and $a^{\mathrm{L}}$ lost their gcreideamh agus ar chuir an Misean Mór ar ais ar staid na faith and $a^{\mathrm{N}}$.PAST put the Great Mission back on state the grásta $\operatorname{iad}_{i}$ grace.GEN them
'about people who had wandered the world, and had lost their faith and whom the Great Mission had brought back to a state of grace'
(McCloskey, 1985:(51a))
b. an bhean $_{i} \ldots$ ar ardaigh an rón leis $\mathbf{1}_{i}$ the woman $a^{\mathrm{N}}$.PAST took.away the seal with.him her 'the woman that the seal took away with him' (McCloskey, 1985:(51d))

McCloskey (1985) argues with the data in (15) that resumption of the direct object position is not primarily driven by the performance factors such as possibility of ambiguity, but it derives from competence though performance factors have some impact. ${ }^{8}$

### 2.4.2 Relativization Strategies and Grammatical Positions

Let us now turn to the interaction between the syntactic positions of the gap/pronoun and the relativization strategies. The two relativization strategies are conditioned by the syntactic position where the gap, or the resumptive pronoun, appears within the relative

[^6]clause. Let us consider the extraction strategy first. This strategy is possible when the gap is in the subject position or in the (direct) object position, as illustrated by the examples in (16).
a. an buachaill a bhuail [__] leis an rí the boy $a^{\mathrm{L}}$ met with the king 'the boy who met the king'

MH
b. an bronntanas a thug sí [__] dom the gift $a^{\mathrm{L}}$ gave she to.me 'the gift that she gave to me'

MH

Recall the ambiguity exhibited by sentence (14a). This ambiguity suggests that extraction from these two positions is equally possible in the language. Only subject and direct object positions are compatible with the extraction strategy; extraction of a prepositional object or a possessive argument is strictly disallowed:
a. * an bhean a thug sé an bronntanas do [__] the woman $a^{\mathrm{L}}$ gave she the gift to 'the woman that she gave the gift to'

MH
b. Thug sí an bronntanas don fhear. gave she the gift to.the man 'She gave the gift to the man.'
a. * an fear a phós Ciarán deirfiúr [__] the man $a^{\mathrm{L}}$ married Ciarán sister 'the man that Ciarán married (the) sister of'
b. Phós Ciarán deirfiúr an fhir married Ciarán sister the man.GEN 'Ciarán married the man's sister.'

Now we turn to the resumption strategy. McCloskey (1990) observes that this strategy, unlike extraction, is allowed almost everywhere. Thus, a resumptive pronoun can appear as a subject (19a), a (direct) object (19b), a prepositional object (19c), ${ }^{9}$ and

[^7]finally as a possessor (19d). ${ }^{10}$ Resumptive elements are in boldface in the examples in (19).
(19) a. na caiple sin a n-abrann sealgairí go mbíonn siad ag léimnigh the.PL horses that $a^{\mathrm{N}}$ say hunters go be. HAB they at jumping agus ag damhsa
and at dancing
'the horses that hunters say (they) are always jumping and dancing'
(McCloskey, 1990:(105a))
b. an ghirseach ar ghoid na síogaí í
the girl $\quad a^{\mathrm{N}}$.PAST stole the fairies her 'the girl whom the fairies stole (her)'
(McCloskey, 1990:(104a))
c. an fear ar labhair tú leis
the man $a^{\mathrm{N}}$.PAST spoke you with.him
'the man that you spoke to (him)'
(McCloskey, 1990:(21a))
d. an bhean a raibh a mac breoite
the woman $a^{\mathrm{N}}$ was.DEP her son ill
'the woman that her son was ill'
(McCloskey, 1990:(21b))

McCloskey notes, however, that there is one position where a resumptive pronoun is prohibited in Irish: the highest subject position of a relative clause:

* an fear a raibh sé breoite
the man $a^{\mathrm{N}}$ was.DEP he ill
'the man that (he) was ill'
(McCloskey, 1990:(29a))
cf. an fear a bhí [__] breoite
the man $a^{\mathrm{L}}$ was he ill
'the man who was ill'

The ungrammaticality of example (20) is due to the fact that the resumptive pronoun sé 'he' occupies the subject position of the highest clause, that is the clause taken as the
and Hale (1984), Doron (1988), Taylor (2004), and Brennan (2008) for various theoretical treatments of these forms.
${ }^{10}$ This description is not entirely uncontroversial. See, for example, footnote 8 .
direct complement of the relativizing particle $a^{N} .{ }^{11}$ Note that a resumptive element can occupy a subject position, as long as it is not the highest one within a relative clause. Such an instance is shown in example (19) above, where the resumptive pronoun occupies the subject position of a lower clause, and ungrammaticality does not arise. The highest subject position thus is the only syntactic position where extraction is the only available option. It should also be noted that the notion of "highest" is a strict one. McCloskey (1990) reports that once a resumptive element is further embedded within the highest subject position, the structure is grammatical. This is attested in (21-22):
(21) a. an fear a raibh [Subj a mhatháir] ina conaí i gCeanada the man $a^{N}$ was.dep his mother in.her living in Canada 'the man whose mother lived in Canada'

MH
b. Ná glan an ghloine a bhfuil [subj an leacht inti] bándearg! NEG clean the glass $a^{\mathrm{N}}$ is.DEP the liquid in.it pink 'Don't clean the glass that the liquid in (it) is pink'
duine ar bith a mbeadh [subj sé féin agus Tom] mór lena chéile person any $a^{\mathrm{N}}$ would.be he EMPH and Tom great with each other 'anybody that he and Tom would be very fond of one another'
(McCloskey, 1990:(43))

In examples (21-22), resumptive elements are all contained within the highest subject position; as the possessor of the highest subject in (21a), as the object of the preposition

[^8]i. Tá an fear ${ }_{1}$ a raibh $\mathrm{se}_{1}$ breoite ag Máire ar maidin anseo anois. is the man $a^{\mathrm{N}}$ was he ill by Máire on morning here now 'The man who was ill, according to Mary, this morning, is here now.'

Maki and Ó Baoill (2011b:(33))
in (21b), and finally as a conjunct in a coordinate structure in (22). ${ }^{12}$

## Relativization Strategies and Island Conditions

McCloskey $(1990,2006)$ maintains that the resumption strategy, like the extraction strategy, constitutes some form of A'-dependency relation. First, McCloskey (1979:27-29) points out that it is ungrammatical to have neither a resumptive pronoun nor a gap within a relative clause:

> * na daoine ar léigh mé leabhar inné the people $a^{\mathrm{N}}$ PAST read I book yesterday 'the people that I read a book yesterday'

Furthermore, McCloskey (1990:211-212) shows that resumption triggers crossover effects. This can be seen from the fact that Irish epithets, such as an bastard 'the bastard', cannot be used as resumptive elements despite the fact that their distribution is similar to that of pronominals.

* Sin an fear ar dhúirt an bastard go maródh sé muid. That the man $a^{\mathrm{N}}$.PAST said the bastard go would.kill he us 'That's the $\operatorname{man}_{j}$ that the bastard ${ }_{j}$ said (he ${ }_{j}$ ) would kill us.'
(McCloskey, 1990:(36))

These pieces of facts suggest that the resumption strategy, like the extraction strategy, signals an A'-dependency, but a closer look at them reveals that they behave quite differently with respect to well-known island constraints. Like English wh-extraction, the extraction strategy is sensitive to various island effects (McCloskey, 1979:29-35; and subsequent work). In particular, $\mathrm{A}^{\prime}$-dependencies formed by extraction cannot hold across a wh-clause (25), an interrogative clause (26), a coordinate phrase (27), an adjunct phrase (28), or a complex DP modified by a relative clause (29).

[^9]a. * an fhuinneog a d'fhiafraigh mé cé a bhris [__] [__] ag an gcóisir the window $a^{\mathrm{L}}$ asked I who $a^{\mathrm{L}}$ broke at the party 'the window that I asked who broke at the party' MH
b. * an bhean a d'fhiafraigh mé cé ar bhuail [__] leis ag an the woman $a^{\mathrm{L}}$ asked I who $a^{\mathrm{N}}$ met with.him at the gcóisir party
'the woman that I asked who [__] met (him) at the party' MH
(26) * bean nach bhfuil fhios agam an bpósfadh duine ar bith [__] woman $a^{\mathrm{L}}$.NEG is.DEP knowledge at.me Q would.marry person any 'a woman who I don't know if anyone would marry' (McCloskey, 1979:32)
(27) * an fear a bhris [[__] agus Seán] an fhuinneog sa seomra sin the man $a^{\mathrm{L}}$ broke and Seán the window in.the room that 'the man who and Seán broke the window.'

MH

* an fear a bheidh Máire sásta má tiocfaidh [__] chuig an choisir. the man $a^{\mathrm{L}}$ will.be Máire happy COND will.come to the party 'the man who Máire will be happy if comes to the party'

MH
a. * an fear a phóg mé an bhean a phós [__] [__] the man $a^{\mathrm{L}}$ kissed I the woman $a^{\mathrm{L}}$ married 'the man who I kissed the woman who married' (McCloskey, 1979:30)
b. * an fear a phóg mé an bhean ar bhuail [__] lei the man $a^{\mathrm{L}}$ kissed I the woman $a^{\mathrm{N}}$.PAST met with.her 'the man who I kissed the woman who met (her)'

On the other hand, A'-dependencies formed by resumption are not sensitive to such constraints, as seen from the grammaticality of examples (30-34) below. A resumptive $\mathrm{A}^{\prime}$-dependency can be formed across a relative clause (30), an embedded wh-question (31), an embedded yes/no interrogative clause (32), a coordinate structure (33), or an adjunct conditional clause (34). In these examples, the resumptive pronoun associated with the matrix nominal head is shown in bold, and the corresponding resumptive element is italicized in the English translation.
(30) a. an fear ar phóg mé an bhean a phós sé [__] the man $a^{\mathrm{N}}$.PAST kissed I the woman $a^{\mathrm{L}}$ married he 'the man who I kissed the woman who he married'
b. an fear ar phóg mé an bhean ar bhuail sé lei the man $a^{\mathrm{N}}$.PAST kissed I the woman $a^{\mathrm{N}}$.PAST met he with.her 'the man who I kissed the woman who he met (with her)' DO

Sin bean nach bhfuil fhios agam an bpósfadh duine ar bith that woman $a^{\mathrm{N}}$.NEG is.DEP knowledge at.me Q would.marry person any í
her
'That's a woman who I don't know if anyone would marry her'
(McCloskey, 1979:33)
an fear ar bhris sé ?(féin) agus Seán an fhuinneog sa seomra the man $a^{\mathrm{N}}$.PAST broke he (self) and Seán the window in.the room sin
that
'the man who he and Seán broke the window. ${ }^{14}$
MH
an fear a mbeidh Máire sásta má thugann sé chuig an choisir i. the man $a^{\mathrm{N}}$ will.be Máire happy Cond brings he to the party her 'the man who Máire will be happy if (he) brings her to the party'
${ }^{13}$ One of my consultants suggests that preposing of the prepositional phrase improves grammaticality:
i. an bhean a d'fhiafraigh mé cé leis ar bhuail sí [__] ag an gcóisir the woman $a^{\mathrm{L}}$ asked I who with.him $a^{\mathrm{N}}$.PAST met she at the party 'the woman that I asked who she met (with him) at the party.'
${ }^{14}$ The presence of féin improves grammaticality.

### 2.4.3 A Note on Resumption in Irish

Resumptive pronouns may be characterized in two different ways (Chao and Sells, 1983):
a. Resumptive pronoun appears where a gap could have been
b. Resumptive pronoun is interpreted as a gap would have been (i.e., a bound variable, or variable $\mathrm{A}^{\prime}$-bound, etc.)
(Chao and Sells, 1983:47)

The characterization in (35a) is distributional: The resumptive pronoun is a pronoun that appears as a bindee instead of a gap where a syntactic binding relation holds. Under this characterization, English exhibits a resumptive pronoun when a binding relation is established across an island:
(36) a. That's the linguist that she had seen [__]/*him before.
b. I'd like to meet the linguist that Mary wouldn't remember if she had seen [__]/him before. (Chao and Sells, 1983:(5a))

The pronoun him in (36b) is a resumptive pronoun under the definition in (35a), one which appears to act as a bindee of the head nominal phrase the linguist (or a covert operator, depending on the theory of relativization adopted). Its presence is licensed (or obliged) as use of a gap, which implies movement, violates island constraints on movement.

The second characterization in (35b), on the other hand, defines a resumption as a pronominal element which can be interpreted as a true syntactic variable. "Being a syntactic variable" here means that it may be bound by a quantificational expression. The English "resumptive" pronouns fails to meet this definition:
(37) a. I'd like to meet every linguist that Mary wouldn't remember if she had seen [__] before. (Chao and Sells, 1983:(5b))
b. * I'd like to meet every linguist that Mary wouldn't remember if she had seen him before.
(Chao and Sells, 1983:(5c))

Notice that in the examples in (37), it is strongly disfavoured to place a resumptive pronoun in a variable position even though it is located within a syntactic island. Hebrew, on the other hand, meets the definition in (35b):
kol $\operatorname{gever}_{i}$ še Dina xoševet še $h u_{i}$ ohev et Rina every man that Dina thinks that he loves ACC Rina 'ever man that Dina thinks loves Rina ...' (Chao and Sells, 1983:(23))

Sells (1984:17) calls resumptive pronouns which satisfy (35a) but fail to meet (35b), such as resumptive pronouns found in English, intrusive resumptive pronouns. Intrusive resumptive pronouns have a "last resort" flavour, and Chao and Sells (1983) claim that they are in fact E-type pronouns, and thus cannot be bound by a quantificational element. On the other hand, a resumptive pronoun which meets (35b) as well as (35a), e.g., the resumptive pronoun found in Hebrew, is a "true" resumptive pronoun.

Irish resumptive pronouns certainly meet (35a), in that they are used when movement is barred by island effects, as discussed in the previous section:
a. * an fear a phóg mé an bhean a phós [__] [__] the man $a^{\mathrm{L}}$ kissed I the woman $a^{\mathrm{L}}$ married 'the man who I kissed the woman who married' (McCloskey, 1979:30)
b. an fear ar phóg mé an bhean a phós sé [__] the man $a^{\mathrm{N}}$.PAST kissed I the woman $a^{\mathrm{L}}$ married he 'the man who I kissed the woman who he married'

Furthermore, Irish is unique in that it shows an overlapping distribution of resumption and extraction when the variable site is in a direct object position or a non-highest subject position:
(40) a. Sin an fear a cheap Síle a chonaic sí [__]. that the man $a^{\mathrm{L}}$ thought Síle $a^{\mathrm{L}}$ saw she 'That's the man who Síle thinks that she saw.'
b. Sin an fear ar cheap Síle go bhfaca sí é. that the man $a^{\mathrm{N}}$.PAST thought Síle go saw she him 'That's the man who Síle thinks that she saw (him).'

This indicates that Irish resumption appears to lack the "last resort" flavour, apparent in English resumptive pronouns, and that Irish satisfies the characterization stated in (35a) in a even stronger fashion.

Now let us consider the second characterization in (35). Similar to Hebrew, Irish allows quantification of a resumptive relative clause: ${ }^{15}$
(41) a. Buailfidh mé le achan gasúr a bhfaca Máire é ag an choisir. will.meet I with every boy $a^{\mathrm{N}}$ saw Máire him at the party 'I will meet every boy that Máire saw at the party.'
b. Buailfidh mé le achan gasúr a chonaic Máire [__] ag an choisir. will.meet I with every boy $a^{\mathrm{L}}$ saw Máire at the party 'I will meet every boy that Máire saw at the party.'
c. Tchífidh mé achan bhean nach bhfuil fhios agam an bpósfadh will.see I every woman $a^{\mathrm{N}}$.NEG is.DEP knowledge at.me Q marry.COND duine ar bith iad/?í
person any them/her
'I will see every woman that I don't know if anyone would marry her' DO
d. Rachaidh na Gardaí i dteagmáil le achan duine ar bhuail an will.go the Gardaí in contact with every person $a^{N}$.PAST met the t-íospartach leis aréir.
victim with.him last.night
'The Gardaí will contact every person the victim met last night.'

In (41a), a resumptive is in the direct object position, which may alternatively be expressed with a gap, as in (41b). In (41c), the resumptive pronoun is trapped in an adjunct island. In (41d), the resumptive element is found in prepositional object position. These sentences suggest that resumptive pronouns in Irish act as a variable regardless of the environment where they appear.

[^10]Also, according to Chao and Sells (1983), resumptive pronouns under the definition in (35b) may be bound by an interrogative wh-element which may be answered by a list or by a relational answer if the wh-phrase contain a quantificational element. English resumptive pronouns fail to meet this criterion:
(42) Which of the linguists do you think that if Mary marries him then everyone will be happy?

A1: Linguist A.
A2: \# Linguist A, Linguist B, Linguist C, ...
(Chao and Sells, 1983:(6b))
(43) Which $\operatorname{woman}_{i}$ does no Englishman ${ }_{k}$ even wonder whether $s h e_{i}$ will make a good wife?

A1: \# The one his ${ }_{k}$ mother likes best.
A2: Saucy Sue.
(Chao and Sells, 1983:(10a))

Unlike English, Irish allows an answer by listing as in (44) and a relational answer as in (45): ${ }^{16}$
(44) Cén duine de na hÉireannaigh ${ }_{i}$ a measann tú go mbeadh achan duine which person of the Irishmen $a^{\mathrm{N}}$ think you go be.COND every person sásta dá bpósfadh Máire $e_{i}$ ? happy if marry.COND Máire him 'Which of the Irishmen do you think everyone will be happy if Máire marries him?'

A1: Séan, Seamus, Aedan, Cathal, Ciaran ...
A2: Séan Ó Cinnéide
(45) Cén bhean $_{j}$ a mbeadh achan Éireannach ${ }_{i}$ sásta dá bpósfadh sé $_{i} i_{j}$ ? which woman $a^{\mathrm{N}}$ be.cond every Irishman happy if marry.Cond he her? 'Which woman would every Irishman be happy if he were to marry her?'

[^11]A1: An té a dhéanfadh [__] bricfeasta dó $i_{i}$ achan mhaidin. the one $a^{\mathrm{L}}$ make.COND breakfast for.him every morning 'the one that makes breakfast for $\operatorname{him}_{i}$ every morning.'

A2: Molly Ní Chuilleanáin

The data that I have presented all confirm that Irish resumptive pronouns meet the characterization given in (35), and thus we can safely conclude that Irish resumptive pronouns are "true" resumptive pronouns.

### 2.5 Headless Relative Clauses in Irish

We now turn to headless relative clauses, which are very distinct from the ordinary headed relative constructions presented in the previous sections. There are four main properties that characterize headless relative clauses; the particle mismatch, a non-DP gap, direct quantification, and the possibility of headed headless relative clauses.

### 2.5.1 Particle Mismatch

The first and probably the most noticeable property is a mismatch between the particle and the variable element. The $a^{\mathrm{N}}$ particle appears in headless relatives even though the variable site is a gap, not a resumptive pronoun. Although superficially $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ are both pronounced as $/ \partial /$, circumstantial evidence demonstrates that the particles found in headless relative clauses, as in the examples in (46), are indeed $a^{\mathrm{N}}$. First, the verb following the particle is in the dependent form if a dependent form is available in the verb's paradigm, as in (46a-c). Second, the particle takes the past-tense form when it is followed by a non-dependent past-tense form of a verb, as in (46d).
a. $\quad \operatorname{Sin}[$ a bhfuil [_] agam].
that $\mathrm{a}^{\mathrm{N}}$ be.PRES.DEP
'That's (all) I have.
(Mac Mathúna and Ó Corráin, 1997:361)
b. D'ól sé [a bhfuair sé [__] ]. drank he $a^{N}$ got.DEP he 'He drank all he got.'
(Christian Brothers, 1999:145)
c. Caithfidh mé [a bhfaighidh mé [__] uaidh ]. will.spend I $a^{N}$ will.get.DEP I from.him
'I will spend all I'll get from him.'
(Mac Congáil, 2004:181)
d. $\operatorname{Sin}[$ ar chualamar [__] ].
that $\mathrm{a}^{\mathrm{N}}$.PAST heard.1pL
'That's all we heard.'
(Christian Brothers, 1999:145)

It is ungrammatical to use the extraction particle $a^{\mathrm{L}}$ instead of $a^{\mathrm{N}}$ in a headless relative clauses. The examples in (47) below illustrate this: ${ }^{17}$
a. * Sin [a tá [__] agam]. that $a^{\text {L }}$ be.PRES at.me 'That's (all) I have.' MH
b. * D'ól sé [a f(h)uair sé [__] ]. drank he $a^{\text {L }}$ got he 'He drank all he got.'
c. * Caithfidh mé [a gheobhaidh mé [__] uaidh ]. will.spend I $a^{L}$ will.get I from.him 'I will spend all I'll get from him.'

MH

[^12](i) a. Sin a chonaic mé [__].
that $a^{\mathrm{L}}$ saw I
'That's what I saw.'
b. Sin a bhfaca mé [__].
that $a^{\mathrm{N}}$ saw.DEP I
'That's all I saw.'
(Stenson, 2008:172)

These forms seem not to be in free variation, and Stenson notes that they are in fact semantically distinct. Since I have not been able to confirm the contrast anywhere else, I set it aside.

> d. $*^{*} \operatorname{Sin}[\mathrm{a} \quad$ chualamar $[\ldots]]$. that $\mathrm{a}^{\mathrm{L}}$. PAST heard.1PL 'That's all we heard.'

Also, as illustrated by the examples in (48), it is ungrammatical to have a resumptive pronoun in the variable site of a headless relative clause: ${ }^{18}$
a. * D'ól sé [a bhfuair sé é ].
drank he $a^{N}$ got.DEP he it
'He drank all he got (it).'
b. * Caithfidh mé [a bhfaighidh mé é uaidh ]. will.spend I $a^{N}$ will.get.DEP I it from.him 'I will spend all I'll get (it) from him.'
c. * $\operatorname{Sin}[$ ar chualamar é/iad ].
that $\mathrm{a}^{\mathrm{N}}$.PAST heard.1PL it/them
'That's all we heard (it/them).'

[^13]However, it should be stressed that when extraction is available (i.e., the extraction site is direct object or a non-highest subject), resumption is completely impossible in the headless relative construction.

James McCloskey (p.c.) points out that a similar observation is made regarding comparative clauses. Comparative clauses cannot be formed by resumption when the $\mathrm{A}^{\prime}$-dependency is formed by means of extraction. However, resumption is allowed when the variable is occupies a prepositional object position:
ii. níos mó mine ná raibh gnaithe acu féin leis more grain than was business at.them REFL with.it 'more grain than they had use for'

### 2.5.2 Non-DP Gap

The second property of the headless relative construction is that its gap site does not necessarily correspond to a full nominal projection (i.e., a DP). It can correspond to a fragment of a DP, which often gives a meaning of quantity. ${ }^{19}$ For example, the gap may correspond to a portion which concerns the notion of measurement or unit:
(49) Gap Smaller than DP
a. $\quad a^{N}$ bhfuil $\quad[[\ldots] \text { d'airgead }]_{D P}$ agam
$a^{\mathrm{N}}$ be.PRES.DEP of.money at.me
'(That's) (all) of the money I have. (lit.: what of money is at me)' MH
b. Tá a n-ólfaidh páistí [[_] de bhaine] $]_{\text {DP }}$ maith acu. is $a^{\mathrm{N}}$ will.drink kids of milk good at.them 'Every (litre of) milk kids drink is good for them. (lit.: what kids will drink of milk is good for them.)'

DO

Roughly, the structure for the DPs from which the extraction takes place is shown in (50):


Notice that the corresponding English sentences are not felicitous:
(51) a. * That's what I have of money.
b. * Every litre that kids (will) drink of milk is good for them.

Similarly, a gap within a headless relative clause may be modified by an adverbial/quantificational element, such as eile 'other':

[^14](52) Gap Smaller than DP 2: Gap Modified by eile 'other'
a. i dteannta $a^{N}$ raibh [__] eile d'iasc ... air along. with $a^{N}$ be.PAST.DEP other of.fish on.it 'along with whatever other fish there were on it'
b. de bhreis ar $a^{N}$ bhfuil [__] eile ann in.addition.to $a^{N}$ be.PRES.DEP other in.it 'in addition to everything else'
(McCloskey, p.c.)

The example in (52a) is particularly interesting. There, a sub-DP gap is modified by eile 'other', suggesting that the gaps in the examples (49) and (52) are of the same kind.

### 2.5.3 Direct Quantification

The third property of headless relative clauses in Irish is that they may be directly quantified by a quantifier gach 'every'. The examples in (53) below illustrate this point:
a. gach $\mathrm{a}^{\mathrm{N}}$ gcuala mé
every $a^{\mathrm{N}}$ heard I
'everything I heard (lit.: every what I heard)' (McCloskey, p.c.)
b. gach ar ól mé
every $a^{\mathrm{N}}$.PAST drank I
'all I drank (lit.: every what I drank)'
(Mac Congáil, 2004:181)
c. gach $\mathrm{a}^{\mathrm{N}}$ bhfuil [__] de thithe ar an mbaile
every $a^{\mathrm{N}}$ PRES.DEP of houses on the town
'all that there were of houses in the town (lit.: every what there were of
houses ... )'
(McCloskey, p.c.)

The example in (53c) is particularly interesting as we observe both quantification by gach and sub-DP gapping at the same time.

Note also that in the Donegal dialects, which we rely on for the most part for this work, the word achan is commonly used for ordinary quantification instead of gach. However, when achan is used with the headless construction, the grammaticality is significantly reduced for many speakers of the dialect. That this may be due to the fact that achan is
historically derived from gach aon 'every single', which cannot directly quantify headless relative clauses, although it is not clear why gach aon is not felicitous with headed relative clauses (Ó Baoill p.c.).

### 2.5.4 Negation

Another property of headless relative clauses in Irish is that they cannot be negated. To see this, we must observe the data with extreme care. Recall from section 2.3 that Irish neutralizes the overt distinction between $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ when the clause is negated, since both particles surface as nach in non-past clauses, and as nár in past-tense clauses.
(54) a. an fear [nach dtuigeann [__] an scéal] the man $a^{\mathrm{L}}$. NEG. understand the story 'the man that doesn't understand the story
b. an fear [nach n-insíonn tú an scéal dó] the man $a^{\mathrm{N}}$.NEG tell you the story to.him 'the man that you do not tell the story to (him)'
(McCloskey, 1979:12)

This obscures the matter slightly. ${ }^{20}$ One way to control the situation is to exploit the observation presented in section 2.5.2: Only headless relative clauses can take a non-DP gap. Now consider (55): ${ }^{21}$
a. * Sin (an méid) nach bhfuil [__] d'airgead aige. that the amount C.NEG is of.money at.him 'That's (all/the amount of) money that he doesn't have.'

[^15]b. Sin an méid airgid nach bhfuil [__] aige. that the amount money.gen C.NEG is at.him 'That's the amount of money that he doesn't have'

In (55a), there is a substantive component of DP stranded within the relative CP , which marks the relative CP saliently as a headless relative clause, and it makes the sentence ill-formed. This differs from (55b), which is grammatical, since the entire DP has moved and thus it is treated just like an ordinary headed restrictive relative clause. ${ }^{22}$

### 2.5.5 Headed Headless Relative Clauses

Mac Congáil (2004:184) notes that 'if gach is followed by a noun, then, the relative clause then becomes direct. ${ }^{, 23}$ This statement means that it is obligatory to have the usual whextraction marker $a^{\mathrm{L}}$ if a head nominal is overtly expressed in a relative clause. In such cases, we are simply looking at the ordinary headed relative construction described in section 2.4, with a gap and the $a^{\mathrm{L}}$ particle.
(56) Ordinary Relative Clauses with a Gap
a. Chaill mé achan rud a bhí [__] agam. lost I every thing $a^{\text {L }}$ be.PAST at.me 'I lost everything that I had' PJ
b. achan rud a cheannaíonn Seán [__]
every thing $a^{\mathrm{L}}$ buys Seán
'everything that Seán buys' PJ

While Mac Congáil's description is true for the most part, it is nonetheless often possible to have an overt nominal head with the headless relative construction-the combination

[^16]of a gap in the variable site and the $a^{\mathrm{N}}$ particle.

## ‘Headed’ Headless Relative Clause

a. Chaill mé achan rud a raibh [__] agam. lost I every thing $a^{\mathrm{N}}$ be.PAST.DEP at.me 'I lost everything that I had'
b. achan rud a gceannaíonn Seán [__]
every thing $a^{N}$ buys Seán 'everything that Seán buys'
c. achan ceist ar cuireadh [__] air sa rang every question $a^{\mathrm{N}}$.PAST put.AUT on.him in.the class 'every question that he was asked in class'
(McCloskey, p.c.)
d. gach aonduine $\mathrm{a}^{\mathrm{N}}$ raibh [_] ag amharc air every one.person $a^{\mathrm{N}}$ be.PAST.DEP looking at.him 'every single person that was looking at him' (McCloskey, p.c.)
e. gach aon rud ar thárluigh [__] every one thing $a^{\mathrm{N}}$.PAST happened 'every single thing that happened'

This pattern has been largely ignored in the literature. However, it raises a major problem for most analyses of Irish $\mathrm{A}^{\prime}$-syntax, since most, if not all, work in theoretical syntax on Irish relativization has relied on the correlation between the preverbal particle, $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$, and the variable type.

Note also that there is a wide idiolectal variation in the acceptability of these examples. It seems that some speakers accept gach/achan + head N with the headless relative construction with virtually no restriction, while others allow this 'headed' headless relative only under some special circumstances.

It should also be noted that the meanings of the headless relatives that we have been investigating in this work are quite distinct from those of ordinary relative clauses. While an ordinary restrictive relative clause usually gives an intersection of sets, the headless relative construction seems to invoke some form of "universality". This can be seen in the various examples given so far. If this is indeed the case, then we should find the semantics
of headed headless relative clauses to be different from that of ordinary restrictive relative clauses.

## Chapter 3

## Theoretical Background

### 3.1 Introduction

This chapter provides the basis of the accounts to be proposed in Chapter 4 and Chapter 5. First, we review previous accounts of relative clauses in Irish, focussing primarily on recent proposals made in the framework of the Minimalist Program, and I provide some justifications for adopting McCloskey (2002) as the starting point of the analysis laid out in the following chapters. In the second part of the chapter, I provide a brief review of theoretical accounts of the headed relative clause construction (of English), which motivate Hulsey and Sauerland's (2006) proposal that in the minimalist model, relativization may be achieved by (at least) two analyses, and that both of them should be available in the grammar.

### 3.2 Analyses of $a^{L}$ and $a^{N}$

Generally speaking, there are two approaches to the A'-particles $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ found in the generative literature, distinguished by whether they take the $a^{\mathrm{L}} / a^{\mathrm{N}}$ dichotomy as a direct reflection of the distinction between extraction and resumption. McCloskey (1979, 1985, 1990, 2001, 2002) consistently takes a position that the $a^{\mathrm{L}} / a^{\mathrm{N}}$ dichotomy
is a surface instantiation of the extraction-vs-resumption distinction, while others, most notably Duffield (1995) and Noonan (1992, 1997, 2002), argue that the correlation is illusory.

### 3.2.1 McCloskey (1979)

McCloskey (1979), which is based on McCloskey (1977b), provides the first comprehensive generativist treatment of Irish $\mathrm{A}^{\prime}$-phenomena. ${ }^{1}$

As the theoretical account of Irish syntax in McCloskey (1979) is based on a earlier transformational framework, many theoretical assumptions employed there are untenable in the current theoretical context. For this reason, in this section we focus on the descriptive generalizations captured by McCloskey (1979).

Aside from the correlation between $\mathrm{A}^{\prime}$-strategies and the preverbal particles, there are three claims in McCloskey's (1979) analysis that I would like to highlight: First, the Irish $\mathrm{A}^{\prime}$-particles, $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$, are morphosyntactically distinct items, despite their surface homophony and the fact that they are both used in constructions that involve unbounded dependencies. There are several reasons to distinguish $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ : First, they cause different types of consonant mutation on the following word. The $a^{\mathrm{L}}$ particle causes lenition, whereas $a^{\mathrm{N}}$ causes eclipsis. Second, in some dialects, the verb which immediately follows $a^{\mathrm{L}}$ may optionally appear in what is known as a relative form, whereas verbs that follow $a^{\mathrm{N}}$ never take the relative form:

[^17](1) a. Nuair a thiocfas sé 'na bhaile. when $a^{\mathrm{L}}$ will.come.REL he home 'when he comes home' home'
b. * sul a dtiocfas sé 'na bhaile
before $a^{\mathrm{N}}$ will.come.REL he home
'before he comes home"
(McCloskey, 1979:10)
c. sul a dtiocfaidh sé 'na bhaile
before $a^{\mathrm{N}}$ will.come he home
'before he comes home'
(McCloskey, 1979:10)

Recall that the distinction between $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ generally corresponds to the distinction between extraction and resumption.

The second claim from McCloskey (1979), repeated in McCloskey (2001:71-72), concerns the reason that the word generally appears in the previous sentence. While A'extraction seems to entail the presence of $a^{\mathrm{L}}$, the presence of $a^{\mathrm{L}}$ does not entail $\mathrm{A}^{\prime}$ extraction. McCloskey provides examples like the following:
(2) Is amhlaidh a bhí neart céad fear ann. COP thus $\quad a^{\mathrm{L}}$ was strength hundread men in.him 'It was a fact that he had the strength of a hundred men.'
(McCloskey, 1979:13)

The adjective amhlaidh which means 'so' or 'thus' appears as the predicate of a copular sentence, and in such cases, it means 'it is the case that ...' Crucially, in this construction, $a^{\mathrm{L}}$ is required despite the fact that there is no obvious sign of $\mathrm{A}^{\prime}$-extraction observed in the clause headed by the particle. This point is clear from the equivalent English translation. Therefore, unless there is clear evidence to suggest that there is some sort of A'-operation in the sentences like (2), we cannot say that $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ appears only when there is an $\mathrm{A}^{\prime}$-dependency. What we can say, McCloskey argues, is a unidirectional implication that if $\mathrm{A}^{\prime}$-extraction has taken place, then there must be $a^{\mathrm{L}}(\mathrm{s})$ in all complementizers between the head and the tail of the $\mathrm{A}^{\prime}$-chain created by such extraction.

