Functional Heads and Interpretation

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Declaration

I declare that this thesis has been composed by myself and that the research reported therein has been conducted by myself unless otherwise indicated.

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Note

This thesis was originally submitted October 1993. A number of copies are available under the same title but with the 1993 date. The present version, incorporating mainly typographic changes, should be considered definitive.

Abstract

This thesis examines the effect that functional heads have on the interpretation of arguments. It focuses on the functional head Agr, which is implicated in predicate-argument agreement relations; the import that other functional heads have on interpretation is a subsidiary concern. The argument of the thesis goes as follows: firstly, reference must be made to both an independently projecting functional head Agr and to a level of discourse representation in order to adequately analyse the phenomenon of predicate argument agreement. This theory sheds light on an unusual complementarity betwen agreement and overt arguments in Celtic because it provides a natural constraint on morphological feature checking mechanisms. Secondly, some aspects of the semantics of argument DPs are also best explained by reference to a level of discourse representation; specifically *weak* DPs (Milsark 1977) are contextually disambiguated and *strong* DPs are characterised by the property of *familiarity* at this level. Empirical evidence then shows that there is a close tie between familiarity and Agr, and this is implemented by a reformulation of Heim 1982's Novelty Familiarity Condition, obviating any need for special statements regulating the mapping between syntactic structure and interpretation. Puzzling cross-linguistic variation in this arena is explained by appeal to general economy considerations (Chomsky 1991). A logical corollary of the Novelty Familiarity Condition is that necessarily unfamiliar arguments may not enter into a structural relationship with Agr. Measure phrases provide the confirmation of this prediction. Finally the implications that functional heads have for syntactic licensing is considered, and Tense and Aspect are shown to be necessary, as well as Agr. The thesis shows that functional heads are therefore implicated in the interpretation of arguments.

Contents

Chapter 1

Introduction

The structure of this thesis is the inverse of its intellectual history. I was originally interested in exploring the question as to what distinguishes adjuncts from arguments. My initial methodology was then to look at phenomena which involved elements that seemed halfway between adjuncts and arguments, given the usual criteria. The phenomenon that I first looked at was measure phrases, such as the following:

(1.1) Anson weighed *seventy kilos*

Measure phrases seem to act like canonical arguments, in that they are obligatory:

(1.2) *Anson weighed

but they seem to act like canonical adjuncts, in that they are not extractable from weak islands induced by factives etc (see Rizzi 1990, Cinque 1990):

(1.3) a. What$_i$ did Anson regret that David ate t$_i$?
b. *How$_i$ did Anson regret that David ate the cake t$_i$?
c. *What did Anson regret that David weighed t$_i$

This dual nature suggested to me that measure phrases appeared to be a good place to begin to look to explore the differences between adjuncts and arguments.

As I began to look at the syntax of measure phrases in more detail, I noticed two things. The first was something that arose from an earlier interest of mine which had to do with the syntax of Scottish Gaelic (SG). SG has an interesting object preposing construction where the object of the verb comes preverbally, rather than postverbally, as would be expected, and a particle *a* appears. I had presented some arguments that this preposing operation was to be analysed as overt movement to the specifier position of an Agr projection associated with the non-finite verb in these constructions (Adger 1991), where the particle *a* was the morphological realisation of a neutralised Agr head. In a moment of idle curiosity, I presented an informant with a pair of sentences containing measure phrases, preposed and in situ. To my surprise the measure phrase did not prepose. I then began to look around at other phenomena which would appear to receive a plausible analysis as movement to the spec of AgrP, and I tested how measure phrases behaved in these constructions; as I suspected they always remained in situ.

The other thing that I noticed early on about measure phrases was that they appeared to have some kind of definiteness effect operating on them, barring such examples as:

(1.4) *Anson weighed every kilo

I spent some effort trying to tie together these three aspects of the syntax of measure phrases—weak island phenomena, movement to spec AgrP and definiteness effects—(Adger 1993b), but was always left with an uneasy feeling that I had missed a simpler explanation. Partly, I was blinded by my initial research question: what is the theoretical difference between complements and adjuncts? I was trying to find that difference in terms of modes of licensing, and was pushed into looking at measure phrases as selected DPs that were licensed in a different way from canonical arguments (I assumed that they were licensed by coindexation with Tense). Crucially, this made me ignore the differences between indefinites and measure phrases, which I thought of as being treated in the same way.

As I presented this work in various venues, a recurring question came from the audiences: what is the semantic effect of being licensed by Tense? Thinking that this was too chaotic and dark territory, I began to try to answer what I thought was an easier question: what is the semantic effect of being licensed by Agr? This then became the focus of my research, and is the subject of this thesis.

The moment I asked this question a flood of data appeared before me in the guise of Diesing's work (Diesing 1992) and various extensions or alternatives to this (Runner 1993 and de Hoop 1992). Diesing appeared to have an answer to the question of what semantic effects were relevant in a number of the cases that I was interested in. She constructed a theory which tried to explain why certain readings of canonically ambiguous indefinites were blocked in certain syntactic environments. The crucial cases are to be found in scrambling phenomena in Germanic. For example in Dutch, a DP like *veel mensen* 'many men' is ambiguous in its VP-internal (base) position: it can be given an interpretation where the quantifier *veel* 'many' is read as a cardinality predicate (the cardinality of the set of men is many) or as a generalised quantifier (where *many* relates two sets, one of which is restricted to the set of men):

(1.5) ...dat Tonjes gisteren veel mensen gezien heeft
...that Tonjes yesterday many men seen has
'...that Tonjes saw many men yesterday.'

However, when the object is scrambled across the adverb, only the generalised quantifier reading remains:

(1.6) ...dat Tonjes veel mensen gisteren gezien heeft
...that Tonjes many men yesterday seen has
'...that Tonjes saw many men yesterday.'

Diesing's explanation for this effect is given in her Mapping Hypothesis, which derives that quantified arguments that are external to VP and internal to IP receive an interpretation as generalised quantifiers. This hypothesis explains the Germanic data, but obviously runs into problems with indefinites in subject position in English, which are VP-external but still ambiguous. Diesing deals with this by allowing the subject to lower back into its VP-internal base position by LF. Since the Mapping Hypothesis applies at LF, the generalisation can be maintained.

Now measure phrases, I had already noticed, do not scramble, and I had proposed that this received an explanation if scrambling was movement to the spec of an Agr projection, since measure phrases do not undergo this type of movement. If Diesing's general idea was correct, then the inability of measure phrases to scramble might be explained by some semantic factor.

However, there were a number of problems that I had with Diesing's theory. These were problems that arose because I was focusing on the position of an argument DP with respect to Agr, rather than its more general position in the phrase marker, and because it was uppermost in my mind that I wanted a unified explanation for the aspects of the syntax of measure phrases that I had noticed. The main questions then were: what is the precise characterisation of the VP external position that the Mapping Hypothesis applies to? why are indefinite DPs always ambiguous in situ? Why do some languages allow lowering operations at LF, and others don't (this last was a problem recurrently pointed out to me by Elisabet Engdahl)?

My hypothesis about the characterisation of Diesing's VP external position was obviously that it was spec AgrP. As Jeff Runner pointed out (Runner 1993), this covered all of Diesing's data. Furthermore, it covered the data that I had garnered during my search for relationships between measure phrases and agreement (data from French and Spanish). The question then arose whether Diesing's Mapping Hypothesis should be reformulated so that it takes account of Agr, rather than the more global position of an element in a phrase marker. That is, does the functional head Agr have a semantic effect on its own, or is the phenomenon merely derivative of the fact that AgrP is external to VP. The crucial test case would be an argument which was in a VP external position which did not have the possibility of a generalised quantifier type reading. Such a case came to my notice after a presentation by Enric Vallduví, where he built on earlier observations by Josep Quer that Catalan contained a position internal to IP which showed definiteness effects. That is, where a generalised quantifier type reading of the argument was not available. This case allowed me to strengthen the Mapping Hypothesis so that it made direct mention of the structural relationship between an argument and the functional head Agr that the argument was associated with. It seemed then that the functional head Agr had a direct effect on the interpretation of an associated argument.

The next question was why indefinite DPs in situ are always ambiguous (controlling for definiteness effects). At first, in fact I did not control for definiteness effects and presumed that indefinites in situ could not have a generalised quantifier interpretation, that is they were always treated as cardinality predicates. This is what is directly predicted by the Mapping Hypothesis. Unfortunately it does not actually appear to be true. Definiteness effects seem to be something extra to the provisions of the Mapping Hypothesis. Given this fact, indefinites in situ are always ambiguous, something which is not explained in Diesing's theory. What then is the nature of the ambiguity?

The literature on this question answers this question in one of two ways: the ambiguity is lexical (Enç 1991, Partee 1988), or syntactic (Diesing 1992, de Hoop 1992). Enç's proposal seemed to me to be the most interesting. She claimed that a lexical ambiguity leads to an ambiguity at the level of discourse structure (Heim 1982, Kamp 1981). As I tried to work out what this meant, I realised that a crucial fact about

discourse representation theory seemed to have been ignored, and that this provided an alternative characterisation of the ambiguity. The fact was something noted in early work by Kartunnen: definites behave alike with respect to anaphora and deixis. That is contextually supplied information is admissible in a discourse structure. Given this, it is possible to eliminate the lexical ambiguity in Enç's system in favour of a contextual ambiguity, and this in turn explains why indefinites in situ are always ambiguous.

Given this view of the semantics of DPs in terms of their discourse representation properties, it became clear that the Mapping Hypothesis was simply a subpart of a more general scheme for the interpretation of DPs. This scheme is formulated by Heim as her Novelty Familiarity Condition (NFC), and is essentially a reworking of old ideas about the contribution of definiteness to the semantics of arguments given the extra representational level of discourse structure (or *file structure* as Heim terms it). The NFC traditionally makes reference to features of definiteness on a DP, but there was no reason to restrict the NFC to this kind of information. Accordingly I reformulated it so that it made direct reference to Agr and a DP in a particular structural relationship with Agr. This meant that the Mapping Hypothesis could be jettisoned in favour of an independently motivated, more generally required condition on the interpretation of arguments.

The final question, prompted by Elisabet Engdahl, did not receive a resolution until almost the end of the thesis, and was a recurrent worry. Why in some languages are elements in spec AgrP still ambiguous, after I had spent so much effort in making sure that they were interpreted as generalised quantifiers (actually, after the work on in situ DPs, it became clear that the proper characterisation of the interpretation of elements in spec AgrP was that they were associated with a pre-established discourse referent, and this derived their apparently generalised quantifier semantics)? This was a problem that Diesing, de Hoop and myself shared (see also Enç 1991). The clue was Elisabet's insistence that I should pay attention to the parametric variation in these constructions. So I sat down and tried to work out the correlations; it was the Scottish Gaelic preposing construction that again provided the initial insight. So convinced was I that this construction involved preposing the object to spec AgrP, that I refused to renounce this, even though such preposed objects did not display the kind of semantics I predicted for them. In fact they could not, since the preposing construction was obligatory, and hence would circumscribe the semantic descriptive potential of the language. This was the crucial point: a fact about language design seemed to force such objects to be ambiguous, otherwise there would be no way of conveying the cardinality predicate reading of the quantifier. If this more general idea held true, then it would have to be the case that obligatory movement to spec AgrP would always have to be ambiguous. In fact this is exactly the case. All of the constructions that I had analysed as movement to spec AgrP where an in situ variant was possible only had one reading for the derived case. All of the constructions where the movement was obligatory (SG objects, English subjects etc) allowed the moved element to have two interpretations. A striking case of this was in French, where movement to spec AgrP is optional in $\overline{\text{A}}$-movement constructions and obligatory (because of the constraints of relativized minimality) in A-movement constructions. The correlation held across all the data I knew of, and it was a small step to show how it derived from general principles of economy of representation and derivation.

While working on these problems, I was also trying to give an account of some interesting agreement facts in the Celtic languages that had puzzled me for some time.

I thought I had isolated the right descriptive generalisation but was at a loss as to how to derive it from the theory. I felt Chomsky's recent checking theory might give some insight (Chomsky 1992) but this theory appeared to me to be completely unconstrained. Many analyses down the line, it occured to me that the kinds of ideas that were relevant for the rest of my work might hold in this domain too, and that natural constraints on the possible interpretations of discourse referents might have a trickle down effect to the mechanics of the checking theory. I was already fairly convinced that Agr was implicated in some way in referring to or being associated with a discourse referent (the relevant arguments being well known in the HPSG literature), and it therefore followed that the constraints on discourse referents would therefore apply to Agr. This gives the kind of checking theory that does make predictions, and much of the Celtic data flowed easily from this premise.

Reading the thesis, it comes in almost directly the opposite order from this brief history of the ideas involved. Firstly the HPSG arguments that agreement is at least partly semantic are explored and then the effect that this has on checking theory and the empirical results that follow for Celtic. The thesis then tries to explain the semantics of DPs in a discourse referent based (DRT) framework, and uses the results to explore the semantic effect that Agr has on associated DPs. Diesing's work is assessed and the falsifying data from Catalan given. A discussion of the LF lowering problem follows, with my solution and the consequences. Diesing's Mapping Hypothesis is replaced with a revised formulation of Heim's Novelty Familiarity Condition (Heim 1982), which has more appropriate empirical coverage. A direct contraposition of this condition is shown to have consequences for measure phrases, resulting in an account of their syntactic and semantic properties. Finally some issues in the syntactic licensing of DPs and measure phrases is discussed, with the preposing data from SG serving as a diagnostic of movement to spec AgrP. This final section discusses the interpretation of the functional heads T(ense) and Asp(ect), justifying the rather broader title of the thesis.

Unfortunately, the original aim of the research project, to give some theoretical underpinnings to the argument/adjunct distinction is still some way off. I hope that the resulting thesis, however, has taken one tiny step in the right direction.

Chapter 2

The Syntax and Semantics of Agreement

2.1 Introduction

Theories of Agreement generally distinguish two types: agreement of a modifier with a modified element and agreement of a predicate with one or more of its arguments. An example of the first type of agreement is provided by French:

(2.1) J'ai vu des pièces interessantes
I have seen some-pl play-pl interesting-fem-pl
'I have seen some interesing plays'

Here the head noun *pièces* is feminine plural and the adjective agrees with it in these features. We shall term such agreement Modifier-Head-agreement (MH-agreement).

The second type of agreement is seen in English, where the verb agrees with its subject in number:

(2.2) The scuba-divers were/*was leaping from the ship

In English the verbal predicate only agrees with one of its arguments. Other languages allow verbs to agree with all of their arguments, and prepositions to agree with their arguments also. This can be exemplified by the following examples from Abkhaz (taken from Lehmann 1988):

a. (sarà) a-xec'-kà a-sq'-ka' 0-re-s-to-yt'
I Art-child-pl Art-book-pl Abs3-Dat3Pl-Erg1sg-give-Dyn/Fin
'I gave the books to the children'

b. (sarà) s-q'e+n+t'
I Obl1sg-from
'from me'

Here we see the verb agreeing with its ergative, absolutive and dative arguments and a preposition agreeing with its oblique argument. We will term this type of agreement

Predicate-Argument-agreement (PA-agreement). It is this second type of agreement that we will be mainly concerned with in this chapter.

Evidence from languages with a more robust agreement system than English shows that MH-agreement involves the features of number, gender and case, while PA-agreement involves number, gender and person, crucially not case. Person agreement, then, appears to be a property of DP, not of N or D, while (morphological) case appears to be a property of D and N, rather than DP (see Lehmann 1988 for diachronic arguments that NP internal agreement evolves from reduced demonstrative heads (ie X0 elements), while predicate argument agreement evolves from reduced pronominal (ie XP) elements). This view is defended at length in Balari 1992[1].

2.2 Syntactic Analyses of Agreement

2.2.1 Components of Analysis

The most obvious type of analysis for agreement is that particular features of one of the agreeing elements are copied onto the other element. In early work the agreeing features are represented as an abstract affix which is generated as part of a noun by the base rules. A transformational rule then copies this affix onto whatever elements in the structure agree with the noun. This is the type of analysis advocated by Postal 1964 for MH-agreement and adopted by Chomsky 1965. The idea is that an agreement formative is generated by phrase structure rules and that there is a transformational rule that copies this formative to the agreeing elements. One can imagine extending this type of analysis to PA-agreement by generating an agreement formative independently and then copying it to the predicate and the argument. We will address below whether this is indeed possible.

An alternative analysis which does not make use of transformations would involve essentially passing features through the structural description generated by the base rules. Ungrammatical sentences with incompatible agreement features would then not be generated because there are no appropriate rules (see Lyons 1968 for a treatment along these lines). Postal's motivation for prefering the transformational analysis was the standard one at the time: the feature based analysis essentially has to make more theoretical statements and misses high-level generalisations.

Note that both of these analyses are couched in terms of syntactic features. The transformational analysis actualises these features as an independent formative which then acts as an input to a transformation. The non-transformational analysis posits no separate formative but rather specifies the features on all formatives, depending on their lexical properties.

To choose between these analyses we could find independent evidence for the agreement formative or independent evidence that features are lexically specified on agreeing elements, as well as on the governing head. We could also try to show that the copying transformation (or however it turns out to be best to formulate the appropriate structure changing operation) is either required anyway in the grammar, or that its existence leads to contradictions or to empirical problems.

[1] This formulation of the properties of MH- and PA-agreement is not without problems. As Teun Hoekstra has pointed out (pc) French past participle agreement might be seen semantically as PA-agreement but it does not involve person features

Note that the two analyses are actually not exclusive. That is, if we find evidence for an independent agreement formative and for base-specification of features, then we could construct a theory in which transformations applied to lexical items and their projections to bring them into the appropriate structural configuration with the agreement formative. It would be at this point that the lexically specified features of the predicate and its argument have to be compatible. Such a theory would not be minimal in that it would require an independent agreement formative, a transformation, lexically specified features and a feature checking mechanism. The following arguments indicate, however, that all of these components are required (see also Chomsky 1992).

2.2.2 Exploration of these Components

Agreement as a morpheme

It is standard to posit as the head of the sentence a functional element Infl (Chomsky 1986a). Conceptual motivation for this comes from the extension of X-bar theory to non-lexical heads, thus bringing the phrase structure of the sentence into line with the phrase structure of the VP. X-bar theory states that the following structures are possible:

(2.3) a. X' = X YP
b. XP = ZP X'

where X is the head of XP; YP is the complement of X, and ZP is the specifier of X. X-bar theory allows the rules of the base to be eliminated in favour of stipulations on lexical items as to their featural content (including head features for category and selectional features for the category/semantic type of the complement). We can then assume that the structure of the VP complement of a perception verb like *see* is:

(2.4) I saw Anson eat bagels

(2.5) $[_{VP}$ Anson $[_{V'}$ $[_{V}$ eat$]$ bagels $]]$

This allows us to make the theoretically attractive claim that all of the arguments of the verb are generated within the maximal projection of the verb (the Lexical Clause Hypothesis (or VP-Internal Subject Hypothesis) of Sportiche 1988 and Koopman and Sportiche 1989).

Now consider:

(2.6) Anson may eat bagels

Assuming that this sentence has the category S, how may we incorporate it into X-bar theory? Chomsky 1986a suggests that S is headed by a category I(nfl), which projects in the same way as V[2]:

[2] Chomsky base generates the subject in spec IP. This issue is tangential to the matter under consideration.

(2.7) $[_{IP}$ Anson$_i$ $[_{I'}$ may $[_{VP}$ t$_i$ $[_{V'}$ eat bagels$]]]]$

Here VP is the complement of I in the same way as NP is the complement of V. S is now of category IP and crucially is a headed structure, meaning that we can generalise the endocentricity of lexical categories to all categories, another theoretically attractive proposal. In fact Chomsky takes matters further and proposes that the complementiser is actually the head of an extended S (S'), which now becomes CP, the projection of the complementiser C. The surface word order can be derived by moving the VP internal subject to the specifier of I position, a transformation that is well-motivated by raising structures (again see Koopman and Sportiche 1989 for arguments to this effect).

Let us now turn to the sentence *Anson eats bagels*. We would like to assume that this is of category IP. How is it derived? There are four possibilities, assuming that the VP internal subject moves into the specifier of I position as above: *eat* is generated as the head of VP and then it moves to the I position where it picks up the appropriate inflection to turn it into *eats*; *eat* remains in situ and the inflectional features in I lower to derive *eats*; *eats* is generated fully inflected and remains in situ; *eats* is generated fully inflected and raises to I. Only the third of these possibilities makes no reference to I, and it is compatible with the structure in IP being empty. However, agreement is never triggered in a bare VP structure. Hence:

(2.8) *I saw Anson eats bagels

This suggests that there must be some relation between I and the subject and between V and I, to account for the contrast between (2.4) and (2.8). If there is independent evidence that the kind of features that trigger agreement are specified lexically then the last possibility is the most well motivated.

One piece of evidence that the features are not generated in I and picked up by the verb comes from some differences between English and French noticed by Emonds 1978 and explored in detail by Pollock 1989 and Chomsky 1991. Emonds noticed that the position of adverbials and negation differed systematically in the two languages and argued that in French V raised to I but in English I lowered to V. This explains why adverbials can intervene between a verb and its object in French but not in English:

(2.9) a. Je mange souvent des bagels
I eat often the bagels
'I often eat bagels'

b. *Anson eats often bagels

On the assumption that VP adverbials adjoin to VP, the French data show that the verb has raised out of VP. In English, on the other hand, the verb remains in situ and hence an intervening adverbial will block Case assignment to the object (cf Stowell 1981).

Chomsky 1992 has pointed out that this analysis leads to two very different structures for the two languages with respect to the relationship between I and V. In French V has raised to adjoin to I giving the structure:

(2.10) $[_I$ V I$]$

while in English I has lowered to adjoin to V giving:

(2.11) $[_V$ V I$]$

On the account where the features of V are specified lexically, we have structures where V raises to I in both languages, overtly in French and covertly in English. This means that both languages will have LF structures like (2.11), rather than having different structures at LF.

Finally, note that there is no agreement when there is no I. So agreement never occurs on V when I is filled by a modal:

(2.12) *Anson may eats bagels

It seems then that we have evidence that an independent formative is required and that this formative is implicated in the agreement relation. We also have preliminary evidence that the features that are involved in agreement are specified lexically.

The arguments presented above made crucial use of a transformation that moved one head (V) to another (I). Is there independent motivation that such a transformation is needed?

There are two ways to answer this question. One involves a fairly profound exploration of whether transformations are necessary at all, which we shall not undertake. The other merely asks whether the transformation of head movement is necessary within the gamut of transformational operations.

Note that it would be difficult to exclude such a transformation. Transformations are arbitrary structure changing operations that apply to structural descriptions: deletion, copying, movement and insertion. Structural descriptions are given by the projection of lexical items via X-bar theory which means that they consist of heads, phrases and intermediate projections of heads. To rule out head movement as a transformation we have to make an explicit statement in the grammar to the effect that a head is not a possible imput to a transformation. If there is empirical evidence that this is the case then this is the route that we should take. In the absence of such empirical evidence, head movement needs no independent justification.

In fact there is a wide range of empirical evidence that head movement is required in the grammar (see eg Baker 1988). Assuming that it is not means that we must find alternative explanations for a whole range of phenomena involving complementary distribution between heads (eg V2 languages) and the morphology/syntax boundary (incorporation, applicatives, causatives etc). Of course all of these phenomena have been analysed non-transformationally (see Di Sciullo and Williams 1987, for example) but given transformations at all, head movement is required.

The agreement transformation

The agreement transformation proposed by Postal mentioned above copied an independent formative containing agreement features from the head to the modifier to deal with MH-agreement. To deal with our example sentence in (2.1), repeated here, Postal's analysis would assume the following D-structure for the DP object:

(2.13) J'ai vu des pièces interessantes
I have seen some-pl play-pl interesting-fem-pl
'I have seen some interesing plays'

(2.14) $[_{NP}$ det pièce Agr-fem.Pl interessant$]$

The independent agreement formative is generated as an X0 sister to a head N. This formative is then copied as an X0 sister to the determiner and to the adjective.

Can we extend this account of DP internal agreement to predicate subject agreement by assuming that this formative is also copied as an X0 sister to I? This does not seem to be a sensible approach. As we already noted MH-agreement seems to involve different sets of features from PA-agreement and has a different diachronic source. A further argument against this proposal is that it would involve structures where the agreement formative that is the progenitor of the transformational copying relation (as sister to N0) would not c-command the copied element. Thus:

(2.15) $[_{IP}\ [_{DP}$ D $[_{NP}$ N Agr$_i]]\ [_{I'}$ [I Agr$_i]]]$

From all we know about locality restrictions on the output of transformational operations, this does not seem likely.