The third point that McCloskey makes that I would like to point out here is that the particles $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ do not themselves undergo $\mathrm{A}^{\prime}$-movement. Instead, McCloskey argues that these particles are of the category COMP(lementizer). ${ }^{2}$ There are several reasons for this: First, they are in complementary distribution with other preverbal particles, notably with the particle go which, like English that, indicates complementation of a finite clause. Another reason for the COMP analysis is that these relativizing particles appear at each clause-initial position between the head and the tail of the $\mathrm{A}^{\prime}$-chain.
an fear a deir siad a shílean an t -athair a phósfaidh Síle [__] the man $a^{\mathrm{L}}$ say they $a^{\mathrm{L}}$ thinks the father $a^{\mathrm{L}}$ will.marry Síle 'the man that they say the father thinks Síle will marry' (McCloskey, 1979:17)

One could try to maintain the $\mathrm{A}^{\prime}$-movement analysis of $a^{\mathrm{L}}$ by claiming that the lower instances of $a^{\mathrm{L}}$ are overt copies of the highest $a^{\mathrm{L}}$. McCloskey refutes this possibility with the following grammatical example:
(4) an doras a deir siad a mheasann sibh a bhfuil an eochair ann the door $a^{\mathrm{L}}$ say they $a^{\mathrm{L}}$ think you.pL $a^{\mathrm{N}}$ is the key in.it 'the door that they say you think the key is in'
(McCloskey, 1979:19)

Since the variable site is occupied by a resumptive element ann 'in.it', the lowest $\mathrm{A}^{\prime}$-chain in (4) is not formed by movement, which is reflected by the presence of the $a^{\mathrm{N}}$ particle in the lowest $\mathrm{C}^{0}$ position. Nonetheless the higher clauses are introduced by the $a^{\mathrm{L}}$ particle, suggesting that the particle cannot be generated in the variable site, unlike ordinary wh-items. The assumption that both $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ are of the category C remains controversial, as we will see later in this chapter, but it seems clear that the particle is some kind of head, or at least some non-argumental functional element adjoined to a head.

[^18]
### 3.2.2 McCloskey (1990)

McCloskey (1990) revisits A'-operations in Irish, with much emphasis on the nature of resumption in the framework of Government and Binding theory. The main claims that McCloskey makes are that resumptive pronouns require syntactic binding, i.e., direct $\mathrm{A}^{\prime}$ binding, and thus the basic mechanisms (and the distribution) of resumption are largely analogous to those of $\mathrm{A}^{\prime}$-extraction. Yet, resumptive pronouns are ordinary pronominals, and thus they share the characteristics of pronominals. As a result, in resumptive $\mathrm{A}^{\prime}$ constructions there is a tension between these two factors.

The highlights of McCloskey's (1990) analysis relevant to the issues discussed in this thesis can be summarized as follows (with the order not reflecting the actual presentation order in McCloskey (1990)): First, contrary to a then-common claim that a pronoun cannot be directly $\mathrm{A}^{\prime}$-bound, a resumptive pronoun in Irish is $\mathrm{A}^{\prime}$-bound by its antecedent, and thus a syntactic account of binding (as opposed to some interpretive mechanism in semantics) is required to form a grammatical structure with resumption. McCloskey presents the data with epithets discussed in section 2.4.2 as evidence for this. Crucially, when a resumptive pronoun is not c-commanded by an epithet, thus creating a weak crossover, the structure is grammatical.
(5) Sin an fear ${ }_{i}$ ar dúirt mé le tuismitheoirí [an bhastaird] ${ }_{i}$ that the man $a^{\mathrm{N}}$.PAST said I with parents the bastard.GEN
gur cheart $\dot{e ́}_{i}$ a chaitheamh isteach i bpríosún. go.COP.PAST right him throw into in prison
'That is the man that I said to the bastard's parents that he should be thrown into prison.' (McCloskey, 1990:(35))

This is because the resumptive pronoun is not directly bound by the epithet, as they are not in a c-command relation. The resumptive element is thus directly $\mathrm{A}^{\prime}$-bound by its antecedent. That resumptive pronouns (in Irish, at least) must be directly A'-bound suggests that they function as variables, just like gaps created by A'-extraction.

Secondly, resumptive pronouns are governed by the requirements applicable to ordi-
nary pronominals. Thus, resumptive pronouns are sensitive to the Condition B effect in the domain of $\mathrm{A}^{\prime}$-binding as well, which, McCloskey argues, gives rise to the Highest Subject Restriction (HSR). ${ }^{3}$
(6) a. * an fear a [TP raibh sé breoite ] the man $a^{\mathrm{N}} \quad$ was.DEP he ill 'the man that (he) was ill'
(McCloskey, 1990:(29a))
b. an fear ar [TP shíl mé go [TP raibh sé breoite ] ]
the man $a^{\mathrm{N}}$.PAST said I go was he sick 'the man that I thought (he) was ill'
(McCloskey, 1990:(55))

The condition B of $\mathrm{A}^{\prime}$-binding can be schematically stated as follows: A pronoun must not be $\mathrm{A}^{\prime}$-bound in the smallest complete functional complex (essentially, a TP) which contains the pronoun and a subject distinct from the pronoun (McCloskey, 1990:215). The simple cases of HSR, as in (6a), are now characterized as violations of the condition: Since the resumptive pronoun is itself a subject, the relative clause does not constitute the smallest TP, and thus the pronoun is bound within its binding domain. This contrasts with the fact that resumptive pronouns in lower subject positions do not cause ungrammaticality, as shown in (6b). This is because the binding domain of the resumptive pronoun is the TP above the TP that contains the resumptive pronoun, and the $\mathrm{A}^{\prime}$-binder is located outside of that domain.

Finally, McCloskey argues that the binder of a resumptive pronoun is a null operator, and not the head nominal, providing the example in (7) as evidence:

* an fear ar [TP shíl mé a [TP raibh sé breoite] ]

the man $a^{\mathrm{N} . \text { PAST }} \quad$| said I $a^{\mathrm{N}}$ was he sick |
| :--- |
| 'the man that I thought (he) was ill' | (McCloskey, 1990:(54))

At a glance, the examples in (7) and (6b) differ very marginally, in that (7) has the $a^{\mathrm{N}}$ particle in the lower $\mathrm{C}^{0}$ position. The choice of $a^{N}$ in this position renders the phrase

[^19]ungrammatical, which should be explained as violation of an A'-binding condition just as (6a) was dealt with above. Here, McCloskey suggests, we see the evidence that an operator binds the resumptive pronoun. In (7) the nominal head is outside the binding domain of the resumptive pronoun. If it is the binder, (7) should be grammatical. Instead, it is necessary to posit a phonologically null operator residing in the Spec position of the lower CP , which illicitly binds the pronoun:
(8) $\operatorname{Det} \mathrm{N}[\mathrm{CP1}$ Op $\operatorname{T\mathrm {TP}1} \operatorname{Subj} \ldots[\mathrm{CP2} O p[\operatorname{TP2}$ sé ...] $]]]$

Now a parallelism is observed. In case of wh-extraction with $a^{\mathrm{L}}$, an operator is basegenerated in the variable position, and then moves to the highest Spec-CP position successive-cyclically via lower Spec-CP positions. On the other hand, resumption is done by direct insertion of an operator at the Spec-CP position.

Finally, McCloskey argues that the morphological realization of the $\mathrm{A}^{\prime}$-particles is a reflex of Spec-Head agreement. This means that there are two distinct operators; one triggering agreement with $a^{\mathrm{L}}$ and the other with $a^{\mathrm{N}}$ :


McCloskey suggests that the formal features that undergo agreement with the $\mathrm{A}^{\prime}$ particles $\left(F_{1}\right.$ and $F_{2}$ in (9)) are $[ \pm \mathrm{PRO}$ (NOMINAL) $]$ and $[ \pm \mathrm{ANA}(\mathrm{PHOR})]$, the two nominal features that form the basis of the binding theory, and that these features are "shared" with the item in the variable site. Thus, the resumption operator has $[+\mathrm{PRO},-\mathrm{ANA}]$ and the extraction operator [ $-\mathrm{PRO},-\mathrm{ANA}$ ]. Maki and Ó Baoill (2011a:ch. 2) lend support to this analysis. Consider the following set of data:
a. * an talamh ar dhúirt tú gur mheas tú a raibh an ceol the land $a^{\mathrm{N}}$.PAST said you go.PAST thought you $a^{\mathrm{N}}$ was the music ag teacht as coming out.of.it 'the land that you said you thought the music was coming from'
(McCloskey, 1990:(63))
b. an talamh ar dhúirt tú ar mheas tú a raibh an ceol the land $a^{\mathrm{N}}$.PAST said you $a^{\mathrm{N}}$.PAST thought you $a^{\mathrm{N}}$ was the music ag teacht as
coming out.of.it
'the land that you said you thought the music was coming from'
(McCloskey, 1990:(64))
an carr a raibh súil agam go mbeadh súil acusan a the car $a^{N}$ was hope at.me go be.COND hope at.them.EMPH $a^{\text {L }}$ cheannófá
buy.COND.2SG
'the car I hoped they would hope you would buy'
(Maki and Ó Baoill, 2011a:29)

The examples in (10) show that the operator that binds resumptive pronouns obeys some form of the "Minimality" condition; that is, if a speaker chooses to use $a^{{ }^{N}}$ in lower $\mathrm{C}^{0} \mathrm{~S}$ in a long $\mathrm{A}^{\prime}$-dependency, then they must be bound by an element in the closest Spec-CP. The example in (11), which is minimally structurally different from (10), shows that the extraction particle $a^{\mathrm{L}}$ contrasts with $a^{\mathrm{N}}$ in this regard. The phrase is acceptable, and thus an extraction operator need not be bound by an element in the closest Spec-CP position.

Nonetheless, this analysis is problematic, as pointed out by McCloskey himself (2002:§4). Most crucially, the analysis wrongly rules out "mixed" chains with super-long unbounded dependencies across multiple CP-layers: ${ }^{4}$

[^20]aon duine ${ }_{i}\left[\right.$ [CP1 a cheap sé [CP2 a raibh ruainne tobac aige $_{i}$ ]] any person $a^{\mathrm{L}}$ thought he $a^{\mathrm{N}}$ was scrap tobacco at.him 'anyone that he thought he had a scrap of tobacco' (McCloskey, 2002:(34))

In example (12), CP1 is headed by the $a^{L}$ particle, while CP2 is headed by $a^{N}$. If there are indeed two distinct operators, and if they share their formal features with the variable item, then the pattern exhibited in (12) is unexpected. The lower chain in CP 2 is construed with [ $+\mathrm{PRO},-\mathrm{ANA}$ ], which cannot explain the emergence of the $a^{\mathrm{L}}$ feature in the CP1. Also, the observation by Maki and Ó Baoill (2011a) discussed above suggests that characterization of operators in terms of the two nominal features is on the wrong track for a similar reason. If the operator that binds a resumptive pronoun has [ $+\mathrm{Pro},-\mathrm{ANA}]$, then it should also behaves like a pronominal. In particular, it should be able to be directly bound by an operator from a non-closest position, just as resumptive pronouns may be. The data thus show that even though there may be two operators in Irish, McCloskey's characterization in terms of the nominal features is highly problematic.

### 3.2.3 McCloskey (2002): A New Analysis of Irish A'-dependencies

New developments in the Minimalist Program (Chomsky, 1995) provided a new way to approach the Irish facts. We will go over McCloskey's (2002) analysis closely, as the analysis of headless relative clauses advanced in this thesis takes that account as a starting point.

The analysis proposed by McCloskey (2002) is driven by the simple and most fundamental observation that underlies the line of McCloskey's research: A gap appears with $a^{\mathrm{L}}$, whereas a pronoun appears with $a^{\mathrm{N}}$. A (slightly) theoretical translation of this statement is that the gap particle $a^{\mathrm{L}}$ agrees with an operator in its domain and moves the operator to Spec-CP position, whereas the resumption particle $a^{\mathrm{N}}$ requires an operator to be base-merged at its specifier position. The complementation particle $g o$ is completely inert, lacking any $\mathrm{A}^{\prime}$-properties:


McCloskey (2002) implements this by employing two grammatical features related to $\mathrm{A}^{\prime}$ movement; $[\mathrm{EPP}]$ and $[\mathrm{Op}($ erator $)]$. The $[\mathrm{EPP}]$ feature requires a grammatical element to occupy its specifier position, and the $[\mathrm{Op}$ (erator)] feature agrees with an operator in its probe domain. The gap particle $a^{\mathrm{L}}$ bears both features, making the particle agree with the operator and then move it to its specifier position. The resumption particle $a^{\mathrm{N}}$ has only the [EPP] feature. Thus it does not agree with anything, but simply requires something to fill its specifier position. Under this view, the A'-dependency between the resumptive pronoun and the binding operator is entirely semantic. Finally, the complementation particle $g o$ has neither feature, thus it never triggers any $A^{\prime}$-relation by itself.
a. $\left\langle a^{\mathrm{L}} \leftrightarrow[\mathrm{EPP}],[\mathrm{Op}]\right\rangle$
b. $\left\langle a^{\mathrm{N}} \leftrightarrow[\mathrm{EPP}]\right\rangle$
c. $\langle g o \leftrightarrow \emptyset\rangle$

It should be borne in mind that the the characterization of the $\mathrm{A}^{\prime}$-particles in Irish in terms of the operations that apply to a syntactic element was impossible in the Government and Binding theory (GB). This is precisely because GB assumes the unconstrained generalized operation Move- $\alpha$, along with various filters that rule out ungrammatical structures. In such a theory, it is hardly feasible to make an analysis in terms of how an item comes to be in a given position. This was the main reason for the limitation of McCloskey's previous analysis. The Minimalist Program, on the other hand, takes the operation of Agree(ment) to be one of the core properties of the grammar. Together with the assumption of $[E P P]$, we can characterize the Irish $A^{\prime}$-facts in a more natural manner.

McCloskey's (2002) analysis is also empirically motivated by long-distance dependencies across multiple CP layers. McCloskey (2002) investigates what may appear in the intermediate $\mathrm{C}^{0}$ positions when an $\mathrm{A}^{\prime}$-dependency is constructed across multiple CPs. He finds five possible patterns, which are listed below in (15) and in (16): ${ }^{5}$
a. $\left[\mathrm{a}^{\mathrm{L}} \ldots\left[\mathrm{a}^{\mathrm{L}} \ldots g a p \ldots\right]\right]$
an t-ainm a hinnseadh dúinn a bhí [__] ar an áit the name $a^{\mathrm{L}}$ was.told to.us $a^{\mathrm{L}}$ was on the place 'the name that we were told was on the place' (McCloskey, 2002:(5a))
b. [a ${ }^{\mathrm{N}} \ldots$. [go ... pronoun ...] $]$
fir ar shíl Aturnae an Stáit go rabh siad díleas do'n Rí men $a^{\mathrm{N}}$.PAST thought Attorney the State $g o$ were they loyal to.the king 'men that the Attorney General thought were loyal to the King'
(McCloskey, 2002:(16))
a. $\left[\mathrm{a}^{\mathrm{L}} \ldots\left[\mathrm{a}^{\mathrm{N}} \ldots\right.\right.$ pronoun ...] $]$
aon duine a cheap sé a raibh ruaine tobac aige
any person $a^{\mathrm{L}}$ thought he $a^{\mathrm{N}}$ was scrap tobacco $\overline{\text { at.him }}$
'anyone that he thought had a scrap of tobacco' (McCloskey, 2002:(34))
b. $\left[\mathrm{a}^{\mathrm{N}} \ldots\left[\mathrm{a}^{\mathrm{L}} \ldots\right.\right.$ gap $\left.\left.\ldots\right]\right]$
rud a raibh coinne aige a choimhlíonfadh [__] an aimsir thing $a^{\mathrm{N}}$ was expectation at.him $a^{\mathrm{L}}$ fulfill.cond the time 'something that he expected time would confirm' (McCloskey, 2002:(28))
c. $\left[\mathrm{a}^{\mathrm{N}} \ldots\left[\mathrm{a}^{\mathrm{N}} \ldots\right.\right.$ pronoun ...] $]$
an bhean a raibh mé ag súil a bhfaighinn uaithi é the woman $a^{\mathrm{N}}$ was I hope.PROG $a^{\mathrm{N}}$ get.COND.s1 from.her it 'the woman that I was hoping that I would get it from (her)'
(McCloskey, 2002:(41))
These patterns do not appear with equal frequency. Among these grammatical A'-chains, the two patterns in (15) are much more common than the ones in (16). The pattern in

[^21](15a) is considered as a very salient instance of successive cyclicity. Thus, the $a^{\mathrm{L}}$ particle in the intermediate position first moves the operator to its specifier position from the variable position, and then the operator in the intermediate Spec-CP is moved to the upper Spec-CP position, triggered by the grammatical features of the upper $a^{\mathrm{L}}$. This is illustrated in (17a). The pattern in (15b) is the most common pattern of resumption in Irish. Here the resumptive pronoun and the operator binding it are base-generated in their surface positions, and their relation is established semantically. The appearance of go is expected since, according to McCloskey (2002), the $\mathrm{A}^{\prime}$-dependency in a resumptive structure is not established by means of syntax, and thus cyclicity should not necessarily be observed. ${ }^{6}$ This is illustrated in (17b).

b. $\quad \mathrm{CP}$


McCloskey's analysis is also able to account for the less common cases, listed in (16). First, in (16a), the operator which binds the resumptive pronoun is base-generated at the intermediate Spec-CP due to the [EPP] feature of the intermediate $a^{\mathrm{N}}$, and then it is forced to move to the top Spec-CP by the $a^{\mathrm{L}}$ particle in the top $\mathrm{C}^{0}$. The pattern is schematized in (18). In the illustrations below, a solid line with an arrow-head indicates

[^22]movement, whereas a dotted line indicates an operator-variable binding relationship.
\[

\left.\left.\left[$$
\begin{array}{llllll}
\mathrm{CP} & O p_{i} & a^{\mathrm{L}}[\mathrm{TP} \ldots & \ldots & {[\mathrm{CP}} & t_{i} \tag{18}
\end{array}
$$ a^{\mathrm{N}}[\mathrm{TP} ··· pronoun ···]\right]\right]\right]
\]

The patterns in $(16 \mathrm{~b}-\mathrm{c})$ require one additional assumption-that the operator is in fact pronominal. Thus, an operator can serve a double duty; on the one hand, it is a binder in an A'-dependency, and on the other hand, it may act like a pronoun, a bindee in a resumptive structure. In case of (16b), an operator is base-generated in the variable position, and it is then moved to the specifier position of the lower CP headed by $a^{L} .{ }^{7}$ Since the top $\mathrm{C}^{0}$ is $a^{\mathrm{N}}$, it does not force movement of an element available in the structure; rather, it requires another operator to base-merge in its specifier position. The upper operator thus acts only as a binder. The intermediate operator exhibits the dual function; it acts as a binder of the variable site, and at the same time it is the bindee of the upper operator.

$$
\left[\mathrm{CP} \mathrm{XP}_{i} a^{\mathrm{N}}\left[\mathrm{TP} \ldots\left[\mathrm{DP}(\mathrm{D})\left[\mathrm{NP}\left[\begin{array}{llllll}
\mathrm{CP} & \operatorname{prO}_{i} & a^{\mathrm{L}}\left[\mathrm{TP} \ldots t_{i}\right. & \ldots & ] \tag{19}
\end{array}\right]\right]\right]\right]\right]
$$

(McCloskey, 2002:(32))

The pattern in (16c) is similar, except that the intermediate $\mathrm{C}^{0}$ position is now occupied by $a^{\mathrm{N}}$, and thus the operator in the intermediate Spec-CP position is base-generated. In fact, under McCloskey's analysis, this structure undergoes no syntactic A'-movement. The intermediate operator mediates two $\mathrm{A}^{\prime}$-chains, acting as the binder of the resumptive pronoun, and as the bindee of the top operator.

[^23]\[

$$
\begin{equation*}
\left[\operatorname{cp} \operatorname{pro}(O p)_{i} a^{\mathrm{N}}\left[\text { Tр } \ldots\left[\mathrm{cp} \operatorname{pro}(O p)_{i} a^{\mathrm{N}}\left[\text { Tp } \ldots \text { pro }_{i} \ldots\right]\right]\right]\right] \tag{20}
\end{equation*}
$$

\]

$\qquad$

Note that this approach to the Irish relative clause is not perfect. For example, Maki and Ó Baoill (2005) find a sixth pattern, which does not appear in McCloskey (2002):
(21) $\quad\left[a^{\mathrm{L}} \ldots[\right.$ go $\ldots$ pronoun $\left.\ldots]\right]$
an carr a chreideann tú gur cheannaigh Seán é the car $a^{\text {L }}$ believe you that bought Seán it 'the car you believe that John bought'
(Maki and Ó Baoill, 2005:(8))

This pattern should not be be available according to McCloskey's analysis, since the particle $a^{\mathrm{L}}$ requires movement of an operator, but no gap site is found. It is not possible to allow go to have an operator in its specifier position, since such an analysis would falsely predict that go can introduce a resumptive structure. Furthermore, Maki and Ó Baoill (2005: fn. 2) mention that the pattern in (16b), which is illustrated in (19), is allowed only in certain cases, such as a complex NP with a psych-predicate nominal, where the intermediate CP is a direct complement of a psych-noun. Such a restriction cannot be accounted for in the current analysis. Nonetheless, we will take McCloskey's approach as the starting point since it is, to my knowledge, the best available, representing the state of the art. In the following section, we will discuss "headless" relative clauses in Irish, paying particular attention to how different they are from ordinary (restrictive) relative clauses.

### 3.2.4 Duffield (1995)

Duffield (1995) offers an elaborate analysis of Irish syntax. His analysis has been critically reviewed at great length elsewhere, in particular by Carnie (1998) and McCloskey (2001). In this section, I thus highlight only a few particularly relevant points of Duffield's work.

The core (and highly controversial) claim that Duffield makes is that contrary to traditional views, the initial consonant mutations (ICM) of Irish, such as lenition and
eclipsis, may be indicative of syntactic properties. Duffield (1995) differentiates ICM into two types; $\mathrm{L}($ exical $)$-mutation and F (unctional)-mutation. L-mutation is triggered by a lexical item, whereas F-mutation is syntactically conditioned, as stated by his Mutation Hypothesis:

## (22) Mutation Hypothesis

Mutation is triggered by lexicalized functional heads.
(Duffield, 1995:127)

Of immediate importance to us is that Duffield claims that a lexicalized C-head triggers eclipsis and that a lexicalized T-head triggers lenition. Thus, the hypothesis has a direct impact on the relativizing particles $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$. Under Duffield's hypothesis, $a^{\mathrm{L}}$ is generated in $\mathrm{T}^{0}$ and $a^{\mathrm{N}}$ in $\mathrm{C}^{0}$.

While Duffield's treatment of $a^{N}$ as a $\mathrm{C}^{0}$ element is consistent with McCloskey's view, his treatment of $a^{\mathrm{L}}$ differs considerably. Duffield claims that $a^{\mathrm{L}}$ is adjoined to $\mathrm{T}^{0}$, and thus relativization with the $a^{\mathrm{L}}$ particle creates a dependency between Spec-TP and the base position. ${ }^{8}$ Drawing a parallel with German facts, Duffield claims that in Irish, the Spec-TP position is a topic position while the Spec-CP position hosts wh-movement. To support this claim, Duffield points out that Irish uses the particle $a^{\text {L }}$ for topicalization:

[^24]An sagart a thug an leabhar dom
the priest $a^{\mathrm{L}}$ gave the book to.me
'The priest gave the book to me. (or the priest who gave the book to me)'
(Duffield, 1995:196)

This analysis appears highly problematic. Both Carnie (1998) and McCloskey (2001), in particular, point out that $a^{\mathrm{L}}$ appears in a variety of $\mathrm{A}^{\prime}$-constructions, and its use is not restricted to topicalization. This is illustrated in (24):
(24) A: Nár cheannaigh tú ríomhaire glúine?

NEG.Q bought you computer knee
'Didn't you buy a laptop?'
B: Níor cheannaigh. Fón póca a cheannaigh mé.
NEG.PAST bought phone pocket $a^{\text {L }}$ bought I
'No, I didn't. I bought a mobile phone.'

In (24), speaker B replies to speaker A using a sentence containing $a^{\mathrm{L}}$. This sentence signals a contrastive focus, and the preposed element is not necessarily previously mentioned in the discourse. One may assume that the phrase that follows $a^{L}$ is presupposed in the context.

Duffield's analysis appears tenuous on other grounds: Carnie (1998) notes that $a^{\mathrm{N}}$, which is considered to be in $\mathrm{C}^{0}$ and thus has nothing to do with topicalization, may in fact be used for topicalization. This is shown in (25): ${ }^{9}$
${ }^{9}$ Note, however, that it appears that a contrastive topic cannot be introduced by $a^{\mathrm{L}} / a^{\mathrm{N}}$, as the example below illustrates:
i. A: An gcasfaidh tú le Máire agus Ciarán an tseachtain seo chugainn?

Q will.meet you with Máire and Ciarán next week
'Will you meet Máire and Ciarán next week?'
B: Ní chasfaidh mé le Máire. Ach...
NEG will.meet I with Máire. But
'I won't meet Máire. But . . .'

B1: casfaidh mé le Ciarán ag an chruinniú Déardaoin.
will.meet I with Ciarán at the meeting Thursday
'I will meet Ciarán at the meeting on Thursday.'
(25) Fear a bhí thíos in Anagaire a raibh triúr mac aige. man $a^{\mathrm{L}}$ was down in Annagry $a^{\mathrm{N}}$ was three sons at.him
'There was this man in Annagry who had three sons.' (McCloskey, 2001:(63))

The example given in (25) is a reduced cleft where the copular particle is is omitted from the beginning of the sentence, and McCloskey (2002:91) says that with an indefinite item preposed, it is often used to "introduce a discourse-new topic." Two clauses headed by a $\mathrm{A}^{\prime}$-particle are stacked together in (25), and crucially, the second clause is introduced by $a^{\mathrm{N}}$, which is unexpected under Duffield's analysis.

Finally, the analysis that Duffield proposes fails to account for the most fundamental distinction between $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ :
a. an scríbhneoir a mholann na mic léinn [__] gap the writer $\quad a^{L}$ praise the.PL students 'the writer whom the students praise'
b. an scríbhneoir a molann na mic léinn [é]
the writer $\quad \mathbf{a}^{\mathrm{N}}$ praise the.pl students him 'the writer whom the students praise'

While Duffield (1995:§3.2.1) correctly points out that presence of $a^{N}$ does not entail presence of an overt pronoun in the variable site, and that $a^{\mathrm{N}}$ may quite arguably be associated with a gap in some cases, such an observation does not detract in any way from the validity of the contrast illustrated in (26). The fundamental fact is straightforward: The presence of a gap corresponds with presence of $a^{\mathrm{L}}$, and a resumptive pronoun with

B2: \# Ciarán a gcasfaidh mé leis ag an chruinniú Déardaoin. Ciarán $a^{\mathrm{N}}$ will.meet I with.him at the meeting Thursday '(As for) Ciarán, I will meet (him) at the meeting on Thursday.'

B3: Ciarán, casfaidh mé leis ag an chruinniú Déardaoin. Ciarán will.meet I with.him at the meeting Thursday '(As for) Ciarán, I will meet (him) at the meeting on Thursday.'

DO

It is unclear what counts as a topic in Irish, and it appears descriptive work on this regard is lacking. I set this issue aside for future study.
$a^{\mathrm{N}}$. Thus, we set aside Duffield's analysis of the $a^{\mathrm{L}} / a^{\mathrm{N}}$ contrast.

### 3.2.5 Noonan (1997)

Noonan's (1997) point of departure is the Minimalist assumption that movement is triggered by feature-checking, and that formal (uninterpretable) features are resourcesensitive, in that they can undergo checking only once in a derivation. Thus, she argues that successive-cyclic wh-movement poses a problem to the theory. Wh-movement is driven by the need to check a wh-feature in a wh-item at some relevant Spec-CP position. On the other hand, it has been established empirically that if there are Spec-CP positions between the checking site and the wh-item, the wh-item has to move through those intermediate sites, though they are not relevant to actual checking of the wh-feature.

She also points out that the $a^{\mathrm{L}} / a^{\mathrm{N}}$ dichotomy cannot be straightforwardly derived from the extraction/resumption distinction: With an A'-relation of adverbial of place, time, or reason, $a^{\mathrm{N}}$ is used, even though there is no phonetically overt element in the base/variable position, as exemplified in (27):
(27) Cá háit ar chaill sí an fáinne?
where place $a^{\mathrm{N}}$.PAST lost she the ring
'Where did she lost the ring?'
Mac Congáil (2004:182)
McCloskey, in particular in his 2002 analysis, assumes that there is a null pronominal element in the base position, bound by the operator hosted by the particle. However, citing Ó Siadhail (1989:316), Noonan (1997) notes that when the $a^{\mathrm{N}}$ particle establishes an $A^{\prime}$-dependency of an adverbial element across another CP layer, the lower preverbal particle is also realized as $a^{\mathrm{N}}$ :
(28) Seo an áit as a gceaptar a dtáinig bunadh an Uachtaráin this the place out.of.3SG $a^{\mathrm{N}}$ think.AUT $a^{\mathrm{N}}$ came ancestor the president Reagan.
Reagan
'This is the place they think President Reagan's ancestors came from.'
(Ó Siadhail, 1989:316)

McCloskey's analysis predicts that the lower particle should surface as go, just as in the canonical resumptive construction. ${ }^{10}$ The multiple appearance of the $a^{\mathrm{N}}$ particle resembles the behaviour of $a^{\mathrm{L}}$, which Noonan (1997) takes as empirical evidence of successive cyclic A'-movement.

Based on these observations, Noonan (1997) argues that successive cyclicity-particularly movement to intermediate landing sites - is driven by focus, and she argues that in Irish $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ both head a functional projection F (ocus) P , which is between T and C :


She further claims that these particles are underlyingly the same morpheme, $a$, and assuming Duffield's (1995) Mutation Hypothesis, the mutation pattern reflects the place where this focus particle is realized in the surface structure. The particle can be realized in two ways: by head-movement of the particle to $\mathrm{C}^{0}$ as in (30a), which causes eclipsis

[^25]i. * Seo an áit as a gceaptar go dtáinig bunadh an Uachtaráin Reagan. this the place out.of.3SG $a^{\mathrm{N}}$ think.AUT go came ancestor the president Reagan 'This is the place they think President Reagan's ancestors came from.'

The sentence becomes grammatical if the fronted prepositional pronoun as 'out.of.3sG' is placed in the base position:
ii. Seo an áit a gceaptar go dtáinig bunadh an Uachtaráin Reagan as. this the place $a^{N}$ think.AUT go came ancestor the president Reagan out.of.3SG 'This is the place they think President Reagan's ancestors came from.'
on the following verb, and by phrasal movement of the entire FP to Spec-CP as in (30b) with the particle leniting in situ in $\mathrm{F}^{0}$ :
(30)


Cyclic wh-movement is thus treated as focus-driven movement, indicated by dotted lines in the trees in (30).

The problem with Noonan's (1997) analysis, McCloskey (2001) points out, is that the particles $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$, which are underlyingly identical, are for Noonan closely tied to focus. Again, as we discussed in the earlier section, these $\mathrm{A}^{\prime}$-particles are quite versatile in terms of their function. They may be used for topic, focus, relativization, and whquestion. If we were to construe the Irish $\mathrm{A}^{\prime}$-dependencies in terms only of focus, the wide distribution of the particles would be unexpected.

### 3.2.6 Noonan (2002)

Noonan (2002) updates her earlier (1992) analysis that $a^{L}$ signals agreement, and incorporates the notion of remnant movement.

She observes that the object may appear to the left of the verb in a non-finite clause in Irish despite the fact that the language shows fairly rigid VSO order, and when this "argument shift" takes place, an "agreement" particle $a^{\mathrm{L}}$ appears left-adjacent to the verb. ${ }^{11}$

[^26](31) Ba mhaith liom [ Seán an caora a mheá ar an bhfeirm ]
I.would.like Seán the sheep weigh on the farm
'I would lie Seán to weigh the sheep on the farm'
(Noonan, 2002:(3a))

Noonan (2002) claims that the homophony of the non-finite agreement particle $a^{\mathrm{L}}$ and the wh-extraction $a^{\mathrm{L}}$ is not accidental; in fact, they are the same agreement marker, which marks overt argument shift, thus "treat[ing] $a^{\mathrm{L}}$ as the Irish equivalent of French participle agreement" (p. 74). Thus, Noonan claims here that the correct generalization is that argument-shift of a subject or an object causes $a^{\mathrm{L}}$, and otherwise $a^{\mathrm{N}}$ appears.

For the so-called "long-distance" $\mathrm{A}^{\prime}$-dependencies with multiple occurrences of $a^{\mathrm{L}}$, Noonan (2002) argues that only the lowest $a^{\mathrm{L}}$ signals argument shift of the wh-item. The higher instances of $a^{\mathrm{L}}$ signal Case-related argument shift of CPs containing the wh-item, obscured by subsequent remnant movement which reestablishes the VSO order:
(32) Céard a chreideann Seán a dhéanfá pro [__]
what $a^{\mathrm{L}}$ believes Seán $a^{\mathrm{L}}$ would.say. 2 SG
'What does Seán believes that you would say?'
[ déanfá pro céard ] wh-preposing $\rightarrow$
[ céard $a^{\mathrm{L}}$ déanfá pro $t_{\mathrm{wh}}$ ] $\quad$ Merge/Move of higher elements $\rightarrow$
[ creideann Seán [cP céard $a^{L}$ déanfá pro $\left.\left.t_{w h}\right]\right] \quad$ CP-preposing $\rightarrow$ [ [cP céard $a^{\mathrm{L}}$ déanfá pro $t_{\mathrm{wh}}$ ] [TP $a^{\mathrm{L}}$ creideann Seán $t_{\mathrm{CP}}$ ] ] Remnant movem't $\rightarrow$ [ [TP $a^{\mathrm{L}}$ creideann Seán $t_{\mathrm{CP}}$ ] [cP céard $a^{\mathrm{L}}$ déanfá pro $t_{\mathrm{wh}}$ ] $t_{\mathrm{TP}}$ ] Wh-movement $\rightarrow$ [ céard [TP $a^{\mathrm{L}}$ creideann Seán $\left.t_{\mathrm{CP}}\right]\left[\mathrm{CP} t_{\mathrm{wh}} a^{\mathrm{L}}\right.$ déanfá pro $\left.\left.t_{\mathrm{wh}}\right] t_{\mathrm{TP}}\right]$
(based on Noonan, 2002:(14))
Noonan (2002) assumes that remnant movement takes place to restore the canonical

In the Southern varieties, the agreement marker is present whenever an argument of the verb appears overtly. When both the subject and the object are expressed overtly the subject appears to the left of the $a^{\mathrm{L}}+$ verb complex, and the object appears to the right of the verb, with genitive case. For details and analyses of the structure of the non-finite clause in Irish, see Noonan (1994) and Bobaljik and Carnie (1996).
word order of the language, due to the difficulty of processing non-canonical word orders.
While Noonan's (2002) approach to unifying the two independent $a^{\mathrm{L}}$ particles appears attractive, there are several shortcomings. Let us first consider the conceptual issues: The most notable feature is that the idea that remnant movement is invoked to reestablish the canonical order of the language. This analysis thus presupposes that syntax of a particular language knows the canonical word order a priori, and this knowledge is available to the computation, thus motivating movement in the narrow syntax. This point is even more problematic since, in the minimalist model, linear order is not available in narrow syntax and it is derived post-syntactically. Also, the analysis presupposes that movement may be motivated by non-grammatical factors; that is, there need not be features to trigger a movement. This seems to go against the spirit of the Minimalist Program, in which pre-Spell-Out movements must be triggered by grammatical features.