An alternative then would be to generate the agreement formative as an X0 sister to DP, and then copy it to I:

(2.16) $[_{DP}[_{DP}$ D $[_{NP}$ N$]]$ Agr$]$ I $\rightarrow$ $[_{DP}[_{DP}$ D $[_{NP}$ N$]]$ Agr$]$ I+Agr

This option involves a violation of X-bar theory since we would have an X0 adjunct to an XP; however, the existence of phrasal clitics which seem to have this property is well known. A more pressing problem is the source of the formative and how to capture the agreement relationship between the formative and the head of the XP it adjoins to. There are two avenues we could take: either the formative is generated lexically so that the [N0 Agr] structure is inserted into the syntax directly from the lexicon and the relationship between N0 and Agr is specified lexically; or the formative is inserted syntactically and the relationship between N0 and Agr is defined syntactically. This gives us respectively the following two structures at the level of lexical insertion:

(2.17) a. $[_{DP}[_{DP}$ D $[_{NP}$ N$_i]]$ Agr$_i]$ I
b. $[_{DP}[_{DP}$ D $[_{NP}$ N Agr$_i]]$ Agr$_i]$ I

But the second of these options, if we admit no other means of syntactically encoding agreement, leads to an infinite regress, since the output of the transformation is a possible input to it. To stop the recursion we would need a further stipulation along the lines that an N0 category can only receive agreement information once during a derivation. The first option entails rather a serious violation of the lexical integrity hypothesis since we have lexical insertion of an element with a couple of phrasal boundaries intervening. Furthermore, we never see agreement marked DP-externally, which would mean a further stipulation to the effect that DP external agreement must be deleted at PF. It seems then that we must admit some other means of syntactically encoding agreement relationships rather than just by means of transformational copying.

To sum up: a transformational account of agreement that relies on the copying of such a non-lexical formative from one head to another raises rather serious theoretical problems, at least when applied to predicate argument agreement. We suggested that a different means of syntactically encoding agreement was necessary.

Feature Manipulation

In fact such a means is already in principle available to us in the grammar. We introduced the notion of X-bar theory above. X-bar theory crucially involves passing up categorial features from lexical items through the projection of those items. There is substantial motivation for such a view (see Chomsky 1965 and Chomsky 1970). In order to deal with MH-agreement we need only extend this view to incorporate certain non-categorial features, specifically agreement features. We then automatically expect a head to agree with its phrasal projections in agreement features[3].

This device will give us MH-agreement with determiners with no further stipulation, if all the heads within the projection of N are part of a single projection (see Grimshaw 1991 for a mainly theoretical defense of this idea of Extended Projection, and Roberts 1993 for empirical applications of this idea to restructuring constructions in Romance). However, this still will not give us the predicate argument agreement relationship, since, by definition, specifiers and complements do not comprise part of the projection of the head. Nor will it give us those cases of MH-agreement with adjoined elements such as APs, which were easily handled by the agreement transformation discussed above.

Keenan 1974 proposed the generalisation that functors agree with their arguments[4]. Essentially the idea is that arguments come specified with certain types of agreement features and the functor in the structure agrees with those features. This generalisation was exploited by Gazdar et al. 1985 in their account of control and agreement relations. However, this account suffers from a number of problems, most notably it leads to massive duplication and redundancy in the lexicon, as noted by Barlow 1988.

Barlow provides a number of cases where there is a mismatch in how specific the features on the argument and the functor are. This means that a theory which stipulates that agreement is a copying relation of features from an argument to a functor will require multiple lexical entries, for either the argument or the functor.

For example, Barlow gives a case from Onondaga where the subject is not specified for plurality, but the verb is:

(2.18) a. cihá kahnyá.ha?
dog bark-sing
'a dog barks'

b. cihá knihnyá.ha?
dog bark-dual
'Two dogs bark'

c. cihá kotihnyá.ha?
dog bark-pl

[3]Precisely which features are passed up is decided empirically. See Gazdar et al. 1985 for a defense of a theory that makes extended use of this device.

[4]The notions of functor and argument stem from Categorial Grammar; see Bach's introduction in Oehrle, Bach and Wheeler 1988.

'Dogs bark'

If agreement involved copying features from the argument to the functor, then in cases like this we would need three distinct lexical entries for the nominal *cihá* 'dog'.

Barlow proposes instead that agreement should be seen as a case where information from the predicate and the argument are required to unify (see Shieber 1986).

An alternative to viewing agreement relations as holding between functor and argument would be to assume that agreement relations are triggered by particular phrase structural configurations.

Chomsky 1986a proposes that a relation of specifier head agreement should be defined as a primitive in the grammar to deal with cases of agreement (see also Chomsky 1981, p211). No definition of specifier head agreement is given by Chomsky, but we may assume that a head necessarily shares certain features with its specifier:

(2.19) **Specifier-Head Agreement**
in a structure
$[_{XP}$ Spec $[_{X'}$ Head Complement]]
the ϕ-features on the spec must be compatible with the ϕ-features on the head, where ϕ-features include at least person, number and gender

Cann 1993a outlines a system where specifiers and heads both contribute to the categorial status of a projection by requiring that the features that go to make up a maximal projection are the unification of certain features (call them C-features) that appear on the specifier and the head. This will automatically ensure that specifiers and heads agree, if agreement features are C-features[5]. We shall abbreviate this relationship as SHA.

The question now arises as to which of Keenan's proposal (appropriately reformulated in unification terms to deal with Barlow's objections) or Chomsky's proposal is correct. The Abkhaz examples presented above would appear to favour Keenan, since all arguments of the predicate induce agreement. However, there may be reasons to assume abstract projections in the syntax, as argued for already, which provide specifiers for the arguments, thus allowing all agreement to be subsumed under Chomsky's proposal.

In fact there appear to be well-motivated agreement relations which are not predicate argument or modifier head agreement and these all appear to take place under SHA. Thus, Rizzi 1991 provides a range of evidence from V2 and residual V2 structures in Germanic and Romance that Wh-movement causes an agreement relationship to be set up between the specifier of CP and C, and this is what results in subject auxiliary inversion for Wh-questions in root clauses. Haegeman and Zanuttini 1991 have argued that similar considerations hold for the distribution of negative elements and their specifiers. There do not appear to be such relations holding under head complement structures.

There are a number of reasons to reject Keenan's idea as it stands. Firstly, note that the examples of SHA we have considered have all been cases where a non-lexical head agrees with its specifier (I, C, Neg). We also noted above that bare VPs do not allow agreement. This suggests that we should restrict agreement to functional

[5] This idea is easily extendable to AP agreement, especially if a view of specifiers and adjuncts as essentially configurationally identical is taken (see Hoekstra 1991 and Kayne 1993).

heads only. Complement agreement would seem to fly in the face of this generalisation, suggesting either that the generalisation is incorrect, or that complement agreement is indeed subsumed under SHA at a more abstract level. In fact, we shall see below that complement agreement is often associated with movement of the complement to a VP-external position which it seems natural to identify as the specifier of an agreement projection.

A strong argument to this effect will be given in Chapter 3, where we show that objects in Scottish Gaelic undergo preposing to a position external to VP. This position is immediately followed by a functional element and the relationship between this functional element and the preposed DP can be shown to be governed precisely by the same generalisations as govern subject agreement and prepositional agreement. Furthermore, the phrase containing a preposed object can be shown to be categorially different from a phrase containing an in situ object and no functional element, clearly signalling that we have a syntactically projected case of SHA for objects.

If this is the case, and we can get by with only SHA as we would like, then there must be a functional projection for the agreement of complements in general. Thus we have further, albeit theory internal, evidence for independent agreement formatives in the grammar, as well as for a special relationship, SHA, which constrains the possible featural specification of heads and their specifiers.

Lexically Specified Features

There are, a priori, three possibilities regarding the distribution of agreement features on words: either the features are specified only lexically, or they are specified only as separate formatives in the syntax or they are specified in both ways. We argued above that they were at least specified as separate formatives in the syntax. If they are specified only in this way, then in conjunction with standard views on head movement, a prediction follows: the order of inflectional elements will mirror the order of the syntactic derivation, and hence, via the Head Movement Principle (Travis 1984), the hierarchical order of the inflectional formatives in the syntax.

Such a claim is made explicitly by Baker 1985 and is defended both in Baker 1988 and Ouhalla 1991. In order to falsify this claim we must find evidence that the morphological order of a pair of affixes does not mirror their syntactic dominance relationship.

Speas 1991 provides some interesting evidence that bears on this question. She shows that in Navajo head movement appears to be the optimal analysis for the verbal system. Yet the properties of the Navajo verbal system are such that a head movement analysis which picks up morphemes in the syntax requires either lowering operations, long head movement or a dissociation between the phonological form of the verb and its apparent head movement path.

Navajo has a verbal inflection system that marks subject agreement, tense, aspect and object agreement (the examples are taken from Speas' paper; I am unaware as to what the correct morphological segmentation here is):

(2.20) At'ééd ashkii yidoots'ǫs
girl boy 3obj-Asp-NonPast-3subj-will:kiss
'The girl will kiss the boy'

Speas argues that the syntactic order of these affixes is essentially the same as that of English: with Subject Agreement highest, dominating Tense which in turn dominates Aspect with Object Agreement coming closest to the verb (she assumes, following Pollock 1989 that I should be split into Agreement and Tense, with Tense dominating Agreement and following Chomsky 1991 that there is a further agreement projection dominating Tense. See also Giorgi and Pianesi 1992, Drijkoningen and Rutten 1991 for evidence that Aspect projects separately from and is dominated by Tense). Her evidence for this is of two sorts: firstly, such an order is well motivated for a range of languages and there is nothing about the syntax of Navajo to suggest that it should be otherwise; secondly the interaction of the subject with negation suggests very strongly that AgrS dominates at least AgrO. It is interesting then that the morphological order is, however, the opposite. If head movement were to apply then the verb should first raise to AgrO, and hence AgrO should be closest to the verb stem, but this is patently not the case.

Speas shows that one possibility would be for the inflectional heads to successively lower, with AgrS lowering and suffixing to T, then this complex lowering to Aspect, then this lowering to AgrO. Finally, either the whole inflectional complex lowers to prefix to the verb stem, or the verb raises to suffix to the functional elements.

Speas rejects the lowering analysis mainly on theoretical grounds. Lowering as a transformational operation is of course permitted, but the outputs of lowering operations violate well known conditions on representations, specifically the Empty Category Principle[6]. Furthermore, as we noted above, lowering leads to radically different head adjunction structures at LF for the different types of languages.

She then proposes that another way to deal with the Navajo facts would be to allow violations of the head movement constraint, whereby the V would raise to an empty C and then the other inflectional morphemes would simply cliticise in their base order. However, in all known cases of long head movement Aspect always counts as a blocking head (Roberts 1991, Rivero 1991)—this would not be the case for Navajo under such an analysis.

Given these facts, Speas goes on to suggest that what happens in lowering languages is that the verb has attached affixes but has simply failed to raise at S-Structure. The verb then may raise at LF (see Pesetsky 1985).This view is the standard view in Lexical Phonology and Morphology (Kiparsky 1982) and is motivated there by phonological and morphological facts to do with the resolution of bracketing paradoxes. Speas notes that this view has a number of interesting consequences, not least of which is that it is incompatible with the view that grammatical function changing operations are essentially syntactic (Baker 1988).

Speas' data essentially argues that head-to-head movement in the syntax cannot be the only way of associating verb stems with agreement and other information and suggests strongly that lexically specified features are required in addition. Movement can then be motivated purely by the need to check morphological features (as noted in Chomsky 1992), with certain features requiring to be checked at certain points in the derivation. Of course such a theory is looser in some sense than the pure head movement theory, since it does not require a one-to-one mapping between inflectional elements and syntactic positions. Moreover, it does not derive the Mirror Principle but

[6]But note that Chomsky 1991 actually makes a virtue of this fact, allowing it to interact with language specific rules to derive *do*-support phenomena.

rather requires that it be stipulated as a condition governing the relationship between morphology and syntax. However, the Mirror Principle is open to some empirical doubt, and alternative means of expressing (parts of) the generalisation have been proposed in the literature (Grimshaw 1986; Borer 1991;Anderson 1993; Di Sciullo and Williams 1987).

Summary

We have argued so far that agreement requires four components in its analysis: an independent formative realising agreement features; a transformation of head raising that brings an agreement-bearing lexical head into an appropriately close relationship with an XP bearing agreement features; a primitive stipulation (SHA) that within such a local domain features must be compatible; lexical specification of agreement features on lexical heads. We have assumed that agreement is a syntactic phenomenon, to be dealt with syntactically. We will now show that this assumption is only part of the story.

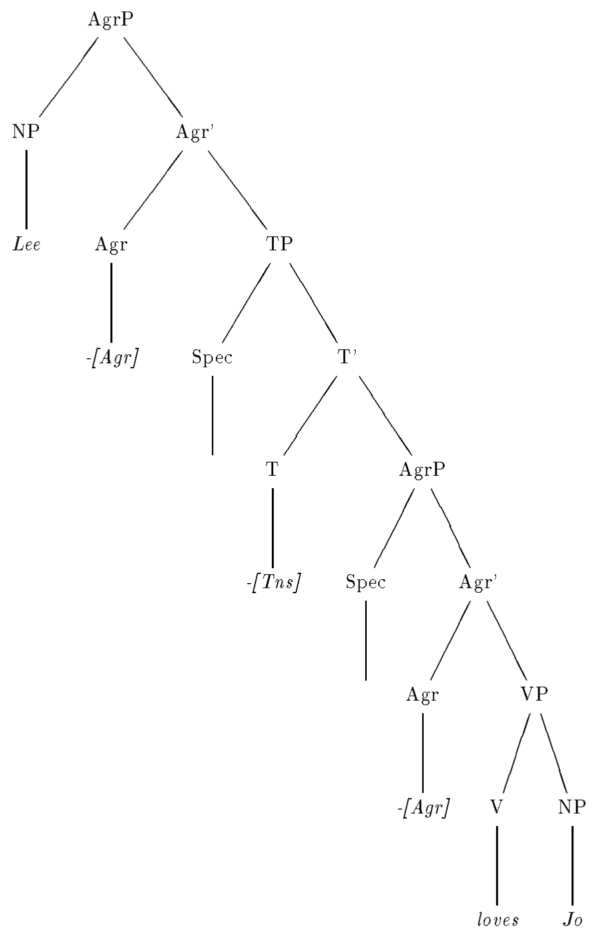
2.3 Separation of Agr and T

We have argued so far for an independent syntactic formative that contains agreement features. But does this formative contain other features as well? The standard Chomsky 1981 answer to this is yes; the category Infl contains agreement features and tense features.

However, there has been a recent move to separate out the features in Infl into their component parts; in fact we assumed this to be the case in our discussion of Speas' argument for lexically specified features. That is to assume independently projecting functional heads hosting agreement features and tense features. This proposal is based on some work of Jean-Yves Pollock. Pollock 1989 argues on the basis of the different behaviour of adverbs and negation in tensed and infinitival clauses in French and English, that Infl should be split into two separate heads: Agr and T, and that both these heads should project according to the $\overline{\text{X}}$-schemata.

I will not discuss Pollock's proposal here. Much has been said about it in the literature lately (Mitchell 1991, Beletti 1992 and references therein, but see also Iatridou 1990 and Ackema, Neeleman and Weerman 1992). I will assume that his programme of allowing features to project according to $\overline{\text{X}}$-Theory is essentially correct and assume the following clause structure (based on Chomsky 1991, Chomsky 1992):

(2.21)



2.4 The Semantic Nature of Agreement

The standard view that agreement is a syntactic phenomenon has been challenged recently, especially in unification based frameworks such as HPSG. We review some of the arguments that agreement is a semantic phenomenon below and then show that in fact both syntactic and semantic aspects of agreement must be taken into account to deal with the diversity of the data.

2.4.1 Arguments that Agr is semantic

Dowty and Jacobson (1988) argue, as part of a general program to minimise syntax, that agreement should be analysed as an essentially semantic phenomenon. There are a number of advantages to this perspective; these derive from the difficulties that syntactic theories of agreement have in accounting for cases where featural mismatches appear to obtain. Pollard and Sag 1993 provide a number of such cases.

Reference transfer:

Certain registers of English allow the transfer of reference from an entity to another entity closely related to the first in some pragmatically recoverable fashion. One example is when a waiter may use the name of the dish that a person is eating to refer to that person. In such cases the dish may be syntactically plural, but the agreement on the verb is obligatorily singular:

(2.22) The hash browns at table six is/*are getting angry

What examples like this suggest is that what is being agreed with is not the set of syntactic features on the subject, but rather the semantic entity that is denoted by the subject, in this case the person who is eating the dish. If this is the case, at least some semantic information must be imported into the statement of how agreement works.

Relative pronouns:

A similar case is provided by the agreement of relative pronouns. Relative pronouns agree generally in humanness with the noun that they modify. However, when that noun is used metaphorically, the pronoun agrees not with the syntactic features of the noun, but rather with what the noun is used to refer to:

(2.23) The volcano which/*who has been dormant for a century erupted

(2.24) The volcano who just left the room is Bill's kid

Singular plurals:

Many languages have nominals whose morphological form is plural, but which trigger singular agreement (or vice versa). the following is a case in point:

(2.25) Eggs is my favourite breakfast

Again this suggests that what is agreed with is the semantic denotatum, rather than the morphosyntactic features.

Collectives:

Finally, in British English, the form of verbal agreement distinguishes whether a collective subject is to be interpreted as an aggregate or non-aggregate entity. It would be possible in this case to have a dual lexical entry specified with both singular and plural features, but theoretical economy dictates that such a solution should not be appealed to unless there is sufficient evidence to the contrary. The evidence already cited suggests that the distinction should be made semantically:

(2.26) The faculty is/are voting today

2.4.2 Problems with this view

Although the examples cited above suggest strongly that agreement involves semantic properties, a number of problems arise for the Dowty and Jacobson story. These problems stem from the lack of a level of representation in their account. The most obvious of these involves languages which have grammatical gender. In such languages the denotatum does not necessarily dictate the form of the agreement. For example, Chierchia 1989, notes that in Italian the word for "egg" is masculine in the singular but feminine in the plural: *un uovo* but *due uova*. Such distinctions seem to have no ontological basis. Similar examples can be found easily cross-linguistically. Cann 1984 notes that in Classical Greek determiners and adjectives show strict syntactic agreement with neuter plural nouns in number, gender and case, but verbs show singular agreement with neuter plural subjects:

(2.27) kala e:n ta sphagia
good-NomPlNeuter be-Past-3sg the sacrifice-NomPlNeuter
'The sacrifices were auspicious'

and in Arabic non-human plurals take feminine singular adjectives, verbs and pronouns.

Dowty and Jacobson propose to deal with such cases in essentially a situation theoretic way. They argue that there is no direct relationship between syntactic gender specification and semantic gender but rather that one of the facts about a particular entity is that it is classified in a particular way by the language in question. So, for example, one of the semantic facts about an egg for a speaker of Italian is that it is referred to by the language with a particular word that has a particular collection of syntactic features. Likewise, more than one egg, an Italian speaker knows, is referred to by another word of which the fact holds that it has a different collection of syntactic features. Agreement features on other words in an utterance which involves *uovo* or *uova* respect these semantic facts. Dowty and Jacobson point out that deictic pronouns are specified for gender in syntactic gender languages, and that the gender that they are specified for is that of the most salient word that could be used in the context of utterance. A similar point is made by Pollard and Sag 1993 who quote Johnson 1984 to the effect that the pragmatic presuppositions that hold of an entity enter into the interpretations of pronouns via a salient word that matches the pronoun for gender. For example, in German a dwelling place could be referred to as *das Haus* (neuter) or *die Hütte* (feminine), where the latter implies that the dwelling place is substandard in some way. Suppose that the context of utterance allows both words to be equally salient in terms of their potential use. Now suppose that the actual utterance includes the deictic pronoun *sie* (feminine), rather than *es* (neuter), then the implicature arises that the speaker regards the dwelling place as substandard. But note that the word *hütte* itself has not been used. This is further evidence that it is a semantic fact about

the denotatum (or some representation thereof) that a particular word complete with gender features is most appropriate to describe it.

However, as Pollard and Sag 1993 note, this analysis faces a number of problems, which suggest that agreement must have a syntactic component. One point is that choice of pronoun, when two or more pronouns are in principle possible, is constrained syntactically. In the following example we can have in principle either a singular or a plural pronoun:

(2.28) The faculty just voted itself a raise. Most of them are already overpaid.

but note that when the verb agrees singularly, the reflexive pronoun must also be singular:

(2.29) The faculty is voting itself/*themselves a raise

(2.30) The faculty are voting themselves/*itself a raise

In Dowty and Jacobson's theory, it is unclear what would rule out the examples with mismatched pronouns since there is no level of representation which can be appealed to. A similar problem arises for polite forms of pronouns where the same NP (and the entity denoted by that NP) appears to be in two different agreement relationships at the same time. Thus:

(2.31) Vous êtes belle
you-Pol-Pl are-Pl beautiful-Sing-Fem
'You are beautiful'

Here we have a singular agreement relationship with the adjective, but a plural agreement relationship with the adjective. This suggests that even if one case of the agreement here may be dealt with along the lines that Dowty and Jacobson propose, some level of representation is required where the appropriate information is specified that will allow some principle to govern the other case.

2.4.3 The HPSG Account

It seems that the obvious route to take is to integrate the syntactic and semantic accounts of agreement. Pollard and Sag 1993 propose to do this by stipulating that agreement features are specified on an *index* that is introduced into the semantic representation by an NP. The semantic representation is constructed in tandem with the syntactic combination of lexical items, which proceeds basically under an extended notion of government. In many ways the semantic representation is similar to the GB notion of LF, in that it is a representational level. In some sense the index is akin to the discourse referents of DRT (Kamp 1981, Heim 1982). Thus the claim that Pollard and Sag make is that agreement features are specified semantically on discourse referents under a relationship of government by a head.

To make this clearer, let us introduce a little notation. Verbs in HPSG are assumed to be lexically specified for the elements they subcategorise for. We can represent a verb like *walk* as follows:

(2.32) walk: V⟨ NP ⟩

This representation means that "walk" is a V and that it subcategorises for an NP.

NPs, as we noted earlier, introduce indices. Let us represent these as subscripts. Unlike the indices familiar from GB, HPSG indices have internal structure. In particular they contain agreement features. We will specify this as follows:

(2.33) $\text{women}_{i[fem,pl]}$

Now a verb like walk is related to its inflected forms by lexical rules, which essentially instantiate index specifications on the NP that the verb subcategorises. Thus:

(2.34) walks: V⟨ $\text{NP}_{i[sing]}$ ⟩

(2.35) walk: V⟨ $\text{NP}_{i[pl]}$ ⟩

These indices can then be used to construct the semantic representation:

(2.36) walk: V⟨ $\text{NP}_{i[pl]}$ ⟩
relation walk
walker i

Here the index *i* is specified as the walker. Because *i* is specified with plural agreement features, the intended interpretation is that the discourse referent that is involved in the walking relation is plural.

When we combine *walk* with *women*, a certain HPSG principle requires that the NP specified as subcategorised by the lexical specification of the verb matches the NP that occurs as the argument of the verb. This means that *walk* will combine with *women* but not *woman*. The resulting structure will contain a single index specified for both plurality and gender:

(2.37) women walk
relation walk
walker i[fem, pl]

This analysis deals with the problem of transfered reference in the following way: assume that it is the transferred referent that determines the index of the NP that denotes it. Then, if verb-subject agreement is sensitive to index rather than to syntactic features, the verb agreement will be with the transferred referent. So in contexts where *hash browns* refers to a male person eating the hash browns, the index is masculine and singular and the verb, which agrees with the index is likewise singular. This approach extends to the other cases of "agreement mismatches". Now, the binding theory Pollard and Sag make use of is couched in terms of coindexation within local domains, where coindexation refers to the indices that bear agreement features. Because of this the data that were problematic for Dowty and Jacobson simply fall out from the interaction between the binding theory and agreement as specified on indices.

As far as the difference between grammatical and natural gender languages goes, Pollard and Sag appeal to *anchoring conditions* on indices. These anchoring conditions

specify certain properties of potential referents that must hold in order for an index to be able to refer to them. Thus, in English, the pronoun *he* has as an anchoring condition on its index that the referent of the index must be male and must be a single entity. For a grammatical gender language, Pollard and Sag make similar claims to Dowty and Jacobson: that part of the anchoring conditions involves what the grammatical features of the most salient word in the context of use are. Given this distinction, Pollard and Sag can account for the problematic cases of polite pronouns in French. The idea is that the index introduced lexically for plural NPs contains the specification that the number of that index is plural. Generally, there is also an anchoring condition which stipulates that such plural indices have to refer to plural entities. Exceptions to this, however, include polite forms, where the anchoring condition allows the pronoun to refer to a singular entity. Now, subject verb agreement in French appeals to agreement of indices, hence a plural form of the verb appears. Note, however, that if predicate adjectives agree only via anchoring conditions, it will still be possible to have singular adjectives, even though the verb is plural.

Balari 1992 notes some arguments from Kathol 1991 which suggest that this is the wrong level at which to draw these distinctions. The first argument is that Pollard and Sag's account relies on government, rather than agreement, and hence that it does not really reflect the featural covariation that Pollard and Sag argue that agreement involves. This argument is not particularly convincing, since we at least require government anyway in the grammar, so there is no reason that agreement might not be a subpart thereof.

Kathol's second argument is that impersonals in German cannot be said to select properties of their subject, and so should not assign an index to them, yet they are systematically third person singular:

(2.38) An dem Abend wurde viel gelacht
In the evening was much laughed
'There was much laughing going on in the evening'

A similar case could be made for English examples like:

(2.39) Under the bed seems/*seem to be a good place to hide

This argument is more convincing, since there does not seem to be a source for the agreement. Kathol suggests that the right account is one where morphosyntactic agreement features are specified on heads and on indices so that agreement becomes two-layered. This essentially just shifts Pollard and Sag's proposal down a level. It is not clear to what extent the impersonal and raising data given here could choose between these theories though, since the problem is that there is no source for the agreement, either morphosyntactically, semantically or pragmatically.

A more convincing argument for shifting Pollard and Sag's account down a level is given by Balari 1992. He draws on the distinction between MH-agreement and PA-agreement and argues that the former is best analysed as agreement in terms of morphosyntactic features, while the latter is best analysed as agreement at the index level (note that Cann's example above supports this view). Balari shows how possessive pronouns in Spanish require agreement with the possessum in terms of morphosyntactic features, rather than via indices. His argument is basically that an analysis in terms of indices would make subject verb agreement and possessive pronoun possessum agreement the same mechanism. This would mean that properties of the latter (such as the fact that the agreement element on the pronoun is alliterative with the agreement element on the noun) which do not hold of the former would have no explanation.

The arguments given by Kathol and Balari are suggestive, but it appears not sufficient to establish the case that agreement is both morpho-syntactic and semantic (in terms of discourse referents) rather than semantic and pragmatic. To argue for the former position we should find a case where the kind of pragmatic explanation given by Pollard and Sag fails in favour of either a semantic or syntactic explanation.

French provides an interesting example. The noun *gens* 'people' requires that following adjectives are masculine but preceding adjectives are feminine. Thus:

a. les belles gens
the-pl beautiful-fem-pl people-pl
'The beautiful people'

b. les gens doux
the-pl people-pl quiet-masc-pl
'The quiet people'

This example defies a pragmatic explanation, since it seems unlikely that what we know about the syntactic position of a word is a matter of pragmatics. Equally it seems unlikely that this is a case of index agreement, since the referent of *gens* makes no contribution to the agreement of the adjective, which appears to depend purely on syntactic position.

A further argument to this effect which supports Balari's proposal that agreement of syntactic features is involved in MH-agreement, while agreement in features of discourse referents is involved in PA-agreement comes from the fact that there appear to be no cases of agreement mismatches within head modifier structures. Thus note that all the cases we have seen so far of reference transfer, relative pronoun choice, singular plurals, collectives and predicative adjectives in French involve PA-agreement. In fact it is fairly unclear what reference transfer within a DP could mean. Although the head noun in HPSG provides the index, the conditions on the manipulation of such indices are generally taken to be a function of the determiner of the DP, which closes off the projection of N. Thus indefinite determiners are usually thought to signify the introduction of a discourse referent, while definites signify that a preexisting discourse referent is being referred to[7]. In this sense then, there is no discourse referent available within a DP, so no index features can be manipulated. To argue that MH-agreement is defined in terms of indices is conceptually confused.

2.4.4 Summary

We have argued above that agreement is not simply a matter of the distribution of morphosyntactic features, but also involves features on discourse referents, drawing on

[7]In fact we shall argue against this conception below, but the reformulation we propose maintains enough of the crucial points of the proposal so that this argument still stands.

recent work in categorial grammar and HPSG. This perspective is motivated by examples where apparent mismatches between the arguments agreement features and those of the head appear. Assuming that some agreement is at the level of discourse referent allows us to explain such mismatches. Empirical and conceptual considerations lead us to propose, following Balari 1992, that MH-agreement is agreement of morphosyntactic features only, while PA-agreement at least *can* be agreement of features at the level of discourse representation. PA-agreement can also be morphosyntactically conditioned; for example subject-verb agreement in French is PA-agreement, but it is agreement of morphosyntactic features; predicate adjective agreement is also PA-agreement but it involves features specified at the DR level. Presumably the relationship between these is a subsumption relationship (Shieber 1986) such that more specific information at the morphosyntactic level will win out.

2.5 Summary

We shall now draw together some of the points made in this chapter. We have argued that agreement involves an abstract independently projecting syntactic formative Agr and that, for at least predicate argument agreement, it also needs to be captured at a level of semantic representation. We followed Pollard and Sag in claiming that this semantic representation was one composed of (at least) discourse referents. The idea of discourse referents was originally mooted to explain some facts about the interpretation of definites and indefinites (see chapter 4). We will follow standard practice and assume that the level of discourse representation can be represented by a universe of discourse referents and a set of constraints on those discourse referents (again see chapter 4 for more detailed motivation). Thus:

(2.40) Women walk.

(2.41) $\begin{array}{|l|}\hline x[fem, pl] \\ \hline woman(x) \\ walk(x) \\ \hline \end{array}$

Here we mark the discourse referent as feminine and plural. We can then follow the remainder of Pollard and Sag's analysis to deal with problems of reference transfer.

This view of Agr as something that is associated with a discourse referent will prove very useful in the next chapter, where we show that it provides a natural constraint on a theory of how morphological agreement and arguments relate.

Chapter 3

Agreement in Celtic

3.1 Introduction

The aims of this chapter are twofold: firstly we will show that the correct description of agreement phenomena in Celtic is one which makes reference to the distribution of morphological features and we derive this from a theory of morphological feature checking coupled with the idea we motivated in Chapter 2 that Agr refers to a discourse referent (DR); secondly we will show that, building on this, an object fronting construction in Scottish Gaelic (SG) is best analysed as movement of the object to the specifier of an $\overline{\mathrm{X}}$-projected agreement category.

3.2 Complementarity in Agreement

It is well known that the Celtic languages display an agreement phenomenon whereby a complementarity ensues between overt agreement and overt arguments[1]. The following paradigm for objects of prepositions in SG is illustrative:

(3.1) a. 's toigh leam/leat/leis/leatha/leinn/leibh/leotha coffaidh
COP liking with-1sg/2sg/3sg.m/3sg.f/1pl/2pl/3pl coffee
'I/you/he/she/we/you/they like coffee'

b. 's toigh le Mairi coffaidh
COP liking with Mary coffee
'Mary likes coffee'

c. *'s toigh leatha Mairi coffaidh
COP liking with-3sg.f mary coffee

d. *'s toigh leam mi coffaidh
COP liking with-1sg I coffee

In this construction, the experiencer of the "liking" state is marked by the preposition *le* 'with'. In (3.1a), *le* inflects for the person, number (and gender where appropriate) of the experiencer when it is pronominal (i.e has no lexical content). In (3.1b), *le* appears in an apparently uninflected form with an R-expression. (c) shows that the inflected

[1] This does not appear to be the case for Welsh, but see Hendrick 1988 for a reanalysis of the Welsh data which makes it amenable to this generalisation. See also section 4.2 of this chapter.

form of the preposition is ill-formed with a non-pronominal, even though the agreement features match and (d) shows that overt pronominals are also ill-formed with an agreeing P.

The generalisation that we can glean from this data is that agreement and overt DP are in complementary distribution: that is, they cannot cooccur.

However, this generalisation does not fully capture the facts. We also need to posit something to rule out the following case:

(3.2) * 's toigh le mi coffaidh
COP liking with I coffee

It appears that not only are agreement and overt DP in complementary distribution but also that the agreement + non-overt argument construction (as in (3.1a)) is the only way of expressing a meaning that might also be given by a non-agreeing P + overt pronoun.

A similar paradigm occurs for subjects. In SG, the only verbal inflection for subject agreement occurs in the first person singular in the conditional (the first person plural is occasionally found, but is felt to be archaic):

(3.3) a. Bhuailinn an cat
Strike-Cond-1sg the cat
'I would strike the cat'

b. Bhuaileamaid an cat
Strike-Cond-1pl the cat
'We would strike the cat (archaic/formal)'

c. Bhuaileadh tu/e/i/sinn/sibh/iad/am balach an cat
strike-COND you/he/she/we/you/they/the boy the cat
'You/he/she/we/you/they/the boy would strike the cat'

However, the same pattern as is found for prepositions occurs here. An overt pronominal is ill-formed with the agreeing verb:

(3.4) a. * Bhuailinn mi an cat
Strike-Cond-1sg I the cat

b. * Bhuaileadh mi an cat
Strike-Cond I the cat

With first person plural, this breaks down slightly, since both forms are possible, as the above paradigm shows. However, there are distinct register restrictions, with the form that has no agreement and a pronominal being preferred in all but formal written language; moreover the complementarity between agreement and overt pronoun still holds:

(3.5) *bhuaileamaid sinn an uinneag
strike-COND-Ipl we det window
'We would strike the window'

Traditionally the agreeing form that does not allow an overt pronoun is known as the *synthetic* form, while the non-agreeing form with overt DP is known as the *analytic* form.

Irish exhibits a similar pattern with subject agreement, but different dialects distribute the range of analytic and synthetic forms within a paradigm in different ways. Northern dialects exhibit fewer synthetic forms, with SG being the most extreme.

However, prepositional and subject agreement both seem to be governed by the same basic generalisation, with the bare form of the preposition corresponding to the analytic form of the verb. Of course, since agreeing forms exist for the entire paradigm for prepositions, the analytic prepositional form only occurs with overt non-pronominal DPs.

A number of explanations have been offered for the general pattern of complementarity between agreement and overt argument: these generally differ in what the non-overt argument is taken to be. Anderson 1982 for Breton and more recently Rouveret 1991 for Welsh argue that the null element is the trace of an incorporated pronoun or incorporated agreement. Doron 1988 along similar lines proposes for Irish that the phenomenon is explained by incorporation in the morphology. McCloskey and Hale 1984 for Irish, Stump 1984 for Breton and Hendrick 1988 for Welsh and Breton assume that the non-overt argument is *pro* and the agreement has to be rich enough in some sense to allow its presence. An interesting alternative is offered by Andrews 1990: Andrews claims that the correct explanation should be given in terms of features that compete for a single position at an abstract level of representation. We deal with these accounts in turn, before offering an alternative.

3.3 Incorporation

Incorporation is a process whereby a lexical formative is projected $\overline{X}$-theoretically, and then the head of that projection undergoes head-movement and adjoins to another lexical head (see Baker 1988). This general process can be seen as an instance of move-α and is subject to the same kinds of constraints that move-α is—particularly the Empty Category Principle (ECP), see below. Incorporation is appealed to to explain a diverse group of phenomena, including causatives, passives, applicatives and noun-incorporation (Baker 1988). We illustrate the process with noun-incorporation.

Many languages allow the complement of a verb to be missing syntactically but to appear as a morphologically compounded element. The following examples from Southern Tiwa (taken from Allen, Gardiner and Frantz 1984 via Baker 1988) illustrate:

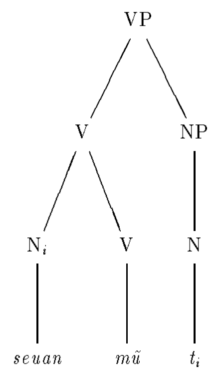
(3.6) a. **seuan**-ide ti-mũ-ban
man-suff 1sS/AO-see-Past
'I saw the/a man'

b. ti-**seuan**-mũ-ban
1sS/AO-man-see-Past
'I saw the/a man'

In Southern Tiwa the verb *mũ*, 'see', takes a syntactically separate object as in the (a) example, but this object may also be compounded with the verb, as in (b). Baker 1988

analyses this as a case of incorporation: the object is projected at D-Structure and then the N head of that object is moved by X0-movement to adjoin to the verb, to give (b)[2]:

(3.7)



Evidence that this is correct comes from the fact that subjects generally are unincorporable. Baker claims that this is due to the fact that incorporation is simply a subcase of move-α, and hence is subject to the ECP. The ECP states that a trace must be properly governed, and object positions are properly governed, while subject positions are not. This means that independent factors disallow subject incorporation, under an incorporation analysis[3].

3.3.1 The Incorporation Account

It is fairly easy to see how incorporation could be used to explain the agreement patterns in Celtic. Let us assume that the pronominal subject/prepositional object is generated at D-Structure in its cannonical position (spec VP or complement of P respectively). In the cases where we have subject agreement/preposition agreement, we can just say that the pronoun has moved by incorporation into the governing head:

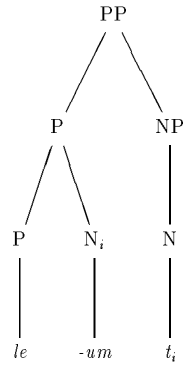
(3.8) a. leum
with-1sg

[2]In the trees for incorporation structures, I use NP, following Baker, for illustration. Under the DP hypothesis (Abney 1987) questions arise concerning the effect of the Head Movement Constraint on incorporation structures (T. Hoekstra (pc)).

[3]Some subjects actually may incorporate in Southern Tiwa; Baker claims that the only ones that may do so are subjects of unaccusatives, which are properly governed at D-structure since they originate in complement position.

'with me'

b.



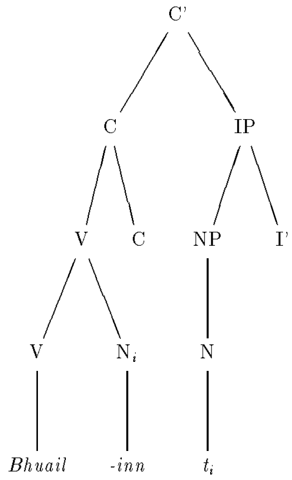
A similar story might be given for the subject agreement. In this case some extra stipulation would have to be made to ensure that the trace of the subject was properly governed; perhaps the fact that the V raises to some higher head (C) thus allows the trace of the subject to be governed by a lexical head at S-Structure and this satisfies the ECP[4]:

(3.9) a. Bhuailinn
strike-Cond-1sg

[4] In the following tree, for reasons of space, I have omitted the structure that shows that V has raised first into I and then to C.

'I would strike'

b.



We could argue here that V lexicalises C by raising into it and therefore C becomes a proper governor for the subject position.

An alternative view of incorporation is that it takes place in the morphology, rather than in the syntax. This would mean that certain string adjacent elements could be replaced by single words if an appropriate suppletive form existed in the lexicon. This is the solution argued for by Doron 1988.

Doron claims that whenever the grammar generates a form like the ungrammatical:

(3.10) * Bhuaileadh mi an cat
strike-COND I the cat

the string *bhuaileadh mi* is replaced by a suppletive form *bhuailinn*. In a sense the incorporation here is morphophonological.

3.3.2 Problems with the Incorporation Account

The incorporation account suffers from the defect that this phenomenon occurs with coordinated structures. Thus:

(3.11) 's toigh leum fhin is thu fhein coffaidh
Cop liking with-1sg Emph and you Emph coffee
'Me and you like coffee'

The emphatic particles seen in this example are necessary additions to all pronouns in coordinate structures. Thus:

(3.12) a. Bhuail mi fhin is tu fhein an cat
Strike-Past I Emph and you Emph the cat
'Me and you struck the cat'

b. * Bhuail mi is tu an cat
Strike-Past I and you the cat

Incorporation here would violate the Coordinate Structure Constraint (Ross 1967) which disallows a transformational relation between an element of a coordinate structure and a position external to that structure.

Doron's solution to this problem, which is based on the idea that adjacent elements in the syntax may be substituted by a suppletive morphological form, obviates this problem, since her incorporation is not syntactic and thus sidesteps syntactic constraints. For this reason it seems unsatisfactory to me. Moreover, as pointed out by Andrews 1990 there seems to be little evidence that this process is suppletive, since it is morphologically fairly regular. Furthermore, in SG we find constructions where Doron's account would lead us to expect morphological incorporation (ie replacement of two string adjacent words by a single suppletive form) but it does not occur. One example is the following:

(3.13) Tha mi a' feuchainn ri thu fhein a mharbhadh
Be-PRES I ASP trying to you EMPH Prt murder
'I am trying to murder you'

In this example, *ri* is a preposition that marks the complement of the verb *feuchainn* 'try'. As with most other prepositions it inflects, leading us to expect the form *riad* under Doron's account. This is ungrammatical.

(3.14) *Tha mi a' feuchainn riad fhein a mharbhadh
Be-PRES I ASP trying to-2sg EMPH Prt murder
'I am trying to murder you'

This contrast argues strongly against a morphological replacement account.

The coordination data above may be sidestepped in another way. The Coordinate Structure Constraint is motivated on grounds of the impossibility of extraction of phrasal elements from phrasal coordinate structures. There is, a priori, no reason why a head may not extract, if its trace is properly governed. So we could assume that we have in these cases head movement of the pronoun head of the Noun Phrase into the dominating V. We could then ensure that there were no barriers to proper government intervening between the trace and its antecedent. We would have to somehow block such extraction from the rightmost conjunct, since the following is ungrammatical:

(3.15) * 's toigh leum thu fhein is fhin coffaidh
Cop liking with-1sg you Emph and Emph coffee
'Me and you like coffee'

Already this solution seems stipulative, and moreover it is undermotivated. There are no cases other than agreement structures in SG where an analysis in terms of

head movement is motivated and where the head movement is from one conjunct of a coordinated phrase. Thus it seems plausible that the VSO word order displayed by SG arises from head movement of the V from the VP to a higher node where it dominates the VP internal subject (see Koopman and Sportiche 1989 for an analysis of VSO along these lines). This head movement is not allowed from inside a coordinated VP:

(3.16) *Bhuail Daibhidh mise agus bhreab mise
strike-PST David me-Emph and kicked me-Emph
'David struck me and kicked me'

The putative structure here would be:

(3.17) $[_{IP}$ Bhuail$_i$ $[_{VP}$ Daibhidh $[_{V'}$ $[_{V'}$ t_i mise agus bhreab mise$]]]]$

Likewise, in English, overt head movement from a coordinated structure is barred. Compare:

(3.18) a. I must and shall go.
b. *Must I and shall go.

(3.19) a. I must go and shall go
b. *Must I go and shall go

Here we have head movement (I to C) from a conjoined head and from a conjoined phrase respectively ruled out.

This data suggests that the Coordinate Structure Constraint applies not just to movement of phrasal elements, but to heads as well. The incorporation analysis then has no way of dealing with examples like (3.11).

3.4 *pro*

Chomsky 1982 suggests that the features [+/− pronominal] and [+/− anaphoric] could be used to characterise the different types of empty categories we find in human languages. He argues that traces of A-movement are [+ anaphoric] and [− pronominal]; traces of $\overline{\text{A}}$-movement have minus values for both features and behave like referring expressions; the empty category that figures in control theory, PRO, can be characterised as having + values for both features and it follows from this that PRO is ungoverned; finally the last possibility of [+ pronominal] and [− anaphoric] is assigned to an empty pronominal category that behaves just like an overt pronoun, *pro*.

pro figures in the analysis of Null-Subject languages (or more generally null-argument languages—see Jaeggli and Safir 1989 for discussion). The basic idea is that *pro* is licensed where it can be identified by a category governing it containing agreement features that are "rich" in some sense (see Rizzi 1982, Rizzi 1986 and Chomsky 1981). An example from Italian:

(3.20) *pro* parla
pro speak-pres-3sg.m
'He is speaking'

3.4.1 The *pro* Analysis

McCloskey and Hale 1984 supposes that the need for *pro* to be identified (following Rizzi 1986) explains in part the Celtic agreement patterns. McCloskey and Hale use Modern Irish as their language of exemplification, giving the following paradigm for subjects:

(3.21) a. chuirfinn isteach ar an phost sin
put-COND1sg in on that job
'I would apply for that job'

b. *chuirfinn me isteach ar an phost sin
put-COND1sg I in on that job
'I would apply for that job'

(3.22) a. *chuirfeadh isteach ar an phost sin
put-COND in on that job
'... would apply for that job'

b. chuirfeadh Eoghan isteach ar an phost sin
put-COND Owen in on that job
'Owen would apply for that job'

As in SG, the agreeing forms of the verbs are possible only with null subjects while the non-agreeing forms are possible only with overt subjects. However, agreeing forms do not exist for the whole paradigm, so that the non-agreeing form has to be used with an overt pronoun:

(3.23) chuirfeadh sibh isteach ar an phost sin
put-COND you-pl in on that job
'You would apply for that job'

and yet still an overt pronoun cannot be used with a non-agreeing form when an agreeing form exists:

(3.24) *chuirfeadh me isteach ar an phost sin
put-COND I in on that job
'I would apply for that job'

McCloskey and Hale's analysis is that the null subject is *pro* and that this must be identified by agreement:

(3.25) **pro*[α F] unless governed by AGR[α F], where [α F] is some combination of person-number[5] features

This will rule in (3.21a) and rule out (3.22a). Nothing is said about (3.22b), which is therefore ruled in. We discuss the analysis of (3.21b) and (3.24) below.

Hendrick 1988 also proposes a pro-drop analysis of Celtic, focussing on Breton and Welsh. Breton behaves very much like SG and Irish in this regard, displaying the

[5]Presumably gender too, since prepositional agreement is sensitive to gender in Irish as in SG.

aforementioned complementarity. The Breton Verbal agreement system, however, is parallel to the prepositional system in that it allows no overt pronouns with the non-agreeing form of the V. This contrasts with SG and Irish, which have patchy paradigms in this respect:

(3.26) Bemdez e lenn-an/-ez/-0/-omp/-it/-ont ul levr
Every-day PRT read-Pres-1sg/2sg/3sg/1pl/2pl/3pl a book
'I/you/(s)he/we/you/they reads the book every day'

(3.27) a. Bemdez e lenn Yann/ar vugale ul levr
Every-day PRT read-Pres Yann/the children a book
'Yann/the children read a book every day'

b. * Bemdez e lennont ar vugale ul levr
Every-day PRT read-Pres-3pl the children a book
'The children read a book every day'

(3.28) a. * Breman e labouran me
Now PRT work-Pres-1sg I

b. * Breman e labourez te
Now PRT work-Pres-2sg you

c. * Breman e labour eñ
Now PRT work-Pres-3sg he

d. * Breman e labouromp ni
Now PRT work-Pres-1pl we

e. * Breman e labourit c'hwi
Now PRT work-Pres-2pl you

f. * Breman e labouront int
Now PRT work-Pres-3pl they

As this paradigm shows, subject agreement in Breton looks very much like the synthetic pattern of agreement in SG/Irish. Agreement and overt argument are in complementary distribution. Moreover, as the following examples show, an overt pronoun cannot occur with a non-agreeing form:

(3.29) * Bemdez e lenn me/te/eñ/ni/c'hwi/int ul levr
Every-day PRT read-Pres I/you/he/we/you/they a book

Instead the form with overt agreement and a null-argument must be used.

Hendrick's analysis makes use of the Avoid Pronoun Principle (APP) (Chomsky 1981) to analyse the Breton facts. He formulates this as:

(3.30)
1. Lexical Rules insert the matrix of syntactic features for person, number and gender into the structure $[_{NP}[_{N}\ \text{—}]]$.
2. Lexical rules only optionally insert a phonetic matrix into the structure $[_{NP}[_{N}\ \text{—}]]$.