There is also no clear answer to why $a^{\mathrm{L}}$ s appear in a successive cyclic fashion only when there is a wh-item in the sentence. Noonan (2002) points out that Irish optionally allows a subject $i t$-type expletive, and extraposition from a CP is impossible when such an expletive is present:
a. Tá (sé) ráite acu go gceannóidh siad teach. is it said at.them go will.buy they house 'It was said by them that they will buy a house'
b. Cén teach a-tá (*sé) ráite acu go gceannóidh siad? which house $a^{\mathrm{L}}$-is it said at.them $g o$ will.buy they 'It was said by them that they will buy a house' (Noonan, 2002:(12))

For Noonan, this fact suggests that CP needs to be Case-licensed in order to be an extraction domain. This suggestion raises the question of why $a^{L}$ does not appear to the left of the verb in (33a) when the expletive sé is not present. Also, the analysis is silent as to which argument shift gives rise to the appearance of $a^{L}$. It has been proposed elsewhere (e.g., Noonan, 1994; Bobaljik and Carnie, 1996) that arguments (in particular, direct objects) raise in Irish, arguably for Case reasons.However, this movement does
not require the insertion of $a^{L}$. Thus, argument shift does not necessarily trigger the presence of $a^{\mathrm{L}}$, and only arguments that appear overtly to the left of a verb trigger $a^{\mathrm{L}}$. This seems to be inconsistent with the analysis of CP-shifting reviewed here: CP shifts to check its Case, but then the subsequent remnant movement brings the CP back to the clause-final position. Thus the analysis that Noonan (2002) lays out runs into a fairly complex situation: $a^{\mathrm{L}}$ is triggered by both overt movement and some covert movement, and the covert movement triggers $a^{\mathrm{L}}$ only if there is a wh-item originating from the moved element. This appears far more complicated than it needs to be.

Now we have reviewed some recent analyses of Irish $\mathrm{A}^{\prime}$-particles $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$. On the whole, it seems that there is no "perfect" analysis; each has some strengths and weaknesses. As stated earlier in this chapter, I adopt McCloskey's (2002) as the point of departure for the rest of this work. McCloskey's analysis has a wider empirical coverage, and at the same time, it is formally simple. Furthermore, it is most compatible with the current theoretical assumptions of the Principles and Parameters approach, in comparison with the analyses proposed by others.

### 3.3 Relativization: A Brief Theoretical Overview

This section provides a brief overview of the most prevalent analyses of restrictive headed relative clauses. The goal of this section is to provide sufficient information to facilitate the discussions in later chapters, and thus we will hardly do justice to all the analyses that have been proposed in the past. We focus on three representative approaches to relative clauses, which will be employed in the following discussions. Of those three, two are very similar. The reader is referred to Bianchi (2002a,b) for a comprehensive discussion of treatments of headed relative clauses in the generative paradigm.

As Bianchi (2002a,b) points out, analyses of the relative clause construction are distinguished chiefly by how they address two main questions; the connectivity problem and
the modification problem. The connectivity problem addresses the observation that the "head" nominal phrase appears to play two roles, one inside the relative CP and one outside. The modification problem concerns how the relative CP is attached to the head nominal (and thus to the rest of the higher clause).

We have already come across one approach, which I call the operator approach (often called the head-external analysis), which is assumed in McCloskey (2002). Chomsky (1977) is among the earliest examples of an approach along this line. This analysis, as its name suggests, assumes that there is a phonologically null entity, an operator, which moves to Spec-CP. Its primary job is to accomplish the semantic process of Predicate Abstraction (Heim and Kratzer, 1998). Very coarsely put, the process feeds a dummy argument (of type $e$ ) to a predicate at the variable site (which corresponds with either a trace or a resumptive pronoun in syntax), and then when the operator is merged into the semantic construct with the dummy argument, it abstracts over the dummy argument and makes the argument slot available once again. Let us consider the phrase (the) cake Tom ate to illustrate the point:


Tom ate $t_{\mathrm{Op}}$

$$
\left.\begin{array}{l}
\llbracket \mathrm{TP} \rrbracket=\left[\lambda x_{e} \cdot \lambda y_{e} \cdot y \text { eats' } x\right]\left(t_{1}\right)(\text { tom })  \tag{34}\\
\quad=\text { tom eats } t_{1}
\end{array} \begin{array}{l}
\llbracket \mathrm{CP} \rrbracket=\lambda x \cdot \llbracket \text { tom eats } t_{1} \rrbracket{ }^{[1 \rightarrow x]} \\
\quad=\lambda x \text {.tom eats } x
\end{array}\right] \begin{aligned}
& \llbracket \mathrm{NP}_{\text {cake }} \rrbracket=\lambda y_{e} \cdot y \text { is_a_cake } \\
& \llbracket \mathrm{NP} \rrbracket=\lambda y_{e} \cdot(\text { tom eats } y) \&(y \text { is_a_cake }) \\
& \llbracket \mathrm{D} \rrbracket=\lambda f_{\langle e t\rangle} \cdot[\iota z \cdot f(z)] \\
& \llbracket \mathrm{DP} \rrbracket=\iota z \cdot\left[\lambda y_{e} \cdot(\text { tom eats } y) \&(y \text { is_a_cake })\right](z) \\
& \quad=\iota z .(\text { tom eats } z) \&(z \text { is_a_cake })
\end{aligned}
$$

The dummy argument is represented by $t_{1}$ in (34). It is taken as the theme argument of the predicate $\left[\lambda x_{e} \cdot \lambda y_{e} \cdot y\right.$ eats $\left.x\right]$, as the denotation of TP shows. At CP, this argument is discharged, and then the lambda term is reinstalled by Predicate Abstraction.

The lambda expression of type $\langle e t\rangle$ in (34) is thus the characteristic function of the set $\{x$ : Tom ate $x\}$. Nouns are also the characteristic functions of the set of individuals expressed by the noun, so the denotation of the head noun cake of the relative clause under consideration is written as $[\lambda y . y$ is_a_cake], which characterizes the set $\{y: y$ is a cake\}. These lambda expressions may be combined by the operation of Predicate Modification, creating a lambda expression which characterizes the intersection of the two sets. Predicate Modification is standardly used for intersective adjectives, and the operator analysis of relative clauses in essence views the relative CP (at least semantically) as akin to intersective adjectives.

There are several consequences of this analysis. Let us consider first the modification problem. The operation of Predicate Modification corresponds to the syntactic relation of adjunction, which is standardly assumed for (intersective) adjectives. Thus, the relative CP in this analysis is treated as an adjunct of NP headed by the head noun.

How about the connectivity problem? Crucially, the head nominal is base-generated in its surface position, and there is no direct syntactic connection between it and the variable site. This point has an empirical consequence, in that it wrongly predicts that an anaphor should never appear in the head nominal position, bound by an element inside the relative clause. This approach has difficulty accounting for cases like (35) below:

$$
\begin{equation*}
\text { I will photocopy [the picture of himself }{ }_{i} \text { that } \mathrm{John}_{i} \text { likes [__] ]. } \tag{35}
\end{equation*}
$$

The operator approach predicts that if an anaphoric item appears in the head nominal phrase, and if its antecedent is found only in the relative CP, the relative clause will be ungrammatical, because the anaphor will violate condition A. At no point in the derivation does the antecedent c-command the anaphor.

In addition to the operator analysis discussed above are two other major approaches; the raising analysis and the matching analysis. The raising analysis, whose recent revival is largely due to Kayne (1994), seems to be the most widely subscribed analysis today
(e.g., Bianchi, 1999; Bhatt, 2002; de Vries, 2002; Henderson, 2006). ${ }^{12}$ The core of this analysis is that the head nominal is base-generated at the variable site within the relative CP , and moves to the Spec-CP position. The head nominal is not the complement of D; rather, D takes the relative CP as its complement. This is schematized in (36):


Thus, the raising analysis has a very clear and straightforward answer to the connectivity problem: the head nominal and the variable element are identical, as they are members of the same $\mathrm{A}^{\prime}$-chain. Also, the analysis does not treat the relative CP as an adjunct. Rather the relation between the head nominal and the matrix predicate is "mediated" by the shell of the relative CP.

While this analysis remains controversial (see Borsley $(1997,2001)$ for criticisms), ${ }^{13}$ it has several empirical advantages. For example, the analysis accounts easily for examples like (35) above; the anaphor is bound by its antecedent since the $\mathrm{A}^{\prime}$-moved head NP can be reconstructed to the variable site at LF. ${ }^{14}$ Also, the fact that idiom chunks may be

[^27]separated by relativization is expected under this analysis:
a. We made headway.
b. * (The) headway was satisfactory.
c. [The headway that we made [__]] was satisfactory.
(cf. * We made [the headway that [__] satisfied John].)
(Schachter, 1973:(35))

Also in this connection, Bhatt (2002) discusses the interpretation of a head nominal modified by a superlative adjective:
the first book that John said Tolstoy had written

The phrase in (38) has two different readings. One is called the high reading, which denotes (among the books Tolstoy had written), the book about which John first said Tolstoy wrote it, but it is irrelevant which book Tolstoy wrote first. The term high comes from the fact that the interpretation of the adjective in the head nominal is relative to the higher predicate. Thus, if John knew the correct chronological order of Tolstoy's novels but he said first that Tolstoy wrote Resurrection before mentioning any other novels written by Tolstoy (say, Ivan the Fool (published in 1863) or Childhood (1852)) written by Tolstoy, the phrase in (38) is interpreted as Resurrection, even though it is in fact the very last long novel that Tolstoy wrote (published in 1899). The other reading is the low reading, which denotes the book Tolstoy wrote first (among the books John talked about). In the low reading, the adjective is relative to the predicate in the lower clause. Therefore, if John spoke first about Resurrection, and last about Childhood, but he mentioned that Childhood is the very first novel Tolstoy had ever published, the phrase
in (38) with the low reading will refer to Childhood. Bhatt (2002) argues that the low reading is possible only if we allow the raising of the head NP from the variable site. Here is the outline of his logic: the adjective first modifies the intersective set of the head noun book and the relative clause, and this provides the high reading. In order to allow the low reading, we somehow have to be able to place the adjective within the scope of the upper predicate (said, in (38)). The raising analysis has a mechanism (i.e., reconstruction) to allow this. However, the operator analysis, where no direct syntactic relation holds between the head NP and the variable site, wrongly predicts that the NP should be always interpreted high.

We have considered three pieces of evidence: Condition A effects, idiom chunks, and adjective interpretation, and all of them strongly support the raising analysis in which the head nominal and the element that occupies the variable site are identical.

The third analysis is the matching analysis (Sauerland, 1998, 2000; Hulsey and Sauerland, 2006). This analysis appears to be similar to the operator analysis in that the relative CP is considered to be an adjunct to the head NP, although stronger connectivity is maintained in that an item identical to the head NP is generated at the variable site:


The NP in the Spec-CP position then will be elided under identity with the head NP at PF. Thus, this analysis takes the position that the nominal head is interpreted outside
the relative CP, as well as inside it. A piece of evidence which supports this analysis is the lack of any Condition C effect within the head NP. Consider the set of data in (40) below:
(40) a. $* \mathrm{He}_{i}$ likes those pictures of $\mathrm{John}_{i}$
b. * [Which picture of $\left.\mathrm{John}_{i}\right]$ does he ${ }_{i}$ like __?
c. the picture of $\mathrm{John}_{i}$ that he ${ }_{i}$ likes $\qquad$
d. the picture of himself ${ }_{i}$ that $\mathrm{he}_{i}$ likes $\qquad$

With ordinary $\mathrm{A}^{\prime}$-movement, the r-expression within the $\mathrm{A}^{\prime}$-moved constituent must obey Condition C at the base position. The point is illustrated in (40a-b): the ungrammaticality of (40b) comes from the fact that the r-expression $J o h n$ in the wh-expression violates the condition in its base position. If we were to assume only the raising analysis of the head NP for a relative clause, then we would expect (40c) to be ungrammatical as well. ${ }^{15}$

Another piece of evidence for the matching analysis concerns extraposition of the relative CP. If a relative clause is derived by raising, as in (36), it should be impossible to separate the head nominal and the clausal part with an adjunct, since in the raising structure, the clausal part constitutes a non-maximal projection. This is partially true (data from Hulsey and Sauerland, 2006:(13-14)):
(41) a. * I saw the picture of himself $f_{i}$ yesterday that $\mathrm{John}_{i}$ liked.
b. I saw the picture of Clinton yesterday that John liked.
${ }^{15}$ Henderson (2006:207) considers the Condition C effect non-evidence, as he considers the example in (40b) not to be so ill-formed, and also cites the following examples:
i Which witness's attack on $\operatorname{Lee}_{i}$ did he ${ }_{i}$ try to get expunged from the trial records?
ii Whose criticism of $\mathrm{Lee}_{i}$ did he ${ }_{i}$ choose to ignore?

Following Safir (1999), Henderson (2006) assumes that r-expressions are able to undergo vehicle change freely; that is, they can be interpreted as a pronoun in a lower copy of an $\mathrm{A}^{\prime}$-chain.

In (41a), when reconstruction is necessary (thus the raising analysis is required) an intervening adverb causes ungrammaticality, whereas when reconstruction is not required, intervention is permitted. Hulsey and Sauerland (2006) take this as evidence that the matching strategy, as well as raising, has to be available in the grammar.

One crucial point made by Hulsey and Sauerland (2006) is that if the distinction between argument and adjunct is real, an analysis of relative clauses should be able to exploit the distinction somehow. While there are other analyses that can make this distinction (e.g., Henderson, 2006), I find Hulsey and Sauerland's the most accessible, and we will refer to their analysis where the distinction becomes the key issue.

The differences between the matching analysis and the operator analysis are relatively subtle, and do not bear significantly on the issues to be raised here. ${ }^{16}$ For simplicity, since I am taking McCloskey's (2002) analysis as a starting point, I will use the operator analysis rather than the matching analysis and will compare it with the raising analysis.

I have reviewed recent analyses of Irish relativization (and in fact $\mathrm{A}^{\prime}$-movement in general), and then theories of relativization mostly dealing with English. The discussion in this chapter leads us to adopt McCloskey's (2002) analysis of Irish headed relatives, in part because it can be incorporated easily to the two-analysis approach of relativization proposed by Hulsey and Sauerland (2006).

[^28]
## Chapter 4

## Extraction over Resumption

In this chapter we first tackle the mismatch between the particle type and the $\mathrm{A}^{\prime}$ dependency type found in Irish headless relative clauses. Our conclusion will be that headless relative clauses are indeed derived by extraction.

The line of inquiry that I pursue here may appear slightly unorthodox, as I will develop in this chapter and the following chapter an analysis of headless relative clauses in Irish mostly by considering insights from their more ordinary (i.e., headed) counterparts, although there is also a wealth of literature on the topic of headless/free relative clauses in generative syntax. ${ }^{1}$ I take this approach because this literature focuses primarily on the wh-word, such as English what in what John made for us, and Irish lacks such whwords. The questions that arise for Irish are thus quite different, and it is more coherent to begin with the insights provided by headed relative clauses.

[^29]
### 4.1 Extraction or Resumption?

Let us start with the first property of the headless relative construction, namely the combination of the gap in the variable site with the appearance in $\mathrm{C}^{0}$ of the $a^{\mathrm{N}}$ particle, which is otherwise used for a resumptive structure. Assuming that the correlation between the choice of particle ( $a^{\mathrm{L}}$ vs. $a^{\mathrm{N}}$ ) and the choice of $\mathrm{A}^{\prime}$-construction (extraction vs. resumption) is real (pace Duffield, 1995 and Noonan, 2002), we can consider two possibilities for headless relative clauses, which I call the resumption hypothesis and the extraction hypothesis.

According to the resumption hypothesis, headless relatives are a sub-type of the resumptive construction, and the $a^{\mathrm{N}}$ is the same morpheme as in a resumptive relative structure. Under this view, the gap in a headless relative clause is not really a gap, but a special kind of (resumptive) pronoun which lacks phonological form.

The extraction hypothesis goes the other way, positing that the headless construction is derived by a movement operation. Under this analysis, the gap in the headless construction is indeed a gap produced by movement, while the particle $a^{\mathrm{N}}$ is morphosyntactically different from the $a^{\mathrm{N}}$ particle found in resumptive clauses. There are several reasons to prefer the extraction hypothesis.

### 4.1.1 Argument 1: Long Distance A's'dependencies $^{\prime}$-din

Recall McCloskey's (2002) and Maki and Ó Baoill's (2005) observations that various long distance 'mixed' $\mathrm{A}^{\prime}$-operations are possible, as the examples in (1-6) illustrate. ${ }^{2}$
(1) a. $\left[\mathrm{a}^{\mathrm{L}} \ldots\left[\mathrm{a}^{\mathrm{L}} \ldots\right.\right.$ gap $\left.\left.\ldots\right]\right]$
b. an t-ainm a hinnseadh dúinn a bhí [__] ar an áit the name $\boldsymbol{a}^{\mathrm{L}}$ was.told to.us $\boldsymbol{a}^{\mathrm{L}}$ was on the place 'the name that we were told was on the place' (McCloskey, 2002:(13a))

[^30](2) a. $\left[a^{N} \ldots[\right.$ go . . . pronoun ... $\left.]\right]$
b. cúpla muirear a bhféadfá a rá go rabhadar bocht cuple household $\boldsymbol{a}^{\mathrm{N}}$ could.2SG say $\boldsymbol{g} \boldsymbol{o}$ were.3PL poor 'a few households that you could say were poor' (McCloskey, 2002:(15))
(3) a. $\left[\mathrm{a}^{\mathrm{L}} \ldots\left[\mathrm{a}^{\mathrm{N}} \ldots\right.\right.$ pronoun $\left.\left.\ldots\right]\right]$
b. aon duine a cheap sé a raibh ruainne tobac aige any person $\boldsymbol{a}^{\text {L }}$ thought he $\boldsymbol{a}^{\mathrm{N}}$ was.DEP scrap tobacco at.him 'anyone that he thought had a scrap of tobacco' (McCloskey, 2002:(34))
(4) a. $\left[\mathrm{a}^{\mathrm{N}} \ldots\left[\mathrm{a}^{\mathrm{L}} \ldots\right.\right.$ gap $\left.\left.\ldots\right]\right]$
b. rud a raibh coinne aige a choimhlíonfadh [__] an aimsir thing $\boldsymbol{a}^{\mathrm{N}}$ was.DEP expectation at.him $\boldsymbol{a}^{\mathrm{L}}$ fulfil.COND the time 'something that he expected time would confirm' (McCloskey, 2002:(28))
(5) a. $\left[\mathrm{a}^{\mathrm{N}} \ldots\left[\mathrm{a}^{\mathrm{N}} \ldots\right.\right.$ pronoun $\left.\left.\ldots\right]\right]$
b. an bhean a raibh mé ag súil a bhfaighinn uaithi é the woman $\boldsymbol{a}^{\mathrm{N}}$ was.DEP I hope.PRoG $\boldsymbol{a}^{\mathrm{N}}$ get.COND.1SG from.her it 'the woman that I was hoping that I would get it from (her).'
(McCloskey, 2002:(41))
(6) a. $\left[\mathrm{a}^{\mathrm{L}} \ldots[\right.$ go . . . pronoun ... $\left.]\right]$
b. an carr a chreideann tú gur cheannaigh Seán é the car $\boldsymbol{a}^{\mathrm{L}}$ believe you go.PAST bought Seán it 'the car you believe that John bought' (Maki and Ó Baoill, 2005:(13))

However, the patterns do not appear with the same frequency; the patterns in (1) and (2) prevail in actual usage, and those in (3-6) are much rarer. ${ }^{3}$ Given this, we can

[^31]construct the following diagnostic: If the particle in the intermediate $\mathrm{C}^{0}$ position of the headless relative construction is preferably realized as $g o$, then the construction is some kind of resumption. If, on the other hand, $a^{\mathrm{L}}$ is preferred in the intermediate position, then the headless relative is driven by genuine displacement of an $\mathrm{A}^{\prime}$-item. In fact, $a^{\mathrm{L}}$ is most frequently found in the intermediate $\mathrm{C}^{0}$ position in headless relative clauses, as the following examples illustrate: ${ }^{4}$

## (7) Headless Relative with Long Distance A'-dependencies

a. Iarrfaidh Seán [gach a gcreideann sé [atá [__] agat]]. will.ask Seán every $\boldsymbol{a}^{\mathrm{N}}$ believes he $\boldsymbol{a}^{\mathrm{L}}$.is at.you 'Seán will ask all that he believes that you have.'
b. [a raibh ráite leis [a bhí [__] le feiscint]]
$\boldsymbol{a}^{\mathrm{N}}$ was said with.him $\boldsymbol{a}^{\mathrm{L}}$ was to.be.seen 'everything that he had been told was to be seen' (McCloskey, p.c.)
c. Achan duine [dá measann tú [a bhéas [__] úsáideach agat]] every person of. $\boldsymbol{a}^{\mathrm{N}}$ think you $\boldsymbol{a}^{\mathrm{L}}$ will.be.REL useful at.you 'every one of (all of) those that you think will be useful to you.'
(McCloskey, p.c.)
In contrast, the go particle seems never to appear in the lower $\mathrm{C}^{0}$ in a long distance headless relative clauses. This fits the pattern commonly observed with $\mathrm{A}^{\prime}$-dependency by extraction, and not with resumption. While the other "mixed" $\mathrm{A}^{\prime}$-chains listed in (36) are attested, it is implausible that the choice of lower complementizer particle should change completely in the case of headless relative clauses. Thus, though these data do not force the conclusion that headless relative clauses are formed by extraction, they provide strong circumstantial evidence supporting the hypothesis.

[^32]
### 4.1.2 Argument 2: Highest Subject Restriction

We showed in section 2.4.2 that resumptive relative clauses in Irish obey the Highest Subject Restriction (HSR), but extraction relative clauses do not (McCloskey, 1990:210). That is, a resumptive element may not be the "highest" subject of the relative clause it is in. The following data, repeated from (20) in Chapter 2, illustrate the point:
(8) Highest Subject Restriction
a. * an fear [a raibh sé breoite] the man $a^{\mathrm{N}}$ was he ill 'the man that (he) was ill'
(McCloskey, 1990:(29a))
b. an t-ór seo [ar chreid corr-dhuine [go raibh sé ann]] the gold this $a^{\mathrm{N}}$.PAST believed a.few.people $g o$ was it there 'this gold that a few people believed (it) was there'
(McCloskey, 1990:(30a))
(9) an fear [a bhí [__] breoite]
the man $a^{\mathrm{L}}$ was ill
'the man that was ill'

The example in (8a) is ungrammatical because the resumptive pronoun sé is in the highest subject position (i.e., the subject of the clause headed by the resumptive particle $\left.a^{\mathrm{N}}\right)$. The restriction specifically prohibits a resumptive pronoun in the highest subject position, so resumptive pronouns are possible in a lower subject position, as illustrated in (8b).

We can use this restriction to determine whether headless relative clauses are derived by resumption or by extraction. Consider the data in (10) below:

'That's (all) I have. (lit.: That's all that is at me)'
b. gach aon rud [ar thárluigh [__] ] every one thing $a^{\mathrm{N}}$.PAST happened 'every single thing that happened'

If the headless relative construction were an instance of resumption, the construction should be sensitive to the HSR and thus a headless relative clause with the variable in the highest subject position should be ungrammatical. However, that is not the case: The examples in (10) have the gap in the highest subject position, and are perfectly grammatical. We can thus conclude that the headless relative clauses do not obey the HSR, and thus they are not derived by resumption, but by extraction.

### 4.1.3 Argument 3: Dialect Variation

McCloskey (2002:207) notes that 'Munster varieties and some southern Connacht varieties use the 'default' complementizer go, instead of $a^{\mathrm{N}}$, in resumptive structures." ${ }^{5}$

## (11) Dialectal Difference: Choice of Complementizer

a. Munster
an fear go rabhas ag caint leis
the man $\boldsymbol{g o}$ was.1SG talking with.him
'the man that I was talking to'
b. Ulster
an fear a raibh mé ag caint leis the man $\boldsymbol{a}^{N}$ was I talking with.him
'the man that I was talking to'
(McCloskey, p.c.)

[^33]Crucially, McCloskey continues that "these varieties have $a^{\mathrm{N}}[\ldots]$ in headless relatives" (2002:207). That is, the complementation particle go cannot be used in headless relative clauses.

## Headless Relative Clause in Southern Dialects

Bhí a raibh san Oileán ag féachaint ar na naomhóga was $\boldsymbol{a}^{\mathrm{N}}$ was.DEP in.the Island look.PROG on the currachs 'Everyone who was in the Island was watching the currachs.'
(McCloskey, 2002:(55a))

This again supports the extraction analysis of the headless relative construction. Here is the logic: The resumption hypothesis claims that the particle $a^{\mathrm{N}}$ in a headless relative clause is the same as the one found in a resumptive relative clause, and the gap is pronominal despite its lack of phonological content. If the $a^{N}$ particle in the headless relative construction and the one in the resumptive construction were to carry the same set of morphosyntactic features (which McCloskey (2002) proposes consists only of the feature $[E P P]$ ), then we would expect that in southern varieties of Irish, the default particle go should appear at the left edge of headless relative clauses as well. However, that is not the case, supporting the extraction hypothesis.

We have looked at three pieces of evidence; the form of the intermediate particle, the highest subject restriction, and the loss of resumptive $a^{N}$ in the Munster dialect. The results are summarized in (13) below:

|  | Wh-extr. w/ $a^{\mathrm{L}}$ | Resump. w/ $a^{\mathrm{N}}$ | Headless Rel |
| :--- | :---: | :---: | :---: |
| Preferred Intermediate C | $a^{\mathrm{L}}$ | go | $a^{\mathrm{L}}$ |
| Highest Subj. Restr. | not observed | observed | not observed |
| Munster Dialect | - | simplified to go | $a^{\mathrm{N}}$ retained |

All suggest that the extraction hypothesis is to be preferred.

### 4.2 Matching vs. Raising Revisited

Before turning to the analysis of headless relative clauses in Irish, let us look again briefly at ordinary headed relative clauses derived by extraction. We have seen McCloskey's (2002) analysis in section 3.2.3, in which he proposes that an operator, which he assumes to be a kind of pro (i.e., a phonologically null pronominal element), is generated in the position of the gap, and moves to the Spec-CP position. Under this view, the head noun is generated outside the relative clause, and its relation to the relative clause is mediated by the operator. The relative clause, like a modifier, is adjoined to the head noun phrase, as shown in (14):

$\ldots t_{i} \ldots$

McCloskey argued for this analysis on the basis of the variety of mixed $\mathrm{A}^{\prime}$-chains we saw in section 3.2.3. It is impossible to account for some of the "mixed chain" patterns solely based on the raising analysis. An additional piece of evidence that raising along is insufficient can be found in (15) below, where the temporal adverb amárach 'tomorrow' appears between the head noun and the relative clause:
(15) Tífidh mé an grianghraf amárach [a ghlac siad [__] i nGaoth Dobhair will.see I the picture tomorrow $a^{\mathrm{L}}$ took they in Gweedore anuraidh ].
last year
'I will see the picture tomorrow that they took last year.'
DO

Recall from section 3.3 that Hulsey and Sauerland (2006) have shown that an intervening temporal adverbial is possible only when the matching analysis is possible. ${ }^{6}$

However, is the matching analysis the only analysis available in Irish? Although McCloskey (2002) does not consider this question, it seems that raising is also available. Consider the following sentence: ${ }^{7}$
(16) Chonaic mé gach pictiúr dena chéile $i_{i}$ a $\operatorname{ghlac}_{\operatorname{siad}_{i}}$ [__ $]$. saw I every picture of.each.other $a^{\text {L }}$ took they
'I saw every picture of each other that they took.'

The head nominal phrase in (16) contains a reciprocal expression (den)-a cheile '(of) each other'. If the matching analysis were the only analysis available in Irish, we would then expect the sentence to be ungrammatical. The reciprocal phrase never satisfies principle A, as the phrase would be base-generated outside the relative clause which contains the antecedent siad 'they'. Nonetheless, the sentence is grammatical, and given that the binding principles for anaphors are defined structurally, we may conclude that the language also allows the raising strategy.
${ }^{6}$ Note that adverbials before the particle-verb complex of the embedded clause may sometimes be interpreted in the lower clause, as McCloskey (1996) shows. In such cases, it is difficult to argue that the adverbial really intervenes between the head nominal and the relative CP. However, such an interpretation is excluded in (15) since the tenses of the intervening adverb amárach 'tomorrow' and the verb of the lower clause ghlac 'took' do not match.
${ }^{7}$ In the standard variety, Dá chéile is used instead of dena chéile 'of each other' in (16).


This also calls into question McCloskey's (2002) characterization of the particle $a^{\mathrm{L}}$ in terms of morphosyntactic features. Recall that he proposes that the particle is a realization of a feature bundle [Epp, $O p$ ]. With this characterization, the feature $[O p]$ agrees with the operator base-generated in the variable site, which is subsequently followed by the movement of the operator to satisfy the [Epp] feature. Since we have seen that the language allows a non-operator element to be extracted, it is now safe to say that the feature $[O p]$ is an oversimplification. I will therefore use an agreement feature [AGR] instead of $[O p]$, which can agree with various nominal elements, including the null operator and an overt NP. ${ }^{8}$

### 4.3 A First Analysis for Headless Relative Clauses

### 4.3.1 Matching or Raising?

Now let us now return to headless relative clauses and consider them in terms of the matching-vs.-raising dichotomy. First, under the matching analysis, more precisely the analysis in which a null operator $O p$ derives ordinary headed relative clauses, the null

[^34]operator is some sort of maximal projection of D (i.e., DP ), which is semantically definite and of type $e$. On the other hand, we have seen extensively that the process of extraction in a headless relative clause in Irish can strand some elements below DP, and thus the gap cannot always be analyzed as a full DP.

## (18) Gap Smaller than DP

a. a bhfuil $\quad[\ldots]$ d'airgead $]_{\text {DP }}$ agam $a^{\mathrm{N}}$ be.PRES.DEP of.money at.me '(That's) (all) of the money I have. (lit.: what of money is at me)' MH
b. Tá a n-ólfaidh páistí [[__] de bhaine] $]_{\text {DP }}$ maith acu. is $a^{\mathrm{N}}$ will.drink kids of milk good at.them 'Every (litre of) milk kids drink is good for them. (lit.: what kids will drink of milk is good for them.)'

This fact alone rules out the matching analysis, given the assumption that the null operator is a DP, since clearly the gap found in headless relative clauses can be smaller, and thus, to the extent that we have not seen any proposals which allows null non-DP operators, the data favours some sort of raising analysis. ${ }^{9}$

### 4.3.2 The Feature Make-up of the Headless $a^{N}$ Particle

Let us consider the morphosyntactic make-up of the $a^{N}$ particle in the headless relative construction. What morphosyntactic features does the particle consist of?

Let us assume that in the syntax the particle consists of a set of formal features $F$, which is spelled out as the headless $a^{N}$ particle at PF. Our concern is the members of $F$. Under minimalist assumptions, movement of an element comprises steps of Match, Agree, and Move (or Internal Merge, in more recent instantiations of the Minimalist

[^35]Program)..$^{10}$ Following McCloskey (2002), $F$ must include at least [EPP], which motivates $\mathrm{A}^{\prime}$-movement into its specifier position, and some feature, let us call it $\alpha$, which agrees with the moving element. Of course, there may be more features needed for the realization of $a^{\mathrm{N}}$, but they are set aside for the moment. Assuming the framework of Distributed Morphology, we propose the following Vocabulary Item (where $\beta$ represents the possibility of other features not yet identified):
(19) Vocabulary Item for The Headless Relative $a^{N}$

$$
\left\langle\left[\begin{array}{l}
\operatorname{EPP} \\
\alpha \\
\beta
\end{array}\right] \Leftrightarrow a^{\mathrm{N}}\right\rangle
$$

Let us focus on the feature $\alpha$. This feature cannot be equated with the [ Op ] feature that McCloskey (2002) posited, since headless relative clauses may extract a non-DP element. I claim that the agreement feature $\alpha$ is the same one as is found in $a^{L}$, which we called [AGR] in section 4.2 above. The crucial piece of evidence for this claim is that intermediate particles surface as $a^{L}$ when extraction takes place across more than one clausal layer in a headless relative clause, as shown in section 4.1.1 above. This is schematized in (20):

As was said there, the speakers in general find it unacceptable to place particles other than $a^{\mathrm{L}}$ in the lower $\mathrm{C}^{0}$ positions in a headless relative clause. This is highly reminiscent of the most common pattern of $\mathrm{A}^{\prime}$-chain formation with extraction, which exhibits successivecyclicity (see section 3.2.3).

Let us first consider the possibility that the agreement feature $\alpha$ of the headless $a^{\mathrm{N}}$ is different from that of the extraction particle $a^{\mathrm{L}}$, and that this difference is the trigger

[^36]of the morphophonological shapes of the headless $a^{\mathrm{N}}$ particle and the regular extraction particle $a^{\mathrm{L}}$. Recall that the lower $\mathrm{C}^{0}$ positions are occupied by $a^{\mathrm{L}}$, which means that the element agreeing with the $a^{N}$ also agrees with $a^{L}$, but probably not vice versa. If this is the case, there are two possible accounts: One is to assume that $\alpha$ is subsumed by [AGR]; that is, $\alpha$ and [AGR] are in a subtype-supertype relation. The other is to say that [AGR] agrees with a constituent that is larger than what $\alpha$ agrees with, and the sub-constituent of the extracted element undergoes subsequent movement to the domain of $a^{\mathrm{N}}$. We will see that neither of these is satisfactory.

Consider the first case: If $a^{\mathrm{L}}$ can agree with the element that $a^{\mathrm{N}}$ agrees with and the different morphophonological shapes are due to the morphosyntactic difference between $\alpha$ and [AGR], then we should find that the two particles are mutually interchangeable in the headless relative construction. That is not the case, however: ${ }^{11}$
a. ar chreid sé a bhí [__] d'airgead aige. $a^{\mathrm{N}}$.PAST believed he $a^{\mathrm{L}}$ was of.money at.him 'all the money that he believed that he had'
b. */? ar chreid sé ar raibh [__] d'airgead aige.
$a^{N}$.PAST believed he $a^{N}$ was.DEP
of.money at.him $\quad$ DO

It seems that it is highly marked to place $a^{N}$ in the intermediate position. ${ }^{12}$ This is surprising if we assume that $\alpha$ is subsumed by [AGR].

The second hypothesis also fails to capture the non-interchangeability of the intermediate particle, and there is no reason to posit such a complicated mechanism with no

[^37]independent evidence. Furthermore, this derivational process, illustrated in (22), violates a type of freezing effect, namely $\mathrm{A}^{\prime}$-extraction out of an $\mathrm{A}^{\prime}$-extracted element.


The infelicity of this type of operation can be observed in (23) below:
a. * It is [this boy $]_{j}$ that John wondered $\left[\text { which picture of }[\ldots]_{j}\right]_{i}$ he took $t_{i}$ at the park.
b. * I can't remember [which boy $]_{j}$ John knows [which picture of $\left.[\ldots]_{j}\right]_{i}$ he took $t_{i}$ at the park.