3. Insertion of a phonetic matrix is avoided where possible.

Hendrick applies this principle to agreement. The appropriate structures are:

(3.31)
a. *V [overt AGR] NP
b. V [null AGR] NP
c. *V [overt AGR] PRONOUN
d. *V [null AGR] PRONOUN
e. V [overt AGR] *pro*
f. *V [null AGR] *pro*

Essentially, Hendricks assumes that Agr is subject to the APP and that overt Agr is avoided where possible. "Where possible" here means everywhere except where Agr is required to locally identify *pro*; in this much Hendrick's analysis is similar to McCloskey and Hale's. All the cases with overt Agr will be ruled out, except (e) where it is required to identify *pro*. All the other cases will be ruled in, except those which involve an overt pronominal (d). In this structure both overt agr and the overt pronoun have to be avoided, but this yields (f), which is ruled out by the identification requirement on *pro*.

3.4.2 Problems with the *pro* analysis

One problem with McCloskey and Hale's analysis is that it does not directly capture the complementarity between agreement and overt argument. Thus, although their condition on the identification of *pro* explains why the structure with no-agreement and no argument is ill-formed, it says nothing about why structures with agreement and with an overt argument are impossible ((3.21b), repeated here):

(3.32) *chuirfinn me isteach ar an phost sin
put-COND1sg I in on that job
'I would apply for that job'

In order to deal with this, McCloskey and Hale propose a further filter (formalised in McCloskey 1986):

(3.33) *[... Agr ... *pronoun*]
[α F] [α F]

They claim that this filter is operative in Irish (and Breton and SG, presumably), but not in Welsh, since in Welsh we find cases where we have agreement plus an overt pronoun.

However, it is unclear whether Welsh should be analysed as escaping the generalisation about the complementarity of agreement and overt argument. Welsh does obey the prohibition against having agreement with lexical DPs; Hendrick 1988 provides the following examples:

(3.34)
a. canodd y plant bob dydd
sing-Past the children every day
'The children sang every day'
b. * canon y plant bob dydd
sing-Past-3pl the children every day
'The children sang every day'

(3.35)
a. ar y wal
on the wall
'on the wall'
b. * arni y wal
on-3sg the wall
'on the wall'

And yet, unlike SG, Breton and Irish, Welsh also seems to allow agreement with pronominals:

(3.36)
a. Canais i
sing-Past-1sg I
'I sang'
b. arni hi
on-3sg.f she
'on her'

This seems to support McCloskey and Hale's case for the special filter applying to Irish, ruling out these cases. The difference between Irish and Welsh then boils down to the claim that the former has the filter formulated above, while the latter lacks it.

However, Hendrick shows, drawing on work by Williams (Williams 1980), that Welsh has two sets of pronouns: an independent set and a dependent set. Only the dependent pronouns may occur with agreement:

(3.37) canais i/*fi
sing-Past-1sg I(dep)/*I(ind)
'I sang'

Thus the Welsh examples above are analysed as:

(3.38)
a. [Canais i] *pro*
sing-Past-1sg-1sg *pro*
'I sang'
b. [arni hi] *pro*
on-3sg.f-3sg.f *pro*
'on her'

this, as Henricks notes, predicts that the affixal pronouns may only be found where *pro* may be found, since agreement is required to license *pro* and only dependent pronouns occur with agreement. Now *pro* is ill-formed in object position of finite verbs in Welsh, leading to the prediction that the affixal pronouns are ill-formed here as well. This is the case:

(3.39) Glywoch chi fi/*i/**pro*
hear-Past-2pl you-pl me(ind)/*me(dep)/**pro*

Furthermore, *pro* is ill-formed as the second member of a conjunct in Welsh, as are the dependent pronouns:

(3.40) a. chwi neu mi
you or I(ind)
'you or I'

b. * chwi neu *pro*
you or *pro*
'you or he'

c. * chwi neu i
you or I(dep)
'you or I'

If Hendrick's analysis of Welsh is correct, then Welsh does obey the generalisation that agreement and argument are in complementary distribution, and the filter that McCloskey and Hale propose is ad hoc.

In fact McCloskey and Hale must adduce yet another device to their analysis in order to capture the fact that a non-agreeing V or P is ill-formed with a pronoun for which an agreeing form is possible:

(3.41) *chuirfeadh me isteach ar an phost sin
put-COND I in on that job
'I would apply for that job'

McCloskey and Hale suggest that it would be appropriate to appeal to a principle of morphological blocking at this point, but already the analysis seems too stipulative. Furthermore, as Andrews 1990 points out, it is unclear how to apply such a lexical principle to the syntactic constructions that McCloskey and Hale propose.

Hendrick's proposal solves the problem of having to propose a filter to rule out cases of overt agr and overt DP/Pronoun, but it also rules out one of the cases which is prevalent in Irish and SG — null agr with overt pronoun. It is unclear how to extend Hendrick's analysis to these cases, except to classify those pronouns that occur with non-overt Agr as non-pronouns for the APP. This is highly problematic, since the APP is defined in terms of collections of syntactic features, which is precisely what pronouns are. Furthermore, it seems intuitively problematic to count agreement, a morphological head, for the APP, which applies to phrasal elements. This is especially so if the morphological head is incorporated into the verbal head in some fashion by the level at which the APP holds, since we then have a violation of the weakest most uncontroversial

version of the lexicalist hypothesis: that sublexical elements qua elements (rather than subparts of chains) are not subject to syntactic principles.

The accounts based on incorporation and *pro* generally seem to carve up the data in such a way as to require extra stipulations: incorporation seems to capture the complementarity between agreement and argument very well, but suffers from the problems induced by coordination structures, as well as general variation in Celtic; the *pro* account doesn't capture the complementarity, per se, but requires a number of extra statements to make sure that agreement and overt elements are ruled out from occurring together. What seems to be needed is a general theoretical way of deriving the full range of the complementarity from the theory. We turn now to a Lexical Functional Grammar treatment of these phenomena that seeks to do this.

3.5 Feature Competition

Andrews 1990 also argues that both the incorporation analysis and the *pro* analysis are misguided. He claims that the correct way to see the complementarity data is in terms of two items competing for a single structural position in an abstract structure.

Andrews couches his analysis in Lexical Functional Grammar (LFG—see the papers in Bresnan 1982, especially Kaplan and Bresnan 1982). LFG represents syntactic structures in a two-fold manner: C-structures, which are tree-like representations, and F-structures, which are feature-value structures like those in HPSG.

The theory of F-structures requires that the subject of the structure have an attribute that specifies its lexical content: the attribute is termed PRED and the lexical content of the subject is its value. So for example in the sentence *Anson slept*, the PRED attribute of the SUBJECT attribute has the value "ANSON". Usually this information is given by the phrase that actually occurs as the subject (as in this example), but in principle it could be given by the verb itself.

Andrews claims that, in Irish, synthetic forms of verbs lexically specify the value of the PRED attribute of the subject as "PRO" (this value is the value that pronominals usually have). If a DP occurs in the structure with a synthetic verb then that DP specifies the value of the subject attribute as whatever its lexical content is ("FOX", "PIG" or whatever). The features will then clash, ruling out lexical DPs with synthetic verbs.

Turning to pronominals, these have the lexical content "PRO" anyway, so one would imagine that they should be fine with synthetic verb forms. To rule them out, Andrews appeals to a further LFG principle which causes any value of PRED introduced in a lexical item to receive a unique index[6]. This will mean of course that the "PRO" values of the PRED attributes in the subject pronoun and in the verb will carry distinct indices. They will therefore not unify and the structure will be ruled out.

This means that the only well formed structure with a synthetic verb is one where there is no lexically occurring subject. This treatment goes a fair way to capturing the complementarity between argument and agreement.

However, it does not explain why the non-agreeing form may not occur with a pronoun for which an agreeing form exists, such as the following cases:

[6]Andrews admits that the original motivation for this principle in LFG given by Kaplan and Bresnan is weak, but argues that it gives LFG a handle on non-configurational languages, and thus receives motivation from this.

(3.42) a. * le mi
with I

b. * bhuaileadh mi
strike-COND I

To deal with these cases Andrews appeals to a principle that blocks a form being used if a more highly specified form exists anyway. The idea is that *leum* 'with me' and *bhuailinn* 'I would strike' exist independently, so that *leum* precludes the use of *le* because it is more specific.

Andrews argues that his account is superior to an incorporational account based on the fact that the allomorphy of agreement markers in Irish is relevant to determining dialectal variation, and that this cannot be described in terms of the varying of incorporational rules. In fact this is not actually a strong argument, since the affixal status of an element can be stated as part of its lexical entry and one can imagine giving lexical entries for the various morphemes involved that would force or rule out incorporation.

A more telling argument is based on some data from cases where the complementarity effect appears to cease. Andrews gives the following examples from McCloskey and Hale:

(3.43) a. Táid na ba ag innilt
be-PRES-3pl the cows PROG graze
'The cows are grazing'

b. Táid siad ag innilt
be-PRES-3pl they PROG graze
'They are grazing'

Here we seem to have a case where we have agreement on the verb, and an overt (pronominal or DP) subject. These examples are from Munster Irish, a southern dialect. Such expressions are only possible with this particular verb form, although Andrews reports personal communication from McCloskey that there are dialects where this behavious extends to all third person verb forms. Andrews claims that McCloskey and Hale's analysis and the incorporational analysis have problems with this data, since they have to start making explicit exceptions to a general filter. On his account, its just the case that a few lexical entries are different in that their PRED "PRO" specifications are optional, which seems more plausible. This means that the following structures are also possible:

(3.44) Táid *pro* ag imeacht
be-PRES-3pl *pro* PROG leave
'They are leaving'

Furthermore, Andrews claims that this optionality is tied to the agreement formative *id*. In this part of the paradigm, Irish behaves like a canonical null-subject language.

I will not discuss the problems with Andrews account in any great detail, since I think his underlying point about feature competition is correct. Criticisms would be of a mainly technical nature. Instead I shall outline an alternative that does not need to appeal to morphological blocking.

3.6 An Alternative

We have seen that the kind of treatment Andrews provides for the phenomena in question goes quite a way to capturing the complementarity between argument and agreement that is found in the Celtic languages. However, one problem, that Andrews notes himself, is that the structural relationship between the agreeing element and the argument seems to play a role and Andrews actually suggests a unification based theory that incorporates notions of government might be the right way to analyse the problem. In this section we will outline a theory based on Chomsky's recent proposal (Chomsky 1992) that movement is driven by morphological requirements.

3.6.1 Checking Theory

Chomsky 1992 outlines a theory which is intended to capture the intuition that movement operations are driven by morphological requirements. This theory is motivated by the idea that the only relevant levels of structure are the interface levels LF and PF. The mechanics of the theory are fairly straightforward.

Lexical items are specified for ϕ-features when they are inserted from the lexicon. Thus a noun carries features for number, gender and (possibly) person; a verb carries similar features perhaps specified on argument positions, perhaps at some other level of morphological structure. Recall that we have motivated this idea based on Speas' account of Navajo agreement.

The functional head Agr is also specified for ϕ-features. However, because Agr is relational, it is specified for two sets of ϕ-features: those associated with the argument, and those associated with the agreeing element: let us terms these A-ϕ-features and F-ϕ-features respectively (mnemonics for Argument and Functor). The internal structure of an Agr head will then be something like the following:

(3.45)

Agr	A-ϕ-features	F-ϕ-features
pers	3	3
num	s	s
gend	f	f

Agr will project its $\overline{\text{X}}$-theoretic structure and phrasal movement will bring the argument into the spec Agr position while head movement will bring the agreeing element into a position adjoined to Agr. Chomsky characterises such positions as the *Checking Domain* of Agr. The process of checking simply makes sure that the features of the argument match the A-ϕ-features of Agr and that the features of the agreeing element match the F-ϕ-features of Agr. Only one argument may check one set of features (Chomsky implements this by stipulating that once a feature has been checked it disappears), ruling out multiple arguments in spec AgrP and multiple agreeing elements adjoined to Agr.

Now note that this theory allows a great degree of freedom. There is nothing, for example, that would prevent a possible structure for Agr that had the following form:

(3.46)

Agr	A-ϕ-features	F-ϕ-features
pers	3	2
num	s	p
gend	f	m

This would predict that there was a language where second person masculine plural verbs agreed with third person singular feminine subjects. Now this might be possible paradigmatically (for example, if the paradigm does not make enough distinctions to rule out such a possibility), but in a rich paradigm with different morphological markings for these categories, we would not expect such a system to be allowed, and if it was we would not call it agreement.

This is where the arguments that we developed in the last chapter come in. We showed there that Agr made reference to an abstract entity that we termed a discourse referent. Crucially there is only a single discourse referent that is referred to by the argument and the agreeing element. Since we don't expect ontologically to have a referent that is both singular and plural, or second person and first, independent semantic considerations rule out cases where Agr is structured as above.

This view, which assumes that a discourse referent is specified for ϕ-features, can be seen as a generalisation of standard views on the identification of *pro*. The references cited above assume that *pro* needs to be identified by agreement features to be licensed. An element is licensed, under Chomsky's programme, if it is interpreted. In order for *pro* to be interpreted in the framework outlined here, it must be associated with a discourse referent. So we can transfer the requirement that *pro* be identified, to the idea that every argument DP must be associated with a discourse referent, and that association requires that the discourse referent be identifiable given the information specified by the DP. When the DP is *pro*, the agreement features on the functor agreeing with *pro* must instead identify the DR. In fact, we will see in Chapter 5 that a discourse referent is always identified by an entity (a chain) comprising an argument DP and Agr itself. The behaviour of *pro* is simply a subcase of this. To make this work, we must assume that DRs must be fully specified for ϕ-features.

This conception of the relationship between agreement and discourse representation means that we don't actually have to specify values for the features in Agr in the lexicon at all; Agr's function is just to provide a relational functional head which serves to act as a device whereby the argument and the agreeing element are brought into the appropriate configuration so that the ϕ-features on each can be ensured to be compatible. The structure of Agr is thus just:

(3.47)

Agr	A-ϕ-features	F-ϕ-features
pers		
num		
gend		

with the semantic considerations already mentioned taking care of the matching.

Take for example the case of Italian already mentioned:

(3.48) *pro* parla
pro speak-pres-3sg.m
'He is speaking'

Here, the V raises into Agr specifying the F-ϕ-features and *pro* raises into spec AgrP specifying the A-ϕ-features. Agr[7] denotes a discourse referent, and the correct interpretation is ensured. If we have an overt DP (such as a masculine singular proper name) in spec AgrP, then the same process occurs. If however, we have a pronoun, or a DP, with different ϕ-features, then we get an Agr which has one set of F-ϕ-features and another set of A-ϕ-features. There will, of course, be no discourse referent that will be able to be linked to this Agr, resulting in ill-formedness.

Chomsky's motivates the distinction between A-ϕ-features and F-ϕ-features (which he terms N-features and V-features—we have simply generalised the cases) via an analysis of Verb-raising differences between English and French, arguing that such a system makes possible a restricted typology of languages in terms of whether the features are *strong* or *weak*. He also argues that all movement is driven by the need to check features. We shall not evaluate these claims here, since we are concerned only with the implications this theory has for the morphology of Celtic agreement phenomena.

Checking Theory allows us access to an important level of structure: the internal morphological structure of functional categories. Recall that it was the ability to access abstract levels of lexical structure that characterised the success of Andrews analysis of the agreement argument complementarity. In the system outlined here it is clear how Celtic differs from more standard languages: Celtic has coalesced A and F-ϕ-features in Agr so that there is only one set:

(3.49)

Agr	A/F$-\phi$-features
pers	
num	
gend	

This means that when an element comes into the checking domain of Agr it attempts to check its features with the A/F$-\phi$-features of Agr. Under the restriction that a feature may only be checked once, this will immediately capture the complementarity desired. That is, given the requirement that discourse referents must be fully specified for ϕ-features to ensure their correct association with a DP, it derives the following generalisation about PA-agreement in Celtic:

(3.50) The ϕ-feature set of the agreeing element is the complement set of the ϕ-feature set of the argument that is agreed with.

How do we determine the ϕ-features of an element? Since, ϕ-features are essentially an abstraction from a paradigm, then, to determine the ϕ-features of the noun head of a DP or of the agreeing P or V we inspect its morphological paradigm. Thus in Gaelic we know that *an cat* 'the cat' is masculine because it contrasts paradigmatically with non-masculines (such as *a' bho* 'the cow'). Likewise, we know that *leum* 'with me' is first person singular because this form contrasts with other forms in the paradigm of *le*.

This view makes an interesting prediction. It predicts that the only arguments that are fully specified for ϕ-features are pronouns, because only pronouns mark distinctions of number, person and gender. Overt DPs paradigmatically contrast only number and

[7] Or rather the chain formed by the structural coindexation of the DP in spec and Agr itself (see Chapter 5).

gender[8]. If the structure for Agr for Celtic that is given above is correct, then we expect that P and V will contribute only person features to Agr when their argument is an overt DP, since if they contributed number or gender features, then they would violate the constraint that features are only checked once.This means that in *le Mairi* 'with Mairi', *le* is specified for only person features. Moreover, we expect that P and V will contribute no features if their argument is pronominal, since if they did they would again violate this constraint.

Furthermore, consider what information we can glean from the morphological paradigm of *pro*. None, obviously. This means that we expect *pro* to occur with agreeing forms that mark all the morphological distinctions.

Let us consider in a little more detail how this works.

3.6.2 Prepositional Objects

We assume the following internal structure for Agr in Celtic:

(3.51)

Agr	A/F–ϕ-features
pers	
num	
gend	

and the following independently required conditions:

(3.52) a. Features can be checked only once (Chomsky 1992)

b. Discourse Referents need to be specified for person, number, and possibly gender to be associated with their DP[9]

We also assume that the ϕ-feature composition of a linguistic element can be given by inspecting its morphological paradigm (this has obvious advantages in terms of learning). This will predict then that *pro* should occur with an agreeing element that is fully specified:

(3.53) 's toigh leam *pro* coffaidh
COP liking with-1sg *pro* coffee
'I like coffee'

And not with one that is only partially specified:

(3.54) *'s toigh le *pro* coffaidh
COP liking with-3 *pro* coffee
'I like coffee'

[8]I ignore case features here which are of course paradigmatically contrasted. I assume that they are not implicated in the PA-agreement mediated by Agr though, for the reasons given in Chapter 2.

[9]The gender requirement is possibly unnecessary, and seems to depend more on pragmatic knowledge than on syntactic requirements. Moreover, first and second person do not inflect for gender in the languages we are concerned with here.

An overt DP like the proper name *Mairi* inflects morphologically for number and gender (for case see the footnote to the text above). This means that a prepositional form that inflects for number or gender should be unable to occur with *Mairi*, by the requirement that features are checked only once. As we have noted already, this is the case:

(3.55) *'s toigh leatha Mairi coffaidh
COP liking with-3sg.f Mary coffee

(3.56) 's toigh le Mairi coffee
COP liking with-3 Mary coffee
'Mary likes coffee'

In (3.56), *le* contributes only person features, while *Mairi* contributes number (and gender).

Finally, consider pronominals. These inflect paradigmatically for number, gender and person. We thus expect them to occur with a form that does not inflect for any morphological features. The only candidate for this is *le*, but we have already claimed that *le* inflects for person features. Besides, there is no contrast between *le* and any other possible member of the paradigm. This predicts then that *le* is ruled out with a pronominal, with no appeal to morphological blocking:

(3.57) *'s toigh le mi coffaidh
COP liking with-3 I coffee

Overt pronominals with agreeing P's are ruled out by the principle that features are checked only once:

(3.58) * 's toigh leum mi coffaidh
COP liking with-1sg I coffee

3.6.3 Subjects

The proposal discussed above gives an account of prepositional agreement across Celtic, and also the subject agreement facts in Breton. However, it doesn't quite seem to work for subject agreement in Irish and SG. The reason? Pronouns and overt DPs pattern similarly in certain parts of the paradigm. Thus:

(3.59) a. bhuailinn an uinneag
strike-COND-Isg det window
'I would strike the window'

b. bhuaileamaid an uinneag
strike-COND-Ipl det window
'We would strike the window'

c. *bhuailinn mi an uinneag
strike-COND-Isg I det window
'I would strike the window'

d. *bhuaileamaid sinn an uinneag
strike-COND-Ipl we det window
'We would strike the window'

(3.60) a. bhuaileadh an duine/sibh/e an uinneag
strike-COND det man/you-Pl/he det window
'The man/you/he would strike the window'

b. *bhuaileadh an uinneag
strike-COND det window

c. *bhuaileadh mi an uinneag
strike-COND mi det window

The crucial example is (3.60a). This shows that overt pronouns are allowable with the same verbal form that occurs with overt DPs. However, where agreeing forms exist (first person) the generalisation that the features are complementary still holds ((3.59) and (3.60c)).

We can give an account of this fact under the system outlined here, but at some cost to the general programme. There are two possibilities: the less interesting one is to allow deletion of the person feature on the agreeing category when the value of that feature is third person. This will result in a form with which all pronominals and overt DPs are allowed. The task is then to rule out the form in (3.60c), for which we could adopt Andrews morphological blocking solution.

A more interesting course of action would be to maintain the current analysis and say that Irish and SG have a general agreement morpheme with a single slot. Forms like *bhuaileadh*, which cooccur with all overt elements except the first person singular pronoun are simply specified morphologically as being anything but first singular in their featural composition, as we can determine directly from their paradigmatic behaviour. We can implement this in a number of ways—either by allowing negation in the representation of featural information, or by encoding the featural structure of such a form as a disjunctive specification. Let us assume that it is specified disjunctively and that a disjunctive specification of ϕ-features will not result in the actual specification of any particular values of features in Agr, but rather will just constrain the possible values of features in Agr. Thus, in a register where *bhuaileadh* is used for all paradigmatic slots except for first singular, *bhuaileadh* will constrain the values of an agr it adjoins to to be anything but first singular. In a register where *bhuaileadh* is used for only second and third persons (the formal register), then it will constrain the values of the features in Agr to be anything but first person. The same comments apply to dialect variation.

This will derive the paradigm we want in the following way: *bhuaileadh* moves to adjoin to Agr, and the subject argument moves into spec AgrP. Now if the subject is *pro*, then we violate the constraint that the discourse referent is identifiable, since *bhuaileadh* just tells us what the discourse referent can't be, but not what it is, and this is no good. If the subject is a first person pronoun, then we have contradictory information in Agr, since we have violated the constraints imposed by the disjunctively specified verb form and again no discourse referent can be found. If, however, the subject is a non-first singular pronoun, then the structure will be well-formed, since the DR will be identified.

A problem arises in the case of overt DPs though, since they do not mark person features. Let us assume that there is a further Agr head in SG which is lexically marked for person features:

(3.61)

Agr	A/F$-\phi$-features
pers	3
num	
gend	

If we choose this Agr head, rather than the more general one, then overt DPs will be able to occur with *bhuaileadh*, since the Agr itself will contribute the person features required to identify the discourse referent.

What about *bhuailinn*, which is marked as first singular lexically? Here, we appeal to the general Agr head. The V supplies this with person and number features, ruling out any pronominal or overt element, leaving *pro* as the only possibility. Note that the choice of the Agr head is free, with derivations ruled out by general principles if the "wrong" one is chosen.

This analysis requires two extra stipulations: the first is that disjunctively specified paradigmatic information cannot contribute values to the feature slots in Agr, but can constrain the values of those slots. That is, if we inspect the paradigm of an agreeing element, and the optimal analysis is that the agreeing element is disjunctively specified (as is the case with *bhuaileadh*), then that element does not contribute actual feature values to Agr. This stipulation is necessary to ensure that the analytic forms do not contribute any information to Agr, except that they constrain values of the slots, ensuring that they are compatible with pronouns.

This supposes a theory of the extraction of features from a lexical item into Agr such that if a lexical item can be given a unique paradigmatic slot, then it can't contribute feature values, only constrain them.

Looking at the actually extant paradigms of subject marking in Irish and SG, we find that in all dialects and in all agreement paradigms in those dialects (agreement paradigms typically vary depending on the tense and aspect of the verb), the analytic forms are haphazardly distributed throughout the paradigm. That is there are, for the main part, no paradigms where the analytic form is uniquely identified paradigmatically as, say, third person, or singular. This variation receives an explanation in the current framework, since if there were a unique paradigmatically identified form, then the features characterising that form could be extracted and specified in Agr. This would immediately preclude the use of pronouns, since there would not then be a complementarity between the paradigmatic richness of the agreeing element and the argument.

Actually, this prediction is not fully confirmed. In past tense in West Munster dialects we have the following paradigm:

(3.62)

pers/num	singular	plural
1	chuireas	chuireamar
2	chuiris	chuireabhair
3	chuir se	chuireadar

Here the third person singular form is analytic but is paradigmatically unique. In fact, throughout Irish and SG dialects, the third person singular form of verbs is always analytic. I have no explanation for this fact, as yet, but it seems to act as a constraining factor leading to the anomalous Munster paradigm above.

The second stipulation is that there exists in Irish and SG a functional head Agr that is lexically specified for the feature person (with the value "third"). This stipulation is necessary to allow the analytic forms to occur with overt DPs, as well as with pronouns. Such a stipulation seems justified in that there do appear to be two distinct agreement phenomena going on in Celtic, and this underlies the intuition that splits the paradigms into synthetic and analytic forms. However the claim here is that the analytic/synthetic distinction is a rather superficial reflection of the interaction between the one-slot Agr phenomenon, and the existence of an Agr lexically specified for third person.

Moreover, we acually need to have a different Agr with lexically specified third person features to deal with the anomalous Munster phenomenon noted above, where in part of the paradigm, Munster Irish appears to be acting just like a normal null-subject language. I repeat the data here for convenience:

(3.63) a. Táid na ba ag innilt
be-PRES-3pl the cows PROG graze
'The cows are grazing'

b. Táid siad ag innilt
be-PRES-3pl they PROG graze
'They are grazing'

(3.64) Táid *pro* ag imeacht
be-PRES-3pl *pro* PROG leave
'They are leaving'

As we already noted, the usual complementarity between agreement and argument breaks down here. This is easily explained under the system we have outlined if the extra Agr in Munster Irish is more like the Agr we find in standard null-subject langauges in that it has two slots:

(3.65)

Agr	A-ϕ-features	F-ϕ-features
pers	3	3
num	pl	pl
gend		

This will predict that where the paradigms allow it, the inflecting verb can take an overt or a null element.

The argument just given is at least interesting, in that it allows us to maintain the general system. One cautionary point is that the systems under consideration are in the process of flux (both diachronic and dialectal) and the aberrations of West Munster may be a reflection of competing systems (especially since the data under consideration makes no pretence to be from a single register or speaker).

3.7 Applying these Results to Objects

The account outlined above extends naturally to a DP preposing construction found with nominalised verbs in Irish and Gaelic. In such constructions we find the nominalised

verb's internal argument coming preverbally when it is an overt DP and occuring with a non-inflecting particle *a*. Null objects are marked with full agreement for person number and gender. Pronouns are barred. These constructions appear with modals, attitudinal predicates and certain classes of adjectives.

(3.66) a. 's toigh leam do/a/a/ar/ur/am b(h)ualadh
COP liking with-1sg 2sg/3m.sg/3f.sg/1pl/2pl/3pl strike-VN
'I like hitting you/him/her/us/you/them'

b. 's toigh leam Daibhidh a bhualadh
COP liking with-1sg David Prt strike-VN
'I like hitting David'

c. *'s toigh leam tu (a) bhualadh
COP liking with-1sg you (Prt) strike-VN
'I like hitting you'

(3.67) a. Tha e doirbh mo/do/a/a/ar/ur/am b(h)ualadh
Be-PRES it difficult 1sg/2sg/3m.sg/3f.sg/1pl/2pl/3pl strike-VN
'It is hard to hit me/you/him/her/us/you/them'

b. Tha e doirbh Daibhidh a bhualadh
Be-PRES it difficult David Prt strike-VN
'It is hard to hit David'

c. *Tha e doirbh tu (a) bhualadh
Be-PRES it difficult you (Prt) strike-VN
'It is difficult to hit you'

Modern Irish has a similar construction for which McCloskey 1980 and McCloskey and Sells 1988 have argued that the particle corresponding to SG *a* is a transitivity marker. In fact it seems more likely that it is an agreement head and that the object preposing seen above is movement to the specifier of this head (Duffield 1992 has independently claimed, on different grounds, that this preposing operation is movement to the Spec of AgrP in Irish. The SG data is interesting in that it provides less ambiguous evidence than the Irish).

Initial motivation that object preposing in such examples is movement to the spec of AgrP comes from external sources. The most constrained theory of functional heads proposes that there is a universal set and that they come in a universal hierarchical order (a kind of Universal Base Hypothesis). Speas 1990a and Speas 1990b argue that this order involves an agreement node intervening between the VP and the projection of aspectual information. Chomsky 1992 also adopts a structure where Agr dominates VP, and this is the structure we assumed in Chapter 2. If such structures, which are motivated on independent grounds are tenable, then the SG data receives a natural interpretation as movement to the spec of AgrP for Case—a well-known and widely accepted proposal (Chomsky 1992 and references there).

We can further back up this claim in two ways. Firstly, we can show that the sequence *Daibhidh a bhualadh* (call it a Fronted Object Phrase (FOP)) is a maximal constituent (we identify it as an XP) and secondly we can show that the relationship between the head *a* and the DP *Daibhidh* mirrors the relationship between the subject agreement morphology and the subject DP (we identify the category of X as Agr).

These FOPs may be clefted, pseudoclefted and right-node-raised which suggests that they are maximal constituents:

(3.68) 's e a' cheist sin a fhreagairt a tha doirbh
It's that question Prt answer-VN Comp be-PRES difficult
'It's anwering that question that's difficult'

(3.69) 's e tha doirbh ach a' cheist sin a fhreagairt
It's be-PRES difficult but that question Prt answer-VN
'What's difficult is to answer that question'

(3.70) Tha e doirbh ach tha e math a' cheist sin a fhreagairt
be-PRES it difficult but be-PRES it good that question Prt answer-VN
'It is hard, but it is good, to answer that question'

We have now shown that FOP is an XP and it remains to show that the category of X is Agr.

Recall the generalisation we made above that derives from checking theory:

(3.71) The ϕ-feature set of the agreeing element is the complement set of the ϕ-feature set of the argument that is agreed with.

If this generalisation were to hold for FOPs, then we would expect that *pro* would induce the full range of agreement, that overt DPs would occur with a form that does not vary (it is marked only for 3rd person) and that pronouns are barred. This is precisely the case as the examples above show. The particles *mo*, *do* etc encode only the ϕ-features of person, number (and for 3sg) and gender. We can take them to be heads agreeing with the *pro* in their Spec under our generalisation. An overt DP occurs with only *a*, the neutralised agreement head, and pronouns are barred from the Spec of this agreement head, as expected.

Ramchand 1993 also takes the *a* particle to be a realisation of Agr, but she assumes that it is merely a lexical marking on the verb with no independent syntactic projection. This means that the sequence of *a*+V counts as the head and projects into a VP. The fronted object is then in the spec of this VP, or adjoined to it.

This analysis has a number of problems. If the fronted object is in Spec VP then the Lexical Clause Hypothesis (the idea that all theta-marked elements are generated within the maximal projection of the theta-marker and hence subjects are generated within VP—see Koopman and Sportiche 1989) cannot be maintained for SG. Ramchand explicitly claims that the LCH does not hold, but gives no argumentation.

If on the other hand the fronted object is adjoined to VP other problems arise. VP adjoined positions are A-bar positions. We therefore predict that further movement to an A position is impossible (since it would violate the prohibition against improper movement). But we have cases in SG of the following sort:

(3.72) a. Faodaidh Daibhidh Iain a bhualadh
should David Ian Prt strike-VN
'David must hit Ian'

b. * Faodaidh falbh
should leave

c. Faodaidh Iain a bhualadh le Daibhidh
should Ian Prt strike-VN with David
'Ian must be hit by David'

The (a) example shows that the modal *faodaidh* has a subject position. Note that this subject position cannot be a *pro* since it has no agreement marking. A null subject is therefore ruled out (b). This means that in the (c) example *Iain* occupies the subject position but is assigned the theme role from the V. Standardly we would assume that this is a case of NP movement from the complement position of the verb to the subject position. In Ramchand's theory the fronted object is base generated in this position. Movement to subject position would then be movement from an A-bar position to an A position and would violate the constraint against improper movement. Direct base generation in Subject position leaves it unclear as to why we have object agreement at all.

An alternative would be to generate the object in VP complement position and then move it directly to subject position. The agreement on V could then be triggered at DS by the object and the object could raise to subject position to get Case without stopping off in VP adjoined position. This is not a possibility in Ramchand's system, since for her the object is base-generated in its fronted position. Let us put this aside and consider whether a more flexible model that allowed base generation in complement position to occur could still maintain that the object moved directly to subject position. There are two arguments against this: firstly, this would mean that the agreement on V would have to be generated at D-Structure, and it is well known that agreement is an S-structure phenomenon (which is why passives agree with their derived subject and not with their object, for example). Secondly, even if this were not the case we can show that there is a relationship between the preverbal object position and the subject position in certain constructions. Thus:

(3.73) * Faodaidh tu a bhualadh le Daibhidh
should you Prt strike-VN by David

The ungrammaticality of this example is easily explained if the subject moves from the fronted object position, since we know that pronouns are ill-formed in this position. Given the grammaticality of such examples with DP subjects (see (c) above), any other explanation would have to make additional stipulations about the distribution of pronouns and DPs in the language.

In addition, there is some further empirical evidence that the VP adjunction solution is incorrect. This evidence comes from clefting.

In SG there are two clefting particles: *'s e* and *'s ann*. The former of these typically clefts DP or CP (non-predicates) while the latter clefts predicates such as AdvP or AspP:

(3.74) a. 's e/*'s ann am ministear a tha mi a' ceilidh a-nochd
It's the minister that be-Pres I Asp visit-VN tonight

'It's the minister that I'm visiting tonight'

b. 's e/*'s ann gun do bhuail thu an cat a tha mi a' ciallachadh
It's that Past Strike-Past you the cat that be-Pres I Asp meaning
'It's that you struck that cat that I mean'

c. *'s e/'s ann a-nochd a tha mi a' ceilidh ministear
It's tonight that be-Pres I Asp visit-VN minister
'It's tonight that I'm visiting a minister'

d. *'s e/'s ann a' ceilidh ministear a tha mi a-nochd
It's Asp visit-VN minister that be-Pres I tonight
'It's visiting a minister that I am tonight'

It is possible to cleft FOP as we saw earlier, and in these cases we get *'s e*:

(3.75) 's e/*'s ann a' cheist sin a fhreagairt a tha doirbh
It's that question Prt answer-VN Comp be-PRES difficult
'It's anwering that question that's difficult'

However, if we cleft a bare Verbal Noun with no agreement marker then we get *'s ann*, which is a clear indication that FOP differs categorially in some way from VP[10]:

(3.76) *'s e/'s ann falbh a tha doirbh
It's leave-VN that be-Pres difficult
'It's leaving that is difficult'

Under Ramchand's story there is no easy explanation for this contrast, whereas if Agr projects syntactically then we have a clear categorial difference that we can appeal to.

In addition the clefting data gives us a further argument. The generalisation about which clefting particle (*'s e* or *'s ann*) occurs with which clefted constituent, ignoring FOP, appears to be that XP with referential features (DP, CP) clefts with *'s e* while predicative XP (VP, PP, AP) clefts with *'s ann*. That FOP clefts with *'s e* is unsurprising under the view that it is AgrP, since AgrP is headed by an element that consists entirely of referential features.

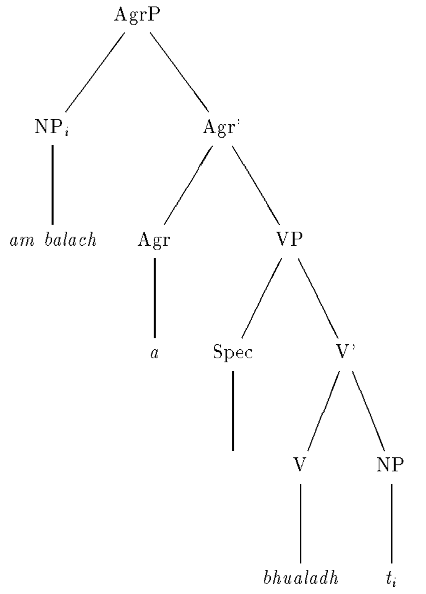
It seems fairly clear then that FOP in SG is an instantiation of movement to the spec of a syntactically projecting AgrP:

(3.77) a. Feumaidh Daibhidh am balach a bhualadh
must David the boy Agr strike-VN

[10]This data is actually more complex than it seems from this presentation. Some speakers have very weak judgements here, often preferring *'s e* to *'s ann* and justifying this judgement with some statement to the effect that the verbal noun is a noun and therefore must be used with *'s e*. Other speakers find no contrast, deeming both to be marginally acceptable. Finally, the speakers who agree with the judgements given here typically have no realisation for the aspectual particle *a'* and allow a range of complement types after adjectives like *doirbh*, suggesting that the appearance of *'s ann* may be attributed to the clefting of an aspectual phrase that happen to be homophonous with FOP. However, the point still holds that there is a contrast between (3.75) and (3.76) which is difficult to explain if agreement is a feature of V.

'David must strike the boy'

b.



One problem with this structure is that it seems to disobey Holmberg and Platzack's Generalisation that object shift only occurs when the verb has raised to AgrS (Holmberg and Platzack to appear). This generalisation is captured in the system of Chomsky 1992 via some technology that allows violations of the relativised minimality type only when a domain has been extended via head movement. In Chapter 7 we shall argue that there is an alternative means of extending the domain here thus permitting object shift.

3.8 Summary

In this chapter we have argued that the proper way to understand agreement phenomena in Celtic is to see the complementarity between overt arguments and agreement as arising because both the agreeing element and the argument are competing for the same slot in a morphological representation of the functional head Agr. Given this we derive a generalisation about how agreement works that justifies the analysis of a fronted object construction in SG as movement of the object to the specifier of an Agr position.

Chapter 4

A Theory of DP Interpretation

This chapter discusses issues in the interpretation of DPs. The central question to be answered is how to account for the systematic ambiguity of a particular class of DPs, which we shall term "weak" DPs, following Milsark 1977. An example:

(4.1) a. Many foxes are in the garden

b. There are many foxes in the garden

Example (a) has two readings: the cardinality of the set of foxes in the garden is many (whatever contextually that might mean), or the proportion of foxes from a larger set of foxes that are in the garden is many (typically this latter interpretation occurs with stress on the quantifier). In (b) the latter reading vanishes. We shall refer to this effect as the Quantification Effect. Cases such as the English existential, where a proportional reading is not available, we shall term a case of *Quantification Restriction*, extending terminology of Reuland and ter Meulen 1987. There are also cases where the cardinal reading is not available. We shall term these *Cardinality Restrictions*. A syntactic environment which enforces a cardinality restriction is the scrambled position in Dutch. For example, consider the following Dutch sentences adapted from de Hoop 1992:

(4.2) a. omdat Jan-Wouter altijd veel films mooi vindt
since Jan-Wouter always many films nice finds

b. omdat Jan-Wouter veel films altijd mooi vindt
since Jan-Wouter many films always nice finds
'since Jan-Wouter always likes two movies'

Both of these examples are grammatical with the reading of *veel films* 'many films' in the (a) example being ambiguous in the same way as the English example where "many foxes" is the subject in (4.1a) above. In the Dutch (b) example, the proportional reading is still available, but the reading where "many" is functioning as a cardinality predicate over the set of films is not available.

The actual nature of this ambiguity is unclear, particularly in terms of how to semantically characterise the proportional reading. One possibility would be to treat the proportional reading as arising from an interpretation of the DP as a generalised quantifier (Partee 1988). Another possibility would be to treat it as deriving from presuppositionality in some fashion, so that there is no syntactic ambiguity. Furthermore,

it is unclear where to specify the ambiguity: should it be specified lexically, or should there be twofold syntactic derivations leading two representations and ultimately to the two semantic interpretations?

The answers we shall give to these questions take up this chapter and the next. In this chapter we shall show that the appropriate characterisation of the ambiguity is given by appeal to the familiarity of the DP. That is, weak DPs are not interpreted variously as cardinality predicates and generalised quantifiers. They are always interpreted as cardinality predicates. However, when the set they predicate over is forced to be a presupposed or familiar set, the proportional reading arises, and this may happen either pragmatically or syntactically. The next chapter explores what the contributing syntactic factors are, and argues that a structural relationship with agreement is one of them.

4.1 Definiteness

English, and many other natural languages, mark a grammatical category of definiteness. Thus we contrast:

(4.3) a. A man entered.

b. The man entered.

The obvious question is what is the semantics of such expressions. Russell 1905 claimed that an expression like "a man" doesn't refer to anything but rather semantically is interpreted as an existential quantifier binding a variable of which the predicate *man* is true. The definite in (b), likewise is treated by assuming that there is an operator binding a variable and a uniqueness requirement that ensures that there is only one man such that that man entered:

(4.4) a. $\exists x(man(x)\ \&\ entered(x))$

b. $\exists x, \forall y(man(x)\ \&\ entered(y) \leftrightarrow x = y)$

Advantages of this account are that it immediately predicts the right truth conditions for sentences like:

(4.5) It's not the case that a man entered

If "a man" referred then this example would be read as a denial that a particular thing entered, and that thing was a man. However, it actually means that nothing that was a man entered. This is immediately predicted by the Russell account.

Such an analysis of the semantics of definiteness has a number of problems. Strawson 1952 pointed out that if indefinites don't refer then a difficulty arises for dialogues like:

(4.6) A man entered. He sat down.

If the DP "a man" is analysed as suggested by Russell, then we have to give an account of what the pronoun "he" refers to, since it can't refer to the same thing as "a man", because "a man" doesn't refer under this account.

In fact, such facts about antecedenthood are crucial for a proper understanding of the semantics of definiteness, as pointed out by Heim 1982. Note that definites and indefinites behave the same, in contrast to true quantifiers, with respect to pronominal anaphora:

(4.7) a. A man entered. He sat down.

b. The man entered. He sat down.

(4.8) *Every man entered. He sat down.

Definites and indefinites, then, do not seem to be best analysed as quantifiers. But it would also appear that they should not be analysed as referential expressions, given how they behave under the scope of negation, for example:

(4.9) a. It's not the case that a man came in.

b. It's not the case that Anson came in.

The indefinite in the (a) example here is clearly behaving non referentially (cf the discussion of (4.5) above), in contrast to the proper name in the (b) example.

We have here then a case where definiteness seems to be a third semantic category, as opposed to referentiality and to quantification. The question, of course, is what is the nature of this semantic category.

4.1.1 Discourse Representations

Karttunen 1976 provides a way of answering this question. He argues that as well as reference, there is an alternative concept, *discourse reference*, which can be appealed to. A DP refers via discourse reference to a *discourse referent* (DR), which acts as an intermediary between the syntactic category DP and the semantic category referent. A DP is associated with a discourse referent at a level of representation. A pronoun is also associated with a discourse referent. In some cases the discourse referent will be the same, and the result is that the pronoun is understood anaphorically to the DP.

This idea has been defended in detail by Heim 1982, Heim 1983 and Kamp 1981, and much subsequent work. They implement this idea by assuming a level of representation, a *discourse representation structure* (DRS) (termed a *file* by Heim) which contains a universe of discourse, and a set of constraints on that universe. The universe contains DRs and the set of constraints contains predicates which apply to the DRs.

The interpretation of a DRS is given by embedding that DRS in a model, of the familiar kind. The rule for accomplishing this states that a DRS is interpretable if there is a way of embedding it into a model. The import of *there is* here is that any DR which is not under the scope of a quantifier in the DRS will receive existential interpretation. In effect, it is as though the entire discourse is scoped over by an existential quantifier that binds any free DR in the DRS. Indefinites will receive existential force because of this.

One of the important advantages of this type of approach (Discourse Representation Theory (DRT) or File Change Semantics (FCS)) is that truth conditions can be given

for discourses, rather than just for sentences. This means that an account of cross-sentential anaphora can be given, as well as cases of anaphora where the antecedent does not c-command the pronoun.

Consider the following discourse:

(4.10) A man entered. He sat down.

DRT analyses this by assuming that the DP "a man" is associated with a DR. This means that the universe of discourse now contains a DR. A constraint on this DR is added to the set of constraints to the effect that it is true of whatever the DR ultimately refers to that it is a man and that it entered. Thus:

(4.11)

x
$man(x)$
$entered(x)$

Here the upper part of the box represents the universe of discourse, while the lower part represents the constraints. Each DP causes the introduction of a DR in the universe so the pronoun in the second sentence results in:

(4.12)

$x\ y$
$man(x)$
$entered(x)$
$sat - down(y)$

But what is the semantic contribution of the pronoun associated with the DR y? One possibility is that the pronoun refers to some entity that is in the DRS by virtue of some non-linguistic act, such as deixis. Another possibility, is that the pronoun is behaving anaphorically, and that both discourse referents refer to the same referent. Thus:

(4.13)

$x\ y$
$man(x)$
$entered(x)$
$x = y$
$sat - down(y)$

This DRS will be true if there is a means of embedding it in a model such that the model has individuals that correspond to the DRs and the relationships between those individuals in the model are compatible with the constaints in the DRS.

Turning to definites, these also can behave anaphorically. Thus:

(4.14) A cat and a dog were fighting. The cat miaowed.

The first sentence results in a DRS with two DRs. The DP in the second sentence is anaphoric, and so a condition is added which requires its DR to be equated with a DR of the first sentence. Thus:

(4.15)

$x\ y\ z$
$cat(x)$
$dog(y)$
$fighting(x\ \&\ y)$
$cat(z)$
$x = z$
$miaowed(z)$

This view of the semantics of indefinites has yet another advantage. It allows us to give an account of the meaning of sentences like:

(4.16) Every pig that found a truffle ate it

Here we want the quantifier *every* to have scope over the indefinite *a truffle*. Under standard accounts, where the indefinite is existentially bound, this is not possible. Under a DRT treatment we can allow the quantifier *every* to bind all free elements in its scope, including the indefinite and hence the pronoun. This provides a means of implementing Lewis's *quantification by cases* (Lewis 1975) where the sentence is essentially interpreted as:

(4.17) Always when a pig finds a truffle, it eats it

The binding of a free variable introduced by an indefinite by a quantifier that scopes over it is also termed *unselective binding*.

4.1.2 The Novelty Familiarity Condition

Given this model for dealing with the non-quantificational, but non-referential nature of definites and indefinites, the question arises as to how a definite and an indefinite differ. The answer seems to be that definites (including pronouns) are anaphoric, in that they must refer to a DR that is already established in the DRS. Indefinites, in contrast, cause the introduction of a new DR into the DRS. Definite descriptions differ from pronouns because they come with extra information attached; information which must be already available for the definite DP to be used felicitously.

An example: consider the following dialogue:

(4.18) a. A fireman entered the cafe.
b. All eyes turned to look at him.
c. The fireman ordered a coffee, and sat down

The first sentence contains an indefinite, which is interpreted as an instruction to create a discourse referent. The pronoun in the second sentence then refers to this discourse referent, as does the definite description in the third sentence. Pronouns require that there be a discourse referent for interpretation. Definite DPs, Heim argues, also require a discourse referent. Intuitively, the use of "the fireman" in the third example is licensed by the fact that there is an available discourse referent and that discourse referent already has some information attached to it: namely that it is a fireman. In Heim's

terms, definites presuppose their descriptive content. So the following discourse would violate this constraint under the interpretation where the indefinite and the definite expressions corefer:

(4.19) a. A fireman entered the cafe.
b. All eyes turned to look at him.
c. The man with the striking eyes sat down.

The requirement that pronouns and definite referring expressions require a discourse referent to be available, while indefinites require a DR to be new, is implemented by Heim by what she terms the Novelty-Familiarity-Condition (NFC). I provide a version here:

(4.20) Suppose something is uttered under the reading represented by ϕ and the discourse preceding ϕ has resulted in a discourse structure F. Then for every DP in ϕ it must be the case that:
Familiarity Clause (FC): the DR of DP must be in F if DP is definite, and
Novelty Clause (NC): it cannot be if DP is indefinite.
Otherwise, the utterance is not felicitous under this reading.