A natural explanation of the ungrammaticality of the sentences in (23) would be that a $\mathrm{A}^{\prime}$-moved phrase is frozen and it constitutes an island, and the $\mathrm{A}^{\prime}$-movement of a whphrase out of a $A^{\prime}$-moved phrase is illicit. ${ }^{13}$ If this line of reasoning is correct, then the

[^38]same logic, by default, should apply to Irish as well. Thus, this hypothesis also seems to be unsatisfactory for the Irish case.

It seems that the problem arises from the assumption that $\alpha$ and [AGR] are distinct elements. I claim, instead, that the agreement feature of the headless relative $a^{\mathrm{N}}$ is the same as that of $a^{\mathrm{L}},[\mathrm{AGR}]$. This, in turn, suggest that any restrictions or peculiarities associated exclusively with the headless relatives are not syntactic, but rather semantic.

## Chapter 5

## Irish Headless Relatives

We have demonstrated that Irish headless relative clauses are derived by movement. We have further seen that the features triggering the movement are the ones found in the ordinary extraction marking particle $a^{\mathrm{L}}$. Our current hypothesis is that the $a^{\mathrm{L}}$ particle in the regular extraction relative clause and the $a^{\mathrm{N}}$ particle in the headless relative clause carry the same agreement feature. An obvious question that arises from this conclusion is: What gives rise to the morphophonological difference between them? Of course, the two morphemes cannot carry completely identical sets of features, as such an analysis would miss the complementarity of their distribution.

The other issue that we have not yet touched on is the semantics of the headless relative clauses. What semantic peculiarities do we observe with headless relative clauses, and how do we characterize those peculiarities within the current Principles and Parameters approach?

This chapter investigates the semantic properties of Irish headless relative clauses, arguing that they are in fact amount relative clauses (Carlson, 1977). Specifically, I will propose that $a^{\mathrm{N}}$ is a morphophonological instantiation of the [AGR] feature together with the Maximalization operator proposed by Grosu and Landman (1998). This answers the questions posed in the last two paragraphs. The headless relative clause signals the
notion of maximality, which is introduced by the $a^{\mathrm{N}}$ particle, and this maximality operator distinguishes these headless relative clauses from other kinds of relative clauses available in the language.

### 5.1 What is an Amount Relative?

### 5.1.1 Descriptive Characteristics of Amount Relatives

Let us first review what has been said about amount relative clauses before considering Irish headless relative clauses.

The first discussion of amount relative clauses (also called degree relative clauses) is by Carlson (1977). As these names suggest, the core property of amount relatives is that they generally denote an amount or degree, rather than an individual. Carlson uses the semantic type $d$, whose members are scalar cardinal values, rather than type $e$, that is individuals. ${ }^{1}$ It is an element of type $d$ that undergoes relativization under his analysis. To illustrate the point, we consider below two of the constructions Carlson (1977) discusses: relativization from there-existentials, illustrated in (1), and ACD-relatives in English, which are shown in (2) (data from Carlson, 1977:(6, 17)): ${ }^{2}$
(1) a. Every man there was [__] on the life-raft died.
b. * Some man there was [__] on the life-raft died.
(2) Marv put [everything (that) he could [__]] in his pocket.

The oddness of relativization out of a there-existential clause ( $1 \mathrm{a}-\mathrm{b}$ ) is that the gap site in this construction corresponds to a bare NP, while in ordinary restrictive relatives a

[^39]gap is a DP. ${ }^{3}$ This peculiarity seems to be strongly correlated with another observation that a relative clause with a non-DP gap cannot cooccur with certain quantificational expressions, like some, two, and a few. The point is illustrated by the ungrammaticality of example (1b). From the contrast with its grammatical counterpart (1a), it is clear that the ungrammaticality of this example is linked with the presence of the quantifier some which quantifies the head noun. ACD relative clauses, on the other hand, show a semantic peculiarity. The sentence in (2) has two interpretations: One is to say that if Marv found that he could put a thing $x$ in his pocket, then he put it there. This reading can be readily achieved by common understandings of the universal quantifier. However, the sentence has another comparative-like reading; Marv put in his pocket as many things as he could put there all at once. While this reading is far more salient, it cannot be derived from the common understanding of the semantics of quantifiers and relativization. This reading, at least in English, seems to be related to the type of relativizer used in the clause. ${ }^{4}$ Thus, Carlson (1977) reports the following contrast:
(3) a. Bob ate everything that would fit in his pocket.
b. Bob ate everything which would fit in his pocket.
(Carlson, 1977:(25-26))

The only overt difference between the two examples in (3) is the choice of relativizer: (3a) has that while (3b) has which instead. The example in (3a) exhibits the ambiguity just discussed; the sentence can mean that Bob ate as much as he could put in his pocket all at once. Thus the quantity that Bob's pocket can contain and the quantity that he ate are roughly equal. The second (and less salient) meaning is that Bob ate every object whose size was equal to or smaller than the size of his pocket. The example in (3b), on the

[^40]other hand, is unambiguous. The only available meaning is the second, the one we find less pragmatically plausible. This pattern of ambiguity teaches us something very simple, yet crucial. Considering only (3a), one might be tempted to argue that the ambiguity is induced by some sort of "pragmatic" effect. ${ }^{5}$ That is, the first reading, which seems to be more salient, yet is rather unusual in terms of the logic of quantification, is made available because such a reading is in accordance with our world knowledge. If that were the case, then it is unexpected that the ambiguity should vanish in example (3b). Even if we provide a rationale for the lack of ambiguity, it is hard to guess why the only available meaning of the sentence is the one that we find absurd. Why does the "pragmatic" effect not hold in this case, and make the more salient reading available? This seems to suggest that the effect is in fact driven by the core and non-context-dependent component of grammar.

There is another point worth mentioning here. In both of these constructions the relative clauses appear to have a strong association with the semantic effects of universality and/or exhaustivity. This is consistent with the observation that the existential quantifier some cannot appear with there-relatives, as illustrated in (1b).

The third type of amount relatives (sometimes called modal relatives), which first appears in Heim (1987), has a strong preference for a degree reading:
(4) It would take a month to drink [the whiskey that we spilled at the party].

The most salient reading of the sentence in (4) has to do with the amount of whiskey spilled. It is also possible, though pragmatically very odd, to interpret (4) as saying it would take a month to drink the actual whiskey spilled, but the more salient reading here is that it takes a month to consume the same amount of whiskey. What seems to

[^41]be important in this type of relative clause, though not yet fully understood, is that it generally has to be put in a modal context. If the modal auxiliary would is eliminated from example (4), giving an ordinary past tense context, we find that the "identity of amount" reading disappears, leaving only the "identity of substance" reading, which is less salient according to our conventional knowledge: ${ }^{6}$
(5) It took a month to drink [the whiskey that we spilled at the party].

It remains unsolved how modality plays a role in yielding the "identity of amount" reading, but nonetheless it seems clear that it is related to something quintessential about amount relatives. Modality is also required for an amount reading of the ACD relatives exemplified in (2). In (6a), the bracketed constituent must refer to the actual objects that Merv put in his pocket last night, while in (6b), with the modal the bracketed constituent refers to the quantity of the objects that can simultaneously fit into his pocket. ${ }^{7}$
(6) a. Merv is now going to put [everything that he did last night] in his pocket.
b. Merv put [everything that he could] in his pocket.

Note, however, that McNally (2008) reports that modal contexts are not always required to induce the amount reading (data below from McNally (2008:(16))):
(7) a. We were astonished at the beer they spilled that evening.

[^42]b. We lost the battle because we lacked the soldiers our enemy had.

Crucially, the relative clauses in (7) are in a simple past tense context with no apparent modal element in the clause. Yet, the preferred interpretation of those examples is of the amount: we were astonished at the amount of beer that they spilled, rather than the actual beer itself. Similarly, as for (7b), it is preferred to read "we lost the battle because we didn't have as many (or as competent) soldiers as our enemy had." A possible reason for the availability of the identity of amount reading, as opposed to the identity of individual reading, in the sentences in (7) is that some sense of modality is sub-lexically concealed in the predicates like astonished or lacked, in the sense of Koenig and Davis (2001). If this is on the right track, then the notion of modality could still play a role in (7), and what is crucial to the amount reading would be the semantic representation of modality, rather than a syntactically-defined modal verb. ${ }^{8}$ However, the issue is apparently more complicated. If modality concealed within the word is the key for the amount/kind readings of (7), we expect the sentence below to be unambiguous, with only the identity-of-individual available:
(8) We lost the battle because we didn't have the soldiers our enemy had.

It is not obvious to us whether didn't have carries any special modal meaning in comparison to the verb lack in (7b), but nonetheless, we observe that the sentence in (8) is entirely acceptable with the amount/kind reading; that is, (8) can mean that we didn't have as many/as brave soldiers as our enemy had. This suggests that the matter is more

[^43]i. Agus a bhfuil [__] de shaibhreas aige! and $a^{\mathrm{N}}$ is $\quad$ of wealth at.him 'and to think that he is so wealthy!'
complicated than it may initially have appeared, and it will take us too far from our topic pursue it further. ${ }^{9}$

Another property specific to amount relative clauses is that they do not stack:
a. \# The one sailor [that there was [__] on the boat] [that there had been [__] on the island] died in the explosion. (Grosu and Landman, 1998:(58a)) $)^{10}$
b. * Jack noticed the headway [we made [__] ] [that Fred said that we couldn't make [__] ].
(Carlson, 1977:(68a))

Ordinary restrictive ${ }^{11}$ relative clauses can stack, as can be seen in (10):
${ }^{9}$ On the other hand, it is possible to retain the analysis based on modality for example (8) by assuming that the conjunctive marker because carries modality and it licenses the availability of the amount reading. If it is correct, then we expect before to license the amount reading while after does not; that is, (i) below is ambiguous while (ii) is not.
i. We won the battle before we got the soldiers our enemy had.
ii. We lost the battle after we got the soldiers our enemy had.

It is unclear that the prediction holds. Also, it appears that (8) loses its amount reading once the negation is omitted.
${ }^{10}$ The judgment of this example (that it is pragmatically odd, indicated by the \# symbol) is Grosu and Landman's.
${ }^{11}$ While Carlson (1977) and Grosu and Landman (1998) agree that restrictive relatives (at least in English) allow stacking, they differ on whether non-restrictive/appositive relatives can do so. Using the example in (i), Carlson (1977:520) states that "[a]ppositive relatives, unlike restrictive relatives, may co-occur on the same head only if they are conjoined (i.e., they may not 'stack')[.]"
i. * The lion, which was five weeks old, which was fed twice a day, ate only fillet of salmon.
(Carlson, 1977:(4))

However, Grosu and Landman state that "appositive relative clauses contain an element that stands in a discourse anaphora relation to the NP they modify. Since more than one relative can stand in a discourse anaphora relation to the same NP, appositive relative clauses can stack too." (Grosu and

The one sailor [who [__] was on the boat] [who [__] had been on the island] died in the explosion. (Grosu and Landman, 1998:(58a))

Also, in amount relatives like (11), unlike ordinary restrictive relative clauses as in (12), the $\mathrm{A}^{\prime}$-dependency cannot cross negation. Amount relatives thus appear to be sensitive to so-called weak island effects.
(11) a. *I will return the books that there weren't [__] on my desk.
b. * It would take months to drink the whiskey that they didn't spill [__ at the party.
a. I will return the books that [__] aren't on the desk.
b. It took a month to drink the whiskey that we didn't drink [__] at the party.

However, it should be noted that in some cases, the island effect is circumvented. For example, the "identity of amount" reading seems to be easily available in (13) below, even though an $\mathrm{A}^{\prime}$-dependency is formed across negation:
(13) It would take months to drink the whiskey that they didn't manage to drink at the party.

It appears to be the case that when the entire amount of the substance at issue is somehow in the common ground (i.e., presupposed in the discourse), extraction across negation turns out to be possible. This seems to point out that the weak island effect in question here is not a syntactic effect. It is not clear why this generalization holds, but it does not detract from the value of the discussion here. Negation works as an intervener in general as long as the overall amount of the substance at issue is not presupposed. We will simply keep in mind the example in (13) as a reason to be somewhat cautious.

### 5.1.2 The Analysis of Amount Relatives

In this work, I follow the analysis proposed by Grosu and Landman (1998) as it is the most widely known recent formal analysis of amount relatives. ${ }^{12}$

The core of their proposal is that amount relatives are relativizations over degrees, rather than over individuals. This is straightforwardly supported by the stark contrast between the sentences in (14), repeated from (4) and (5), though it is far less obvious whether degree plays a role in (1a).
(14) a. It would take a month to drink [the whiskey that we spilled at the party].
b. It took a month to drink [the whiskey that we spilled at the party].

However, it has also been noticed that what has been relativized is not a simple degree. In fact, the substance associated with the relativized degree cannot be fully dissociated. That is, the sentence in (14a) cannot mean "we spilled a certain amount of whiskey. It would take a month to drink the same amount of something or other." Rather, the kind of substance associated with the degree notation, in the case of (14a) whiskey, has to match between the predicate inside the relative clause and the one taking the relative as an argument. The there-relatives are also difficult to account for, since they seem not to automatically provide a true amount reading. Instead, they can only have the identity of individuals reading. In other words, the example in (1b), repeated below in (15), does not mean "the same number of men as there were on the life-raft died." Rather it can only mean "all the men who were actually on the life-raft died." Every man there was [__] on the life-raft died.

To construct a unified account for the observations above, Grosu and Landman (1998)

[^44]first propose that the expression of degree for a given sortal predicate ${ }^{13}$ is a triplet consisting of the cardinality of a plural index, the sortal (or something that functions as a measure domain), and the plural index itself (which is equal to the classical notion of degree). This contrasts with the classical degree notation which consists only of the cardinality. Thus, the triplet in (16b) is the denotation of (16a):
(16) a. books (that) there are on the table
b. $\quad\left\{\langle | x|, \operatorname{BOOKS}, x\rangle: \operatorname{BOOKS}(x) \& O N \_T H E \_T A B L E(x)\right\}$
(Grosu and Landman, 1998:(19))

One may take the expression above to be a set of accessible degrees in a given context. Thus, if there are two books $a$ and $b$ in the context, it would then be interpreted as:

$$
\begin{equation*}
\{\langle 1, \mathrm{BOOKS}, a\rangle,\langle 1, \mathrm{BOOKS}, b\rangle,\langle 2, \mathrm{BOOKS}, a \sqcup b\rangle\} \tag{17}
\end{equation*}
$$

(Grosu and Landman, 1998:(21))

This set of degrees is now taken as the argument of the Maximalization function MAX, which essentially picks the unique maximal degree from the set created by degree relativization. ${ }^{14}$ From (17), MAX thus returns (18):

$$
\begin{equation*}
\langle 2, \text { BOOKS, } a \sqcup b\rangle \tag{18}
\end{equation*}
$$

The proposal that amount relatives involve MAX is based on the observation that some arbitrary degree cannot be randomly selected from the set given by the context, but only the maximal one. ${ }^{15}$ Suppose that it is known that there were four books on the table,

[^45]and someone says (19).

> I read the books that there were on the table.

This utterance can only mean that the speaker read all four of the books that were on the table, and it is false if only three books have been read. Grosu and Landman (1998) also claim that the maximalization function explains Carlson's observation that only a universal or a definite determiner can go with amount relatives, as we saw in (1).

Finally, the amount relative CP may undergo an optional operation of SUBSTANCE. This operation is used to provide the individual denotation from the complex degree notation:

$$
\begin{equation*}
\text { SUBSTANCE }(\mathrm{CP})=\{x:\langle | x|, P, x\rangle \in C P\} \tag{20}
\end{equation*}
$$

The operation is assumed to apply by default, as the individual reading of an amount relative seems always to be available, while the pure amount reading is not. The application of the SUBSTANCE operation to (18) results in the plural individual $a \sqcup b$. It should be noted that the SUBSTANCE operation is controversial: As Herdan (2008) observes, it is unclear what makes there-relatives undergo the operation obligatorily, while in the other cases, the operation is optional. Similarly, von Fintel (1999) raises a concern that the operation seems to overgeneralize since the as-many-as comparative construction, which also relies on the degree expression, has only the identity-of-amount reading, despite the allegedly default nature of the SUBSTANCE operation. It could well be that two kinds of maximalization is available in a language; maximalization over degree which has been discussed in this section, and maximalization over individuals as discussed by Jacobson (1995). Even if this is the case, it remains unsolved in the literature whether the default application of maximalization should be over degrees or over individuals. We will simply assume Grosu and Landman's approach for now, while keeping these critiques in mind.

### 5.2 Irish Headless Relatives are Amount Relatives

We are now ready to come back to the Irish headless relative clauses. Although the ACD construction and the existential construction in Irish do not work in exactly the same way, there are several arguments that Irish headless relatives are in fact amount relatives.

### 5.2.1 Universality/Exhaustivity

First, the headless relatives always have a universal, or exhaustive, interpretation. This is apparent in all the examples of Irish headless relative clauses given so far, some of which are repeated in (21). ${ }^{16}$
a. Sin [a bhfuil [__] agam]. that $\mathrm{a}^{\mathrm{N}}$ be.PRES.DEP at.me
'That's (all) I have.' (Mac Mathúna and Ó Corráin, 1997:361)
cf. Tá an leabhar agam.
be.PRES the book at.me 'I have the book.' (lit. the book is at me.)
b. Bhí súile [a raibh [__] sa teach] air. be.PAST eyes $a^{N}$ be.PAST.DEP in.the house on.him 'The eyes of [everyone who was in the house] were on him.' (McCloskey, p.c.)

Notice that the examples in (21), as well as all the examples of Irish headless relative clauses in this work, are interpreted as definite, and in fact cannot receive an indefinite

[^46]It is unclear why example (i) above does not mean that's all of the money I have. I have no explanation for this fact, and I leave this issue with true partitives aside in this work.
interpretation.
Their definiteness is particularly apparent when they are directly quantified by gach 'every':
a. gach a gcuala mé [__] every $a^{\mathrm{N}}$ heard I
'everything I heard'
(McCloskey, p.c.)
b. gach ar ól mé [__]
every $a^{\mathrm{N}}$.PAST drank I
'all I drank'
(Mac Congáil, 2004:181)
c. gach $\mathrm{a}^{\mathrm{N}}$ bhfuil [__] de thithe ar an mbaile
every $a^{\mathrm{N}}$ PRES.DEP of houses on the town 'all that there were of houses in the town'

Crucially headless relative clauses never co-occur with existential quantifiers like some, and never have an existential meaning. This is consistent with Grosu and Landman's (1998) account, which was outlined in the previous section. Consider (23).


Under Grosu and Landman's (1998) analysis, the Maximalization operation, which applies to the relative CP which has undergone abstraction of a degree expression, yields a singleton set consisting of the triplet degree of the maximal sum of the substance. This
subsequently feeds into the SUBSTANCE operation, which gives a singleton set consisting of the $e$ expression from the triplet degree expression. This is what we find as the denotation of the NumP in (23), with additional information provided by the numeral expression three. ${ }^{17}$ This NumP is taken as an argument of the covert existential $\mathrm{D}^{0}$. The fact that it is a singleton set is crucial here. Since the set the existential quantifier takes as its restriction is singleton, the composed expression always picks the same unique plural entity whose cardinality is three. Thus, the overall meaning is non-distinct from the meaning of the corresponding definite expression. ${ }^{18}$

However, this is not what happens. As discussed earlier, amount relatives simply cannot take weak quantifiers, including the existential quantifier. In fact, there seems to be a cross-linguistic prohibition of existential quantification over a singleton set among languages that overtly mark the definite/indefinite distinction. For example, English does not allow the following examples:
a. * A currently tallest man in the world lives in Turkey.
b. * A current queen of England is visiting Canada now.

Irish works in a similar fashion in this regard. For example, it requires the definite article an before a noun with a superlative expression:
a. an gasúr is óige
the child youngest
'the youngest child'
(Stenson, 2008:81)

[^47]b. B'í Áine an cailín ba dheise.

COP.PAST.her the girl nicest
'Áine was the nicest girl.' (Stenson, 2008:81)

And, just as in English, it is ungrammatical to have a superlative-marked nominal expression without the definite determiner even when it is newly introduced into the discourse:
a. \# Tá fear is airde ina chónaí sa Tuirc. Is man tallest in.his living in.the Turkey. 'A tallest man lives in Turkey.'
b. \# Tiocfaidh fear is saibhre go hEirinn anocht. will.come man richest to Ireland tonight 'A richest man will come to Ireland.'

In order to account for the definite determiner condition, Grosu and Landman (1998:144) suggest a plurality requirement that the existential quantifier presuppose its nominal argument to be a non-singleton set, just as a definite determiner presupposes the uniqueness of its argument. However, we diverge on this regard from Grosu and Landman (1998), and follow Heim's (1991) descriptive generalization given in (27) below:
(27) In utterance situations where the presupposition for $[$ the $\zeta] \xi$ is already known to be satisfied, it is not permitted to utter $[a \zeta] \xi$.
(Heim, 1991:(123))
While it often appears true that a non-singleton set is presupposed by the use of the existential quantifier - and thus Grosu and Landman's characterization of the plurality constraint appears accurate at a first glance, Heim (1991:§2.1.3) points out that an approach along these lines is problematic. Heim illustrates the point with the following example:
(28) A pathologically nosy neighbour of mine broke into the attic.
(Heim, 1991:(122))
Given the plurality requirement, example (28) above should imply that the speaker knows of at least two pathologically nosy neighbours. Nonetheless, we intuitively find the utterance felicitous even if in the end we find out that the speaker has only one pathologically
nosy neighbour. The speaker simply leaves open how many neighbours of hers are pathologically nosy. Thus, the existential quantifier does not induce any presupposition of plurality; rather, by uttering the existential quantifier the speaker simply shows an attitude of non-committal as to the (non-)uniqueness of the entity denoted by the NP associated with the quantifier. Thus, Grosu and Landman's plurality requirement is not tenable.

The generalization in (27) seems to hold in Irish as well. Thus, by uttering (29) below, a speaker of Irish does not assert that there is more than one salmon that weighs a hundred pounds:

$$
\begin{align*}
& \text { Rug mé ar bhradán a mheáigh céad punt. }  \tag{29}\\
& \text { caught I on salmon } a^{L} \text { weighed hundred pound } \\
& \text { 'I caught a salmon that weighed one hundred pounds.' } \tag{DO}
\end{align*}
$$

Also, the utterance in (29) is felicitous without the definite article, despite the fact that a salmon caught by the utterer is very likely to be the biggest salmon in the world, and there is thus no other salmon that would weigh so much. The utterer is simply agnostic about the status of the salmon s/he caught.

We further assume that the maximalization operator triggers a presupposition that there is a unique non-singleton maximal entity. With the indefiniteness condition in (27), the process of maximalization eliminates possibilities of an existential quantifier in the amount relatives. Recall that by applying a relative CP, which denotes a set of complex degrees, to the maximalization operator, we obtain a singleton set which consists only of a maximal plural degree. This means that by maximalization, the entities which are applicable to the description by an amount relative clause and are available in the context of utterance have been completely exhausted. The definite article is therefore required to accompany the amount relative and it is infelicitous to use an existential
quantifier instead. ${ }^{19}$ Thus, existentials, which in Irish are expressed by the absence of the determiner, cannot appear with amount relatives. ${ }^{20}$

There is an apparent counterexample to the amount relative analysis of Irish headless relative clauses. It appears that non-universal quantifiers may also quantify headless relatives in Irish:


Grosu and Landman (1998) observe that the quantification established by the Maximalization has to be preserved within the DP domain of the amount relative, and thus, quantificational expressions such as half and most cannot be used with amount relative clauses. This is indeed the case in English:
a. * It would take a year to drink most whiskey that they spilled at the party.

[^48]The Irish facts seem not to parallel English here, and thus might be thought to cast doubt on the amount relative analysis of Irish headless relative clauses. However, notice that these quantifiers take a genitive argument:

```
bunús/leath na hoibre
most/half the.GEN work.GEN
'most/half of the work' (cf., obair 'work.NOM') (McCloskey, p.c.)
```

At first glance, it is hard to see why the use of genitive case would bear on the quantifier restrictions noted above, but it does. In English, quantifiers which cannot be combined directly with amount relatives may in fact appear with them, provided that the relation is mediated by the preposition of:
(33) a. It would take a year to drink half of the whiskey that they spilled at the party.
b. some/most/few of the books that there were in the library
cf. * some/most/few books that there were in the library

This is because the quantifier restriction applies only within the DP that directly takes the amount relative CP (DP2 in (34)), and once that DP is defined, it may be then subject to further quantification with the mediation of of. [DP1 some of [DP2 the [CP d-many books that there were $t$ in the library ]]]

It is hard to see whether the complements of these quantifiers are indeed genitive-marked, especially in headless relative clauses, as there may be no overt morphological marking signalling genitive case. However, a headless relative may receive a possessor interpretation, and possessor nominals require genitive marking. Consider the following:

> a. Bhí súile $\left[\mathrm{a}^{\mathrm{N}}\right.$ raibh [_] sa teach] air. be.PAST eyes C be.PAST.DEP in.the house on.him 'The eyes [of everyone who was in the house] were on him.'
b. Bhí súile na gcomharsan air. be.PAST eyes the neighbours.GEN on.him
'The eyes of the neighbours were on him.' (cf., na comharsana 'the neighbours.nOM')

In (35a), the headless relative clause is the possessor of the preceding noun súile 'eyes', and there is no alternative way to interpret this sentence. This is supported by example (35b), where a DP filling the position of the headless relative clause bears the genitive form.

Thus, the headless relative clauses (or their null heads) bear phonologically covert genitive case in (30). The DP domain sensitive to the restriction has therefore been demarcated before it merges with a quantifier which otherwise cannot appear with headless relative clauses.

### 5.2.2 Negation

In section 2.5.4, we observed that Irish headless relative clauses cannot be constructed across negation:

> * Sin (an méid) nach bhfuil [__] d'airgead aige. that the amount C.NEG is of.money at.him 'That's (all/the amount of) money that he doesn't have.'

The same is true for amount relatives: it is impossible to form an $\mathrm{A}^{\prime}$-dependency across negation in an amount relative:
a. * I read the books that there weren't on the table.
b. * It'd take a month to drink the whiskey they didn't spill at the party.
c. * John will put everything he could n't in his pocket.

Given that negation does not always act as an intervener for $\mathrm{A}^{\prime}$-movement, it constitutes a weak island. According to Szabolcsi and Zwarts (1993), only wh-phrases that range over individuals may move across weak-islands. If this is correct, this lends further support
to both amount relative clauses and Irish headless relative clauses, in that they relativize non-individual terms. ${ }^{21}$

### 5.2.3 Use of Mass/Plural Head Noun

Another piece of evidence for the amount relative analysis of Irish "headed" headless relative clause concerns the characteristics of head nouns. Since amount relatives exploit the notion of degree, they normally require the head nominal, if there is one, to be mass or plural:
(38) a. Those men (that) there were in Australia like Bob.
b. That meat (that) there was was soon eaten by the cougar.
c. * That man (that) there was in Australia likes Bob.
(Carlson, 1977)

A similar pattern is observed in Irish. All of the following examples are constructed with a salient non-DP gap, so that they cannot be confused with an ordinary restrictive relative:

[^49]ii. Deimhnneoidh an cigire gach ar thug achan duine leis chuig an chóisir. will.check the inspector every $a^{\mathrm{N}}$.PAST brought every person with.him to the party 'The inspector will check everything that everyone brought with him to the party.' DO

This differs from other weak-island-sensitive items, such as how in English:
iii. How did everyone arrive?
(Butler and Mathieu, 2004:24)

Crucially, in (iii.), how cannot scope over the universal quantifier.
a. * Sin a bhfuil de chara agam. that $a^{\mathrm{N}}$ is.DEP of friend at.me
'That's all the friend that I have.' (count: singular)
b. Sin a bhfuil de chairde agam. that $a^{\mathrm{N}}$ is.DEP of friends at.me 'That's all the friends that I have.' (count: plural)
c. * Sin a bhfuil d'ubh agam.
that $a^{\mathrm{N}}$ is.DEP of.egg at.me
'That's all the egg that I have. ${ }^{.22}$ (count: singular)
d. Sin a bhfuil d'uibheacha agam.
that $a^{N}$ is.DEP of.eggs at.me
'That's all the eggs that I have.' (count: plural)
e. Sin a bhfuil d'airgead agam.
that $a^{\mathrm{N}}$ is.DEP of.money at.me
'That's all the money that I have.' (mass)
f. Sin a bhfuil d'fheoil agam.
that $a^{\mathrm{N}}$ is.DEP of.meat at.me
'That's all the meat that I have.' (mass)
g. Sin a bhfuil de bhainne agam.
that $a^{N}$ is.DEP of milk at.me
'That's all the milk that I have.' (mass)
h. Sin a bhfuil de mhóin agam.
that $a^{\mathrm{N}}$ is.DEP of peat at.me
'That's all the peat that I have.' (mass)

The pairs (39a-b) and (39c-d) indicate that plurality plays a key role in well-formedness of headless relatives with count nouns. Similarly, all mass nouns are acceptable (39e-h).

An amount relative in English may have a singular head nominal if it is put in an appropriate context. In particular, a there-relative clause is grammatical when the head nominal phrase is modified by a superlative adjective, an ordinal number or only. Thus, Grosu and Landman (1998:149) report that the following is grammatical:

[^50]I took with me the longest/second/only book that there was on the table.
This observation does not extend to Irish: ${ }^{23}$
a. * Tá [ an leabhar is mó a raibh [__ ar an tábla ] agam anois. is the book biggest $a^{\mathrm{N}}$ was on the table at.me now 'I have the biggest book that (there) was on the table.'
b. Tá [ an leabhar is mó a bhi [__ ] ar an tábla ] agam anois. is the book biggest $a^{\mathrm{L}}$ was on the table at.me now 'I have the biggest book that (there) was on the table.'
a. * Tógfaidh mé [ an dara leabhar a raibh [__] ar an tábla ]. will.take I the second book $a^{\mathrm{N}}$ was on the table 'I will take the second book that (there) was on the table.'
b. Tógfaidh mé [ an dara leabhar a bhí [__] ar an tábla ]. will.take I the second book $a^{\mathrm{L}}$ was on the table 'I will take the second book that (there) was on the table.'
a. * Tógfaidh mé [ an t-aon leabhar amháin a raibh [__] ar an tábla ]. will.take I the one book only $a^{\mathrm{N}}$ was on the table 'I will take the only book that (there) was on the table.'
b. Tógfaidh mé [ an t-aon leabhar amháin a bhí [__] ar an tábla ]. will.take I the one book only $a^{\mathrm{L}}$ was on the table 'I will take the only book that (there) was on the table.'

This dissimilarity between Irish and English suggests that the amount relative analysis is more suitable for Irish than the "superlative" analysis that Herdan (2008) develops for English there-relative clauses.

### 5.2.4 Split Nominal Head

The final observation concerns the possibility of separating the part of the nominal which represents amount or degree:

[^51]
## (44) Ordinary Headed Relative Clauses with $a^{L}$

a. Sin an méid airgid atá [__] agam.
that the amount money.GEN $a^{\mathrm{L}}$.is at.me
'That's the amount of money that I have'
MH
b. ?* Sin an méid atá [__] d'airgead agam. that the amount $a^{\text {L }}$.is of.money at.me 'That's the amount that I have of money'
(45) Relative Clauses with $a^{N}$
a. ?* Sin an méid airgid a bhfuil [__] agam. that the amount money.GEN $a^{\mathrm{N}}$ is.DEP at.me 'That's the amount of money that I have'
b. Sin an méid a bhfuil [__] d'airgead agam. that the amount $a^{\mathrm{N}}$ is.DEP of.money at.me That's the amount that I have of money'

The examples in (44) and (45) try to make an ordinary relative clause with a partitive-like structure. The examples in (44a) and (45a) show extraction of a full DP. The difference between them is the choice of the complementizer particle in the relative clause - (44a) comes with the ordinary extraction particle $a^{L}$, while (45a) uses $a^{N}$. The use of the $a^{N}$ particle in this case is highly disfavoured, if not completely ungrammatical. Now let us consider the (b) examples in (44-45). They are very much like the headless relatives with a non-DP gap in (39) in the earlier section, which left the substance nominal in situ within the relative CP, except that here they come with head nominals meaning "amount". Very crucially, now the grammaticality of these examples is reversed: The use of $a^{\mathrm{L}}$ in (44b) significantly degrades the grammaticality of the sentence, while the use of $a^{\mathrm{N}}$ in (45b) improves it. Briefly, splitting is disallowed with $a^{\mathrm{L}}$ while it is required with $a^{\mathrm{N}}$. If we take splitting as displacement of the degree component, leaving the substance component in situ, the phenomenon is consistent with the analysis that the amount relativization which is signalled by $a^{\mathrm{N}}$ in Irish targets movement of the degree component.

Based on these pieces of evidence, I conclude that the headless relatives in Irish are amount relatives.

### 5.3 The Analysis of Irish Amount Relative Clauses 1: Left Periphery

### 5.3.1 A Recap

Let us put the pieces together so as to outline the beginning of an analysis. The basic idea is taken from Grosu and Landman (1998). We will first consider the true headless relative clause, with no overt nominal head, an example of which is repeated in (46):


Let us review what we have covered so far. The first oddity of the headless relative construction in Irish is the discrepancy between the type of element found in the variable site within the relative clause, a gap, and the choice of the complementizer particle, $a^{\mathrm{N}}$, which is otherwise used in resumptive constructions. As we saw in Chapter 4, an Irish headless relative clause must be derived by movement, not by resumption, and it was proposed there that a phonologically empty nominal moves to the specifier of a CP headed by an element which triggers such a movement. This element is syntactically almost identical to the ordinary extraction particle $a^{\mathrm{L}}$, as they both carry the following two features: an agreement feature [AGR], which agrees with the entity to be $\mathrm{A}^{\prime}$-moved to the specifier position of the relative CP and an [EPP] feature which actually motivates the movement. In this chapter, we have argued, following Grosu and Landman (1998), that the headless relative construction involves abstraction over an amount, not over an individual. Thus, the gap in the headless relative clause in (46) signals abstraction over the degree d-many. Since in this case it is not associated with an overt sortal item, we will use the sortal predicate INDIV for generic individuals. The structure in (47) summarizes what we have discussed so far:


Following Grosu and Landman (1998), we represent the degree $d$-many as a triplet, and the CP in (47) thus has the denotation shown in (48).

$$
\begin{equation*}
\llbracket \mathrm{CP} \rrbracket=\left\{\langle | x|, \operatorname{INDIV}, x\rangle: \operatorname{INDIV}(x) \& \operatorname{I} \_\operatorname{Have}(x)\right\} \tag{48}
\end{equation*}
$$

The formula in (48) can be read as "a set of degrees of (plural) individual $x$ such that $x$ is individuals and I have $x$." This CP is then merged with the maximalization operator MAX.


MAX takes a set of complex degrees and returns a singleton set of the maximal degree from the set, only if there is a unique maximal degree in the set. Let us assume that there is such a degree, $\langle | a \mid$, INDIV, $a\rangle$. Then we have the option of applying the SUBSTANCE operation to this output. If SUBSTANCE applies, then the CP will once again denote a plural individual; if not, it will continue to denote the maximal degree.