Heim's principle has to be slightly modified for our purposes. If we want to preserve the general rule that every DP introduces a DR, then definites must also introduce a DR, but that DR is equated with some preexisting DR, in contrast to indefinites. Firstly, the FC and NC here are given in rather intuitive terms based on the notions of a DR "of" a DP. Let us make this more explicit:

(4.21) A DP is associated with a DR iff the lexical content of the DP is identical to the restriction on the DR.

where the lexical content of a DP is just the main predicate of the DP. We can now state the NFC more precisely:

(4.22) **Revised NFC**
Suppose something is uttered under the reading represented by ϕ and the discourse preceding ϕ has resulted in a discourse structure F. F contains a set of DRs, $\mathcal{U}$. Then for every DP $\mathcal{D}$ in ϕ it must be the case that:
Familiarity Clause: If $\mathcal{D}$ is definite then there is a DR associated with $\mathcal{D}$ and that DR is identical to a DR in $\mathcal{U}$.
and
Novelty Clause: If $\mathcal{D}$ is indefinite then there is a DR associated with $\mathcal{D}$ and that DR is not identical to a DR in $\mathcal{U}$.
Otherwise, the utterance is not felicitous under this reading.

We will take the locution "identical to" here to mean that two DRs are identical just in case they both map onto the same individual in the model into which the DRS is embedded, that is all predicates true of the individual refered to by one DR are true of the individual refered to by the other DR[1]. "Identical to" is represented in the conditions of a DRS by the equality sign.

4.1.3 Discourse Representations and Non-Linguistic Information

An important point to note is that DRs may be in a DRS by virtue of non-linguistic acts, as well as linguistic ones. Heim 1982 (p405) quotes Karttunen 1968 on this point:

> Anything in the immediate environment of the speaker and hearer towards which their attention is directed becomes a discourse referent whether it has been explicitly mentioned or not.

the advantage of this view is that it singles out a property of definites which indefinites do not share: definites, but not indefinites, may be used deictically.

Thus a definite DP or a pronoun may be felicitously used in cases where the referent is singled out deictically. This means that, to preserve the generality of our system, deixis may result in the introduction of a DR into a DRS.

Consider, for example, a situation where someone walks into the room and I point at her and say:

(4.23) She's looking very grunge these days

Then my use of the pronoun is rendered felicitous by the fact that my act of deixis (pointing) has introduced a DR into the DRS. Context, in general, may affect the composition of a DRS.

In essence then, the act of deixis causes the construction of the following DRS:

(4.24)

x

Note that this DRS actually comes with a number of presuppositions attached to the DR. In this case the presuppositions are that the referent of the DR is female and that there is only one of her. In general the presupposed properties of the deictically introduced DR are a superset of the properties of the linguistically introduced DR that is taken to be familiar to it. In fact this superset is the minimal such superset, in oder that the utterance will satisfy Gricean conditions on felicity/Relevance. This will turn out to be important below.

The linguistic information then adds to this DRS in the following way:

(4.25)

$x\ y$
$looking - very - grunge(y)$ $x = y$

and the Familiarity Clause of the NFC is satisfied.

This means that we can view DRSs as representations built up from a conglomeration of contextual and linguistic information. In particular, DRSs may change without any imput of linguistic information.

[1] We abstract away from intensionality here.

4.2 Quantificational Status

Consider a sentence such as:

(4.26) Most pigs are lazy

Barwise and Cooper 1981 show that it is not possible to treat this sentence in terms of predicate logic by assuming that *most* is a quantifier just like $\forall$ or $\exists$. The problem is that *most* does not quantify over all the individuals in the domain but rather over just those individuals of which the predicate *pig* is true. In fact this is also the case for natural language determiners such as *every*, but the semantics of *every* is such that it makes no difference whether we consider a restricted or an unrestricted domain. Quantifiers that are restrictive like this are termed *generalised quantifiers*.

We shall not discuss generalised quantifiers in any great depth here (in particular we shall ignore their important model theoretic properties, see Barwise and Cooper 1981, Keenan and Stavi 1986), but the following points are important. As mentioned already, generalised quantifiers are relations between sets. The two sets that are relevant are the set (call it A) defined by the predicate of the DP containing the quantifier (the set of pigs, in the case of (4.26)) and the set (B) defined by the VP predicate (the set of lazy things, in the case of (4.26)). The generalised quantifier *most* says that if we have A then we can infer that most of the elements in A are also in B.

Generally, then, a sentence with a generalised quantifier can be represented by the quantifier itself, a restrictive clause defining A, and a nuclear scope defining B:

(4.27) Quantifier Restrictive-Clause Nuclear-Scope

4.2.1 Strong and Weak Determiners

An important distinction within the class of DPs is discussed by Milsark 1977. Milsark noticed that certain determiners, such as *every*, *most*, *each* were excluded from existential constructions with *there*:

(4.28) a. *There is every person in the garden
b. *There are most people in the garden
c. *There is each person in the garden

He termed these *strong* determiners. Other determiners are allowed in this environment (such as numerals, *several* etc) and Milsark termed these *weak*. Weak determiners are ambiguous, as we have already seen. Consider the following examples with *many*:

(4.29) a. Many people are in the garden
b. There are many people in the garden

As we have noted already, example (a) has two readings: there are a lot of people in the garden, or the proportion of people from a larger set who are in the garden is many. In (b) the proportional reading vanishes.

There are a number of accounts of the weak/strong distinction, many of them reliant on the fact that strong quantifiers are to a great extent coextensive with generalised quantifiers. The weak/strong distinction is then stated in terms of the model-theoretic properties of generalised quantifiers.

Some accounts of this Quantification Effect in existential sentences have been given which rely solely on these model-theoretic properties of strong quantifiers. For example, Barwise and Cooper 1981 claim that a semantically uninformative proposition arises from the interaction of the model-theoretic properties of DPs with strong quantifiers (strong DPs) interpreted as generalised quantifiers with the semantic requirements of existential sentences. This does not occur with DPs that have weak quantifiers (weak DPs), because these are not interpreted as generalised quantifiers. Keenan 1987 provides a similar account but one which is instead based on the model-theoretic properties of weak DPs.

One criticism that can be levelled at such accounts is that they seem to miss a generalisation. Proper names are also excluded from existential sentences, as are demonstratives and pronouns. Such elements do not seem amenable to analysis as generalised quantifiers[2], and the treatment of definite DPs as generalised quantifiers is subject to the criticisms, given above, of the treatment of definite DPs as quantificational at all:

(4.30) a. *There's Anson in the garden

b. *There's the man with the telescope in the garden

c. *There's that boy in the garden

d. *There's he/him in the garden

This data suggests that there is a Definiteness Effect, as well as, or subsuming, the Quantification Effect in existential sentences. It would be theoretically attractive if we could collapse these two effects by showing that the proportional reading of weak DPs and strong DPs in general are definite, or at least are semantically characterised by whatever characterises definiteness: ie familiarity. For such a treatment see Reuland 1985. One problem with this is just why true generalised quantifiers should be familiar.

4.2.2 The Ambiguity of Weak DPs

We have noted already that weak DPs are ambiguous. They can be read as cardinality predicates, or they can be read proportionally. Partee 1988 argues that this proportional reading is one where the weak DP is treated like a generalised quantifier, relating two sets. This means that we have two classes of DPs: strong DPs that are interpreted as generalised quantifiers, and weak DPs that are interpreted either as cardinality predicates or as generalised quantifiers. It is important to note that strong DPs cannot be read as cardinality predicates.

Another way of looking at this is to note that there seems to be a gap in the quantifiers natural languages provide. We have strong quantifiers which occur in DPs giving an exclusively proportional reading; we have weak quantifiers which occur in

[2] Although they may of couirse be assigned a generalised quantifier type, as Montague did. Of course Montague assigned indefinites this type too, so his treatment is not relevant to the empirical matter at hand.

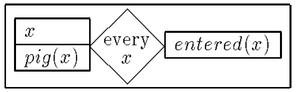
DPs that have proportional or cardinal readings; but there is no class of quantifiers that occurs in DPs which have exclusively cardinal readings. Empirically this cashes out in that we have a class of quantifiers that are barred from Quantification Restriction environments (Definiteness Effect environments) but there is no class of quantifiers that are barred from Cardinality Restriction (Anti-Definiteness Effect) environments[3]. Why should this be the case? In what follows I will suggest that there are in fact only two classes: proportional (strong) and cardinal (weak) and that the proportional reading of weak quantifiers arises from pragmatic facts. In one sense then weak quantifiers are not ambiguous, but rather vague—its just that the vagueness has only two possible values!

In DRT generalised quantifiers are represented by the creation of substructures of the DRSs. Heim's implementation of this idea creates tripartite structures consisting of a quantifier, a restrictive clause that carries the restrictions on the variables bound by the quantifier, and a nuclear scope, that carries the main predicate of the clause. Kamp's treatment is similar in that it creates a sub-DRS with two parts and a relating quantifier (Kamp's original treatment for *every* (Kamp 1981) which introduced a conditional and derived the quantifier reading via the DRS embedding rule is replaced by a more general treatment of generalised quantifiers by means of *duplex conditions* in Kamp and Reyle 1993).

We can represent this idea as follows:

(4.31) a. Every pig entered.

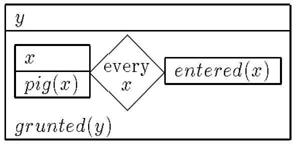
b.



The leftmost box represents the restrictive clause, the rightmost box represents the nuclear scope, and the diamond in between specifies what relation the generalised quantifier denotes, and what DR is quantified over. The substructures of the DRS are related by *accessibility*. This relation determines what anaphoric relations may obtain between DRs. In a generalised quantifier structure the main DRS is accessible from all subordinate DRSs, but subordinate DRSs are not accessible from the main DRS. Thus if we continue the above discourse with a pronominal, anaphoric reference is not possible:

(4.32) a. *Every pig entered. It grunted.

b.



Here it is not possible to relate x and y, because x is not accessible to y.

[3] There are classes of DPs that are barred from such environments and we will look closely at one such class in chapter 6 (Measure Phrases)—Gillian Ramchand (pc) has pointed out that classifierless nominals in Bengalli behave in a similar manner—but the important point is that there is no class of quantifiers/determiners.

If we assume that the restrictive clause is accessible to the nuclear scope then we have an account of the anaphoric reference in our earlier example of unselective binding. the motivation for this assumption is that the nuclear scope can be seen as an extension of the situation given by the restrictive clause (see Kamp and Reyle 1993):

(4.33) a. Every pig that found a truffle ate it.

b.
$$\begin{array}{|c|}\hline \begin{array}{|l|}\hline x\ y \\ \hline pig(x) \\ truffle(y) \\ found(x,y) \\ \hline \end{array} \left\langle \begin{array}{c} \text{every} \\ x \end{array} \right\rangle \begin{array}{|l|}\hline z \\ \hline ate(x,z) \\ y = z \\ \hline \end{array} \\ \hline \end{array}$$

Partee's analysis of *many* amounts to saying that it can be interpreted as a cardinality predicate or as a generalised quantifier, giving the following two DRSs (we abstract away from plurality for the moment):

(4.34) a. Many pigs entered

b.
$$\begin{array}{|l|}\hline x \\ \hline pig(x) \\ entered(x) \\ many(x) \\ \hline \end{array}$$

c.
$$\begin{array}{|c|}\hline \begin{array}{|l|}\hline x \\ \hline pig(x) \\ \hline \end{array} \left\langle \begin{array}{c} \text{many} \\ x \end{array} \right\rangle \begin{array}{|l|}\hline entered(x) \\ \hline \end{array} \\ \hline \end{array}$$

However, Partee's analysis simply stipulates that weak DPs are ambiguous between a cardinality and a generalised quantifier reading and brings us to the question of our gap. A more insightful account would give one meaning to a weak DP and then the other meaning would arise from the interaction of independent factors on the DP. Also, as we have already noted, treating weak DPs uniformly as generalised quantifiers and then appealing to the nature of generalised quantifiers to explain the quantification effect does not deal with cases where definites, demonstratives, pronouns and proper names behave as strong DPs, suggesting that familiarity is the correct notion to appeal to in explaining the restrictions on post-copular DPs in existential constructions.

Suppose that this is indeed the case. Then to rule out generalised quantifiers in existentials, we must treat generalised quantifiers as though they were subject to the Familiarity Clause of the NFC. But is there any evidence that a generalised quantifier requires a previously established DR for its interpretation?

In fact generalised quantifiers actually establish a DR by virtue of their lexical meaning and subsequently quantify over this DR. In the examples above the DR in the diamond box is established already in the restrictive clause. It is as though we suppose the DR in the restrictive clause to exist before being able to use it as a hook with which to relate the two sets (this is the standard existential presupposition associated with the restrictive clause of a generalised quantifier). We can claim then that generalised quantifiers are familiar by virtue of their lexical meaning (a similar claim is made by Reuland 1985). This means that we can appeal to familiarity to rule out generalised

quantifiers in the post-copular position of English existentials. We take up this point in more detail below.

Consider again weak DPs. These are ambiguous; they admit a proportional interpretation in cases where they are not subject to a quantification restriction. I propose that this proportional reading does not arise from the fact that weak quantifiers can be interpreted as generalised quantifiers and hence give rise to a tripartite structure at the DRS level, as does Partee. Rather, I suggest that the proportional reading of weak quantifiers occurs when some other factor has caused there to be a DR in the DRS to which the weak DP may refer. This will mean that we can maintain a unified familiarity account of existential sentences, while also not having to stipulate that weak quantifiers are ambiguous.

4.2.3 "Association" and Discourse Referents

So far we have assumed that the anaphoric link between definites and their antecedents is given by adding the condition that the DR introduced by the definite is identical to the DR introduced by some other DP. But the cases we considered already were cases with singular DPs and hence singular DRs. Let us assume that plural DPs introduce plural DRs (which are interpreted as plural individuals, perhaps along the lines of Link 1983). We will represent plural DRs by capital letters (this follows standard practice, following van Eijck 1983; we could just as well mark the discourse referent with features, as discussed in chapter 2). Thus:

(4.35) a. Some men entered.

b.
$$\begin{array}{|l|}\hline X \\ \hline men(X) \\ entered(X) \\ \hline \end{array}$$

Now anaphoric linkage to a plural DR typically does not need to assert identity of discourse reference, but rather just the weaker linkage of subsethood. Thus if we continue the discourse above, we want to allow possibilities that we refer to a DR with a definite but that DR only needs to eventually refer to some subset of the men who entered:

(4.36) a. Some men entered. The old men sat down.

b.
$$\begin{array}{|l|}\hline X\ Y \\ \hline men(X) \\ entered(X) \\ men(Y) \\ old(Y) \\ sat-down(Y) \\ Y \subseteq X \\ \hline \end{array}$$

Given this treatment of plural anaphoric linkage[4], we can provide an account of the proportional readings of weak DPs. Assume that the context, or some other factor, has caused there to be a plural DR entered in the DRS. We then have a structure like:

[4] Jeff Runner (pc) has pointed out that this treatment appears to allow anaphoric connection in **Some men entered. He sat down.* We can assume that this is ruled out since there is no way of identifying the unique referent of the pronoun, given the paucity of information that a pronoun carries.

(4.37) $$\begin{array}{|l|}\hline X \\ \hline \\ \hline\end{array}$$

Recall that there is a set of presuppositions that must be made of this DRS which is the minimal superset of the conditions attached to any linguistically introduced DR that will be familiar to X.

We then add to this DRS some linguistic information, such as a sentence containing a weakly quantified subject:

(4.38) Many men entered.

Now it is possible to construct an anaphoric link between the DR introduced by *many men* and the contextually introduced DR, as long as we do not assume that weak DPs are necessarily indefinite because of the Novelty Condition (say that they are not specified for definiteness). This will give us:

(4.39) a. Many men entered.

b. $$\begin{array}{|l|}\hline X\ Y \\ \hline many(Y) \\ men(Y) \\ entered(Y) \\ Y \subseteq X \\ \hline\end{array}$$

which gives rise to the proportional reading that many men of a preestablished set (now presupposed to be men) entered[5]. Crucially, we do not appeal to a generalised quantifier interpretation of the weak DP to achieve this reading. Rather we appeal to the independently motivated fact that DRSs are representations that can be affected by non-linguistic factors.

Recall that Familiarity was represented by the equality sign when we were discussing singular entities; here, discussing sets of entities, we have used the $\subseteq$ sign. With bare plurals on a generic reading one suggestion would be to treat the DP interpretation as plural individuals and use equality again. This suggests that we can use a neutral sign for the formal relationship of Familiarity at the DRS level, the interpretation of which is given via the embedding into the model. We also need some means to represent the presuppositions. We shall not discuss there representational issues in any more depth here but see Adger 1994b for more discussion and for an adaptation of Cooper and Kamp 1991 and Barwise and Cooper 1993's Extended Kamp Notation to these purposes. We shall continue to use the $\subseteq$ sign here.

Van Eijck (1983) (see also van Eijck 1985) notes another type of anaphoric reference that he terms C(ommon) N(oun) anaphora. CN-anaphora involves cases where a plural pronoun is used to refer back to a class of things introcuced by a common noun. Thus consider (adapted from van Eijck 1983):

[5]This discussion highlights the inappropriateness of the term presupposition here. What I am referring to is the set of assumptions that has to be made pre or post utterance in order for the utterance to be judged felicious.

(4.40) The chimp fell ill yesterday. He's on death's door. They don't adjust easily to our climate.

Here the pronoun *he* refers to the particular chimp already introduced, while the pronoun *they* refers to a class of chimp's introduced. Van Eijck notes that pronouns that establish CN-anaphora are always plural. He captures this fact by assuming that what amount to strong DPs introduce two DRs: one is syntactically unspecified for number and associated with the common noun head of the DP, and the other is syntactically specified for number, and is associated with the DP itself. Weak DPs, on the other hand, introduce one DR, unspecified for number. Van Eijck claims that whenever a CN-anaphoric link is established there is a presupposition that the set denoted by the common noun is of a cardinality greater than 1. In the cases we are interested in, this means that the DR unspecified for syntactic number associated with the common noun of a strong DP will be semantically plural. Thus the previous example would be schematically:

(4.41) $$\begin{array}{|l|}\hline x\ X\ y\ Z \\ \hline chimp(X) \\ x \subseteq X \\ fell-ill(x) \\ y = x \\ on-death's-door(y) \\ Z = X \\ don't-adjust(Z) \\ \hline\end{array}$$

If it is the case that strong DPs generally introduce two DRs, then we can begin to explain why definites, strong quantifiers etc are subject to the definiteness effect in existential sentences.

In the example above the DR that the DP *the chimp* is associated with is specified as being $\subseteq$ the plural DR introduced by *chimp*. We then define familiarity as:

(4.42) α is familiar iff there is a DR ξ and the DR y associated with α is $\subseteq \xi$ (where ξ is a variable ranging over singular and plural DRs).

where ξ is an antecedent DR, and we state:

(4.43) **Definiteness Restriction:** The DP in the postcopular position of an existential cannot be familiar.

Strong DPs will always be familiar since they introduce a DR that is $\subseteq$ the DR associated with the common noun of the DP. Weak DPs, however, do not introduce such a DR and therefore are not necessarily familiar.

Returning to Milsark's examples, note that if the definiteness effect is explained in terms of familiarity as above, then we expect only to find the cardinal reading of weak DPs in the post-copular position, because post-copular DPs are necessarily unfamiliar. This, as we have already noted, is the case:

(4.44) There are many foxes in the garden (cardinal reading only)

One final point should be made about indefinites. These are weak DPs by Milsark's definition:

(4.45) There is a fox in the garden

but they may have proportional readings:

(4.46) Anson talked to a student in the science faculty

Here we can either mean one particular student out of the set of students in the science faculty, or just some student in the science faculty. The former reading is the specific indefinite reading, discussed by Fodor and Sag 1982, Enç 1991, among others. We discuss this in more detail below.

4.2.4 Definiteness Features in the NFC

The NFC as we have formulated it so far relies on lexically specified features of a DP which then determine whether that DP is required to be familiar or unfamiliar to make the utterance felicitous. But the analysis we have just given of weak DPs requires that these DPs are not specified for definiteness features. Furthermore, we have tried to derive the familiarity status of generalised quantifiers not from particular features specified on the DP, but rather from the lexical semantics of the quantifier itself and the structural realisation of that semantics.

One way of formalising this idea would be to reformulate the NFC so that the Novelty Condition was completely general, and then the Familiarity Condition acted as a special case. This is motivated by the treatment of weak quantifiers we have given above, where familiar readings of weak DPs arise from contextual factors. We can thus state the NFC as:

(4.47) **Revised NFC**
Suppose something is uttered under the reading represented by ϕ and the discourse preceding ϕ has resulted in a discourse structure F. F contains a set of DRs, $\mathcal{U}$. Then for every DP $\mathcal{D}$ in ϕ it must be the case that:
Novelty Clause: there is a DR associated with $\mathcal{D}$
and
Familiarity Clause: If $\mathcal{D}$ is definite then the DR associated with $\mathcal{D}$ is $\subseteq$ a DR in $\mathcal{U}$.
Otherwise, the utterance is not felicitous under this reading.

where $\subseteq$ is interpreted as discussed above. Generalised quantifiers do not need to be included in the FC because their lexical semantics requires them to be familiar.

What about the other cases of DPs: definite descriptions, proper names, demonstratives and pronouns? The formulation of the NFC given here supposes that these elements are specified lexically as definite. Should they be, though? It would seem that this question is best answered in a language particular fashion, since many languages do not mark the category of definiteness explicitly at all. In the next chapter we will argue that a structural relationship with agreement is a determinant of familiarity in many cases (and is actually therefore directly implicated in the formulation of the NFC).

4.3 Some Alternatives

We now consider briefly some alternatives to the treatment proposed here. These alternatives are of two sorts. The first type assumes that weak DPs can be given a generalised quantifier interpretation, and are subject to the criticism that they do not fully explain the definiteness effect in existentials, and the corresponding indefiniteness effect in Dutch scrambling constructions. The second alternative is much closer to my own, and derives the weak DP ambiguity from the NFC, but only via a stipulation that weak DPs are lexically ambiguous.

4.3.1 A Type-Theoretic Account

In her treatment of the ambiguity of weak DPs, de Hoop 1992 relies on Partee 1987's idea that DPs may shift their semantic type between $\langle e \rangle$, $\langle e,t \rangle$ and $\langle e,\langle e,t \rangle\rangle$. She argues that the Dutch cardinality restriction on scrambled objects (and non-expletive subjects) results from strong case being assigned to these positions. Strong Case causes a type shift in the type of the DP, rendering it $\langle e, \langle e, t \rangle\rangle$. Thus:

(4.48) a. omdat Jan-Wouter altijd veel films mooi vindt
since Jan-Wouter always many films nice finds

b. omdat Jan-Wouter veel films altijd mooi vindt
since Jan-Wouter many films always nice finds
'since Jan-Wouter always likes many movies'

The weak DP in (a) is simply of type $\langle e \rangle$. Scrambling moves this DP to a position that is stipulated to be assigned strong case, and hence it becomes of type $\langle e,\langle e,t \rangle\rangle$. Given that its type has changed to the type of a generalised quantifier, it is interpreted as such, resulting in a proportional reading, à la Partee.

This treatment seems fairly well motivated by the facts of Dutch scrambled objects. The scrambled object is always treated as a strong DP. One problem is that definites, proper names, demonstratives etc are well formed in this position too, and it is not clear that we want to treat all of these elements as generalised quantifiers semantically. However, it would be possible to appeal to Partee's type shifting principles to accomodate this fact. A more serious problem is that a definite is possible in a non-scrambled position, which, on de Hoop's story, is a weak case position and hence cannot have a generalised quantifier type:

(4.49) a. dat de politie gisteren de taalkundigen opgepakt heeft
that the police yesterday the linguists arrested has
'that the police arrested the linguists yesterday'

b. dat de politie de taalkundigen gisteren opgepakt heeft
that the police the linguists yesterday arrested has
'that the police arrested the linguists yesterday'

De Hoop claims that the unscrambled definite can have type $\langle e \rangle$ while the scrambled definite has type $\langle e,\langle e,t \rangle\rangle$. However, it is unclear what the semantic correlation here is.

Furthermore, although in (b) the only possible reading is a proportional one, in (a) both proportional and cardinal readings are available, just as both readings are available for English subjects. On de Hoop's story, this means that the unscrambled object must be able to type shift. De Hoop claims that it is simply of type ⟨e⟩, but this does not explain why it can have the same reading as the scrambled object which is of type ⟨e,⟨e,t⟩⟩.

On the analysis presented above, the stipulation (which we will derive in the next chapter) is simply that scrambled objects must be familiar. The ambiguity of non-scrambled objects falls out simply because there is no restriction on this position, meaning that the weak DP can be proportional in appropriate contexts, or cardinal.

4.3.2 Semantic Partition

Diesing 1992 proposes an analysis of weak DPs that develops Partee's. She claims that, at, LF quantifiers give rise to a tripartite structure of the type that Heim has argued for. She also claims that there is a straightforward mapping that obtains between syntactic structure and this quantificational structure. We shall examine in more detail the nature of the mapping later, but the basic idea is that elements in VP map into the nuclear scope, while elements in IP map into the restrictive clause. This means that weak DPs, to get a generalised quantifier reading, must raise to adjoin to IP at LF and then their quantifier must raise further to give the tripartite structure. This tripartite structure is then interpreted via a generalised quantifier giving the relational and hence proportional interpretation. Additionally, weak DPs that are in subject position (which is assumed to be a derived position (Koopman and Sportiche 1989)), must lower to their D-Structure VP-internal position at LF in order not to be within IP when it comes to constructing the quantificational structure. This means that they will not get interpreted as generalised quantifiers. Thus:

(4.50) Many men entered

(4.51) a. **S-Structure:** $[_{IP}\ [_{DP}$ many men$]_i\ [_{I'}$entered$_j\ [_{VP}\ t_i\ [_{V'}\ t_j]]]]$

b. **LF1:** $[_{IP}\ [_{DP}\ e]_i\ [_{I'}$entered$_j\ [_{VP}\ [_{DP}$ many men$]_i\ [_{V'}\ t_j]]]]$

c. **LF2:** $[$many$_k\ [_{IP}\ [_{DP}\ t_k$ men$]_i[_{IP}\ t_i[_{I'}$entered$_j\ [_{VP}\ t_i\ [_{V'}\ t_j]]]]]]$

We will show in the next chapter how Diesing's Mapping Hypothesis is straightforwardly falsified by some interesting data from Catalan. At the moment, it suffices to note that Diesing's approach relies on the construction of a generalised quantifier structure for weak DPs on their proportional reading. Why weak DPs may remain in (or rather lower to) their base generated position, while strong DPs may not, is unclear.

4.3.3 Specificity

Enç 1991 provides an analysis of the semantics of specificity which essentially claims that specifics are partitives. That is, a specific reading of a DP arises when that DP is one out of a familiar set already established in the discourse. Enç's analysis is very similar to the one proposed here, as far as weak DPs go.

Enç's motivation is to provide a semantics for specificity that is not reliant on scopal properties of the sentence as is claimed by Fodor and Sag 1982 among others. Fodor and Sag claim that the specific reading of an indefinite simply derives from it having wide scope over some other operator. Thus:

(4.52) Every woman talked to a child in fifth grade

has two readings: one where there is a single child to whom every woman talked, and another where the child may vary from woman to woman. Enç shows that specific readings arise also when there are no operators in the sentence for an indefinite to take scope over and proposes instead that specificity has to do with linking to a discourse referent. Some evidence from this comes from Turkish, where specifics are marked by accusative case:

(4.53) a. Ali bir piyano-yu kiralamak istiyor.
Ali one piano-Acc to-rent wants
'Ali wants to rent a specific piano'

b. Ali bir piyano kiralamak istiyor.
Ali one piano to-rent wants
'Ali wants to rent some piano or other'

Enç notes that in (a) the indefinite can have wide scope over the propositional attitude verb, but that it can also have narrow scope. She argues as follows:

> Suppose that (a) is uttered in a context where it has been established that Ali has decided to take home two of the pianos in a showroom. He does not care which one he buys or which one he rents. In these circumstances (a) can still be true.

This suggests that specific means essentially "from a pre-established set". Enç goes on to defend the view that accusative indefinite objects in Turkish are subject to a more articulated version of the familiarity condition of the NFC. For the purposes of this thesis, it is only important to note that Enç proposes that specific indefinites are familiar.

Enç's theory is very similar to that offered here, although her concerns are different, and the motivation for some of the components of the two theories are different. For example, Enç stipulates as a universal principle that all quantifiers (meaning generalised quantifiers) are specific, which in her system means they must refer to subsets of previously established discourse referents. This stipulation is derived in the present theory from the tripartite form of generalised quantifiers. Also, Enç does not make use of the idea that DRSs encode non-linguistic information and hence she is forced to require that weak DPs are ambiguously marked in the lexicon. The theory under consideration here requires no such lexical ambiguity but proposes instead that the ambiguity arises from the generality of the Novelty Condition. Pragmatic factors then influence the final interpretation. In fact, as we shall show in the next chapter, syntactic factors also influence the interpretation of weak quantifiers, a fact that comes as no surprise given the existence of the quantification effects in existentials and scrambling constructions.

4.4 Summary

We have proposed that the ambiguity of weak DPs surfaces because of the nature of DRS representations. Specifically, DRSs may contain DRs which are there by virtue of contextual fact, rather than linguistic specification. Proportional readings of weak DPs then arise because of the possibility of anaphoric linkage (in a very general sense of anaphoric) between the DR introduced by the weak DP and the contextually present DR.

The Novelty Familiarity Condition applies generally to all DPs requiring them to introduce a DR. Definites, in addition, are required to anaphorically link this DR to a DR already present in the DRS. In this sense, definites are required to be familiar. Generalised quantifiers also count as familiar, given the nature of their lexical semantics. This is not a familiarity that arises from the Familiarity Condition, but rather through the meaning of the generalised quantifier.

Given this picture, we can give a unified account of the quantification/definiteness restiction on the postcopular position in English existential constructions, merely requiring that the DP in this position is unfamiliar (but see Ward and Birner 1993 who claim that the DP in this position need only be unfamiliar to the hearer).

Chapter 5

Agreement and Argument Interpretation

5.1 Introduction

We have so far motivated the idea that the agreeing element and the agreement controlling DP specify information about a discourse referent through the mediation of a projected functional head Agr, and this is what accounts for the fact that agreement has semantic effects. We have also shown that the determination of the semantics of DPs is partially given by refering to notions such as familiarity. In this chapter we will try to tease out what the role of agreement is more precisely in the determination of familiarity. We will argue for the inclusion of reference to Agr in the principles that specify how DPs are interpreted in a DRS.

We bring into consideration a range of evidence that shows that weak DPs, which we have shown to be ambiguous, often have only their familiar interpretation and that this is forced in particular syntactic contexts. It turns out that these contexts are best described in terms of the structural relationship between the DP involved and Agr. This suggests reformulating the Novelty Familiarity Condition as a condition that takes into consideration syntactic structure, as well as other information.

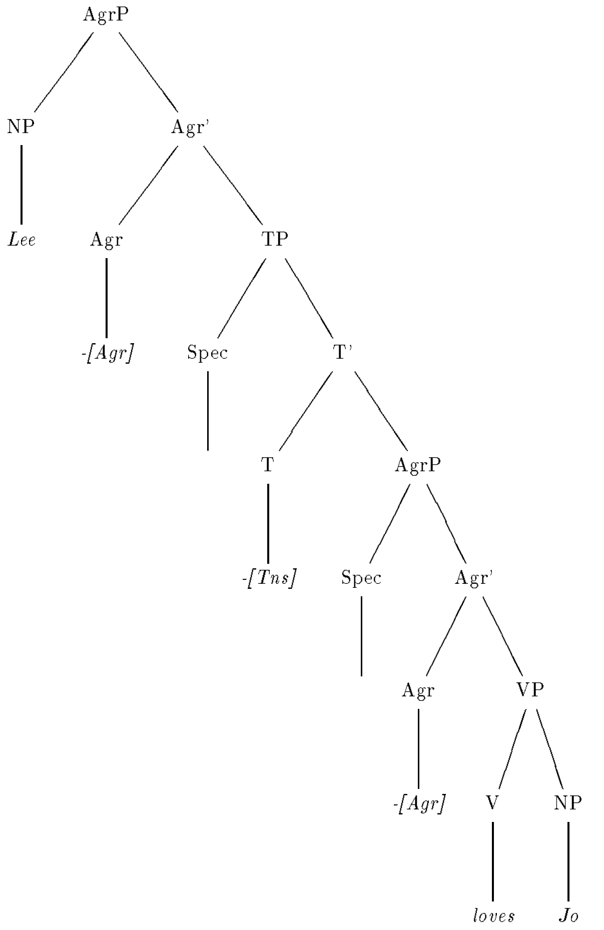
The precise characterisation of how syntactic structure is implicated then remains an open question. One possibility is to appeal to notions based on global position within a tree; elements within particular stretches of a tree being given certain interpretations. Another possibility is to appeal to local position within a tree, where the position is determined by a local governor. We show that the former position is untenable, given certain crucial data from Catalan, and propose instead to determine the structural position of the DP in terms of its local relationship with Agr.

5.2 Agr Partially Conditions Familiarity

In this section we consider a number of cases where two alternative syntactic forms are available. In one form the object DP can be found in what can be assumed to be its base (VP-internal) position; In the other, the object DP occurs in a derived position, external to VP. In terms of thematic content, both forms are the same. However, in terms of the familiarity of the DP, the derived position determines that the DP will be interpreted as familiar (in the sense of the previous chapter).

Consider again the clause structure we proposed in chapter 2:

(5.1)



Note that the AgrP dominating VP has a specifier position, that according to Chomsky 1992 is associated with assigning structural Case to the object (in some languages at LF, in others at S-Structure (pre-Spellout, in Chomsky's terms)). Given the clause structure above, this spec AgrP position is the natural position to assume as the site of a derived object, although other possibilities exist (the derived object could be adjoined to VP, or AgrP, for example).

The cases that follow will all involve the displacement of the object to a VP-external position. In some cases the VP-externality is clear, and we will assume that the position is spec AgrP (bringing supporting evidence to bear, where it is available). In other cases the agreement is clear, and we will suggest that the VP externality derives from this,

given the natural assumption that agreement is triggered under the standard spec-head regime when a DP is in the spec AgrP position.

We will also assume that Chomsky is correct in identifying the spec AgrP position with structural Case assignment. One motivation for this is that it generalises the structural case positions for subjects and objects.

5.2.1 Turkish Accusative Objects

Recall the facts that we noted about Turkish, in the previous chapter. We accepted Enç's analysis of the fact that specific indefinites were marked by accusative case, while non-specifics were unmarked. This analysis was essentially that specific indefinites had to be familiar.

de Hoop 1992 cites further data from Turkish, which shows that the case marked indefinites (hence the specific/familiar indefinites) are in a VP external position. She provides the following paradigm:

(5.2)
a. ben dün akşam [$_{VP}$çok güzel bir biftek [$_{VP}$yedim]]
   I yesterday evening very nice steak ate
   'Yesterday evening, I ate a very nice steak'
b. * ben çok güzel bir biftek dün akşam [$_{VP}$yedim]
   I very nice steak yesterday evening ate
   'Yesterday evening, I ate a very nice steak'
c. Ben bifteg-i [$_{VP}$dün akşam [$_{VP}$yedim]]
   I steak-Acc yesterday evening ate
   'Yesterday evening I ate the steak'

If we assume that adverbial expressions such as *dün akşam*, 'yesterday evening' are adjoined to VP as shown above, then this data shows that the non-case marked object DP cannot appear in a VP-external position. A case marked object, on the other hand, can appear in the derived position. Note also the difference in interpretation between the (a) and (c) examples. The VP internal object is interpreted as unfamiliar (although it may receive familiar interpretation if the context is appropriate), while the VP-external object is familiar. Note that we can also make sense of the case-marking facts given the idea that spec AgrP is associated with structural case marking. Thus, assuming that the position of the derived object is spec AgrP gives us a unified story to account for why the derived object is VP-external and case-marked.

The important point, though, is that the derived object is interpreted as familiar. A very similar argument which assumes a different theory of DP interpretation is given by Runner 1993.

5.2.2 Clitic Doubling in Porteño Spanish

Runner 1993 also notes that clitic doubled objects in Porteño Spanish are necessarily interpreted as specific. He provides the following contrast[1]:

[1]There is a further restriction that only human objects may be doubled. This does not affect this argument.

(5.3) a. Diariamente, la escuchaba a una mujer que cantaba tangos.
Daily, 3sg-fem he/she-listened-to A a woman that sang tangos
'Daily, he/she listened to a (specific) woman who sang tangos'

b. No (*lo) oyeron a ningún ladrón.
Not 3sg-masc they-heard to any theif
'They didn't hear any theives'

The fact that the clitics associated with doubled NPs are agreement markers in this dialect of Spanish is argued for in detail by Suñer 1988. In this case it is not immediately clear that the DP object is in a derived position (although it does receive different case marking from non-clitic doubled object) because V has raised through the various functional projections in the clause, obscuring the position of the object. However, under the assumptions outlined already, agreement is triggered when the object DP is in spec AgrP. This means that the appropriate analysis of (a) would be one where the object DP raises to spec AgrP and triggers the agreement marker *la*. The V also raises, in this case to AgrP, picking up the agreement marking, and then successively raising through T and the subject Agr position.

Again, the special case marking of the object here (with the particle *a* (glossed 'A')) can be explained under the idea that the spec AgrP position is associated with structural case marking.

This data is then further evidence that the spec AgrP position for objects is associated with a familiar interpretation of that object.

5.2.3 Scrambling in Dutch

Further evidence that syntactic information is relevant to interpretation comes from scrambling facts in Dutch. We have already noted that objects may be displaced over adverbials in Dutch and that this correlates with a familiar interpretation (see also Moltmann 1991 for similar data on German, also de Hoop 1992 and Sportiche 1993 for Dutch). In Dutch, VP adverbs are generally taken to be fixed and to delimit the scope of VP. Arguments of the verb that occur outside of a VP adverb can then be taken to have scrambled across the VP. Objects that undergo this shift in position receive a familiar interpretation (see Reuland 1988 for data on subjects). We repeat our former examples of object scrambling, taken from de Hoop 1992:

(5.4) a. omdat Jan-Wouter altijd twee films mooi vindt
since Jan-Wouter always two films nice finds

b. omdat Jan-Wouter twee films altijd mooi vindt
since Jan-Wouter two films always nice finds
'since Jan-Wouter always likes two movies'

Along the same lines that we argued for Turkish, this scrambling phenomena may be analysed as movement to spec AgrP (see Mahajan 1990, Webelhuth 1989 for explicit argument to this effect and van den Wyngaerd 1989 for a suggestion for how to deal with the apparently problematic fact that scrambling licenses parasitic gaps).

A further argument that scrambling in Dutch may be seen as movement to the Spec of AgrP comes from the placement of weak pronouns in this language. Stressed

pronouns are possible in scrambled and in situ positions, but weak unstressed pronouns occur only in scrambled position:

(5.5) a. omdat Tonjes HEM gistern gezien heeft
since Tonjes him yesterday saw has

b. omdat Tonjes gistern HEM gezien heeft
since Tonjes yesterday him saw has

(5.6) a. omdat Tonjes 'm gistern gezien heeft
since Tonjes him yesterday saw has

b. * omdat Tonjes gistern 'm gezien heeft
since Tonjes yesterday him saw has
'since Tonjes saw him yesterday'

Assume that weak pronouns are actually heads heading an Agr projection and this paradigm is accounted for. Unlike clitic doubling in Romance, these agr projections only allow *pro* in their Spec (much like Celtic)). They appear in what looks like scrambled position simply because that is the position of Agr in the phrase structure. Strong pronouns, on the other hand are just like DPs. See Sportiche 1993 for a related proposal and more evidence.

The interpretational differences then provide us with further evidence that spec AgrP is associated with familiar interpretation.

5.2.4 Antecedent Contained Deletions

A further argument that familiar interpretation is determined by syntactic position comes from the phenomenon of Antecedent Contained Deletions (ACDs). Sag 1976 and Williams 1977 argue that ACDs require that certain conditions on representation hold at LF. ACDs are a variety of standard VP-deletion of the sort shown below:

(5.7) Anson saw some films and Jenny did too

Sag claimed that a general constraint on such VP-deletion was that the missing verb (marked by *do*) is neither c-commanded by nor c-commands its antecedent.

In ACD constructions, however, this constraint does not appear to hold:

(5.8) Anson saw every film that Jenny did

Here, the matrix verb c-commands the deletion site. Furthermore, if we try to interpret such structures by copying the missing VP into the deletion site we are left with the problem of an infinite regress:

(5.9) [$_{\text{IP}}$ Anson saw [$_{\text{DP}}$ every film that Jenny [$_{\text{VP}}$ e]]]

(5.10) [$_{\text{IP}}$ Anson saw [$_{\text{DP}}$ every film that Jenny [$_{\text{VP}}$ saw [$_{\text{DP}}$ every film that Jenny [$_{\text{VP}}$ saw [$_{\text{DP}}$ every film that Jenny [$_{\text{VP}}$]]]]]]] etc

One way to get out of this problem would be to assume that the object moves outside of the VP at some level of representation, either to the left or to the right. Thus:

(5.11) a. $[_{DP}$ every film that Jenny $[_{VP}$ e$]]_i$ $[_{IP}$ Anson saw $t_i]$

b. $[_{IP}$ Anson $[_{VP}$ saw $t_i][_{DP}$ every film that Jenny $[_{VP}$ e$]]_i]$

In such structures the c-command constrain is met, since neither of the matrix VP or the embedded VP c-commands the other. Furthermore, there is no problem with copying the matrix VP into the VP inside the displaced object:

(5.12) a. $[_{DP}$ every film that Jenny $[_{VP}[_{VP}$ saw $t_i]]]_i$ $[_{IP}$ Anson $[_{VP}$ saw $t_i]]$

b. $[_{IP}$ Anson $[_{VP}$ saw $t_i][_{DP}$ every film that Jenny $[_{VP}[_{VP}$ saw $t_i]]]_i]$

There are two such proposals in the literature; one due to May and one to Baltin.

May 1985 suggests that the independently motivated device of QR resolves the problem of ACDs. QR takes a quantified DP and raises it to adjoin it to IP for reasons of scope. Note that for ACDs this will mean that the c-command constraint is maintained:

(5.13) $[_{IP}$ [every film that Jenny $[_{VP}$ e$]]_i$ $[_{IP}$ Anson saw $t_i]]$

Here the deleted V and the matrix V are not in any c-command relationship. Moreover, the problem with an infinite regress no longer holds since we can copy the matrix VP into the VP inside the raised DP as shown above.

The alternative, that there is rightward movement is proposed by Baltin 1987. Baltin argues that ACDs are best analysed as string vacuous extraposition, which means that no appeal to abstract LF operations is necessary. In his account just the relative clause part of the ACD moves out of the VP giving rise to a structure like the following:

(5.14) $[_{IP}$ Anson $[_{VP}$ saw every film$][_{CP}$ that Jenny $[_{VP}$ e$]]]$

This kind of structure still allows the maintenance of the c-command constraint and a way of sidestepping the infinite regress problem. Moreover it is independently motivated by overt extraposition structures. Extraposition standardly arises in cases like:

(5.15) a. Some articles that were hostile to the practice of outing appeared in the Guardian.

b. Some articles appeared in the Guardian that were hostile to the practice of outing.

Under Baltin's treatment, ACDs are simply cases where extraposition has taken place from the object position, but it is invisible, in that the structural change has no phonological effect.

However, Larson and May 1990 argue that this analysis suffers from the fact that ACDs differ in their internal syntactic composition from extraposed relatives in a number of ways. In addition, Diesing 1992 provides a further argument against Baltin's proposal based on the fact that extraposition of free relatives is impossible, while ACD

free relatives are well-formed. Thus consider the free relative in the following (a) example:

(5.16) a. Whatever piano Clara played needs tuning

b. *Whatever piano needs tuning Clara played

c. *It needs tuning whatevver piano Clara played

Note that we can't extrapose the relative clause, whether it is construed as adjoined to $\overline{\text{N}}$ in (b) or internally headed (with a dummy subject) in (c). ACDs however, form free relatives easily:

(5.17) Robert played whatever piano Clara did

Furthermore, extraposed relatives are ill formed with obligarorily strong quantifiers, while ACDs appear to require them (Reinhart 1987, Carlson 1977b, Diesing 1992):

(5.18) a. I read every book that you did

b. I read many books that you did (only strong quantificational reading)

(5.19) a. *Every review appeared in Vanity Fair that was hostile

b. Many reviews appeared in Vanity Fair that were hostile

Given these arguments, Larson and May and Diesing conclude that the QR account of ACD which involves leftwards movement of the DP object is best supported.

However, an alternative is possible that makes use of leftward LF movement but not necessarily QR. Recall that we assume a system based on Chomsky 1992 in which all NPs must be in the specifier of AgrP at LF for reasons of Case. Hornstein 1993 notes that if an ACD object is in the specifier of AgrO at LF, it will be in the correct configuration to both satisfy the c-command constraint and escape the infinite regress problem, since it is outside of the VP antecedent. The following structure is relevant:

(5.20) $[_{IP}$ Anson $[_{AgrP}[_{DP}$ every film that Jenny $[_{VP}$ e$]]_i$ $[_{Agr'}$ Agr $[_{VP}$ ate $t_i]]]]$

Now given this idea, consider again the data where we have a weak DP object in an ACD (5.18b). This weak DP object can only have a familiar interpretation. Similar examples occur with other weak quantifiers:

(5.21) Anson saw some/few/a film(s) that Jenny did

Note that this interpretational effect is not due to the relative clause, since relative clauses do not generally force a familiar interpretation on their DP:

(5.22) Anson saw many films that lasted two hours

If the account of ACDs where the object moves to spec AgrP is well-motivated, thevn we have further evidence that the specifier of AgrP correlates with a familiar interpretation of objects.

Hornstein's analysis essentially decouples quantifier raising and ACDs and there is evidence that this is the correct move. One of Lasnik and May's criticisms of the extraposition account is that it provides no way of accounting for the contrast between the following sentences:

(5.23) a. *I expect everyone you do will visit Mary
b. ?I expect everyone you do to visit Mary

since neither involve extraposition. The explanation they offer is that QR is bounded and cannot raise the embedded subject from a tensed clause but that it can raise the subject from the non-finite clause. They motivate this with the following data:

(5.24) a. At least one person expected every Republican would win
b. At least one person expected every Republican to win

In the (a) example it is not possible to interpret the universal with wide scope over the existential quantifier, but this is at least marginally possible in the (b) example, motivating that QR is bounded by tensed clauses. However, there is a problem since there is also a contrast in the following examples:

(5.25) a. At least one person considered every semantor to be smart
b. At least one person considered every senator smart

Problematically for Lasnik and May, the universal in the (b) example cannot take scope over the existential subject, suggesting that QR is ruled out. If QR is ruled out, then ACDs should not be possible, predicting the illformedness of:

(5.26) I consider everyone you do smart

A prediction which is not borne out. Hornstein's analysis derives the contrast between tensed and ECM ACDs since ECM constructions involve raising of the lower subject to the spec of the matrix AgrOP. This is obviously illicit in cases where there is a tensed CP since there will be no motivation for the raising (the subject is case marked by Tense/AgrS in the lower clause) leading to a violation of Economy principles. Hornstein has no analysis of the scope facts above, but he does predict the well-formedness of (5.26), in opposition to Lasnik and May.

Given these arguments we can see the obligatorily proportional readings of weak quantifiers in ACD constructions as being another instance of Agr conditioning familiarity.

5.2.5 Specificity in French

Another argument to the same effect comes from French past participle agreement. Kayne 1989 and Chomsky 1991 (drawing on Kayne's work and Pollock 1989) argue that the French past participle agreement phenomenon in (5.27) is a result of the trace of the moved Wh-Phrase being in a government relation with the functional head Agr :

(5.27) Je me demande quelles chaises Paul a t'_i Agr repeintes t_i?
I refl ask which chairs Paul has t Agr repaint-PPart-Agr3f.pl
'I wonder which chairs has Paul repainted?'