### 5.3.2 The Particle $a^{N}$

So far we have not seen any substantial difference between the analysis of English amount relatives by Grosu and Landman (1998) and our analysis of the Irish headless relative construction. However, there are several peculiarities unique to Irish that need to be addressed here; the use of the $a^{\mathrm{N}}$ particle, which seems inconsistent with the other cases of wh-extraction, and the fact that Irish headless relativization requires split extraction while in English an entire DP seems to be extracted even though the target of abstraction seems to be the degree of the DP.

Let us first deal with the particle $a^{N}$. We concluded in Chapter 4 that syntactically the $a^{\mathrm{N}}$ particle is nearly identical to the ordinary extraction particle $a^{\mathrm{L}}$, both consisting of the features $[\mathrm{EPP}]$ and $[\mathrm{AGR}]$. This conclusion is drawn from the fact that when a headless relative $\mathrm{A}^{\prime}$-dependency is construed across several CP-boundaries, the lower $\mathrm{C}^{0}$ 's are most likely to be realized as $a^{\mathrm{L}}$. I propose that it is the presence of the operator MAX that distinguishes these two particles. Thus, the feature bundle spelled out by $a^{\mathrm{N}}$ includes the presence of MAX itself, or something that requires it, while $a^{\mathrm{L}}$ carries only the features [AGR] and [EPP], as argued in Chapter 4. This proposal accounts for the fact that in a headless relative clause $a^{\mathrm{N}}$ does not appear in intermediate $\mathrm{C}^{0}$ positions, because, as I will show, the operator MAX appears only at the highest $\mathrm{C}^{0}$ position. If it were to appear in the intermediate position, it would yield a maximalized degree expression too early, and the semantic composition would be void from then on, as the semantic types would not match. However, as a headless relative is derived by movement, the realization of the intermediate particle as $a^{\mathrm{L}}$ is explained straightforwardly as a normal instance of successive cyclicity.

Although the main thrust of the analysis is straightforward, there are some technical questions, which we are now about to address. The analysis so far sketched here is summarized in the tree given in (50).


One obvious point to be made here is that MAX is not a part of $\mathrm{C}^{0}$, and the $\mathrm{A}^{\prime}$-extracted nominal element, though it may not be overtly present, separates the $\mathrm{C}^{0}$ containing [AGR] and [EPP] from the maximalization operator. The question, then, is how the three elements can be spelled out by a single vocabulary item, $a^{\mathrm{N}}$. In many instances of the headless relative construction, the nominal is phonologically null, as in (46) above, and the problem seems to be minor. However, cases with an overt head nominal are easily attested, as in (51), which is repeated from (57c) of Chapter 2:
(51) achan ceist ar cuireadh [__] air sa rang every question $a^{\mathrm{N}}$.PAST put.AUT on.him in.the class 'every question that he was asked in class'

In (51), the sortal predicate ceist undergoes movement, just as in English amount relatives. When this happens, the maximalization operator and the content in $\mathrm{C}^{0}$ may not
be adjacent when the structure is sent off to PF. Given the structure in (50), we would wrongly predict the $a^{\mathrm{L}}$ particle instead of $a^{\mathrm{N}}$. How do we ensure that in example like (51), the highest $\mathrm{C}^{0}$ is realized as $a^{\mathrm{N}}$, not $a^{\mathrm{L}}$ ? In other words, how do we connect MAX with $\mathrm{C}^{0}$ ? There are two ways to deal with this issue, which I will call the Lowering Analysis and the Agreement Analysis. We explore both analyses in the rest of this section, but will postpone deciding which analysis is to be preferred. Ultimately we will suggest that the Agreement Analysis is preferable, but only after morphological considerations are explored in Chapter 6.

## Lowering

The first option, initially proposed in Oda (2007), is to assume morphological lowering of MAX. This approach echoes McCloskey's (1996) claim that the complementizer particles lowers to $\mathrm{T}^{0}$. The following data provides evidence for $\mathrm{C}^{0}$-lowering:
(52) a. Deiridís [an chéad Nollaig eile ] go dtiocfadh sé aníos. they.used.to.say the first Christmas other go would.come he up 'They used to say that [next Christmas] he would come up.'
b. Is dóiche [faoi cheann cúpla lá ] go bhféadfaí imeacht. COP.PRES probable at.the.end.of couple day go could.IMP leave.vn 'It's probable that [in a few days] it would be possible to leave.'
(McCloskey, 1996:(30-31))
(53) \# They said to me tomorrow that the parcel will arrive at Toronto.

Crucially, the data in (52) shows that an adverbial phrase may occur to the left of a complementizer particle (go), while still being interpreted within the lower clause. Note that the adverbials in (52) could, in principle, be interpreted as a part of the matrix clause. Thus the sentences can also mean: 'They used to say the following Christmas that he would come up' or 'It's probable in a few days that it would be possible to leave.' What is crucial about the data is the readings where the adverbials are interpreted in the embedded clause. The opposite is found in English, as the translations of the examples
in (52), as well as the semantic infelicity in (53) show. Given that CP delimits the clausal domain, and that temporal adverbs like the ones in (52) do not adjoin to CP, the Irish data at first glance appear anomalous. McCloskey (1996) argues that these data simply show that the particle lowers and adjoins to $\mathrm{T}^{0}$ at PF after Spell-Out takes place. This analysis is consistent with the fact that nothing can intervene between the verb and the particle in a linear surface string of Irish. We should also emphasize that we take lowering to be a PF phenomenon, and thus it does not violate any conditions or principles of narrow syntax, such as the No Tampering Condition or the Extension Condition, according to which the computation in the narrow syntax happens upward, and no alteration within an already-built structure is allowed. ${ }^{24}$

Under this approach, the operator MAX, and the features triggering $\mathrm{A}^{\prime}$-movement on $\mathrm{C}^{0}$, lower to the projection of T . This results in the structure given in (54). This structure provides the correct surface form of a headless relative clause in Irish, along with an account of the Vocabulary Item for the headless relative particle $a^{\mathrm{N}}$.

[^52]

## Agreement

Now let us consider the second possibility, the Agreement Analysis. This analysis assumes that the feature bundle base-generated on the headless relative $\mathrm{C}^{0}$ comes with an uninterpretable feature, which enters into an Agree relation with the operator MAX. Let us call this feature [uMAX]. Since this feature is assumed to be uninterpretable, the phrase consisting of this $\mathrm{C}^{0}$ requires checking upon merger with the operator MAX before Spell-Out takes place. The tree in (55) illustrates this analysis.


This approach thus suggests that the morphological realization of the particle $a^{\mathrm{N}}$ on the complementizer of the headless relative construction is an indirect reflex of the presence of MAX, mediated by the feature [uMAX]. This differs from the Lowering Analysis described above though both analyses have the same empirical coverage, and involve almost identical structures.

As stated earlier, we will see in section 6.4 that the Agreement Analysis is preferable based on the analysis of morphological realizations of the sentence-initial particles laid out in Chapter 6, but for now, we set the question aside.

### 5.4 The Analysis of Irish Amount Relative Clauses 2: The Structure of DP

We will consider in this section the structure of the Irish DP. We have come across several instances where a clearly non-DP gap, representing some notion of "amount", was created. This is repeated (56):
(56) Gap Smaller than DP
$\begin{array}{lll}\text { a. } \quad \text { a bhfuil ___ d'airgead agam } & \\ a^{N} \text { be.PRES.DEP of.money at.me } \\ \text { 'That's (all) of the money I have.' } & \text { MH }\end{array}$
b. a bhfuil [__] de dhíobháil ort $a^{\mathrm{N}}$ is of need on.you '(all that) you need'

MH
c. Tá a n-ólfaidh páistí [__] de bhaine maith acu. is $a^{\mathrm{N}}$ will.drink kids of milk good at.them 'Every (litre of) milk kids drink is good for them.'

DO

Although the examples in (56) have no overt moved element corresponding with the gap, an overt head is possible, as (57) (repeated from (45b)) shows:

> Sin an méid a bhfuil [_] d'airgead agam. that the amount $a^{N}$ is.DEP of.money at.me That's the amount that I have of money'

MH

It is reasonable to say that this structure corresponds, in some sense, to the structure given in (58).

Tá [méid éigin airgid] agam.
is amount certain money.GEN at.me
'I have some amount of money. (lit. some amount of money is at me.)' DO

The boldfaced phrase in (58) closely resembles what is known as the pseudo-partitive (or measure) construction.

### 5.4.1 A Brief Description of Pseudo-partitive

Before going into details let us define what we mean by pseudo-partitive. A pseudopartitive phrase consists of a measure component which provides a unit that functions as a basis of scalar measurement, and a substantive noun which provides the predicative quality of the phrase (Schwarzschild, 2002, 2006). ${ }^{25}$ Note that the terms measure and

[^53]substantive are used here in a purely descriptive way, and imply no theoretical claims. We may thus use the term substantive for nouns which do not literally denote 'substances'; i.e., nouns meaning abstract and/or non-existing entities such as responsibility or unicorns. Similarly, a measure expression need not have only a measure-related meaning. Thus, the word cup, which functions as a measure word in an expression a cup of tea, could well also mean some entity which functions in some way as a cup. ${ }^{26}$ Let us begin with some English examples:
a. a loaf of bread
b. a box of eggs
c. two cups of tea
d. five feet of snow
e. ten ounces of water

In (59), the words loaf, box, etc. are the measure component and the words bread, eggs, etc. are the substantive component. Crucially, the measure part and the substantive part are connected by the preposition of. The phrase may also include a numeral expression such as two or five and (at least in English,) the measure expression shows number inflection; thus one foot of snow v.s. five feet of snow. Schwarzschild $(2002,2006)$ points out that semantically a (pseudo-)partitive structure signals that the scale expressed by the measure expression always keeps track of the part-whole relation of the substantive expression. Thus, when we say ten ounces of water, weight, which is one of many scalar bases on which the substance noun water can be measured, keeps track of the part-whole relation of water. For this reason, if we take away a part of some amount of water, we necessarily decrease the scalar value of weight of the water as well, and if we add more water, the value goes up. Conversely, when the weight value of water goes up, there is

[^54]necessarily an increase in the amount of water. This contrasts with temperature, another scalar base salient for water. Temperature does not keep track of the part-whole relation: If we have two bodies of water, one at 90 degrees and the other at 60 degrees, and we combine the two, the result will not be water at 150 degrees, unlike the cases with weight or volume. This means that temperature cannot serve as a measure for water. Thus, the pseudo-partitive (60a) is not acceptable while (60b) is:
(60) a. *60 degrees of water
b. 60 degree water

As (60b) illustrates, in English a measure expression which does not keep track of the partwhole relation of the substantive is instead expressed prenominally, like an attributive adjective, and the measure expression lacks number agreement with the numeral. Of course, context may play a role in how the measure word is interpreted. If we are talking about water spilled on a flat surface, we may say three meters of water, where three meters is the diameter of (roughly round) area covered by water.

We further distinguish pseudo-partitives from (true) partitives. The distinction turns on whether the substantive expression is itself delimited. In English, this is formally expressed by the presence of a definite determiner or a demonstrative in the substantive part of the true partitive construction:
a. three grams of sand
(Pseudo-partitive)
b. three grams of the/this sand
(Partitive)

Despite their very similar surface appearances in English, pseudo-partitives and partitives are arguably derived from quite different structures (see Stickney, 2004 and references therein). For example, Stickney (2004:(20), (23)) points out the following contrast: ${ }^{27}$

[^55]
## (62) Extraposition with Partitive

a. How many pounds of those apples did you buy?
b. How many pounds did you buy of those apples?
(63) Extraposition with Pseudo-partitive
a. How many pounds of apples did you buy?
b. * How many pounds did you buy of apples?

As (62a) and (63a) illustrate, both partitive nominals and pseudo-partitive can wh-move as a whole to the left periphery. However, if we try to extrapose the constituent formed by of and the substantive nominal phrase, they diverge. Extraposition or stranding of the PP is possible with a true partitive structure, as in (62b), but not with a pseudo-partitive structure, as (63b) illustrates. The impossibility of extraposition with a pseudo-partitive is not due to the prosodic weight of the stranded PP string, as the following examples illustrate:
a. * How many pounds did you buy [__] of green apples?
b. How many pounds did you buy [__] of those apples?
c. * How many pounds did you buy [__] of Grade A Granny Smith apples?
d. How many pounds did you buy [__] of those Grade A Granny Smith apples?

The stranded portions in examples (64a) and (64b) have identical prosoic weight, but (64a) is ungrammatical, while (64b) is well-formed. Furthermore, the stranded phrase in (64c) is much heavier, and thus ought to be more susceptible to stranding/extraposition. Nonetheless, the sentence is ungrammatical. The ungrammaticality of (64c) contrasts with the well-formedness of (64d), suggesting that the presence or absence of the determiner or demonstrative signals different structures.

It also has been shown that in some languages, true partitives and pseudo-partitives are constructed in very different ways. For example, Schwarzschild (2006) reports the following Armenian examples:

## (65) Armenian

a. mi gavath ayd hamov surtch-ic one cup.NOM that good coffee.ABL 'one cup of that good coffee' (Partitive)
b. mi gavath surtch
one cup.NOM coffee.NOM 'one cup of coffee' (Pseudo-partitive)
(Schwarzschild, 2006:(43))

In Armenian partitives, the substantive expression bears ablative case, whereas in pseudopartitives, the measure noun and the substantive noun bear the same case. Greek also has a similar pattern: true partitives requires the preposition apo 'of', while Greek pseudopartitives resemble their Armenian counterpart, with nothing between the measure and substantive components:
(66) Greek
a. ena flitzani *(apo) ayto to aleuri (oxi to allo)
one cup of that the flour not the other 'one cup of that flour (not (of) the other one)' (Partitive)
b. ena flitzani (*apo) aleuri
one cup flour
'one cup of flour' (Pseudo-partitive) (Maria Kyriakaki, p.c.)

These observations suggest that pseudo-partitives and true partitives may well have quite distinct structures even though they may superficially look very similar in a given language.

### 5.4.2 Excursus on Pseudo-partitives in Irish: Genitive Case and Preposition de 'of'

Before dealing with the extraction of the sub-DP element in the headless relative construction, let us make a quick detour to discuss how the measure component and the substantive component are linked in pseudo-partitives in Irish. In (58), repeated as (67), méid 'amount' is the measure component and airgid 'money.GEN' is the substantive component.

Tá [méid éigin airgid] agam.
is amount certain money.GEN at.me
'I have some amount of money. (lit. some amount of money is at me.)' DO

Now two points are in order: First, notice that the regular pseudo-partitive in Irish does not employ the preposition $d e$ 'of' between the substantive and the measure expressions. Instead the substantive nominal bears genitive case: airgead 'money' is realized as airgid in (67). This use of genitive case marking is not allowed in amount relativization, and thus the sentence in (68b) below is ungrammatical. ${ }^{28}$ Instead, the preposition de 'of' is used, as in (68):
a. Sin a bhfuil [__] d'airgead agam. that $a^{\mathrm{N}}$ is of.money at.me
'That's all the money that I have.'
b. * Sin a bhfuil [__ airgid agam.
that $a^{\mathrm{N}}$ is money.GEN at.me
'That's all the money that I have.'

Second, we have seen that Irish amount relative clauses allow extraction of the measure expression, presumably with some scalar value which will be abstracted at the highest CP of the amount relative, leaving the substantive component in situ. This is not

[^56]possible with the English pseudo-partitive construction: ${ }^{29}$
(69) a. The two pounds of flour that I bought [__] the other day wasn't enough.
b. * The two pounds that I bought [__] of flour the other day wasn't enough.

As we discussed earlier, grammaticality improves if extraction takes place from a true partitive structure, as in (70).

The two pounds that I bought [__] of the flour the other day wasn't enough.

Once again it seems that true partitives have a different structure from pseudo-partitives, at least in English.

Let us come back to the issue of the preposition $d e$ in Irish. Regular pseudo-partitives usually have genitive marking on the substance noun, but with degree-relativization, the strategy with the preposition $d e$ 'of' is the only licit one. However, notice that genitive marking is not the only way to license ordinary pseudo-partitives. In fact, pseudopartitives with the preposition de are observed relatively frequently. Consider the data in (71):
a. píosa aráin piece bread.GEN
'a piece of bread'
b. píosa d'arán bhán
piece of.bread white
'a piece of white bread'

[^57]a. líotar bainne
litre milk.GEN
'a litre of milk'
b. líotar de bhainne gearr úr
litre of milk sour fresh
'a litre of fresh sour milk'

As can be seen in (71-72), when the substance component consists only of a noun, genitive marking is used, whereas when the substance component consists of more than just a noun, the preposition strategy is employed.

This seems to be a prosodic effect, and thus not an issue to be dealt within the domain of syntax, assuming modularity of grammar. The contrast observed in (71-72) can be captured in terms of the following phonological condition:

## (73) Genitive-Case Condition 1 on Irish Pseudo-partitives

Use of the genitive form of the substantive component is well-formed only if it consists of no more than a single word.

Thus, when the substantive component is modified by one or more adjectives, it is too heavy to be a dependent, and must be realized with the preposition. On the other hand, when the substantive is light, nothing blocks the genitive marking strategy. In fact, it is not completely impossible to use the preposition $d e$ even when the substantive is simple, or to use genitive marking with a phonologically heavy substantive component. This is not surprising if the choice is prosodically determined.

A possible, though ultimately unsuccessful, syntactic account of this phenomenon would have the genitive form derived via head-movement of the substantive noun to a higher head position, which has a feature [GEN]. Under this view, the phrasal nature of the substantive component would somehow block such a movement when the substantive
component is complex. ${ }^{30}$ This approach gives the structural contrast in (74):


For expository purposes, we assume the ad hoc category Gen as the host of the feature [GEN] in (74). In (74a), the substantive part consists only of a noun arán 'bread', so it undergoes head-movement to Gen ${ }^{0}$, and assuming late insertion of morphophonological forms, this noun and the feature [GEN] are together realized as the genitive form aráin. On the other hand, in (74b), since movement of the substantive nominal head is blocked, the noun and the feature [GEN] are not realized in the same position, and thus the feature [GEN] is realized separately just as with the features of tense in cases of English do-support. This analysis, however, has two serious drawbacks. First, as mentioned above, the grammaticality contrast with this genitive/preposition competition is somewhat loose, as speakers generally hesitate to categorically reject genitive marking when the preposition $d e$ is expected, and vice versa. This seems more comparable to the case of English comparative/superlative than to do-support: Although slow-er is strongly preferred, a native speaker of English is reluctant to completely rule out more slow, which suggests that the issue is not purely syntactic (Elizabeth Cowper, p.c.). Second, this head-movement analysis cannot be straightforwardly extended to account for

[^58]the case of degree extraction of the headless relatives, unless some "look-ahead" mechanism is introduced. Recall that when only the degree portion of the nominal is extracted in a headless relative clause, the preposition de is used regardless of the status of the substantive component. At the point that GenP is constructed, whether as in (74a) or in (74b), the grammar has no way of knowing whether there will be later extraction of the measure component (which has not even been merged at that point). Thus, it seems reasonable to set aside the syntactic treatment of the phenomenon.

Let us return to headless relative clauses. We have so far established that the preposition $d e$ is available in ordinary pseudo-partitives, and that the choice between genitive case-marking and the preposition de is prosodic. We can thus account for the obligatory presence of de in the headless relative clauses with degree extraction with the following phonological condition:

## (75) Genitive-Case Condition 2 on Irish Pseudo-partitives

The genitive form requires its phonological host immediately to its left within the smallest DP in which it is contained. ${ }^{31}$

This condition rules out cases like (68b), where both genitive marking and degree extraction takes place, and further avoids the look-ahead problem which arose under the syntactic account. Before moving on, we note one worry concerning this analysis: Sentences like (68) are much less acceptable than the case of a heavy substantive component with genitive marking. Thus the condition in (75) is categorical, while the condition in (73) is "violable". Although this may be worrisome, it may be a result of different issues: The condition in (73) seems not to be applicable with other uses of genitive form, and thus it targets a specific construction. For example, an r-expression in the direct object position of a progressive construction bears genitive case, and it may not occur with the

[^59]preposition de even if it is phonologically heavy, as illustrated in (76) (cf., (77)).
a. * Tá an fear ag goid de phrátaí úra is the man stealing of potatoes fresh 'The man is stealing fresh potatoes.'
b. * Tá an cailín ag déanamh d'arán bhán is the girl making of.bread white 'The girl is making white bread.'
a. Tá an fear ag goid prátaí úra is the man stealing potatoes.GEN fresh.GEN 'The man is stealing fresh potatoes.'
b. Tá an cailín ag déanamh aráin bháin is the girl making bread.GEN white.GEN 'The girl is making white bread.'

On the other hand, the condition in (75) seems to be true across the board, with no exception, to my knowledge. This seems to suggest that these conditions have a different status. Since the exact nature of these conditions is beyond the scope of this work, we will simply assume the morphophonological account of the phenomenon.

### 5.4.3 Extraction of Measure Component and the Structure of Pseudo-partitives

Now let us come back to the extraction of the measure component. We have seen that English does not permit extraction of only the measure component of a pseudo-partitive phrase to form a degree relative clause, while Irish does. Sentences that illustrate this point are repeated below:
(78) a. * The two pounds that I bought [__] of flour the other day wasn't enough.
b. Sin an méid a bhfuil [__] d'airgead agam. that the amount $a^{\mathrm{N}}$ is.DEP of.money at.me That's the amount that I have of money'

Thus, an adequate analysis of degree extraction in the Irish headless relative construction should also be able to address the ungrammaticality of the English counterpart.

Alexiadou et al. (2007) provide an extensive overview of recent developments in the literature of pseudo-partitives. According to them, there are two major competing analyses of the construction in the recent Minimalist literature; One is what they call the Monoprojectional approach, which is found also in Stavrou (2003), as well as in Stickney (2004). The other is the Predicational approach, which is found in Corver (1998). We adopt these terms here as well. ${ }^{32}$

Let us consider the Monoprojectional approach first. The approach is summarized as follows: The nominal domain consists of fine-grained layers of categories, just like the proposals made for V (Larson, 1988), Infl (Pollock, 1989), or for C (Rizzi, 1997). The term "Monoprojectional" comes from the idea that the layers are, in essence, extended projections of a nominal category, where the degree of functionality increases towards the outer layer. Thus, the innermost category, N, is most lexical and least functional, while D , the outermost category, is most functional and least lexical. This is reminiscent of proposals in Grimshaw (2000). The concept of extended projections is not directly relevant to us here. What is most crucial to us is that in this view, each element in a pseudo-partitive occupies the head of a projection in the nominal layer. The Monoprojectional approach thus provides the following structure for an English pseudo-partitive structure, (adapted from Stickney, 2004:(9-10)):

[^60]

MP in (79) stands for Measure Phrase, and the word of is of some functional category F. Alexiadou et al. (2007) report a slightly different instantiation from the one proposed by Stickney (2004), but the difference is not of a particular relevance for us. Alexiadou et al. (2007) consider that the category Q(uantifier) is interchangeable with Num(eral), which is occupied by numeric elements, such as three in three cups of coffee. This seems to be assumed by Stickney (2004), ar at least it is compatible with her analysis.

The alternative account, the Predicational analysis (Corver, 1998), takes the parallelism in (80) very seriously:
(80) a. that idiot of a man
b. a bunch of flowers
(Corver, 1998:(1), (4a))

The phrase in (80a) crucially refers to a some male individual who is an idiot, not some mental property of some male individual. This is quite different from an ordinary DP structure with of-PP such as the picture of a man, where the first noun picture has the referential force. Thus we find the following contrast:
(81) a. That tall idiot of a man
b. The tall picture of a man

In (81a), the adjective tall describes the second noun (a) man, not the idiotic nature of a man, while in (81b), the adjective describes the first noun picture and the reading where it refers to the second noun is completely ruled out. A similar fact is observed with pseudo-partitives: ${ }^{33}$
(82) a. A fragrant bunch of flowers
b. A strong cup of tea
c. A fresh pint of beer

Corver (1998) adopts den Dikken's (1995) proposal that cases like (80a) above are formed by inversion of the predicative item (i.e., idiot and bunch in (80)) over the subject, and extends it to pseudo-partitives. According to this analysis, the preposition of is in fact an instantiation of a copula in the nominal domain, which subsequently undergoes headmovement to the next higher head. Thus, the following structure is obtained (Corver, 1998:(30)):

[^61]In general, the pattern tends to appear grammatical when the measure noun saliently describes measure (i.e., it only denotes measure, and it cannot mean an individual by itself, or its individual meaning is derivative from its measure meaning). Thus, one may find one bitter litre of ale more acceptable than (i).


Notice that the structure in (83) shares with the Monoprojectional analysis the intuition that the English pseudo-partitive is constructed within the projectional layers extending from one nominal core. The analyses differ as to what counts as the "nominal core." It is the measure component for the Predicational analysis, and the substantive component for the Monoprojectional analysis. Since it takes the measure component to be the nominal core of the extended projection, the Predicational analysis has the advantage that the analysis can readily express the concord observed between the measure component and the determiner. Thus the analysis can safely rule out data such as the following:
(84) $\quad$ a three pounds of milk

Schwarzschild (2006) also proposes a structure that resembles Corver's. Schwarzschild does not argue for (or assume) inversion of the measure element, but based on his semantic insights, laid out earlier in this chapter, he concludes that the preposition of is of the category Mon(otonicity), the head of the pseudo-partitive phrase (except the determiner), and provides the monotonic meaning of the measure component. The substantive component occupies the complement position of the MonP, whereas the measure
expression occupies the specifier position.
Leaving aside whether inversion really happens, or whether Alexiadou et al.'s (2007) notion of semi-lexical categories is legitimate, there is another crucial difference between the Monoprojectional approach in (79) and the Predicational approach in (83). Under the Monoprojectional approach, the measure element and its associated numeral expression (or quantifier) each occupy a head in a layer of extended projections of the nominal domain. This means that the numeral and the measure do not form a constituent to the exclusion of the substantive component. On the other hand, under the Predicational approach, the measure element and the numeral form a phrasal constituent. Thus, leaving aside the details of category labels in the two analyses, we have the following structural contrast:


There is a clear empirical consequence to this difference: ( $\mathrm{A}^{\prime}-$ )extraction of the measure component, i.e., of the (possibly null) numeral and the measure word, is impossible under the Monoprojectional approach in (85a) (and in (79)). We cannot extract the measure element alone for several reasons. First, such an operation moves a head to a specifier position, which is phrasal. Also, given the probe-and-goal model of movement, and the assumption of bare phrase structure, we would rather expect movement of the entire MP since the syntactic computation would not be able to distinguish between the head $\mathrm{M}^{0}$ alone and the entire phrase headed by it, and the entire head is a closer node which
matches the probe. ${ }^{34}$ The movement of the measure element and the numeral together is even worse: They do not form a constituent; we would have to stipulate ad-hoc roll-up movement of the of-substantive constituent to some higher node and subsequent remnant movement of NumP. Due to the lack of independent evidence for such movement, such an analysis is highly dubious. ${ }^{35}$

On the other hand, extraction of the measure component is handled easily according to the structure proposed under the Predicational approach given in (85b). Leaving aside other details, the measure and the numeral alone form a constituent, labeled as MP in (85b), and because of this, we expect the extraction of the measure component under this analysis.

[^62]i. Only a handful of questions were asked [PP concerning electromagnetism].
(Stickney, 2004:(26a))

Her analysis is that the PP constituent which is a complement of the substantive noun questions first adjoins to the DP only a handful of questions 〈concerning electromagnetism〉, and the lower DP segment moves to the subject position. Although this analysis does account for the availability of such a sentence, it does not explain what motivates such a process, or why we do not see a sentence such as (i), which would represent the result of the first movement of PP:
i. * They will ask [pP concerning electromagnetism] a handful of questions.

Now let us come back to the mini-comparative study of Irish and English, which is summarized by the examples in (78):
(78) a. * The two pounds that I bought [__] of flour the other day wasn't enough.
b. Sin an méid a bhfuil [__] d'airgead agam. that the amount $a^{\mathrm{N}}$ is.DEP of.money at.me That's the amount that I have of money'

The situation found in English where extraction of the measure component alone out of a pseudo-partitive phrase is disallowed (cf., (78a)), is readily accounted for under the Monoprojectional approach without any further assumptions; in fact, this is how Stickney (2004) proposes to account for the ungrammaticality of cases such as (63) and (78a), and we maintain this analysis for English in this work. The Predicational approach, on the other hand, is undesirable for English, since it predicts such movement by default, and thus requires additional assumptions in order to correctly rule out the cases like (63) and (78a).

The situation of Irish is the opposite: The Monoprojectional approach (85a) is unsatisfactory for the Irish scenario, since Irish does allow movement of measure/degree expression leaving the rest of the DP in situ within the relative CP (cf., (78b)). The Irish case seems to fit the Projectional approach, which easily accommodates $\mathrm{A}^{\prime}$-extraction of the measure expression. Therefore, we claim that Irish pseudo-partitive phrases are formed along the line of the Predicational approach, and reject the Monoprojectional approach for Irish. This entails that there is no single structure for pseudo-partitive constructions cross-linguistically. Instead, there are (at least) two ways to form a phrase with a pseudopartitive interpretation. The consequence is apparent; one structure blocks extraction of the measure component, and the other allows it. This seems to be another instance of parametric variation among languages. ${ }^{36}$ Also, the proposal made here runs counter to

[^63]the speculation by Alexiadou et al. (2007) that languages in which the pseudo-partitive construction has the preposition of or its equivalent fall naturally into the Predication approach while languages that lack of, such as Greek and Dutch (juxtaposed pseudopartitives in Alexiadou et al.'s terminology), fall naturally into the Monoprojectional analysis. While an analysis of languages with the juxtaposed pseudo-partitive structure is beyond the scope of this work, we in essence propose that the use of of per se has very little to do with the dichotomy between the Monoprojectional and the Predicational approaches.

We thus propose that the pseudo-partitive construction in Irish is better analyzed using the Predicational approach, in which the measure component can be extracted directly without pied-piping the substantive component. Also, the semantic observation made by Schwarzschild (2006) is correct for Irish as well; that is, when a partitive phrase is formed with a preposition de 'of', the measure expression is monotonic - it keeps track of the part-whole relation of the substance expression. On the other hand, we need not commit to den Dikken's (1995) idea of predicate inversion. Although assuming predicate inversion does no harm to our analysis of headless relative clauses, it makes the story cumbersome, and we therefore leave out such details here. Thus, we adopt the following structure for the pseudo-partitive structure in Irish: ${ }^{37}$

[^64]

The measure component, which is represented as MP in (86), agrees with [AGR] in $\mathrm{C}^{0}$ as we have proposed, and moves to the specifier of the CP. The entire relative CP is then merged as an argument of the operator Max, as proposed earlier. This results in the structure shown in (87).


We assume that, as we see in (87), in the headless relative construction, D of the pseudo-partitive construction (bracketed in (86)) is absent. This is concordant with the fact observed by Carlson (1977) that the variable position in an amount relative clause in
general cannot be definite, which we assume is cross-linguistically true. This assumption also accounts for the contrast discussed in (44-45), repeated in (88-89).
(88) Ordinary Headed Relative Clauses with $a^{\text {L }}$
a. Sin an méid airgid atá [__] agam. that the amount money.GEN $a^{\mathrm{L}}$.is at.me 'That's the amount of money that I have'

MH
b. ?* Sin an méid atá [__] d'airgead agam. that the amount $a^{\text {L }}$.is of.money at.me 'That's the amount that I have of money'

MH
(89) Relative Clauses with $a^{N}$
a. ?* Sin an méid airgid a bhfuil [__] agam. that the amount money.GEN $a^{\mathrm{N}}$ is.DEP at.me 'That's the amount of money that I have'

MH
b. Sin an méid a bhfuil [__] d'airgead agam. that the amount $a^{\mathrm{N}}$ is.DEP of.money at.me That's the amount that I have of money'

MH

The generalization is that dislocation of sub-DP constituent corresponds with the presence of the $a^{\mathrm{N}}$ particle (89b), while dislocation of the entire nominal constituent (88a) corresponds with occurrence of the $a^{\mathrm{L}}$ particle. We claim that the grammar can choose to construct a pseudo-partitive structure in a relative clause with or without D . The structure in (88a) can then be accounted for by assuming that the structure includes D , and then the entire DP undergoes movement to Spec-CP, as in (90): ${ }^{38}$

[^65]i. We had the three pints of beer that John bought.


Also we propose that the analysis of headless relative clauses with sub-DP movement extends to the core case in which no overt head or in situ substantive component is observed, as in (21a), which is repeated in (91) below:

$$
\begin{align*}
& \text { Sin [a bhfuil [__] agam]. }  \tag{91}\\
& \text { that a }{ }^{\mathrm{N}} \text { be.PRES.DEP } \\
& \text { 'That's (all) I have.' }
\end{align*}
$$

(Mac Mathúna and Ó Corráin, 1997:361)

We claim that cases like (91) do indeed form a complex pseudo-partitive structure headed by Mon in the headless relative CP, and only the measure component of the phonologically covert complex structure moves out. ${ }^{39}$

$$
\begin{equation*}
\left[\operatorname{MAX}\left[\mathrm{CP}\left[\operatorname{MP} \emptyset_{4}^{\emptyset]}\left[\mathrm{C}^{0}\left[\ldots\left[\operatorname{MonP}\langle\mathrm{MP}\rangle\left[\operatorname{Mon}^{0}[\text { substantive-NP } \emptyset]\right]\right] \ldots\right]\right]\right]\right]\right. \tag{92}
\end{equation*}
$$

[^66]This is on the right track on semantic/pragmatic grounds: Corver (1998:219) points out that (in English) the substantive component can be left unpronounced when it is understood implicitly:
a. A: What did John buy?

B: \# John bought a bunch (cf., John bought a bunch of flowers.)
b. A: Do you like flowers?

B: I buy three bunches every week.
(Corver, 1998:(14-15))

A similar observation holds in Irish:
(94) A: Ar cheannaigh tú plúr?
Q.PAST bought you flour
'Did you buy flour?'
B: Cheannaigh, cheannaigh mé ceathrú cloiche.
bought bought I quarter stone
'Yes, I bought a quarter stone.'

We thus argue that a similar effect is in place in the Irish headless relative clause. That is, when a completely null pseudo-partitive structure is constructed, the speaker (and the hearer) understand what substance is at stake. Thus, the sentence in (91) means 'all the money that I have' when the speaker is asked "How much money do you have?", and it means "all the eggs" if s/he is asked "how much eggs do you have?" 40

[^67]i. A: Cá bhfuil do chuid uibheacha?
where is your portion eggs
'Where are your eggs?'
B1: * Sin an chuid a bhfuil [__] agam.

'That's the portion that I have.'
B2: Sin an chuid atá [__] agam.
that the portion $a^{\mathrm{L}}$.is at.me
'That's the portion that I have.'

### 5.5 Conclusion

In this chapter, we provided a further investigation of Irish headless relative clauses, based on the observations made in the earlier chapters. The core claim of this chapter is that Irish headless relatives are in fact amount relative clauses in the sense of Carlson (1977), and I argued for an analysis based on Grosu and Landman's (1998) complex degree semantics and the maximalization operator. This analysis is advantageous in that it accounts for various descriptive observations.

The latter part of this chapter developed an analysis of the syntax of the headless relative construction. The main observation is that the Irish headless relative construction heavily exploits the notion of "pseudo-partitives". Comparing two competing analyses of pseudo-partitives, I argued that the Predicational analysis of Corver (1998) and Schwarzschild $(2002,2006)$ are adequate for the pseudo-partitive construction in Irish.

The analysis advanced here has several consequences. The most notable corollary is perhaps that the morphological appearance of $a^{\mathrm{N}}$ in the headless relative construction reflects the presence of the maximalization operator, and thus its morphological appearance, in particular its 'homomorphy' with the resumption particle $a^{\mathrm{N}}$, is accidental. However, we have not explored this idea fully yet. We have laid out two possible analyses of the morphosyntax of the headless relative particle $a^{\mathrm{N}}$, the lowering analysis and the

If the analysis laid out here is correct, we would then expect that the substantial component could be left unpronounced while $a^{\mathrm{N}}$-gap dependency is formed. However, as the reply B1 in (i) shows such an option appears unacceptable. A similar result is obtained in the example below, as well:
ii. A: Ar cheannaigh tú plúr?
Q.PAST bought you flour 'Did you buy flour?'

B: Cheannaigh. Tá an ceathrú cloiche $\mathrm{a} / *$ ar cheannaigh mé anseo. Bought Is the quarter stone $a^{\mathrm{L}} / a^{\mathrm{N}}$. PAST bought I here 'Yes, I did. The quarter stone that I bought is here'

There is no simple answer to this issue and I set this aside in this work.
agreement analysis, but we have not concluded which of the two is to be preferred. To achieve this goal, we must first take a close look at the morphology of the preverbal particles, one of the main topics of Chapter 6. We will revisit the morphosyntax of the headless relative particle $a^{\mathrm{N}}$ in section 6.4.2.

## Chapter 6

# Morphology of Verb-initial Particles and Dependent Forms 

### 6.1 Introduction

So far we have considered only the syntax and semantics of Irish headless relative clauses. The main conclusion thus far is that the headless relative construction requires extraction (qua abstraction in semantics) of a measure/degree expression with subsequent application of the maximalization operator. A question remains as to how the syntactic structure argued for in the previous chapters is "phonologized". We have been assuming Distributed Morphology (most importantly the concept of Late Insertion, whereby morphemes are inserted post-syntactically based on the information brought from narrow syntax), but we have not touched on exactly how the insertion is executed. In particular, I have argued that, on the one hand, the particle $a^{\mathrm{N}}$ is an overt expression of the maximalization operator plus a bundle of formal features otherwise spelled out by the ordinary wh-extraction operator $a^{L}$. However, on the other hand, it remains open exactly how it is instantiated given that in the syntax, a measure expression (sometimes even overtly) separates the maximalization operator above CP from the featural bundle in $\mathrm{C}^{0}$.

In Chapter 5, I discussed two possible solutions to this problem, which I call the Lowering Analysis and the Agreement Analysis (section 5.3.2), but so far I have not found any conclusive syntactic evidence to choose between them. Thus, it is worth considering the phenomenon from a different angle.

Also, though seemingly unrelated at first sight, Irish has a unique (and rather "notorious" for learners of the language) irregular verbal paradigm of so-called dependent forms, which lacks a proper treatment in the generative literature, though there are occasional references to the phenomenon (e.g., Duffield (1995) and McCloskey (2001)).

This chapter addresses the morphology of the left periphery in Irish. In particular, we investigate the interaction of preverbal particles and irregular verbs in Irish, and provide an analysis for it within the framework of Distributed Morphology (DM) (Halle and Marantz, 1994; Harley and Noyer, 1999). ${ }^{1}$ I will first argue that $\mathrm{C}^{0}$ independently carries a tense feature (in addition to the tense feature on $\mathrm{T}^{0}$ ), as Cottell (1995) has argued independently, and that the dependent form is a realization of two tense features. It will be shown that DM is readily capable of accounting for the seemingly problematic finite verbal morphology in Irish, without resorting to any ancillary mechanisms. We will then come back to the realization of the maximalization operator to consolidate the findings in this chapter and in the previous chapters.

[^68]
### 6.2 A Descriptive Account of Particle-Verb Interactions

An example of the particle-verb interaction, the central topic of this chapter, is given in (1): ${ }^{2}$
(1) a. Ar ghlan sé?
Q.PAST clean.PAST he
'Did he clean?'
b. An raibh sé tinn?

Q be.PAST.DEP he sick
'Was he sick?'

Both the particle and the verb are generally marked for tense, as in (1a). However, irregular verbs, such as the verb bí 'be' in (1b), present an interesting twist. They have a special dependent form (marked as DEP in the gloss in this chapter) which occurs only in the presence of a tense-marking particle. Surprisingly, however, when the dependent

[^69]i a. sara mbéic an tiománaí
before shouted the driver
'before the driver shouted'
b. sara bpósas
before married.1SG
'before I married'
c. toisc go dtarla rudaí
because go happened things
'because things happened'

The analysis provided in this paper does not apply to varieties of this type, which require a different analysis.
form appears, the tense-marking on the particle is neutralized. Let us review more closely the properties of the preverbal particles (§6.2.1) and the verbs (§6.2.2).

### 6.2.1 Preverbal Particles

Like many other verb-initial languages, Irish has a rich inventory of preverbal particles, including the long-distance dependency particles $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$, and the finite complementation particle go that we have seen in the previous chapters. These particles are small functional elements which only appear left-adjacent to (finite) verbs, with no elements separating them from the verb. ${ }^{3}$ The particles have a fairly wide range of grammatical functions. The following set of data illustrates this point; see Doyle (2001) for detailed descriptions of the particles.
(2) a. Negation

Ní théann Máire go dtí an siopa.
NEG go.PRES to the shop
'Máire doesn't go to the shop.'
(Doyle, 2001:43)
b. Yes/No Question

An dtéann Máire go dtí an siopa?
Q go.pres to the shop
'Does Máire go to the shop?'
(Doyle, 2001:43)
c. Wh-extraction
an buachaill a phóg an cailín [__]
the boy $\quad a^{\mathrm{L}}$ kiss.PAST the girl
'the boy that the girl kissed'

[^70]
## d. Resumption

an buachaill ar phóg an cailín é
the boy $\quad a^{\mathrm{N}}$.PAST kiss.PAST the girl him
'the boy that the girl kissed'
e. Complementation

Creidim go gcuirfidh sí isteach air. believe.1SG go put.FUT she in on.it
'I believe that she'll apply for it.'
(McCloskey, 2001:(30a))
f. Copular Construction

Ba mhaith liom dul ann.
COP.PAST good with.me go.VN there
'I would like to go there.'
(Doyle, 2001:53)
g. Counterfactual Conditional

Dá ndéanfá feabhsú ar bith [...]
if do.COND.2SG improvement any
'If you were to implement any improvement, ...' (McCloskey, 2001:(42b))
h. Simple/Open Conditional

Má bhí tú ann, chonaic tú í.
if were you there saw you her.
'If you were there, you saw her.'
(McCloskey, 2001:(43b))

Most of these preverbal particles, including the resumptive-marking $a^{\mathrm{N}}$, distinguish between the past tense and the non-past tense, which can be either present or future, while verbs themselves further divide the non-past into future and present. No particle makes an overt distinction between present and future. ${ }^{4}$

[^71](3) a. Negation ní

| Present: | Ní | chreideann | tú ... |
| :--- | :--- | :--- | :--- |
|  | NEG | believe.PRES | you |
| Future: | Ní | chreidfidh | tú... |
|  | NEG | believe.FUT | you |
| Past: | Níor | chreid | tú ... |
|  | NEG.PAST | believe.PAST | you |

'I don't/won't/didn't believe ...'
b. $\quad \mathrm{Y} / \mathrm{N}$ Question an

| Present: An | gcreideann | tú ...? |  |
| :--- | :--- | :--- | :--- |
|  | Q | believe.PRES | you |
| Future: | An | gcreidfidh | tú ...? |
|  | Q | believe.FUT | you |
| Past: | Ar | chreid | tú ...? |
|  | Q.PAST | believe.PAST | you |
| 'Do/will/did you believe ...?' |  |  |  |

c. Resumption $a^{N}$

| Present: | NP | $\mathbf{a}$ | gcreideann | tú ... |
| :--- | :--- | :--- | :--- | :--- |
|  |  | $a^{\mathrm{N}}$ | believe.PRES | you |
| Future: | NP | $\mathbf{a}$ | gcreidfidh | tú ... |
|  |  | $a^{\mathrm{N}}$ | believe.FUT | you |
| Past: | NP | ar | chreid | tú $\ldots$ |
|  |  | $a^{\mathrm{N} . \text { PAST }}$ | believe.PAST | you |

'... which you believe/will believe/believed ...'

## d. Complementizer go

| Present: | go | gcreideann |  |
| :---: | :---: | :---: | :---: |
|  | COMP | believe.PRES | you |
| Future: | go | gcreidfidh | tú |
|  | COMP | believe.FUT | you |
| Past: | gur | chreid | tú |
|  | COMP.PAST | believe.PAST | you |

Note that not all the particles make the tense distinction. The wh-extraction particle $a^{L}$ and the simple conditional marker má make no tense distinction (McCloskey, 2001).

| Wh-extraction $a^{\text {L }}$ |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| Present: | NP | a | chreideann | tú $\ldots$ |
|  |  | WH | believe.PRES | you |
| Future: | NP | a | chreidfidh | tú... |
|  |  | WH | believe.FUT | you |
| Past: | NP | a | chreid | tú... |
|  |  | WH | believe.PAST | you |

'... which you believe/will believe/believed ...'

### 6.2.2 Verbal Morphology

We now turn to the verbal morphology, beginning with the tense distinction. Irish verbs overtly mark tense. Here we consider the major tense distinctions in the languagepresent, future, and past - and ignore the other tense-related morphology. The present tense is indicated by suffixation of -(e)ann to a mono-syllabic verbal stem or -(a)íonn to a multi-syllabic verbal stem. The future tense is marked in a similar fashion, by a suffix $-f(a) i d h$ (to a mono-syllabic stem) or -(o)idh (to a multi-syllabic stem). Finally, the past tense is marked by a mutation of the initial consonant called lenition, which is also
triggered by the presence of the wh-extraction particle $a^{L}$. As mentioned in Chapter 2, lenition corresponds roughly to the notion of fricativization/spirantization in phonology. Lenition is indicated by the addition of the letter $\langle h\rangle$ in the modern orthography of Irish, which is used in this paper. The examples in (5) illustrate the tense declension of a regular verb: ${ }^{5}$


The underlying word-initial consonants $/ \mathrm{g} /$ and $/ \mathrm{k} /$ of the examples in (5) are lenited to $/ \mathrm{f} /$ and $/ \mathrm{x} /$ respectively in the past tense.

Recall from the discussion above that some of the preverbal particles in Irish mark the past/non-past distinction. This means that both the particle and the verb in such a clause signal the tense of the clause.
(6) a. an nglanann tú ...?

Q clean.Pres you
'Do you clean ...?'
b. * ar ghlanann tú ...?
Q.PAST clean.PRES you

[^72](7) a. an nglanfaidh tú ...?

Q clean.FUT you
'Will you clean ...?'
b. * ar ghlanfaidh tú ...? Q.PAST clean.FUT you
(8) a. ar ghlan tú ...?
Q.PAST clean.PAST you
'Did you clean ...?'
b. * an ghlan tú ...?

Q clean.PAST you
The particle and the verb must have the same value for past/non-past within the same clause, and a mismatch in this feature between a regular verb and a particle causes ungrammaticality.

### 6.2.3 Irregular Verbs

Now let us turn to the morphology of irregular verbs. Irish has only eleven irregular verbs, listed in (9): ${ }^{6}$
(9) Irregular Verbs in Irish

| bi | 'be' | téigh | 'go' | feic | 'see' |
| :--- | :--- | :--- | :--- | :--- | :--- |
| déan | 'do' | faigh | 'get' | abair | 'say' |
| clois | 'hear' | tabhair | 'give' | tar | 'come' |
| ith | 'eat' | beir | 'catch' |  |  |

All of these irregular verbs show some degree of suppletion. For example, the present tense form of the verb bí 'be' is tá (but not *bí-eann ${ }^{7}$ ) and the present form of tabhair

[^73]'give' is tug-ann.
What is most notable about these irregular verbs is that many of them (though not all) have what is traditionally called a dependent form in their morphological paradigm. Example (10) show verbs that have a dependent form. Note that following the descriptive traditional grammar, we will use the term independent for the regular "non-dependent" forms of a verb.
(10) Irregular Verbs with Dependent Form ${ }^{8}$

| Verb Stem | Tense/Mood | Independent Form | Dependent Form |
| :--- | :---: | :---: | :---: |
| déan 'do' | past | rinne | dearna |
| faigh 'get' | future | gheobhaidh | bhfaighidh |
| faigh 'get' | conditional | gheobhadh | bhfaigheadh |
| feic 'see' | past | chonaic | faca |
| téigh 'go' | past | chuaigh | deachaigh |
| bíbe' | present | tá | bhfuil |
| bí'be' | past | bhí | raibh |

The dependent form is triggered by some of the preverbal particles-specifically those that have tense-sensitive realizations, such as the negation marker ni, or the interrogative marker an. When a verb is preceded by one of those tense-sensitive preverbal particles,
present form constructed by suffixation, it may well be the case that the present habitual form is in fact what is considered as the canonical "present" in the language, making the traditionally called present form tá distinct from the rest. This has no bearing on the issues being discussed here.
${ }^{8}$ Only the forms noted as dependent by Christian Brothers (1999) are provided here. Note that Christian Brothers (1999) considers that the conditional mood of the verb ith 'eat' has the dependent/independent distinction, but this treatment appears to be questionable, as there is no obvious change in the form. Note also that the verb bi' 'be' has a special negative present tense form nil 'am/is/are not', blocking realization of ni fhuil or ní bhfuil. James McCloskey (p.c.) points out that the form chan fhuil is available in the Donegal varieties, and suggests that nil is really ní fhuil, obscured by the orthography.
it must be in the dependent form if such a form is available in its paradigm. Thus we observe:
a. An bhfuil tú ...?

Q is.DEP you
'Are you ...?'
b. * An tá tú ...?

Q is you
The environment that gives rise to the dependent form is thus very limited. In particular, the dependent form can never appear except after one of the aforementioned licensing (i.e., tense-sensitive) particles. Thus, the dependent form is never found without a particle:
(12) a. Bhí mé tinn.
was I sick
'I was sick'
b. * Raibh mé tinn was.DEP I sick

Crucially, the dependent form in turn affects the appearance of the preceding particle, as follows: When the dependent form appears, the preverbal particle can only take the non-past form regardless of the tense of the clause. The effect is vacuous in the present and future environments where the particle would in any case be non-past, but it becomes apparent in the past tense environment:

$$
\begin{array}{ll}
\text { a. An raibh tú ...? }  \tag{13}\\
& \text { Q were.DEP you } \\
& \text { 'Were you } \ldots \text { ?' } \\
\text { b. } & \\
& \text { Qr raibh tú ...? } \\
& \text { Q.PAST were.DEP you } \\
\text { c. } & \text { An bhí tú } \ldots ? \\
& \text { Q were you } \\
\text { d. } & \text { Ar bhí tú ...? } \\
& \text { Q.PAST were you }
\end{array}
$$

a. Ní dhearna tú ...

NEG did.DEP you
'You did not do ...'
b. * Níor dhearna tú ...

NEG.PAST did.DEP you
c. * Ní rinne tú ...

NEG did you
d. * Níor rinne tú ...

NEG.PAST did you
Note that there is no direct correlation between morphological suppletion per se and the appearance of the non-past form of preverbal particles. There are several non-dependent past tense suppletive forms which occur with a past-marked particle:
(15) Irregular Verbs without Dependent Forms

| Stem |  | Past Tense | With Particle |  |
| :--- | :--- | :--- | :--- | :--- |
| tar | 'come' | tháinig | níor/*ní tháinig | 'didn't come' |
| tabhair | 'give' | thug | níor/*ní thug | 'didn't give' |
| clois | 'hear' | chuala | níor $/$ * ní chuala $^{\text {'didn't hear' }}$ |  |
| beir | 'catch' | rug | níor $/$ * ní rug $^{\text {'didn't catch' }}$ |  |

Finally, it should be emphasized that the dependent form surfaces only when the preceding particle is tense-sensitive. Thus, an independent (i.e., non-dependent) form is used when the preceding particle is a tense-insensitive one, such as the wh-extraction particle $a^{\mathrm{L}}$ or the simple conditional particle má. ${ }^{9}$
a. Má bhí tú ... if were you
b. * Má raibh tú ...
if were.DEP you

[^74]This strange kind of complementary distribution between tense specification on the preverbal particle and on the dependent form is the puzzle that we want to solve.

### 6.3 An Analysis

### 6.3.1 Assumptions

Let us briefly recapitulate the assumptions that we adopt in this thesis: Following McCloskey (2001), and contra Duffield (1995) and Noonan (1997, 2002) among others, we assume that the preverbal particles occupy the head $\mathrm{C}^{0} .{ }^{10}$

Second, we further assume that $\mathrm{C}^{0}$ lowers and adjoins to $\mathrm{T}^{0}$ in the same clause after Spell-Out takes place, creating the following structure. ${ }^{11}$


Although lowering is not in accord with the core tenets of the Minimalist Program, it is not necessarily a problematic operation assuming that it is a morphophonological

[^75]process taking place after Spell-Out. ${ }^{12}$ See Embick and Noyer (2001) for the theory of post-syntactic lowering. Empirical evidence for the lowering in Irish is provided by McCloskey (1996), as discussed in Chapter 5.

### 6.3.2 Particles

Let us first consider the particles. Recall that in Irish the tense distinction on a preverbal particle is between past and non-past. The non-past marking appears with both present and future; no particle makes a morphological distinction between them.

The morphology of non-past marking seems to be best captured as Underspecification of tense features and the Subset Principle at work during the process of Vocabulary Insertion. That is, the Vocabulary Item (hereafter, VI) for a non-past particle carries no tense specification and the language systematically lacks particle VIs which specify either present or future. On the other hand, the language has a set of particle VIs which spell out past tense.

To illustrate the point, let us consider the negative particle ní. First, because non-past particles are underspecified in terms of tense, we have the following distinction: ${ }^{13}$
(18) a. Vocabulary Item for Non-past Negative Particle
$\langle[\mathrm{NEG}] \Leftrightarrow \quad n i\rangle$

[^76]b. Vocabulary Item for Past Negative Particle
\[

\left\langle\left[$$
\begin{array}{lr}
\text { NEG } & \\
\text { TEnSE } & \text { past }
\end{array}
$$\right] \Leftrightarrow \quad níor\right\rangle
\]

Let us consider the case where the present tense appears on $\mathrm{C}^{0}$ in the structure to be spelled out (that is, the $\mathrm{C}^{0}$ is specified as [NEG, PRES]. Since the present tense specification is incompatible with the past tense specification in (18b) and thus the VI is not a subset of the feature set of $\mathrm{C}^{0}$, nior will never be selected. The VI in (18a), on the other hand, lacks any tense specification, and thus constitutes a subset of the feature set of the $\mathrm{C}^{0}$. Given that there is no compatible VI which encodes more information than (18a), it is selected.

$$
\begin{align*}
& \text { a. Vocabulary Insertion with Non-past Negative Particle VI }  \tag{19}\\
&\left\langle\left[\begin{array}{ll}
\text { NEG }
\end{array}\right] \Leftrightarrow\left[\begin{array}{ll}
\text { NEG } & \\
\text { TENSE } & \text { pres }
\end{array}\right]\right. \\
& \text { b. Vocabulary Insertion with Past Negative Particle VI } \\
&\left\langle\left[\begin{array}{ll}
\text { NEG } \\
\text { Tense } & \text { past }
\end{array}\right] \Leftrightarrow\right.
\end{align*}
$$

The case with the future tense works in the same way, and the non-past form will be selected.

Now consider how past-tense forms are realized. We assume that the past-tense particles are simplex although they share the -r ending, pace McCloskey (2001). ${ }^{14}$ When past tense is present in the structure, the result is different. The non-past VI forms a subset of the feature set provided from the syntax, just like the cases with the present or future tense. However, the past tense feature provided from the syntax is now compatible with the past form VI nior, which is the most specific item available. On the basis of

[^77]the Subset Principle, níor is selected over ní, although both VIs are consistent with the feature set spelled out from the syntax.
a. Vocabulary Insertion with Non-past Negative Particle VI
\[

\langle[\mathrm{NEG}] \Leftrightarrow \quad n i\rangle \subseteq\left[$$
\begin{array}{ll}
\text { NEG } &  \tag{20}\\
\text { TENSE } & \text { past }
\end{array}
$$\right]
\]

b. Vocabulary Insertion with Past Negative Particle VI

$$
\left\langle\left[\begin{array}{lr}
\text { NEG } & \\
\text { Tense } & \text { past }
\end{array}\right] \Leftrightarrow \quad \text { níor }\right\rangle \subseteq\left[\begin{array}{ll}
\text { NEG } & \\
\text { Tense } & \text { past }
\end{array}\right]
$$

Finally, following McCloskey (2001), we assume that the non-triggering particles (i.e., the wh-extraction particle $a^{\mathrm{L}}$ and the simple conditional particle má) are just like the dependent-triggering particles syntactically, except that they lack a tense specification. Therefore, we may infer that the presence or absence of a tense feature on the particle is lexically determined. This observation is implemented in this work by having the feature bundles for these non-triggering particles lack any specification for tense from the point of entrance to narrow syntax. Examples of triggering and non-triggering particles are provided in (21):
$\begin{aligned} & \text { a. Morphosyntactic Representation of the Tense-sensitive Particle an/ar } \\ & {\left.\left[\begin{array}{ll}\text { Question } \\ \text { Tense } & \\ \hline\end{array}\right]\right] } \\ & \text { b. Morphosyntactic Representation of the Tense-insensitive Particle } a^{L} \\ & {\left[\begin{array}{ll}\text { EPP } \\ \text { AGR }\end{array}\right] }\end{aligned}$
Two remarks are in order with regard to the representations in (21). First, this view argues that loose lexical bundling of morphosyntactic features is available in grammar, contra a stricter view of Distributed Morphology, where there is no a priori lexical bundling of morphosyntactic features when they enter narrow syntax. Secondly, the
value of the tense feature in the feature bundle of a tense-sensitive particle is an unvalued "agreement" feature, which is represented by the empty brackets of the tense feature in (21a), and it receives its value from $\mathrm{T}^{0}$ by the Agree operation, as illustrated in (22):


This analysis thus requires that there be two tense features within the same clausal domain, one in $\mathrm{T}^{0}$ and the other in $\mathrm{C}^{0}$ as Cottell (1995) has argued independently, but those features are not independently interpreted at LF, because they are in an Agree relation and one is uninterpretable. This situation echoes recent proposals by Chomsky (2008) that features of $T$ originate with C, though it seems that in Irish the features are spelled out on both heads.

### 6.3.3 Regular Verbs

Let us briefly turn to the regular verbs. Recall that $\mathrm{V}^{0}$ adjoins to $\mathrm{T}^{0}$ syntactically, and that the tense is expressed by suffixation (in the case of present or future) or lenition (in the case of past). This can be very simply dealt with by postulating VIs for the verbal stems in $\mathrm{V}^{0}$ and VIs for tense affixes. A minor complication is found with the past tense form, since it is expressed by the morphophonological process of lenition. Although lenition generally correlates with the phonological process of spirantization,
they are not identical. The effect is best captured by adopting the morphophonological feature [LENited] that Gorrie (2011) proposes, and by assuming that the past tense is an affix consisting only of that feature. ${ }^{15}$ Now we obtain the following VIs: ${ }^{16,17}$
a. Vocabulary Item for the Verb Stem bris 'Break'

$$
\begin{equation*}
\langle[b r e a k] \Leftrightarrow \quad \text { bris }\rangle \tag{23}
\end{equation*}
$$

b. Vocabulary Item for the Present-tense Suffix -(e)ann

$$
\left\langle\left[\begin{array}{cc}
\text { Tense } & \text { pres }
\end{array}\right] \Leftrightarrow \quad-(e) a n n\right\rangle
$$

c. Vocabulary Item for the Future-tense Suffix $-f(a) i d h$

$$
\left\langle\left[\begin{array}{cc}
\text { Tense } & \text { future }
\end{array}\right] \Leftrightarrow \quad-f(a) i d h\right\rangle
$$

d. Vocabulary Item for the Past-tense Lenition

$$
\left\langle\left[\begin{array}{cc}
\text { Tense } & \text { past }
\end{array}\right] \Leftrightarrow[\text { LEnited }]\right\rangle
$$

And a sample Vocabulary Insertion for the present tense form bris-eann of the verb bris 'break' is provided below:

## Vocabulary Insertion of the Present Tense Form bris-eann 'break(s)'

a. $\langle[$ break $] \Leftrightarrow$ bris $\rangle \subseteq$ break
b. $\left\langle\left[\begin{array}{ll}\text { Tense } & \text { pres }\end{array}\right] \Leftrightarrow \quad-(e) a n n\right\rangle \subseteq\left[\begin{array}{ll}\text { Tense } & \text { pres }\end{array}\right]$

[^78] 6.3.4.

### 6.3.4 Irregular Verbs

## Remarks and Assumptions

Let us now turn to irregular verbs. Recall that we need to account for the following three properties: First, when a dependent form is available in the paradigm of a given verb, it must be used when the verb cooccurs with a triggering particle. Second, the particles which trigger the dependent form are the ones which normally encode the past/nonpast distinction. And finally, when the dependent form is available and selected, the triggering particle must appear in the non-past form.

The crucial patterns are found in the past-tense environment with a verb in the dependent form. The particle triggers the verb to be in the dependent form, and, in return, the dependent form forces the particle to be in the non-past form. In the present tense and future tense environments, the interaction is not as apparent, since these environments would require the non-past form of the particle in any case.

With regard to this morphological puzzle, we have so far considered only the preverbal particles: The particles bear feature(s) which induce the relevant semantic component at the $\mathrm{C}^{0}$ position, such as $[\mathrm{NEG}]$, $[\mathrm{Q}]$, or $[\mathrm{WH}]$. The tense feature is marked on some of the particles, as exemplified in (21a). The tense-sensitive particles lexically carry a tense feature in their morphosyntactic feature bundles, whereas the tense-insensitive particles do not.

Although "double exponence" for a single grammatical specification is rarely observed in Irish (McCloskey and Hale, 1984; Legate, 1999; Brennan, 2008), tense is clearly expressed both in the particle and in the verb. Following Cottell (1995), we argue that the particle, which we assume to be C, and the verb, which is assumed to raise as high as $\mathrm{T},{ }^{18}$ each have a tense feature. ${ }^{19}$ This is obvious from the fact that the verb forms also

[^79]show tense inflection, as discussed above (see (5)). Cottell (1995:113) observes that the claim that there is a tense feature or any other feature which is indigenous to $\mathrm{T}^{0}$ (or $\mathrm{I}^{0}$ ) on $\mathrm{C}^{0}$ is not novel, and has been made elsewhere.

## The Proposal

The idea that I propose here is very simple: The dependent form of a verb spells out two tense features whereas the independent (i.e., regular) form spells out only one. More precisely, unlike regular verb forms, a VI for a dependent form has two tense features, one corresponding to $\mathrm{T}^{0}$ and the other to $\mathrm{C}^{0}$, achieved by the Agree operation. This is illustrated in (25) below. For the sake of convenience and clarity, we specify the tense feature on $\mathrm{T}^{0}$ with the prefix "T-" and the one on $\mathrm{C}^{0}$ with "C-".
(25) Past Tense VIs of téigh '(to) go'
a. Independent Form VI

$$
\left\langle\left[\begin{array}{ll}
g o & \\
\mathrm{~T} \text {-TENSE } & \text { past }
\end{array}\right] \Leftrightarrow \quad \text { chuaigh }\right\rangle
$$

b. Dependent Form VI

$$
\left\langle\left[\begin{array}{ll}
g o & \\
\text { T-TENSE } & \text { past } \\
\text { C-TENSE } & \text { past }
\end{array}\right] \Leftrightarrow \text { dearchaigh }\right\rangle
$$

A verb with no dependent form, either irregular or regular, simply lacks the dependent VI in its paradigm. Thus, in case of the verb clois '(to) hear', an irregular verb which has no dependent form, the independent irregular form chuala is the only available form in the language:

[^80]Past Tense VI of clois '(to) hear'
$\left\langle\left[\begin{array}{ll}\text { hear } & \\ \text { T-TENSE } & \text { past }\end{array}\right] \Leftrightarrow\right.$ chuala $\rangle$

The intuition behind this proposal is that a dependent form "eats up" all the tense features available to be spelled out in the C-T-V layer, so that no tense remains to be realized on the particle. Let us go over a case with the negative particle and the verb téigh '(to) go' to illustrate the point. Recall that the only grammatical pattern is the one in (27a); the combinations in (27b-d) are ungrammatical. ${ }^{20}$
a. ní dheachaigh ... NEG go.PAST.DEP 'did not go'
b. * níor dheachaigh ... NEG.PAST go.PAST.DEP
c. * ní chuaigh ...
NEG go.PAST
d. * níor chuaigh ... NEG.PAST go.PAST

The features in $\mathrm{C}^{0}$ lower to T after Spell-Out, and thus the following structure for T is derived prior to Vocabulary Insertion: ${ }^{21}$

[^81]

It is further assumed that the lowering of $\mathrm{C}^{0}$ feeds fusion, an operation which fuses morphosyntactic features distributed over several syntactic positions/placeholders to one placeholder. We may conjecture that the lowering is required because of fusion, since adjacency is a necessary condition to trigger fusion. This process is necessary for the analysis presented here, since the C-tense feature and the T-tense feature would not otherwise appear in the same insertion slot, making it impossible to insert the dependent form VI proposed here.

Thus, in the case given, all the features available in the structures in (28) are fused into one bundle. The dependent form VI is available, and thus it is selected as it is more specified than its independent counterpart:
a. Evaluation of Independent Form

$$
\left\langle\left[\begin{array}{ll}
g o &  \tag{29}\\
\text { T-TENSE } & \text { past }
\end{array}\right] \Leftrightarrow \text { chuaigh }\right\rangle \subseteq\left[\begin{array}{ll}
g o & \\
\text { T-TENSE } & \text { past } \\
\text { C-TENSE } & \text { past }
\end{array}\right]
$$

b. Evaluation of Dependent Form VI

$$
\left\langle\left[\begin{array}{lc}
g o & \\
\mathrm{~T}-\mathrm{TENSE} & \text { past } \\
\text { C-TENSE } & \text { past }
\end{array}\right] \Leftrightarrow \text { deachaigh }\right\rangle \subseteq\left[\begin{array}{ll}
g o & \\
\mathrm{~T}-\text { TENSE } & \text { past } \\
\text { C-TENSE } & \text { past }
\end{array}\right]
$$

It is after this selection process that the selection process for the particle takes place. Since the past tense feature on the $\mathrm{C}^{0}$ is used up when the verb form is selected, it is no longer available. Thus the VI for the past-tense negative particle níor is now
incompatible:

## (30) Evaluation of Negative Particle VIs

a. Evaluation of Non-past VI

$$
\langle[\mathrm{NEG}] \Leftrightarrow \quad n i\rangle \quad \subseteq[\mathrm{NEG}]
$$

b. Evaluation of Past VI

$$
\left\langle\left[\begin{array}{ll}
\text { NEG } & \\
\text { C-TENSE } & \text { past }
\end{array}\right] \Leftrightarrow \text { níor }\right\rangle \nsubseteq\left[\begin{array}{l}
\text { NEG }]
\end{array}\right.
$$

As a result of this series of selection processes, we obtain ni dhearchaigh, a non-past particle and a past tense verb in the dependent form. ${ }^{22}$

Notice that unlike the instance of the Subset Principle, the process of Vocabulary Insertion does not stop after insertion of one VI. Rather, we find that the process continues until all the features in the fused C-T-V bundle are used up. Harley and Noyer (1999) state that when a morpheme undergoes fission, VIs are inserted until all VIs which can be inserted have been or all features of the bundle have been discharged. This is exactly what is going on Irish, and thus we conclude that the fused C-T-V morpheme in Irish undergoes fission.

The account for present and future tenses is very similar, except that the process is vacuous morphophonologically, since in these cases, the non-past particle is selected anyway. Let us consider the case with faigh '(to) get' which has independent future gheobhaidh and dependent future bhfaighidh; thus, *ni gheobhaidh, but ni bhfaighidh 'won't get'. The following tree is given at the point of Vocabulary Insertion:

[^82]

I propose that the independent form has only one tense feature (T-tense only), whereas the dependent form has two (T-tense and C-tense). Since the dependent form is more specific, it wins the competition at Vocabulary Insertion.

## (32) Evaluation

a. Evaluation of Independent Form

$$
\left\langle\left[\begin{array}{ll}
\text { get } & \\
\text { T-TENSE } & \text { future }
\end{array}\right] \Leftrightarrow \text { gheobhaidh }\right\rangle \subseteq\left[\begin{array}{ll}
\text { get } & \\
\text { T-TENSE } & \text { future } \\
\text { C-TENSE } & \text { future }
\end{array}\right]
$$

b. Evaluation of Dependent Form VI

$$
\left\langle\left[\begin{array}{lc}
\text { get } & \\
\text { T-TENSE } & \text { future } \\
\text { C-TENSE } & \text { future }
\end{array}\right] \Leftrightarrow \quad \text { bhfaighidh }\right\rangle \subseteq\left[\begin{array}{ll}
\text { get } & \\
\text { T-TENSE } & \text { future } \\
\text { C-TENSE } & \text { future }
\end{array}\right]
$$

Like the case above with a past tense dependent form, the non-past particle is realized here. Although the effect is superficially vacuous on the particle, at an abstract level they are realizations of two different feature sets, one with only the negation feature (after consumption of C-future by the dependent form) and the other with the negation feature and the C-future (with an independent verb).

The case with a past-tense verb which does not have a dependent form VI is straightforward. Since there is no dependent form which would itself consume two tense features, the past tense form occurs with the past tense particle. The verb clois 'hear', with chuala 'heard' and níor chuala 'did not hear' illustrates the point:

## Evaluation

a. Evaluation of Independent Form

$$
\left\langle\left[\begin{array}{ll}
\text { hear } & \\
\text { T-TENSE } & \text { past }
\end{array}\right] \Leftrightarrow \quad \text { chuala }\right\rangle \subseteq\left[\begin{array}{ll}
\text { hear } & \\
\text { T-TENSE } & \text { past } \\
\text { C-TENSE } & \text { past }
\end{array}\right]
$$

Again, the working assumption here is that the feature bundle undergoes fission, so that the Vocabulary Insertion continues until all the features are used up by the VIs, and therefore the C-tense will be realized by the particle in this case.

Now let us go over the case of a particle which does not trigger the dependent form on the verb, such as wh-extraction marker $a^{L}$. What is most notable here is that these particles do not make any tense distinction. Recall that we consider this to be the crucial aspect of these particles; the bundles of formal features that they spell out do not have the tense attribute to agree with the tense on $\mathrm{T}^{0}$. Thus, there is only one tense to deal with in a clause with these particles:


Since only one tense is available in the structure, the dependent form VI is blocked, as it carries too many features to be a subset of the feature set provided from the syntax. And thus, the independent form is selected as it is the best (and in fact the only) subset available:

## Evaluation

a. Evaluation of Independent Form

$$
\left\langle\left[\begin{array}{ll}
g o & \\
\text { T-TENSE } & \text { past }
\end{array}\right] \Leftrightarrow \quad \text { chuaigh }\right\rangle \subseteq\left[\begin{array}{ll}
g o & \\
\text { T-TENSE } & \text { past }
\end{array}\right]
$$

b. Evaluation of Dependent Form VI

$$
\left\langle\left[\begin{array}{ll}
g o & \\
\mathrm{~T}-\mathrm{TENSE} & \text { past } \\
\mathrm{C}-\mathrm{TENSE} & \text { past }
\end{array}\right] \Leftrightarrow \text { deachaigh }\right\rangle \nsubseteq\left[\begin{array}{ll}
g o & \\
\text { T-TENSE } & \text { past }
\end{array}\right]
$$

## Interaction of Preverbal Particles and Verb-initial /d-/

The proposed analysis of the particle and the dependent-verb morphology sheds new light on a puzzle about the past-tense morphology observed in McCloskey (2001).

Here is the puzzle: When a past-tense verb starts with a vowel, the consonant /d/ is inserted word-initially: ${ }^{23}$
a. D'ól tú ...
drank you
'You drank...'
b. D'fhoghlaim tú ...
learned you
'You learned ...'

This consonant is a residue of the archaic past tense particle do which is still used in some variants in Munster as well as in some stylistic variations (Hughes, 2008). When a past-tense vowel-initial verb appears with a tenseless non-triggering particle such as the wh-extraction particle $a^{\mathrm{L}}$, the /d/ remains. Observe the pattern in (38):

[^83]a. an deoch a d'ól tú the drink $a^{\text {L }}$ drank you
'the drink that you drank'
b. Ar ól tú í?
Q.PAST drank you it

Did you drink it?'
(McCloskey, 2001:(59))

Interestingly, the /d/ disappears when the verb is preceded by a tense-marking particle such as the interrogative marker ar, as shown in (38b). Based on this complementary distribution (as well as the fact that the past-tense particles always end with /r/), McCloskey (2001) argues that the /d/ and /r/ are both instantiations of the past-tense feature on $\mathrm{T}^{0}$ :
a.


This complementary distribution would be unexpected under the analysis that I have proposed for the morphology of the dependent forms above. I have assumed that the tense is specified both on the $\mathrm{T}^{0}$, which is spelled out together with the verb, and on the $\mathrm{C}^{0}$. We would thus expect that a particle in the past form and the prefix $d$-should co-occur, if $d$ - spells out T-tense as McCloskey (2001) claims. The ungrammaticality of such instances would then require some external morphophonological explanation.

However, two facts of Irish verbal morphology cast doubt on McCloskey's (2001) analysis. First, recall that there are several irregular independent verb forms which do not force the preceding particle to be in the non-past form. Those forms were provided in (15), repeated below:
(15) Irregular Verbs without Dependent Forms ${ }^{24}$

| Stem |  | Past Tense | With Particle |  |
| :--- | :--- | :--- | :--- | :--- |
| tar | 'come' | tháinig | níor/*ní tháinig | 'didn't come' |
| tabhair | 'give' | thug | níor/*ní thug | 'didn't give' |
| clois | 'hear' | chuala | níor $/$ *ní chuala | 'didn't hear' |
| beir | 'catch' | rug | níor $/$ *ní rug | 'didn't catch' |

It is not clear to me how the conventional single-tense model could account for this fact. If the $-r$ ending of a tense-sensitive particle is a reflex of the past-tense feature on $\mathrm{T}^{0}$, then we would not expect to find a second tense feature, spelled out by the suppletive past-tense verbal forms. Alternatively, if the suppletive past-tense form is used, then we would not expect to find a past-tense marked particle. That is, an obvious consequence of the single-tense model is that a suppletive past-tense verb form and an tense-inflected particle in the past-tense environment should also be in complementary distribution.

Second, McCloskey's analysis also does not account for the morphology of the past imperfect (past habitual) and conditional forms. The past imperfect and conditional forms of a verb that starts with a vowel or /f/ are also realized with the prefix $d$-. Consider the data below:
(40) a. d'éiríodh sé ... get_up.IMP he 'he used to get up ...'
b. d'éireodh sé ...
get_up.cond he 'he would get up ...'

Under McCloskey's analysis, the prefix $d$ - is the realization of the past tense and it should therefore be replaced by the suffix $-r$ when the verb is preceded by one of those tense-sensitive particles. However, the prediction does not hold:

[^84]a. ní éiríodh sé ... NEG get_up.IMP he 'he didn't used to get up ...'
b. * níor éiríodh sé ...

NEG.PAST get_up.IMP he 'he didn't used to get up ...'
c. ní éireodh sé ...

NEG get_up.COND he 'he would not get up ...'
d. * níor éireodh sé ...

NEG.PAST get_up.COND he

The $d$ - prefix indeed disappears when the verb form is preceded by a particle, but crucially the particle cannot be in the past-tense form, contrary to what McCloskey's (2001) analysis would predict.

Finally, a third argument against collapsing the $d$ - prefix and the $-r$ ending together comes from the inflection pattern of the impersonal forms, traditionally called the autonomous form. ${ }^{25}$ In Irish, each tense/aspect specification has a distinct autonomous form. The example below shows the autonomous forms of the verb bris 'break' for present, future, and past:
a. Present: bristear 'one breaks'
b. Future: brisfear 'one will break'
c. Past: briseadh 'one broke'

Recall that the past tense of a non-autonomous form is marked by lenition; hence, $\underline{b h r i s}$ 'broke'. Notice, however, the past autonomous form in (42c) lacks lenition of the initial

[^85] See Blevins (2003) for an HPSG account of impersonals in general.
consonant. ${ }^{26}$ Thus one could say that the past autonomous ending - (e)adh ${ }^{27}$ 'eats up' the past tense so that lenition cannot take place. The subsumption of the past tense feature by the autonomous ending seems to be consistent with the pattern with verbs which begins with a vowel, such as éist 'listen', in that the past marking $d$ - prefix does not cooccur with the autonomous form.
a. Present: éistear 'one listens'
b. Future: éistfear 'one will listen'
c. Past: éisteadh 'one listened'

Now, if we were to say that the $d$ - prefix and the $-r$ ending on past preverbal particles are surface instantiations of the very same underlying element, namely the past tense feature on $\mathrm{T}^{0}$, then we would expect a past tense preverbal particle to lose its $-r$ ending when it is followed by a past autonomous form. However, it does not:
a. With Negation Particle Ní/ Níor:
níor/*ní éisteadh ...
NEG.PAST/NEG listen.AUT
'one did not listen ...'
b. With Interrogative Particle $A n / A r$ :
ar/*an éisteadh ...
Q.PAST/Q listen.AUT
'Did one listen ...'
c. With Complementation Particle Go/Gur:
gur/*go éisteadh ...
go.PAST/go listen.AUT
'that one listened ...'

[^86]As we see in (44), the non-past particles cannot appear with the past autonomous form. ${ }^{28}$
It is safe to conclude now from the patterns presented here that the verbal prefix $d$ and the $-r$ ending of the tense-sensitive particles are not realizations of the same element, and thus do not undermine the double-tense model proposed here.

## Hidden Dependent Forms

The analysis developed here also casts doubt on the description of some of the irregular verbs in the traditional grammar (e.g., Christian Brothers, 1999). Traditionally it is noted that the past-tense of the verb faigh 'get' has only the independent form fuair. However, there are several oddities about this form. First, it cannot co-occur with a particle in the past form:
(45) a. an bhfuair sé ...

Q got he
'Did he get ...?'
b. $\quad$ ar bhfuair/fhuair sé $\ldots$
Q.PAST got he

Second, it appears that the initial consonant of fuair is eclipsed when it follows the negation particle ní, which normally causes lenition of the following consonant, as shown by the data in (46c) where the initial consonant of the past-tense dependent form faca of feic 'see' is lenited after ni:

[^87](i.) a. Conditional: d'éistfí 'one would listen' ~ní éistfí 'one would not listen'

(46) a. ní bhfuair sé ...

NEG got he
'He didn't get ...'
b. * ní fhuair sé ...

NEG got he
c. i. ní $\mathrm{f}^{*}(\mathrm{~h})$ aca sé ...

NEG saw.DEP he
'He didn't see ...'
ii. an *(bh)faca sé ...

Q saw.DEP he
'Did he see ... ?'

These pieces of evidence suggest that in fact the past-tense of faigh 'get' has the independent/dependent dichotomy, and that the dependent form is bhfuair. The orthographic representation of $b h f_{-}{ }^{29}$, which suggests that the form has undergone eclipsis from fuair, is probably due only to historical reasons, and it has no synchronic or morphophonological significance. Thus we obtain the following VIs for faigh 'get':

Past Tense VIs of Faigh '(to) get'
a. Independent Form VI

$$
\left\langle\left[\begin{array}{ll}
\text { get } & \\
\text { T-TENSE } & \text { past }
\end{array}\right] \Leftrightarrow \quad \text { fuair }\right\rangle
$$

b. Dependent Form VI

$$
\left\langle\left\langle\begin{array}{ll}
\text { get } & \\
\text { T-TENSE } & \text { past } \\
\text { C-TENSE } & \text { past }
\end{array}\right] \Leftrightarrow \text { bhfuair }\right\rangle
$$

With these representations, everything follows naturally. The tense-sensitive particle appears in the non-past form because the tense on C is spelled out by the dependent

[^88]form bhfuair, and the negation particle cannot lenite the following element, since the dependent form starts with an unlenitable consonant /w/.

Similarly the analysis suggests that the past-tense form of abair has two VIs, one independent and the other dependent, though they both have the same form dúirt. The existence of the dependent form becomes apparent when it is preceded by a tense-sensitive particle, as the particle has to be in the non-past form. ${ }^{30}$

```
a. dúirt mé ...
    said I
    'I said ...'
b. ní dúirt mé...
    NEG said I
    'I didn't say ...'
c. * níor dúirt mé ...
    NEG said I
    'I didn't say ...'
```

If we do not assume that there are two different VIs for abair 'say', then it remains mysterious why the past-tense form of the negation marker (or of any other tense-sensitive particle) is exceptionally disallowed with this verb.

The analysis pursued in this chapter suggests that what we need to focus on is the interaction between the form of the preceding particle and the verb form, and it does not preclude a situation where the independent and dependent forms are phonetically identical. What this analysis does preclude is a situation where the past-tense of a verb has different dependent and independent forms, and the particle is past-marked as well; this prediction is correct. Phonological difference between the independent and dependent contexts is a sufficient condition to determine the existence of a dependent form, but crucially it is not a necessary condition.

[^89]
### 6.3.5 Interim Conclusion

So far we have dealt with the dependent verb forms in Irish and their interactions with the preverbal particles. I have argued that there are up to two tense features in a finite C-T layer of Irish and the dependent form uses up both of them, leaving none available for the particle, whereas the independent form uses only one.

The analysis proposed here has several advantages. First, the analysis maintains the argument provided by McCloskey (2001) that a particle is consistently generated in the domain of C. Furthermore, the dependent form does not reflect any special syntactic operation, nor does it require any ancillary morphosyntactic feature. Finally, Distributed Morphology can readily handle the problem of the dependent form. We have made only two 'new' claims: One is that $\mathrm{C}^{0}$ may have a tense-feature, and the other is that the dependent form VI takes two tenses. Neither of these is strikingly deviant, ${ }^{31}$ and the rest of the analysis relies on the standard assumptions of DM and the Minimalist Program. To the extent that there is no explicit analysis of the phenomenon based on an alternative theory, the analysis supports the validity of the theory.

### 6.4 Relating Syntax and Morphology: Headless Relative $a^{\mathrm{N}}$ Revisited

Now let us come back to the syntax of the Irish left periphery, and consider what the morphological analysis suggests.

[^90]
### 6.4.1 Lowering vs. Agreement

We had left open the question of the realization of the maximalization operator in the root $\mathrm{C}^{0}$ of the headless relative construction. In Chapter 5, I concluded that the headless relative $a^{\mathrm{N}}$ is the morphological realization of the feature structure of $a^{\mathrm{L}}$ - that is, [EPP] and $[\mathrm{AGR}]$ —plus the maximalization operator MAX. Thus we have the following structure for the headless relative construction:


Now, what exactly do we mean by saying "morphological realization of the maximalization operator"? In section 5.3.2, I outlined two possibilities: Lowering and Agreement. Under the Lowering Analysis, the maximalization operator Max lowers and adjoins to $\mathrm{T}^{0}$ post-syntactically in the domain of morphophonology, just as we have been assuming, following McCloskey's (1996) analysis, that $\mathrm{C}^{0}$ lowers and adjoins to $\mathrm{T}^{0}$ to feed the morphological realization of the particles and verbs. Under the Agreement Analysis, on the other hand, $\mathrm{C}^{0}$ enters the derivation with a formal feature, say [MAX], which Agrees with the maximalization operator. Given the analysis of tense features proposed in this chapter, we can now see that the Agreement Analysis is to be preferred.

Recall that the top $\mathrm{C}^{0}$ of the headless relative is realized as the particle $a^{\mathrm{N}}$, which is homophonous ${ }^{32}$ with the resumptive particle, and, more importantly, is tense-sensitive.

[^91]This contrasts with the wh-extraction particle $a^{L}$, which is crucially tense-insensitive, despite the intuition that the headless relative particle $a^{N}$ consists of some reflex of the maximalization operator and the featural content of $a^{L}$. In this chapter, we have taken the stance that tense-(in)sensitivity is a lexical property of C elements. It is thus arbitrary which particle is tense-sensitive; tense-sensitivity is encoded as $\mathrm{C}^{0}$ enters the derivation. Also, it is implied that the tense marking in $\mathrm{C}^{0}$ is "pleonastic" in the sense that it is uninterpretable at the C-I interface. Finally, recall that we follow the framework of the Minimalist Program. In particular, we assume that syntactic computation takes place derivationally, building a structure in a bottom-up fashion. The derivation takes place locally, in that the computational system knows what it has to do (or can do) at each derivational step; most importantly, look-ahead is costly, or even disallowed. The computation should not be able to foresee what is yet to happen, and execute some particular derivational process, anticipating what will happen later. With this much background, let us consider the two analyses, beginning with lowering.

Morphological lowering is appealing, since morphological lowering in the Irish left periphery has been motivated elsewhere (McCloskey, 1996). Nonetheless, this approach faces several problems. Consider the following two possibilities:


The difference between the two structures presented in (50) is the presence of a tense feature in C: the structure in (50a) has a tense feature and the one in (50b) does not.

Notice that given the pleonastic nature of the tense specification in $\mathrm{C}^{0}$, both structures in (50) are convergent. Then the maximalization operator and the content of $\mathrm{C}^{0}$ lower to $\mathrm{T}^{0}$ in the morphophonological system, yielding the following feature bundles in $\mathrm{T}^{0}$ :


While the feature bundle in (51a) gives the right result, (51b) is problematic. Since the bundle in (51b) lacks the C-tense specification, it cannot realize a tense-sensitive particle. Given DM assumptions, we should expect that the structure should have the ordinary $a^{\mathrm{L}}$ particle, just like the lower $\mathrm{C}^{0} \mathrm{~S}$ in the case of long distance $\mathrm{A}^{\prime}$-dependencies, making the surface string look like an ordinary relative clause. Or if there is any other tense-insensitive particle which meets the specification in the bundle in (51b), such an item will be selected. Whatever it is, the particle selected will be tense-insensitive. This, however, is not consistent with the facts. The headless relative clauses which have been investigated in this thesis consistently have the $a^{\mathrm{N}}$ particle, which is tense-sensitive, and triggers a dependent form of the verb. We cannot rule out the emergence of the tenseinsensitive structure in (51b), and thus a tense-insensitive particle in a headless relative clauses, with the mechanisms that have been argued for in this thesis.

Perhaps we could say that there are two bundles that trigger wh-extraction; one with a tense feature and one without. However, it still remains mysterious why only the bundle with a tense feature is selected when the maximalization operator is to be merged at a later stage in the derivation. Within the proposed syntactic machinery there is no direct connection between the maximalization operator and the presence of a tense feature on
$\mathrm{C}^{0}$. Thus, to the extent that we cannot rule out the selection of a tense-insensitive particle, this analysis encounters a serious look-ahead problem. At an early point in the derivation the bundle with a tense feature must come into the structure, anticipating that later in the derivation the maximalization particle will be lowered onto it.

Furthermore, the two particles differ only by the availability of a tense feature. This means that this analysis should then allow the tense-sensitive wh-extraction particle to appear in $\mathrm{C}^{0}$ of an ordinary extraction relative clause, or in the lower $\mathrm{C}^{0} \mathrm{~S}$ of a headless relative clause:

[Tense]

Recall that a dependent form VI subsumes two tense features. This entails that if the verb has a dependent form in its paradigm, then a string of $a^{\mathrm{L}}$ and dependent form will be derived; This pattern is never found. Thus, it appears that the Lowering Analysis is not on the right track.

The Agreement Analysis, on the other hand, does not face the problems that emerge in the above discussion of the Lowering Analysis. Under the Agreement Analysis, the feature bundle which enters the derivation as the matrix $\mathrm{C}^{0}$ of a headless relative clause a priori comes with a tense feature. Thus, the feature bundle of the headless relative $\mathrm{C}^{0}$ at the point of the Numeration looks like the following:


No bundle which lacks a tense feature while having the feature [MAx] is available in the formal lexicon of the language. Thus, there is no chance that a tenseless particle will emerge, and the look-ahead problem is eliminated. It is simply impossible to base-generate the formal lexical item (53) in lower $\mathrm{C}^{0} \mathrm{~S}$ or in the $\mathrm{C}^{0}$ of an ordinary whextraction relative clause. Such a derivation will crash, as the feature [MAx] will remain unchecked due to the absence of the maximalization operator. Even if the maximalization operator is inserted in such a way that the lower $\mathrm{C}^{0}$ with the feature [MAx] is checked, the semantics of such structure will no longer be parsable, as the maximalization operator in the lower position maximalizes a set of degrees prematurely. As for the interaction with the dependent verb form, as long as we assume that there is a VI which is more specific than the wh-extraction particle $a^{\mathrm{L}}$, the emergence of $a^{\mathrm{L}}$ in the top $\mathrm{C}^{0}$ of a headless relative clause will be blocked. ${ }^{33}$ Thus, we conclude, from the morphological considerations presented in this chapter, that the Agreement Analysis is the right approach.

### 6.4.2 Morphology of $a^{N}$ : Syncretism or Homophony?

We have determined that the $\mathrm{C}^{0}$ of the headless relative construction needs to carry a feature [MAX] which agrees with the maximalization operator in the narrow syntax. It is assumed that the features which belong to the headless relative $\mathrm{C}^{0}$ enter the derivation

[^92]as a bundle, and thus the tense feature always appears when [MAX] does.
Now a question remains on the morphology side: What is the VI of the headless relative $\mathrm{C}^{0}$, and what is its feature specification? Recall that the headless relative $a^{\mathrm{N}}$ and the resumptive $a^{\mathrm{N}}$ are superficially identical, in that they both show tense-sensitivity, both cause eclipsis on the following consonant, and take ar as the past tense form for both particles. These observations suggest that they are syncretic; i.e., they share the same VI. However, we will see that given the analyses developed in this thesis, these particles cannot constitute a syncretism, and indeed they are in a homophony relation.

## Wh-extraction $a^{\mathrm{L}}$ and Resumptive $a^{\mathrm{N}}$

Let us first demonstrate that the DM analysis developed in this section and McCloskey's (2002) original analysis work well together. Below are the VIs for the wh-extraction particle $a^{\mathrm{L}}$ and the resumptive particle $a^{\mathrm{N}}$ :
a. Vocabulary Item for the Wh-Extraction Particle

$$
\left\langle\left[\begin{array}{c}
\mathrm{EPP}  \tag{54}\\
\mathrm{AGR}
\end{array}\right] \Leftrightarrow a^{\mathrm{L}}\right\rangle
$$

b. Vocabulary Item for the Non-past Resumptive Particle

$$
\begin{aligned}
& \langle[\operatorname{EPP}] \Leftrightarrow \\
\text { c. } & \left.a^{N}\right\rangle \\
& \left\langle\left[\begin{array}{ll}
\text { EPP } \\
\text { TENSE } & \text { past }
\end{array}\right] \Leftrightarrow a r\right\rangle
\end{aligned}
$$

Also there are two $\mathrm{C}^{0}$ feature bundles available in the formal lexicon which trigger $\mathrm{A}^{\prime}$ dependencies, giving ordinary relative clauses, with extraction (55a) or resumption (55b):
a. $\left[\begin{array}{l}\mathrm{EPP} \\ \mathrm{AGR}\end{array}\right]$
b.
$\left[\begin{array}{ll}\text { EPP } & \\ \text { Tense } & {[ } \\ & \end{array}\right]$

Let us consider the simple cases for illustration. Given the syntactic analysis presented by McCloskey (2002) and developed in this work, we have four possibilities:
a.


[AGR] ... regular verb ...
c.

[AGR] ...irregular verb ...
b.

[Tense] ...regular verb...

[Tense]
(56a) and (56b) have a regular verb whereas (56c) and (56d) have an irregular verb. Let us assume that the irregular verb here has a dependent form VI, thus it may spell out two tense features in morphology. Of course, regular verbs do not have a dependent form. In terms of the featural composition, (56a) and (56c) have the bundle presented in (55a), which has an agreement feature which triggers $\mathrm{A}^{\prime}$-movement and lacks a tense feature. On the other hand, (56b) and (56d) have the bundle presented in (55b), which triggers base-merger of an operator and has a tense feature.

Now after morphological lowering of the content of $\mathrm{C}^{0}$, we have the following feature structures which are to be interpreted by morphology.


Since（57d）will have an irregular verb with a dependent form VI，the tense on the $\mathrm{C}^{0}$ will be subsumed by it．（57b）also has a tense feature on $\mathrm{C}^{0}$ ，but since the verb is a regular verb，it will be retained until the Vocabulary Insertion of a particle．（57a）and （57c）have a tenseless $\mathrm{C}^{0}$ ，and thus they do not trigger insertion of a dependent form even if the verb it comes with has a dependent form VI．We thus obtain the following situations after Vocabulary Insertion of the verbs：
a．［EPP］
$\langle$ regular verb form〉 ［AGR］
b．
$[\mathrm{EPP}]$
$[\mathrm{TENSE}]$$\langle$ regular verb form〉
c．［EPP］
〈independent irreg v form〉 ［AGR］
d．$[E P P]$ dependent irreg v form〉

Now the Vocabulary Insertion of the $\mathrm{C}^{0}$ particle content happens．For the feature bundles in（58a）and（58c），the VI in（54a）is the best match as it matches exactly with the featural specification of（58a）and（58c）．The VIs in（54b）and（54c）which are used for resumption are not suitable，since（54b）is less specific than（54a），and the（54c）has an
orthogonal tense feature.
a. Evaluation of $a^{\mathrm{L}} \mathrm{VI}$ with (58a) and (58c):

$$
\left\langle\left[\begin{array}{c}
\mathrm{EPP}  \tag{59}\\
\mathrm{AGR}
\end{array}\right] \Leftrightarrow a^{\mathrm{L}}\right\rangle \subseteq\left[\begin{array}{l}
\mathrm{EPP} \\
\mathrm{AGR}
\end{array}\right]
$$

b. Evaluation of $a^{\mathrm{N}} \mathrm{VI}$ with (58a) and (58c):

$$
\left\langle[\mathrm{EPP}] \Leftrightarrow \quad a^{\mathrm{N}}\right\rangle \subseteq\left[\begin{array}{l}
\mathrm{EPP} \\
\mathrm{AGR}
\end{array}\right]
$$

c. Evaluation of ar VI with (58a) and (58c):

$$
\left\langle\left[\begin{array}{lc}
\mathrm{EPP} & \\
\mathrm{TEnSE} & \text { past }
\end{array}\right] \Leftrightarrow \quad \text { ar }\right\rangle \nsubseteq\left[\begin{array}{l}
\mathrm{EPP} \\
\mathrm{AGR}
\end{array}\right]
$$

(60) Results for (58a) and (58c)
a. $\quad a^{\mathrm{L}}+$ regular verb
b. $\quad a^{L}+$ irregular independent verb

Now consider the case of (58b), which has a tense feature but lacks an agreement feature. If we posit that the tense feature in (58b) is specified as past, then the VI with the form ar in (54c) will be selected as it is the exact match. The VI with the form $a^{\mathrm{N}}$ in (54b) is less desirable since it lacks the tense specification, and the VI with $a^{\mathrm{L}}$ is never selected as its feature specification is not a subset of (58b) due to the presence of the [AGR] feature.
a. Evaluation of ar VI with (58b):

$$
\left\langle\left[\begin{array}{lc}
\operatorname{EPP} &  \tag{61}\\
\text { TENSE } & \text { past }
\end{array}\right] \Leftrightarrow \quad a r\right\rangle \subseteq\left[\begin{array}{ll}
\operatorname{EPP} & \\
\text { TENSE } & \text { past }
\end{array}\right]
$$

b. Evaluation of $a^{\mathrm{N}} \mathrm{VI}$ with (58b):

$$
\left\langle[\mathrm{EPP}] \Leftrightarrow \quad a^{N}\right\rangle \subseteq\left[\begin{array}{ll}
\operatorname{EPP} & \\
\text { TENSE } & \text { past }
\end{array}\right]
$$

c. Evaluation of $a^{\mathrm{L}} \mathrm{VI}$ with (58b):

$$
\left\langle\left[\begin{array}{l}
\mathrm{EPP}  \tag{62}\\
\mathrm{AGR}
\end{array}\right] \Leftrightarrow \quad a^{\mathrm{L}}\right\rangle \nsubseteq\left[\begin{array}{ll}
\operatorname{EPP} & \\
\text { TENSE } & \text { past }
\end{array}\right]
$$

Result: $a r+$ regular verb
(from (58b) with the tense feature being past)

Thus, the system correctly predicts that the past-tense particle will appear in (58b). Of course, if the tense feature brought from the syntax is not past, whether present or future, the VI with the past form ar will be incompatible due to the different tense specifications, making the VI with $a^{\mathrm{N}}$ the best match.

Finally, let us consider the evaluation of (58d). The only feature in (58d) is [EPP], since the tense feature on the $\mathrm{C}^{0}$ has been already used up by the dependent form VI. This makes (54b), the VI with the non-past form $a^{N}$, the only available candidate; the VIs in (54a) and (54c) do not form a subset of (58d) due to the agreement feature and the tense feature.
a. Evaluation of $a^{N} \mathrm{VI}$ with (58d):

$$
\begin{equation*}
\left\langle[\mathrm{EPP}] \Leftrightarrow \quad a^{N}\right\rangle \subseteq[\mathrm{EPP}] \tag{63}
\end{equation*}
$$

b. Evaluation of ar VI with (58d):

$$
\left\langle\left[\begin{array}{ll}
\mathrm{EPP} & \\
\text { Tense } & \text { past }
\end{array}\right] \Leftrightarrow \quad a r\right\rangle \nsubseteq[\mathrm{EPP}]
$$

c. Evaluation of $a^{\mathrm{L}} \mathrm{VI}$ with (58d):

$$
\left\langle\left[\begin{array}{l}
\mathrm{EPP}  \tag{64}\\
\mathrm{AGR}
\end{array}\right] \Leftrightarrow a^{\mathrm{L}}\right\rangle \nsubseteq[\mathrm{EPP}]
$$

Result:

$$
\begin{equation*}
a^{\mathrm{N}}+\text { irregular dependent verb } \tag{58d}
\end{equation*}
$$

These results are exactly what we see in the data. Thus, we conclude from this demonstration that McCloskey's (2002) proposal regarding featural compositions of the
$\mathrm{A}^{\prime}$-particles and the proposal in this chapter on the particle-verb interaction are compatible. We can now move on to the next issue, the morphology of the headless relative $a^{\mathrm{N}}$ 。

## Morphological Representation of The Headless Relative $a^{N}$

Our concern here is whether the headless relative particle and the resumptive particle are in a syncretic relation or simply homophonous.

Let us define the term syncretism under the framework of DM as the case where a single Vocabulary Item happens to be employed to spell out two distinct feature bundles derived from the narrow syntax. One may consider that the English second person pronoun you shows syncretism as it may be used either as nominative or accusative, singular or plural. Thus, we may say that there is one underspecified VI with the specification of the second person feature, rather than assuming several VIs with different case and number specification with the same morphophonological form. Homophony, in contrast, refers to the case where there are multiple VIs with different feature specifications but the same phonological shape. For instance, the various suffixes -er in English are homophonous. One is a comparative marker which attaches to an adjectives or adverbs, and another is a derivational nominalizing suffix meaning 'one who does X '. It is unnatural to analyze that these suffixes share a same VI.

What about the headless relative particle in Irish? It is realized as $a^{\mathrm{N}}$. It is also tensesensitive with a past-tense form ar, and thus it triggers the dependent form to surface. These characteristics are also true of the resumptive particle. Does this mean that the headless relative $\mathrm{C}^{0}$ and the resumptive relative $\mathrm{C}^{0}$ are syncretic? To put it differently, are they instantiated by the same VI? The fact that they have the same allomorphy suggests that they are.

However, the analyses laid out in this work run into serious trouble if we assume that the two particles are syncretic. If they are the same VI, what is its feature specification?

Consider the resumptive particle VIs in (54b-c), which are copied in (65). Their specifications are very minimal, and any addition to these representations will make it impossible to insert them in the cases of ordinary wh-extraction and resumption discussed above.
a. Vocabulary Item for the Non-past Resumptive Particle $\left\langle[\mathrm{EPP}] \Leftrightarrow a^{\mathrm{N}}\right\rangle$
b. Vocabulary Item for the Past Resumptive Particle $\left\langle\left[\begin{array}{ll}\operatorname{EPP} & \\ \text { TENSE } & \text { past }\end{array}\right] \Leftrightarrow \quad a r\right\rangle$

We have established in section 6.4.1 that the headless relative $\mathrm{C}^{0}$ brought from the formal lexicon to the narrow syntax looks like (53), repeated in (66):

Featural Specification of the Headless Relative Complementizer
$\left[\begin{array}{ll}\text { EPP } & \\ \text { AGR } & \\ \text { MAX } & \\ \text { C-TENSE } & {[ }\end{array}\right]$

The value of the tense feature in (66) is acquired via Agree during the derivation. Two types of distinction are crucial to us: the past/non-past distinction and whether or not the verb that follows the headless relative $\mathrm{C}^{0}$ has a dependent form. For simplicity, a verb lacking a dependent form in its paradigm is called regular and a verb with a dependent form is called irregular. With these two characterizing properties, we can enumerate the four possibilities in (67):
（67）a．
a．

［Max］
b．

［Tense：past］
c．

［MAX］
［Tense：pres］
d．

［Max］
［Tense：pres］

After the verb forms are inserted，we have the following outputs：
a．$\quad[\mathrm{EPP}]$
［AGR］
［MAX］
$\langle r e g$ v－form〉
［TEnse：past］
c．$\quad[\mathrm{EPP}]$
［AGR］
［MAX］
$\langle$ reg v－form〉
b．［EPP］
$[\mathrm{AGR}]$
$[\mathrm{MAX}]$ 〈irreg dependent v－form〉
d．$[\mathrm{EPP}]$
［AGR］
$[\mathrm{MAX}]$ 〈irreg dependent v－form〉
［Tense：pres］
Now the problems are apparent．The only possible case where we could derive the correct result is（68a）．All the feature specification of the three $\mathrm{A}^{\prime}$－particle VIs given in（54）are subsets of the features available in（68a）：
a. Evaluation of $a^{\mathrm{L}} \mathrm{VI}$ with (68a):

$$
\left\langle\left[\begin{array}{l}
\mathrm{EPP} \\
\mathrm{AGR}
\end{array}\right] \Leftrightarrow a^{\mathrm{L}}\right\rangle \subseteq\left[\begin{array}{ll}
\operatorname{AGR} & \\
\operatorname{MAX} & \\
\text { TENSE } & \text { past }
\end{array}\right]
$$

b. Evaluation of ar VI with (68a):

$$
\left\langle\left[\begin{array}{lr}
\operatorname{EPP} & \\
\text { Tense } & \text { past }
\end{array}\right] \Leftrightarrow\left[\begin{array}{ll}
\mathrm{EPP} \\
& \\
\text { AGR } & \\
\text { Max } & \\
\text { TENSE } & \text { past }
\end{array}\right]\right.
$$

c. Evaluation of $a^{\mathrm{N}} \mathrm{VI}$ with (68a):

$$
\left\langle[\mathrm{EPP}] \Leftrightarrow a^{N}\right\rangle \subseteq\left[\begin{array}{ll}
\operatorname{EPP} & \\
\operatorname{AGR} & \\
\operatorname{Max} & \\
\text { TENSE } & \text { past }
\end{array}\right]
$$

The VI with the $a^{\mathrm{N}}$ form is correctly ruled out since it is less specific than the other two particles, as shown in (69). Now the question arises as to which of the $a^{\mathrm{L}} \mathrm{VI}$ and the past-tense ar VI should be selected. Here they show an apparent tie, as $a^{\text {L }}$ carries the agreement feature, as in (69a), whereas ar carries the tense feature, as shown in (69b). In order to derive the correct result, it is necessary to postulate that somehow the tense feature takes priority, though no other case where such a competition between formal features is found.

The other three cases in (68) are much worse. Consider (68c).
a. Evaluation of $a^{\mathrm{L}} \mathrm{VI}$ with (68c):

$$
\left\langle\left[\begin{array}{l}
\mathrm{EPP}  \tag{70}\\
\mathrm{AGR}
\end{array}\right] \Leftrightarrow a^{\mathrm{L}}\right\rangle \subseteq\left[\begin{array}{ll}
\text { EPP } & \\
\text { AGR } & \\
\text { MAx } & \\
\text { TENSE } & \text { pres }
\end{array}\right]
$$

b. Evaluation of $a^{\mathrm{N}} \mathrm{VI}$ with (68c):

$$
\left\langle[\mathrm{EPP}] \Leftrightarrow a^{N}\right\rangle \subseteq\left[\begin{array}{ll}
\operatorname{EPP} & \\
\operatorname{AGR} & \\
\operatorname{Max} & \\
\text { Tense } & \text { pres }
\end{array}\right]
$$

c. Evaluation of ar VI with (68c):

$$
\left\langle\left[\begin{array}{lr}
\text { EPP } & \\
\text { TEnSE } & \text { past }
\end{array}\right] \Leftrightarrow \quad a r\right\rangle \nsubseteq\left[\begin{array}{ll}
\text { AGR } & \\
\text { Max } & \\
\text { TEnSE } & \text { pres }
\end{array}\right]
$$

The past form ar is ruled out due to incompatibility of the tense features as shown in (70c). The problem is that the $a^{\mathrm{L}}$ form is wrongly selected, since it has the additional [AGR] feature and is a better fit than $a^{\mathrm{N}}$.

The outcome is even worse with cases with a dependent form, as in (68b) and (68d):
(71) a. Evaluation of $a^{L}$ VI with (68b)/(68d):

$$
\left\langle\left[\begin{array}{l}
\mathrm{EPP} \\
\mathrm{AGR}
\end{array}\right] \Leftrightarrow a^{L}\right\rangle \subseteq\left[\begin{array}{l}
\mathrm{EPP} \\
\mathrm{AGR} \\
\mathrm{MAX}
\end{array}\right]
$$

b. Evaluation of $a^{N}$ VI with (68b)/(68d):

$$
\left\langle[\mathrm{EPP}] \Leftrightarrow \quad a^{\mathrm{N}}\right\rangle \subseteq\left[\begin{array}{l}
\mathrm{EPP} \\
\mathrm{AGR} \\
\mathrm{MAX}
\end{array}\right]
$$

c. Evaluation of ar VI with $(68 \mathrm{~b}) /(68 \mathrm{~d})$ :

$$
\left\langle\left[\begin{array}{lc}
\mathrm{EPP} \\
\mathrm{TENSE} & \text { past }
\end{array}\right] \Leftrightarrow \quad \text { ar }\right\rangle \nsubseteq\left[\begin{array}{l}
\mathrm{EPP} \\
\mathrm{AGR} \\
\mathrm{MAx}
\end{array}\right]
$$

Recall that a dependent form spells out the tense feature on the $\mathrm{C}^{0}$ before the particle is inserted. Thus, the past-tense form ar is always ruled out. Again the problem is found in the competition between $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$. Since $a^{\mathrm{L}}$ meets the specification provided from the syntax better than $a^{\mathrm{N}}$, just as in (68c), $a^{\mathrm{L}}$ is inserted. This means that in a headless relative clause, according to the analyses of headless relative clause and of the verb-particle interaction, we should expect the sequence of $a^{\mathrm{L}}+$ dependent form, which is of course not what happens.

What does this mean to us? If we pursue the analyses developed in this work, it follows that these two particles cannot be syncretic, but they are in a homophony relation. This is what I argue in this section. The headless relative particle $a^{N}$ and the resumption particle $a^{\mathrm{N}}$ are homophonous, derived by different sets of VIs, which happen to have the same morphophonological shape. We have seen the VIs for the resumptive pronoun in (54b-c). We propose the following VIs for the headless relative particle:
a. Vocabulary Item for the Non-past Headless Relative Particle

$$
\left\langle\left[\begin{array}{l}
\operatorname{EPP}  \tag{72}\\
\operatorname{AGR} \\
\operatorname{MAx}
\end{array}\right] \Leftrightarrow a^{\mathrm{N}}\right\rangle
$$

b. Vocabulary Item for the Past Headless Relative Particle


In fact, data from the Munster dialect suggest that this is on the right track. Recall that we discussed in section 4.1.3 that in Munster variations, impoverishment of the preverbal particle system has taken place, in that the finite complementation particle go surfaces in the resumptive structure:
an fear go rabhas ag caint leis the man $g o$ was.1SG talking with.him
'the man that I was talking to'
(Munster variety; McCloskey p.c.)

However, this impoverishment crucially does not affect the $a^{\mathrm{N}}$ form in the headless relative construction:
(74) Bhí a raibh san Oileán ag féachaint ar na naomhóga was $\boldsymbol{a}^{\mathrm{N}}$ was.DEP in.the Island look.PROG on the currachs 'Everyone who was in the Island was watching the currachs.'
(Munster variety; McCloskey, 2002:(55a))

I anticipate that the most plausible account of impoverishment of this kind would be that these varieties lost the resumptive particle VI, forcing the second-best match, the finite complementizer particle $g o$, to be inserted. If this story of impoverishment in Munster varieties is on the right track, which we assume it is, we cannot explain why the $a^{\mathrm{N}}$ form of the headless relative particle is retained in those varieties if the resumptive particle and the headless relative clause particle are one and the same VI. We should expect a different particle to surface in the headless relative clauses in the Munster varieties. But if the resumptive particle and the headless relative particle constitute different VIs, then the problem disappears: the appearance of the headless relative particle $a^{\mathrm{N}}$ will not be
affected by the loss of the resumption particle VI since a different VI is responsible for the feature set in the $\mathrm{C}^{0}$ of the headless relative construction. ${ }^{34}$

### 6.5 Conclusion

The aim of this chapter was twofold: First, it provided an account of the morphology of the Irish left periphery. In particular, we considered the dependent-independent alternation and its interaction with the tense morphology of the preverbal particles. We argued that the dependent forms spell out two tense features, one on $\mathrm{T}^{0}$ and the other on $\mathrm{C}^{0}$, whereas the independent forms spell out only one. As a consequence, the tense in the particle is unnecessary when there is a dependent form, and the particle thus surfaces as the underspecified, or non-past form.

The first part of this chapter feeds the second part, the analysis of the morphology of the left periphery of the headless relative construction in Irish. Combining the morphological considerations and the findings in Irish syntax that we discussed in the previous chapters, we have reached the conclusion that the $\mathrm{C}^{0}$ has an agreement feature which agrees with the maximalization operator, and we rejected morphological lowering of the operator. Also, we concluded that the resumption particle and the headless relative particle are homophonous in that they are different VIs even though they have the same morphophonological shape.

It should be stressed that the analyses proposed in this chapter do not require any

[^93]novel mechanisms that adds to the existing framework of Distributed Morphology (or the framework of Minimalist Program). There have been no previous theoretical accounts of the Irish verbal morphology, in particular that of the dependent-independent alternation. This analysis lends legitimacy to the derivational approach which assumes late insertion to the extent that there is no alternative that can successfully account for the phenomena presented in this chapter.

## Chapter 7

## Epilogue

Writing a conclusion, I think, is just like cleaning up the mess after a bad house party. I find it is the hardest task, though it may also be the simplest. This time, the mess is huge, I feel.

I have done exactly what I said in section 1.3 that I would do. But perhaps, it is useful to write a summary here of what I have done, just once again: This thesis has addressed two issues of Irish (morpho-)syntax; headless relative clauses and the morphology of preverbal particles and dependent verb forms. As for the headless relative clauses, I have argued that they employ an extraction strategy despite the presence of the $a^{\mathrm{N}}$ particle. It was further argued that headless relative clauses in Irish are amount relatives, and thus the construction involves extraction of a degree expression from a partitive phrase, and the operation of maximalization. In the next section, it was argued that a finite clause in Irish has two tense features and that a dependent verb form spells out both at the same time, which accounts for the fact that a preverbal particle that co-occurs with a dependent form always takes the non-past form. And finally, this morphological analysis suggests that the $a^{\mathrm{N}}$ particle of the headless relative construction and the $a^{\mathrm{N}}$ of the resumptive construction are merely homophonous; that is, they are spelled out by different vocabulary items.

While I hope to have made a contribution to the field of Irish syntax (and perhaps of theoretical syntax), it is the nature of a thesis that it generates more puzzles. If a reader remains puzzled after reading the entire thesis, perhaps $s /$ he is not alone. Numerous footnotes are embedded throughout the thesis, and many of them indicate further puzzles. To them, I simply say "I don't know" for now, but hopefully, eventually I will answer some of them. Or perhaps, these puzzles will stimulate work by others, which is even better.

But for now, to conclude, I say Sin a bhfuil 'That's all'. Just for now.

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[^0]:    ${ }^{1}$ And Radu is correcting my Engurisshu in this acknowledgements as I type this now. Go raibh míle maith agat, a Radu!

[^1]:    ${ }^{1}$ Or the fruit for readers who are vegetarian.

[^2]:    ${ }^{1}$ The data that I present in this thesis were collected from three native speakers of Donegal Irish. The initials MH, PJ, and DO stand for the consultant with whom I confirmed the data.
    ${ }^{2}$ The term free relative is also synonymously used. For the sake of simplicity, I avoid using this term in this work.

[^3]:    ${ }^{3}$ For this reason, Dixon (2010) suggests the term Common Argument. We, however, adopt the term head, as it is used pervasively in the literature, with the word of caution in this paragraph.

[^4]:    ${ }^{4}$ Note that despite the term extraction, at least at this point we are not committing to any particular theoretical account of the phenomenon, and will avoid making theoretical claims in this chapter. A similar disclaimer applies to resumptive relative clauses. In Chapter 3, we review analyses of the extraction strategy which do involve movement.
    ${ }^{5}$ In this thesis, I assume that resumptive pronouns in Irish are true resumptive pronouns (as opposed to intrusive resumptive pronouns. See section 2.4.3 for more on this.

[^5]:    ${ }^{6}$ Note also that these particles are often subject to total deletion.
    ${ }^{7}$ It may also be indicated by the addition of a dot above the letter, as this is found in traditional Celtic scripts.

[^6]:    ${ }^{8}$ Sells (1984) on the other hand assumes that Irish lacks resumption in the direct object position as a part of grammatical system, claiming that the phenomenon is highly marked.

[^7]:    ${ }^{9}$ Note that a preposition and its pronominal complement form a "portmanteau", which is referred as a prepositional pronoun in the traditional grammar (e.g., Christian Brothers, 1999:83). See McCloskey

[^8]:    ${ }^{11}$ Note, however, that Maki and Ó Baoill (2011b) report that some speakers find (20) acceptable. Furthermore, they also observe that even the phrases with HSR that speakers find unanimously unacceptable improve their acceptability once they are embedded in a full sentence:

[^9]:    ${ }^{12}$ Example (22) also illustrates another interesting point-resumptive $\mathrm{A}^{\prime}$-dependency is not sensitive to the coordinate structure island. This point is discussed later in this section.

[^10]:    ${ }^{15}$ It appears that resumptive pronouns contribute to the meaning in cases like (41). According to Dónall Ó Baoill (p.c.), the pronoun é 'him' in (41) seems to force a "distributive" meaning, and if it is replaced by iad 'them', the reading of the event becomes "non-distributive". For the same reason, use of $i$ in (41) degrades grammaticality.

[^11]:    ${ }^{16}$ Use of cén tÉireannach 'which Irishman' instead of c'en duine de na hÉireannaigh 'which of the Irishmen' in (44) makes A1, i.e., a list answer, inappropriate.

[^12]:    ${ }^{17}$ Stenson (2008:172) says that there are two types of headless relative clauses; one with $a^{\mathrm{N}}$, which we see in this section, and the other with $a^{\mathrm{L}}$. This is contrary to what I have found with my consultants, and to what the other grammar books say. Stenson gives the following contrast:

[^13]:    ${ }^{18}$ It should be noted however, that there are some cases in which arguably resumption is allowed. For example, headless relativization is possible with resumption of a prepositional object, assuming McCloskey and Hale's (1984) analysis that agreement signals presence of pro in Irish:
    i. $\sin$ a dtiocfadh liom labhairt air
    that $a^{\mathrm{N}}$ I.could speak.vN on.it
    'that is all that I could talk about.'
    (McCloskey, p.c.)

[^14]:    ${ }^{19}$ In what follows, I assume that partitive-like phrases composed with a quantity expression and a substance expression consist of a single DP-layer (Stickney, 2004; Alexiadou et al., 2007).

[^15]:    ${ }^{20}$ Also, there is a possibility that there are two types of headless relative clauses as briefly discussed in footnote 17 in this chapter. If the distinction discussed there turns out to be productive, it is hard to distinguish the kind of headless relative clauses we consider here in the context of negation from headless relative clauses headed by the $a^{\mathrm{L}}$ particle.
    ${ }^{21}$ The presence of the phrase an méid 'the amount' in (55a) should not obscure the matter. This is discussed in section 5.2.4.

[^16]:    ${ }^{22}$ The description laid out here is highly reminiscent of the fact that split wh-movement in French and German cannot cross negation (Butler and Mathieu, 2004).
    ${ }^{23}$ The term direct is used in the traditional Irish grammar to mean a regular wh-extraction relative clause with $a^{\mathrm{L}}$. In contrast, the term indirect is used to describe a resumptive clause with $a^{\mathrm{N}}$.

[^17]:    ${ }^{1}$ For those who are familiar with Irish, but not with generative grammar, see McCloskey (1985), which provides an excellent account of relativization in Irish in less theoretical terms, as well as providing an argument against a misconception common in the traditional grammar of Irish that so-called "double relatives," which is relativization out of a complex clause with embedding of multiple CP layers, is an instance of relative clause stacking.

[^18]:    ${ }^{2}$ See also McCloskey (2001) where he revisits the question and defends his position.

[^19]:    ${ }^{3}$ See section 2.4.2 for descriptions of the restriction.

[^20]:    ${ }^{4}$ These cases are discussed in detail in the following section.

[^21]:    ${ }^{5}$ Particles are in boldface and resumptive pronouns are underlined in in (15) and (16).

[^22]:    ${ }^{6}$ But see also Boeckx (2003) for an alternative view of resumption.

[^23]:    ${ }^{7}$ It is assumed here that only one kind of operator is available. The analysis thus fails to address the contrast between $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ that Maki and Ó Baoill (2011a: Ch. 2) observe, shown in (10).

    Also, it has been noticed that this particular $\mathrm{A}^{\prime}$-chain in (16b) is possible only with psych-predicates or other constructions that pertains to Complex Noun Phrase Constraint (Maki and Ó Baoill, 2011a: Ch. 2, footnote 2).

[^24]:    ${ }^{8}$ See also Sells (1984) for a similar view. Sells' analysis differs in that it is based on Case-theoretic considerations, and both $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$ adjoin to $\mathrm{T}^{0}$. Very roughly, according to Sells, $a^{\mathrm{L}}$-relatives are somewhat similar to the analysis of the English passive construction (e.g., Baker et al. (1989)), in that the Case of a moved argument is absorbed by $a^{\llcorner }$, and it is discharged to the element in the Spec-TP position. In $a^{\mathrm{N}}$-relatives, on the other hand, Case is assigned in the base position.

[^25]:    ${ }^{10}$ In fact, this prediction is not borne out, as the following sentence is ungrammatical:

[^26]:    ${ }^{11}$ As Noonan (2002) notes, this description accounts for the non-finite clauses of the Northern varieties.

[^27]:    ${ }^{12}$ There are, of course, differences of detail among the references cited here.
    ${ }^{13}$ An obvious issue with the analysis schematized in (36) is the question of Case-assignment to the head-nominal. On first glance, the head nominal appears to receive Case twice: once within the relative CP and a second time in the matrix clause. Also, the issue is complicated even further by the fact that the NP remains within the CP. There have been several proposals to deal with these problems (e.g., de Vries, 2002), but I leave them aside here.
    ${ }^{14} \mathrm{~A}$ similar observation holds for bound pronouns:

[^28]:    ${ }^{16}$ Hulsey and Sauerland (2006) dismiss the operator approach because an $\mathrm{A}^{\prime}$-moved element has to be interpreted both at the surface position and the variable position, alluding to Safir (1999).

[^29]:    ${ }^{1}$ One of the earliest accounts of the construction is offered by Bresnan and Grimshaw (1978). Citko (2000) offers a concise summary of the issues of headless relatives, as well as a compelling syntactic analysis in the current Minimalist framework. See also Caponigro (2003) for a cross-linguistic account of headless relatives. See van Riemsdijk (2006) for a general overview.

[^30]:    ${ }^{2}$ Particles are boldfaced, and resumptive elements are italicized in examples (1-6).

[^31]:    ${ }^{3}$ It would be useful to know the source of this inequality of frequency among the patterns. Part of it may simply be due to performance rather than competence. However, Maki and Ó Baoill (2005: footnote 2) note that the pattern described in (4) is found only in a construction in which a nominal psychological predicate occupies the subject position, and its experiencer is expressed as a prepositional object. This suggests that some parts of the issue seem to concern the grammar proper, and further study of the variation is necessary, although such a study is beyond the scope of this thesis.

[^32]:    ${ }^{4}$ Providing grammaticality judgments for these intermediate particle choices seems to be a very hard task for some native speakers of the language, which I speculate may be partly due to possible ongoing simplification of the $\mathrm{A}^{\prime}$-particle system of the language. This simplification is most obvious in Munster variants as we will see in the section below. Nonetheless, a very strong tendency to use $a^{\mathrm{L}}$ for the lower $\mathrm{C}^{0}$ position seem to be agreed among speakers.

[^33]:    ${ }^{5}$ Munster is one of four historical provinces of Ireland, located in the southern part of the country. Connacht is in the west. The Ulster province lies in the north, and most of the province (six counties out of nine) constitutes Northern Ireland, a part of the United Kingdom. County Donegal (a part of Republic of Ireland) is the only county in Ulster that has officially recognized Gaeltactaí (Irish-dominant regions), while Belfast has a relatively large population of speakers of the language thanks to recent revitalization efforts.

[^34]:    ${ }^{8}$ This proposal is consistent with the suggestion by Maki and Ó Baoill (2005) based on the 'sixth pattern' which did not appear in McCloskey (2002).

[^35]:    ${ }^{9}$ We have not ruled out the possibility that the element moved out of a full DP is a DP. In Chapter 5, I propose that the constituents which undergo movement in the examples in (18) are Measure Phrases that form a (pseudo-)partitive with the elements left in situ.

[^36]:    ${ }^{10}$ See Boeckx (2003) for a quick overview.

[^37]:    ${ }^{11}$ It should be borne in mind that the judgement is subtle, and some speakers do not find a strong contrast in (21).
    ${ }^{12}$ This phenomenon is consistent with Rizzi's (2006:(32)) Criterial Freezing: A phrase meeting a criterion is frozen in place. Meeting a criterion roughly means to have its scope-discourse feature checked. The headless relative $a^{N}$ offers a criterial position, and thus the element in its specifier position cannot undergo further $\mathrm{A}^{\prime}$-movement. This prohibits the $a^{\mathrm{N}}-a^{\mathrm{N}}$ chain in the headless relative construction.

[^38]:    ${ }^{13}$ But note that Rizzi (2006:114) reports that the following Italian sentence which parallels the sentences in (23) is marginally acceptable.
    i. $\quad ?$ [Di quale autore $]_{i} \mathrm{C}_{\mathrm{Q}}$ ti domandi [CP [quanti libri $\left.t_{i}\right]_{j} \mathrm{C}_{\mathrm{Q}}$ siano stati censurati $\left.t_{j}\right]$ ? by which author you wonder how.many books have been censored 'By which author do you wonder how many books have been censored?' (Rizzi, 2006:(36b))

[^39]:    ${ }^{1}$ Note that Carlson remains informal regarding the semantics of amount relatives, and therefore he does not explicitly introduce type notations.
    ${ }^{2}$ Note that Carlson does not use the term Antecedent-Contained Deletion or $A C D$.

[^40]:    ${ }^{3}$ See Heim (1987) for more on definiteness restrictions of similar sorts.
    ${ }^{4}$ Note that Herdan (2008) points out that this type of relativizer restriction is not universal, contrary to popular assumptions, by showing Polish and Romanian cases.

[^41]:    ${ }^{5}$ Readers should note that the term "pragmatic" is used in a very informal fashion here. By this, I mean that the interpretation to a certain degree depends on the context in which the utterance is made and nothing further is intended.

[^42]:    ${ }^{6}$ More precisely, there are two possible instantiation of the matter discussed here. One is that the "identity of amount" reading is simply unavailable in (4), which this paragraph alludes to. The other possibility is that it is available but it converges with the "identity of substance" reading upon the identical truth-condition due to the non-modal context.
    ${ }^{7}$ The examples in (6) has another problem: where does modality plays a role in licensing the amount reading? Notice that in (4), the licensing modal marker is in the matrix clause, outside of the amount relative. In (6), on the other hand, it is the modal marker within the relative clause that licenses the amount reading.

[^43]:    ${ }^{8}$ James McCloskey (p.c.) points out that Irish has an exclamative use of headless relatives, which appears to suggest that there is a link between modality and headless relative clauses in Irish, just as we find a link between modality and amount relatives.

[^44]:    ${ }^{12}$ See Herdan (2008) for some criticisms of Grosu and Landman's approach. These criticisms, while substantive, do not bear on the matters discussed here.

[^45]:    ${ }^{13}$ Very roughly speaking, a sortal predicate is a nominal expression which indicates the substance.
    ${ }^{14}$ The Maximalization function (or similar insights) are also found elsewhere. Jacobson (1995) makes a similar proposal for English headless relative clauses, by claiming maximalization over a set of individuals. For a comprehensive study of the semantics of the Maximalization function, see Rullmann (1995).
    ${ }^{15}$ Grosu and Landman (1998) further assume that the result of application of MAX will be undefined if there are multiple maximal degrees.

[^46]:    ${ }^{16}$ For one of my consultants, but not for the others, headless relative clauses seem to lose some of their universal force when they contain a true partitive, as in (i).
    i. Sin a bhfuil [__] den airgead agam. that $a^{\mathrm{N}}$ was of.the money at.me 'That's some of the money that I had.' DO

[^47]:    ${ }^{17}$ Grosu and Landman (1998) assume numeral expressions are modifiers which restrict the interpretation of the nominal expression they appear with.
    ${ }^{18}$ Grosu and Landman (1998) assume an operation of Existential Lift, a rule inserting an existential quantifier to an expression of property, which applies when no overt quantifier is available. The same result can be achieved by assuming a phonologically null existential expression: $\llbracket \emptyset_{\mathrm{D}^{o}} \rrbracket=$ $\lambda Q \cdot \lambda P \cdot \exists x[Q(x) \& P(x)]$

[^48]:    ${ }^{19}$ In this regard, it is imprecise to call the sentences such as the one in (1b) ungrammatical. Rather they should be considered as (pragmatically) infelicitous.
    ${ }^{20}$ Note however, that the analysis of amount relatives with the maximalization operator alone does not explain why the universal quantifier is allowed to appear with amount relatives. Grosu and Landman (1998) assume that every may function as a distributor, but it is unclear whether this assumption is entirely valid. We leave this issue for future study.

    Also, note that while Irish headless relative clauses may be modified by the universal quantifier gach 'every, my consultants do not find any obvious semantic difference between the phrases with and without gach. Furthermore, an analysis relying on distributivity appears (at least to me) to be at odds with the fact that headless relative clauses degrade their acceptability once they are directly modified by the universal quantifier achan in the Donegal dialects, which is derived from gach aon 'each/every single' (see section 2.5.3).

[^49]:    ${ }^{21}$ Note, however, that an A'-dependency formed in an Irish headless relative clause may cross a quantificational expression:
    i. Sin ar chuala achan duine.

    That $a^{\mathrm{N}}$.PAST heard every person 'That's all that everyone heard.'

    DO

[^50]:    ${ }^{22}$ Note that the English translation is acceptable with a mass reading of egg.

[^51]:    ${ }^{23}$ See section 2.3 and Chapter 6 for morphological impacts of $a^{\mathrm{L}}$ and $a^{\mathrm{N}}$

[^52]:    ${ }^{24}$ In Chapter 6, we motivate morphological lowering as it feeds other morphological operations.

[^53]:    ${ }^{25}$ Among the literature on classifier languages, the measure element is sometimes called a massifier (Cheng and Sybesma, 1998), and it is sometimes called a classifier in studies of non-classifier languages, such as English, Dutch, and Greek (Alexiadou et al., 2007). To avoid unnecessary confusion, we will use the neutral term measure word in this work.

[^54]:    ${ }^{26}$ In fact, Cheng and Sybesma (1998) claim that measure nouns (or massifiers in their terms) are contentful nouns which may be used independently, unlike true classifiers in classifier languages.

[^55]:    ${ }^{27}$ The data in (62) originally come from Selkirk (1977).

[^56]:    ${ }^{28}$ Note that the preposition $d e$ 'of' contracts to $d$ ' before a vowel.

[^57]:    ${ }^{29}$ Some speakers of English accept the following, and thus they do not find the contrast illustrated by the examples in (69):
    i. The two pounds that I bought of flour is on the table.

    This implies micro-variation of English with regard to partitive/pseudo-partitive constructions. Although it would be interesting to explore this variation, it is beyond the scope of this thesis. I leave this issue aside, and take into consideration only the variant of English which exhibits the distinction in (69).

[^58]:    ${ }^{30} \mathrm{Or}$, perhaps, the presence of attributive adjective is mediated by some functional category F , which blocks the head movement of $\mathrm{N}^{0}$, much like the way in which English do-support is triggered when negation intervenes the verb and $T$.

[^59]:    ${ }^{31}$ Nothing hinges on the choice of DP as a domain, although I speculate that this domain effect concerns the notion of phase (Chomsky, 2001).

[^60]:    ${ }^{32}$ Boeckx (2008:39-40) speculates on a third possible analysis of the pseudo-partitives based on the notion of reprojection. That is, the structure is built in narrow syntax as an ordinary DP structure with a PP-complement headed by of, but the structure reprojects and overrides the existing formation in covert syntax in such a way that the substantive component is the semantic core of the phrase. It requires an independent study whether an analysis along these lines is tenable or adequate, I will leave this analysis aside.

[^61]:    ${ }^{33}$ It is not clear how much this pattern can be extended in arguably pseudo-partitive phrases. For example, (i) is unanimously ruled ungrammatical by the English speakers that I consulted:
    i. $\quad$ I am going to read three difficult boxes of books.

[^62]:    ${ }^{34}$ Donati (2006) proposes a similar kind of movement, though there is a crucial difference. Her analysis, which accommodates the facts of English headless relative clauses, is that $\mathrm{A}^{\prime}$-extraction of a head (or more precisely, a maximal element which consists solely of a head) may $\mathrm{A}^{\prime}$-move to the top position in the structure and then re-project. The crucial difference is that the account which I am arguing against is exploring the movement of a head element which already has projected in the base generated position. The head then undergoes $\mathrm{A}^{\prime}$-movement alone and attaches to some projection as a specifier, an opposite view from Donati's account.
    ${ }^{35}$ Stickney (2004) proposes this "roll-up movement" analysis to account for the following data:

[^63]:    ${ }^{36}$ How this parameter is implemented is a question that remains. The currently predominant view (often referred as the Borer-Chomsky Conjecture), that parameters are feature-driven, and thus is it is a

[^64]:    lexical matter, seems not immediately applicable, though further study may provide a connection. See also Baker's (2008) skepticism about the conjecture.
    ${ }^{37}$ The measure word is most likely a noun as well, as Cheng and Sybesma (1998) argue for Chinese massifiers, and raises to some functional projection to be interpreted as a measure.

[^65]:    ${ }^{38}$ The third alternative which we are not laying out here is that the covert operator $O p$ is generated inside the relative clause, and undergoes $\mathrm{A}^{\prime}$-movement to the Spec-CP position, and then the relative CP adjoins to the head nominal phrase. Also here we ignore the fact that relativization on a pseudopartitive relative head in general yields ambiguity. For example, the English example in (i) is two ways ambiguous; one meaning is that John bought some amount of beer, and we consumed three pints out of the overall quantity, and the other is that John bought three pints of beer.

[^66]:    ${ }^{39}$ This means that the head Mon has three morphological realizations: the preposition $d e$, genitive marking on the substantive nominal, and null.

[^67]:    ${ }^{40}$ There is a potential drawback here. Consider (i) below:

[^68]:    ${ }^{1}$ Portions of this chapter appear in Oda (2011).

[^69]:    ${ }^{2}$ The dialect considered in this work is the standard one (An Caighdeán Oifigiúil), but is to a large extent compatible with Connacht variations (See Hughes (2008) for dialectal variations of the verbal inflection). McCloskey (p.c.) points out that in many West Kerry varieties, (past) tense-marked particles, as well as the initial mutation on a verb to indicate past tense, are disappearing altogether, as shown below:

[^70]:    ${ }^{3}$ Although there are also a few elements that might be characterized as "particles" that collocate only with non-finite verbs, such as the progressive marker $a g$ or non-finite transitivizer/agreement marker $a^{\mathrm{L}}$, we deal only with the particles that appear with finite verbs here.

[^71]:    ${ }^{4}$ We could alternatively analyze the dichotomy in terms of mood, as Ó Sé (1990) proposes for copular particles. In Ó Sé's system, the distinction is made between realis (which covers present and future) and irrealis (which covers past, as well as conditionals). For concreteness, I assume here that the distinction is one of tense.

[^72]:    ${ }^{5}$ The phonetic representations in (5) are adopted from Doyle (2001:46-49), and they are of Connemara varieties. The symbol ' indicates the preceding consonant is slenderized which roughly corresponds with the notion of palatalization in phonology, and $[\mathrm{N}]$ is a tensed equivalent of the alveolar nasal $[\mathrm{n}]$, which is unique to Connemara and Donegal varieties (Doyle, 2001:18-19).

[^73]:    ${ }^{6}$ Recall that we are dealing with the standard variety in this chapter. There is a minor degree of dialectal variation with irregular verbs. For example, Northern varieties use cluin instead of clois 'hear', and have a different inflectional paradigm for the verb feic 'see'.
    ${ }^{7}$ The verb bi has a special present habitual form bionn, while all the other verbs in the language lack the present vs. present habitual distinction. As this present habitual form of bi looks quite like a regular

[^74]:    ${ }^{9}$ McCloskey (2001:86-87) provides a very convincing argument that the conditional má is a distinct particle, and it is not morphophonologically fused with $a^{\mathrm{L}}$. $A^{\mathrm{L}}$ is thus not unique in not being tensedependent.

[^75]:    ${ }^{10}$ Arguably, $\mathrm{C}^{0}$ should be expanded to a set of functional heads proposed by Rizzi (1997) as McCloskey (2001) suggests. The analysis to be laid out below would not be affected by either analysis regarding $\mathrm{C}^{0}$, and thus we keep using the single $\mathrm{C}^{0}$ head for the sake of simplicity.
    ${ }^{11}$ Technically speaking, the verb may be a complex entity consisting of $v^{0}$ and $\mathrm{V}^{0}$ (Larson, 1988). The question remains as to how to put the $\mathrm{T}^{0}$ and $\mathrm{V}^{0}$ together. The simplest solution to this is to assume V-to-T raising in Irish (Carnie, 1995; Bobaljik and Carnie, 1996), but typological evidence suggests that Irish may be better viewed as a VP-fronting language (Oda, 2002, 2005). If an approach incorporating VP-fronting is correct, then it is hard to explain the collocation of $\mathrm{T}^{0}$ and $\mathrm{V}^{0}$ by V-to- T raising.

[^76]:    ${ }^{12}$ Asudeh (2002) offers a non-derivational account of the preverbal particles in Irish within the framework of Lexical Functional Grammar (LFG) (Bresnan, 2001), which allows a preverbal particle to be of $\mathrm{C}^{0}$ and to be base-generated as an adjunct to $\mathrm{T}^{0}$ at the same time. Asudeh's analysis is made possible partly due to the different understanding of the notion of endocentricity in LFG.
    ${ }^{13}$ The finiteness feature is ignored in (18) and in the VIs hereafter since all the particles discussed here are finite.

[^77]:    ${ }^{14}$ It should be noted that this decision is entirely for expository reasons. See footnote 34 of this chapter.

[^78]:    ${ }^{15}$ For earlier accounts of morphophonology of initial consonant mutation in Irish, see Massam (1983a,b), Ní Chiosáin (1991), and Grijzenhout (1995) among others.
    ${ }^{16}$ There are two types of regular verb conjugation, the first conjugation with mono-syllabic stems and the second conjugation with multi-syllabic stems, and we present only the first conjugation in this section.
    ${ }^{17}$ More accurately, the VI for the past form (23d) should also consists of the lenition feature and a prefix $d$-. This prefix will then be deleted when it is followed by a consonant. This is discussed in section

[^79]:    ${ }^{18}$ For an alternative view of Irish verb raising, see Oda $(2002,2005)$.
    ${ }^{19}$ It is not clear to me whether the arguments that Cottell provides are valid under the latest assump-

[^80]:    tions of the Minimalist Program, as her arguments largely depend on using a structure with Agr(eement) projections, which are argued against by Chomsky (1995:ch. 4).

[^81]:    ${ }^{20}$ The lenition of of the dependent form dheachaigh in (27a) is due to the presence of the negative particle ní. The form deachaigh with no consonant mutation never surfaces in a sentence since the form by definition always follows a tense-sensitive particle, which always causes mutation of the initial consonant of the following verb.
    ${ }^{21}$ The actual order of the constituents is not relevant here.

[^82]:    ${ }^{22}$ The negative particle lenites the initial consonant of the verb, which is indicated by addition of the letter $h$.

[^83]:    ${ }^{23}$ Note that the form in (37b) is slightly complicated: The / d/ is licensed to appear because the initial consonant /f/ of the verb stem foghlaim 'learn' is deleted by lenition.

[^84]:    ${ }^{24}$ Note, however, that ní thug 'didn't give' and ní chala 'didn't hear' are available in the Donegal dialects (James McCloskey, p.c.).

[^85]:    ${ }^{25}$ See Stenson (1989), Harley (2002), and McCloskey (2007, 2010) for accounts of Irish impersonals.

[^86]:    ${ }^{26}$ Conditional imperfect autonomous forms on the other hand retain lenition; thus bhrisfi 'one would break' and bhristi 'one used to break'.
    ${ }^{27} \mathrm{Or}$-(a)íodh for the second conjugation (multi-syllabic) verbs.

[^87]:    ${ }^{28}$ This puzzle is far more complicated than is presented here. The conditional and imperfect autonomous forms do come with the $d$ - prefix. Nonetheless, once again, they do not take past-marked particles:

[^88]:    ${ }^{29}$ The orthographic sequence $b h(f)$ - is pronounced either as /w/ or /v/ depending on phonological contexts and dialectal variations.

[^89]:    ${ }^{30}$ There is an additional oddity to the forms of the verb abair 'say': the initial consonant of the past-tense (de facto dependent) form dúirt does not undergo lenition, though it can eclipse.

[^90]:    ${ }^{31}$ For example, as mentioned earlier, Chomsky (2008) has recently proposed that the properties of $\mathrm{T}^{0}$ are in fact originally generated in $\mathrm{C}^{0}$, and they are then inherited (i.e., lowered) to $\mathrm{T}^{0}$. The analysis proposed here differs from Chomsky's account only in that $\mathrm{C}^{0}$ receives the value of its tense feature via Agree.

[^91]:    ${ }^{32}$ We will see below in section 6.4 .2 (page 178) that these particles are merely homophonous and do not constitute a case of syncretism.

[^92]:    ${ }^{33}$ See section 6.4 .2 below for more on the morphological representation of the headless relative $a^{\mathrm{N}}$.

[^93]:    ${ }^{34}$ Readers may wonder why the past-tense forms of the resumption particle and the headless relative particle are also identical as ar, making as if the whole paradigms identical. However, it should be added that all past-tense particles end with $-r$. This may be because, as McCloskey (2001) claims, - $r$ is a separate morpheme, and it attaches to the particles. Since the resumptive particle and the headless relative particle are both identical in form as $a^{\mathrm{N}}$, it is a natural consequence that in both cases the past form is realized as ar.