In current terms the past participle *repeintes* moves into the Agr node and its agreement features are picked up from/checked with those of the chain in which the trace t'_i is contained (the chain headed by the moved wh-Phrase). The motivation behind this is to attempt to assimilate past participle object agreement with the more familiar subject-Infl agreement where the necessary government relation is the specifier head relation (perhaps defined in terms of m-command rather than c-command). If this pre-Agr position is available in (5.27), however, the question arises as to how to rule out:

(5.28) * Paul a [ces tables]$_i$ repeintes t_i
Paul has these tables repaint-PPart-Agr3m.pl
'Paul has repainted these tables'

Kayne suggests that this is essentially a violation of a Case-requirement. He proposes the following principle:

(5.29) (Kayne's (20)) If a Case-marked chain is headed (where the head is the first element in the chain – DJA) by an A-position, then that A-position must be assigned Case.

If we take the specifier of AgrP to be an A-position, (5.28) will be ruled out if SpecAgrP is not assigned Case. Kayne shows that the auxiliary *avoir* is indeed not a Case-assigner and that the active past participle does assign Case, but to its right. It follows that the SpecAgrP is not assigned Case by either *avoir* or the participle so that the chain (ces tables$_i$, t_i) in (5.28) is not headed by a Case marked position. Note that Kayne does not consider the possibility that SpecAgrP is actually assigned Case by Agr itself, which would be the most natural assimilation to subject-Infl agreement.

Kayne then pursues this idea in connection with (5.27). In (5.27), the wh-Phrase is an operator and therefore not relevant for the application of (5.29). Of the remainder of the chain, by (5.29), if it were headed by an A-position, then that A-position would have to be Case-marked. But we know that that position is not Case-marked (leaving aside Agr here) and so it cannot be an A-position. Kayne therefore takes it that the trace t' in this example is adjoined to AgrP, and that this is the government configuration that triggers agreement.

One major problem with this view is that it makes subject-Infl and past-participle agreement dissimilar to the extent that one is adjunction to XP while the other is substitution into the specifier of XP. Also, there seems to be nothing in Kayne's system that would rule out the possibility that *ces tables* in (5.28) be in an AgrP adjoined position. It would seem that we need a separate stipulation that rules out overt XPs that are adjoined to AgrP (recall that such a chain would be assigned case by the participle under Kayne's system) but allows such adjunction when it results in a trace.

We can solve these problems by assuming that Agr itself assigns Case to its specifier and that t' in (5.27) is in SpecAgrP. This is what Chomsky 1991 proposes. This has the immediate advantage of deriving uniform conditions for Case assignment to subjects and objects in terms of the government relation required. Kayne's evidence that *avoir* does not assign Case then becomes irrelevant. That the participle assigns Case in French no longer follows, since in the structures where Kayne has the participle assigning Case, now Agr will do the relevant Case assigning.

In summary, proposing that SpecAgrP is always a Case assigned position allows us to achieve Kayne and Chomsky's original aim of assimilating object and subject agreement.

A further consequence of assuming that the position of the intermediate trace is not an adjoined position comes from the difference between agreement in wh-extraction constructions and agreement in passive/unaccusative constructions. Agreement is forced when we have A-movement to the subject position, in contrast to it being optional with A-bar-movement:

(5.30) a. Ces tables sont repeint*(es)
These tables are repainted*(Agr)
'These tables have been repainted.'

b. Les filles sont arrivé*(es)
The girls are arrived*(Agr)
'The girls have arrived'

(5.31) quelles maisons a-t-il construit(es)
which houses has-he built
'Which houses has he build'

This receives a simple explanation in terms of Rizzi 1990's theory of Relativised Minimality. This theory basically proposes that in between a trace and its antecedent, the only intervening positions must be positions of a different type. Thus, the cases that are relevant here are that movement to an A position cannot skip an intervening A position, while movement to an $\overline{\text{A}}$ position may skip an intervening A position (but not an intervening $\overline{\text{A}}$-position). This gives the following structures:

(5.32) *A-position$_i$ A-position$_j$ t$_i$

(5.33) A-position$_i$ A-position$_i$ t$_i$

(5.34) $\overline{\text{A}}$-position$_i$ A-position$_j$ t$_i$

(5.35) $\overline{\text{A}}$-position$_i$ A-position$_i$ t$_i$

This means that movement of an object to the A-position of subject must proceed through any intervening A-position, so agreement will always be triggered. However,

movement to an $\overline{\text{A}}$-position may proceed through an A position, or may skip one, since Relativised Minimality allows both. This means that agreement will be optional in cases of A-bar movement.

However, we are still left with the ungrammaticality of (5.28)) to account for. In fact a fuller paradigm presents itself

(5.36) a. *Paul a repeintes ces tables

b. *Paul a ces tables repeintes

c. Paul a repeint ces tables

d. *Paul a ces tables repeint

If we assume that the condition on overt agreement in French is that at least part of a DP chain must be in spec AgrP at S-Structure (pre-Spellout) in French, then we account for the ungrammaticality of (a) and (d), while still maintaining our account of the grammatical examples discussed above. We could then give an explanation for (b) along the lines of our discussion of Celtic, assuming that AgrO in French disallows overt realisation of both Agr and the DP in the spec Agr position. Alternatively we could pursue an Economy based account and rule out (b) as a violation of Procrastination (see Chomsky 1992).

Given this view of participle agreement in French, we expect that extracted elements which are in principle capable of being interpreted as familiar or not, should only have the familiar reading when agreement is overt.

Obenauer forthcoming provides interesting evidence that this is the case. He shows that the agreement of participles interacts with the interpretation of the extracted object across a wide range of types of extractee. Most tellingly for the proposal under consideration, the wh-word *quel* can have two interpretations: it can mean "which" or it can mean "what type". Thus:

(5.37) a. quelles maisons a-t-il construit?
QUEL-fem.pl houses has-he built
'What type of houses has he built'

b. quelles maisons a-t-il construites?
QUEL-fem.pl houses has-he built-fem.pl
'Which particular houses has he built'

Obenauer explicitly states that

> la forme *construites* présuppose l'identification de maisons spécifiques
> "The form *construites* presupposes the identification of specific houses."

Necessarily specific/familiar extractees such as *lequel* force agreement:

(5.38) lesquelles a-t-il construit*(es)

A similar point can be made about exclamatives. A number of languages distinguish morphologically definite and indefinite wh-words. Only the indefinite forms can be used in exclamatives. Obenauer gives the following examples from Russian:

(5.39) a. Kakuju masinu on kupil?
what car he has-bought
'What type of car has he bought'

b. Katoruju masinu on kupil?
what car he has-bought
'Which particular car has he bought'

(5.40) a. Oi! Kakuju masinu on kupil!
Oh! what car he has-bought
'Oh! What a car he bought!'

b. *Oi! Katoruju masinu on kupil

We can make the same point for English exclamatives which allow "what a" but disallow "which a". French, as noted already, does not distinguish these two types of wh-word morphologically, but the same generalisation surfaces here too, since agreeing forms of participles in French exclamatives are ill formed:

(5.41) a. Quelle surprise elle m'a fait(*e)!
What-fem surprise she me-has made(*fem)
'What a surprise she gave me!'

b. Quelle erreur il a commis(*e)!
What-fem error he has committed(*fem)
'What a mistake he made!'

Putting these examples together with the argument we gave above that past participle agreement in French involves movement through the specifier of an agreement prediction, we find further support for the proposal that elements in the specifier of Agr are interpreted as familiar[2].

5.2.6 Hindi Objects

A final argument that supports the idea that interpretation is linked to syntactic information comes from some work by Mahajan 1990. The arguments he provides are fairly complex but the basic data is clear. Mahajan 1991 and Mahajan 1990 claim that specific objects in Hindi are marked with object agreement on a past participle, while non-specifics are not.

(5.42) a. siitaa-ne laRkaa dekhaa.
Sita-Erg boy-masc saw-masc

[2]Note that this argument, if correct, is interesting evidence that a Relativised Minimality approach to conditions on movement has advantages over an economy account. If the intervening position is a spec Agr position then it is of the same type as the subject position. So if the object moves to subject position, then relativised minimality predicts that it must pass through AgrO, triggering agreement. If, however, it moves to spec CP, an A-bar position, then it may or may not pass through AgrO, which, being an A-position, is irrelevant. The Economy approach, on the other hand, would predict that agreement is obligatory, since spec, Agr is a possible intermediate landing site.

'Sita saw the boy'

b. siitaa laRkaa dekh rahii hE.
Sita-Abs boy-masc see-prog-be-fem
'Sita is looking for a (suitable) boy (to marry)'

Assuming Enç 1991's position that specifics involve familiarity, we have here further evidence that object agreement correlates with a familiar interpretation of the object. Mahajan actually has some fairly complex arguments that objects triggering object agreement in Hindi are in a VP external A-position, but we shall not review these here.

5.2.7 Summary

Given the clause structure we motivated in chapter 2, the data above show that a weak DP object is necessarily interpreted as familiar (in the sense of chapter 4) when it appears in a derived position. The most obvious candidate for this derived position is the specifier of AgrO, the agreement projection immediately dominating VP. This idea is supported by three types of evidence: firstly the derived position may correlate with the presence of agreement; secondly it may correlate with structural case marking; thirdly it is VP-external, and appears to be an A-position.

Now the question arises of why this correlation between being in the specifier of AgrP and familiarity should be the case. What is it about this position that leads to a familiar interpretation of the object? We address this in the next section.

5.3 Global or Local Determination of Familiarity?

With respect to the question of what it is about the spec AgrP position that causes familiar interpretations of DPs associated with that position, two hypotheses present themselves: either the derived position is characterised by its global position in the tree (making use of such notions as VP-external, within IP etc), or the position is charaterised by a relationship of a local nature with some head—in this case Agr. The appropriate notions in the second case are those of $\overline{X}$-theory and government theory. We shall refer to the frst option as the Global Position Hypothesis (GPH) and to the second as the Local Postion Hypothesis (LPH). The particular LPH we want to endorse, given the data above, is that the local head that conditions familiarity is Agr.

A version of the GPH is argued for by Diesing 1992 in some detail, and we shall discuss this below and show that it suffers from empirical and conceptual advantages, compared with the LPH.

5.3.1 Diesing's Proposal

Diesing 1992 argues that the kind of interpretative effects we have described above are best captured in a global fashion. She bases her claims on data such as the Dutch scrambling data and the Turkish data which seem to correlate the interpretation of an object DP with VP-externality. On this basis Diesing argues for what she terms the Mapping Hypothesis. This assumes, following Heim, a tripartite quantificational structure for sentences containing generalised quantifiers. This is represented as follows:

(5.43) Q [Restrictive Clause] [Nuclear Scope]

The Mapping Hypothesis claims that there is a strict correspondence between the syntactic structure, and this quantificational structure and the correspondence is given as follows:

(5.44) **The Mapping Hypothesis**
Material within VP is mapped into the nuclear scope while material within IP (external to VP—DJA) is mapped to the restrictive clause.

How are nuclear scope and restrictive clause interpreted in this system? Diesing proposes that nuclear scopes are subject to existential closure, so that any free variable within a nuclear scope will be treated existentially. In terms of the restrictive clause Diesing claims that

> the presuppositions induced by the quantifier are somehow incorporated into the restrictive clause (Diesing 1992 p62)

I am not quite sure exactly what this means, but I take it to be something along the lines of Reuland's proposal (Reuland 1985) that generalised quantifiers require a contextually induced set to quantify over. Essentially then, Diesing proposes that familiar discourse referents are represented in the restrictive clause. There is of course a major difference between Diesing's system and the one outlined in Chapter 4. In the latter system DRSs are taken to represent information that is contextually induced, as well as linguistically induced, and it is the interaction between these two sources of information that result in the proposition to be interpreted (where proposition is used in the technical sense required by DRT (see Heim 1983)). In Diesing's system, the quantificational structure represents, it seems, linguistic information only (with the apparent exception of the presuppositions induced by a quantifier and incorporated into the restrictive clause).

5.3.2 Problems with Diesing's Proposal

Conceptual Problems

We have already criticised Diesing's proposal on the grounds that it deals with the semantics of weak DPs by assuming that they are represented syntactically (or at least at the level of DRS/Heimian files) as generalised quantifiers. In this section we shall show that Diesing's approach to the relationship between syntactic structure and the DRS level structure is misguided, and should be replaced with an approach based not on such notions as VP-external, but rather on notions drawn from government theory.

There are conceptual reasons why this should be the case. The notions of "material within VP" and "materal within IP" have no conceptual status within our theory of grammar. "Material within VP" presumably could be rephrased in terms of government by V under m-command, but this is more difficult to do with "material within IP". We do have the notion of functional head at our disposal, but C is a functional head, and Diesing explicitly excludes CP and its spec from consideration (without argument). Furthermore, Diesing's proposal is not that elements associated with one of the functional heads in IP are mapped into the restrictive clause, but also all adjoined elements in IP. To reconstruct Diesing's ideas in a framework which actually made use of the theoretical concepts we have would then involve a disjunctive statement that was essentially a series of stipulations.

Empirical Problems: Spec IP in Catalan

There are also empirical reasons to doubt Diesing's proposal. To see what these are, we should first consider what distinct empirical predictions are made by the Local position Hypothesis, and Diesing's version of the Global Position hypothesis.

The LPH account predicts that elements moved into the specifier of AgrP are interpreted familiarly. Diesing's account predicts exactly the same thing since AgrO is external to VP (in fact this approach is explicitly taken by Runner 1993) and elements external to VP are mapped into the restrictive clause (pace the differences between the interpretation of elements in the restrictive clause, and the notion of familiarity as we defined it in Chapter 4). However, the LPH account does not predict that all elements that are external to VP receive familiar interpretation, while Diesing's does. Specifically, movement to a position within IP is predicted to result in a presuppositional (familiar) interpretation of the moved material by Diesing, but not by an account which appeals to the more fine grained distinctions of government theory.

Here, however, a complication arises. In order to deal with the possibility of weak readings for subjects in spec of IP in English, Diesing allows a rule of LF-lowering where the subject lowers into its VP-internal position (see Chapter 4). Adopting the same rule for objects means that we could have an S-Structure where an object has moved VP-externally and then lowers at LF back into its VP-internal position. Because VP internal elements are treated by Diesing as part of the nuclear scope, they will receive an existential (unfamiliar) reading.

This means that to falsify Diesing's hypothesis we need to find a case where a weak DP is outside of VP (so that it will map into the restrictive clause) and receives only an unfamiliar reading[3]. Essentially, we want a definiteness effect for some element within IP. Furthermore, to support the LPH over the GPH, we must also show that when such an DP is locally governed by some particular element, then the familiar reading is possible. The element we are referring to is, of course, agreement. We provide such a case from Catalan.

Vallduví 1992 argues strongly that in Catalan certain quantificational phrases appear in the specifier of IP, which is an A-bar position in this language. Such phrases receive an unfamiliar reading. Exactly the same class of phrases can also occur adjoined to IP with a familiar reading, in which case they bind a clitic in the clause.

Vallduví's evidence that these elements are in the specifier of IP position is of 3 sorts: firstly they occur below C:

(5.45) Crec que poques coses$_i$ fara t$_i$
believe-1sg Comp few things do-FUT-3sg
'I believe it'll do few things'

Secondly, they must occur after standardly left attached DPs, which Vallduví argues are adjoined to IP. Thus:

(5.46) a. El govern$_i$ poques coses$_j$ farà t$_i$ t$_j$
the government few things do-FUT-3sg

[3] Of course Diesing could then claim that reconstruction in such a case is forced; but this robs her theory of any predictive power.

'the goverment will do few things'

b. * Poques coses$_j$ el govern$_i$ farà t$_j$ t$_i$
few things the government do-FUT-3sg

The other evidence that Vallduví adduces is more complex. He shows that there is a class of elements that the quantificational elements discussed already are part of. This can be determined on the basis of complementary distributional evidence. The other elements of this class are wh-phrases and negative universal quantifiers. Vallduví shows that wh-phrases must occur in spec IP because of generalisations governing the distribution of wh-phrases and subject verb inversion. Now, given that quantificational elements and wh-phrases are members of the same distributional class, and that wh-phrases are in spec IP on the basis of subject verb inversion, it follows that quantificational phrases are also in spec IP. A similar argument can be made on the basis of negative universal quantifiers.

Now the quantificational phrases that appear in this spec IP position cannot be interpreted as familiar. Thus there is essentially a definiteness effect in this position. The following examples show that strong quantifiers, definite NPs, proper names and demonstratives are barred from this spec IP position[4]:

(5.47) * en aquesta facultat, (a) tot/cada alumne$_i$ deus haver seduit t$_i$,
In this faculty, ACC every/each student must-2sg have-inf seduced, with
amb els teus encants. [5]
the your charms
'In this faculty, you must have seduced every/each student with your charms'

(5.48) * La mare$_i$ acontentes t$_i$ la mar de bé, tu!
the mother make-happy-2sg very well you
'You're so good at making your mother happy!'

(5.49) * L'Anna$_i$ acontentes t$_i$ la mar de bé, tu!
the-Anna make-happy-2sg very well you
'You're so good at making Anna happy!'

(5.50) * Aquest client$_i$ deurem visitar t$_i$, oi, avui?
This client must-FUT-1pl visit-INF right today
'We'll probably visit this client today, right?'

NPs with weak quantifiers, however, are fine:

[4] Many thanks to Carlos Carcaré, Josep Quer and Enric Vallduví for help with the data and its interpretation.

[5] In fact one strong quantifier appears to be well-formed in this position for some speakers, *la majoria de* which corresponds to 'most'. Other speakers only find this good when modified by a relative. In fact relative clauses generally seem to dissipate definiteness effects. See the discussion below in Chapter 6. A further exception to this rule is *tothom*, 'everyone'. This may be due to the fact that it quantifies over a non-contextually established restricted domain, signalled by its morphologically compound status.

(5.51) en aquesta facultat, uns quants alumnes$_i$ deus haver seduit t$_i$,
In this faculty, a number students must-2sg have-inf seduced, with
amb els teus encants.
the your charms
'In this faculty, you must have seduced several student with your charms'

(5.52) Alguns/pocs/molts clients$_i$ deurem fer t$_i$, oi, avui?
some/few/many clients must-FUT-1pl do-INF right today
'We'll probably make some/few/many customers today, right?'

but in all these cases the weak DP must be interpreted as unfamiliar. Thus they cannot mean that there is a set of students/clients some subset of which is being referred to.

Weak DPs with numerals are also well formed in this construction, on an unfamiliar reading:

(5.53) En la seva vida, tres errors deu haver comes, com a minim
In the his life, three mistakes must-3sg have-inf made, at least
'He must have made at least three mistakes in his life'

This data is precisely what we need to give an argument against Diesing's account. Here we have a case of an element that is clearly within IP. On Diesing's account this means that, even allowing LF lowering, this element must be able to be interpreted as presuppositional. That is, in our terms, it must be familiar. But the data discussed here show that the familiar reading is precisely the reading that is ruled out in this construction.

Furthermore, it appears that when a weak NP is associated with a clitic, it is then interpreted familiarly. Thus Vallduvi contrasts the following discourses:

(5.54) a. Aquí hi ha massa feina:
Here there has much work
'There's too much work here'

b. Alguna cosa$_i$ l$_i$'haurem de fer t$_i$ abans de
some thing Cl-obj-fave-to-FUT-1pl Part do-inf before Part leave-inf
marxar.
'We'll have to do something before leaving'

(5.55) a. Com ho solucionem, això
How Aux solve-1pl this
'How are we going to solve this?'

b. Alguna cosa$_i$ farem t$_i$, no pateixis
Some thing do-FUT-1pl no worry-SBJ-2sg
'We'll do something, don't worry'

The weak DP associated with the agreement clitic in (5.54b) is interpreted familiarly, ie with reference to preexisting DRs, while the weak DP in spec IP in (5.55b), which is not associated with a clitic, is interpreted as necessarily unfamiliar. If the clitic is a realisation of agreement, as in the Porteño Spanish case, then this data is expected on the LPH.

This data amounts to fairly clear evidence that Diesing's proposal is too coarse to deal with the facts. Diesing would predict that the weak NPs in the specifier of IP should have at least a strong reading (allowing for LF lowering to derive the weak reading). This does not appear to be the case, unless the quantifier is associated with an agreement clitic within the clause. Such a clitic then allows a strong reading of the quantifier

So here we have a case of an IP internal element that does not and cannot have an familiar reading. Now it would be possible to save the Mapping Hypothesis by assuming that these quantificational elements appear in some functional projection above AgrSP but below AgrOP and to reformulate the hypothesis so that it referred to the stretch of the sentence between AgrSP and VP. This means that the Mapping Hypothesis then includes the Specs of both AgrPs; the Specs of TP, NegP and AspP; and any adjoined positions. But note that the familiar reading does become possible in precisely those cases where the quantifier is coindexed with agreement features in the form of either an object clitic, or subject agreement on the verb. This evidence forcefully supports the LPH view of the determination of interpretation by syntactic context.

5.4 Revising the Novelty-Familiarity Condition

5.4.1 A First Try

The data we have considered in this chapter gives us evidence that there is more to the Familiarity Condition than just the lexical specification of definiteness. Specifically, it allows us to draw the conclusion that the principle that maps syntactic representations onto DRSs should make reference to the structural relationship that the relevant DP bears with agreement.

Recall the version of the NFC that we left chapter 4 with:

(5.56) **Revised NFC**
Suppose something is uttered under the reading represented by ϕ and the discourse preceding ϕ has resulted in a discourse structure F. F contains a set of DRs, $\mathcal{U}$. Then for every DP $\mathcal{D}$ in ϕ it must be the case that:
Novelty Clause: there is a DR associated with $\mathcal{D}$
and
Familiarity Clause: If $\mathcal{D}$ is definite then the DR associated with $\mathcal{D}$ is $\subseteq$ a DR in $\mathcal{U}$.
Otherwise, the utterance is not felicitous under this reading.

Now in all the cases we have discussed above, the DP that was in a spec head relationship with Agr has to be interpreted as familiar. We can incorporate this directly:

(5.57) **Revised NFC**
Suppose something is uttered under the reading represented by ϕ and the discourse preceding ϕ has resulted in a discourse structure F. F contains a set of DRs, $\mathcal{U}$. Then for every DP $\mathcal{D}$ in ϕ it must be the case that:

Novelty Clause: there is a DR associated with $\mathcal{D}$
and
Familiarity Clause: If $\mathcal{D}$ is definite or in a spec-head relationship with Agr then the DR associated with $\mathcal{D}$ is $\subseteq$ a DR in $\mathcal{U}$.
Otherwise, the utterance is not felicitous under this reading.

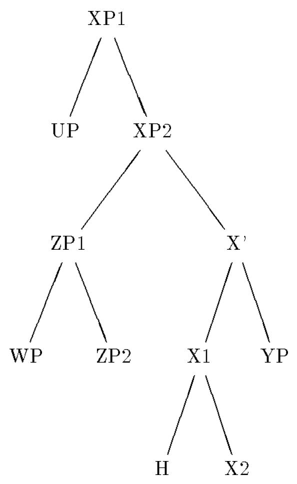
where "definite" refers to a lexically specified feature found on definite determiners, pronouns etc, and "in a spec-head relationship with Agr" can be defined in terms of the configuration:

(5.58) $[_{\text{AgrP}}\ \text{DP}_i\ [_{\text{Agr}'}\ \text{Agr}_i\ [\ \ldots]]]$

5.4.2 Defining "Specifier"

Alternatively, if we wish not to make reference to specific configurations, we can define the specifier of AgrP in terms of basic $\overline{\text{X}}$-Theory. Assume that $\overline{\text{X}}$-structures are binary branching and that categories are segmented, as in Chomsky 1986a, following May 1985. This will give us the following schematic structure (taken from Chomsky 1992):

(5.59)



What we want to define here is the relationship between ZP1 and X1 (the specifier relationship). We can do this in the following way: following Chomsky, define the dominates relation such that α dominates β if every segment of α dominates β. This means that the segmented category {XP1, XP2} dominates ZP1, but not UP. For a head α, we then define max(α) as the least full-category maximal projection dominating α. So max(X1) is {XP1, XP2}. These definitions are the ones given by Chomsky. Finally, we define the projection of α, proj(α), as all categories that dominate α and share the major category features of α. So proj({X1, X2}) is {X',{XP1, XP2}}.

Given these notions we can now define the relationship between X and {ZP1, ZP2} as follows:

(5.60) max(X) *specifies* Y iff max(Y) dominates max(X) and
$\exists z{:}z \in$proj(Y) and z does not dominate max(X).

This will uniquely pick out the segmented category {ZP1, ZP2} above as the specifier of {X1, X2}.

Now recall that in some of the cases we discussed above, the DP that was interpreted as specific was not actually in the spec AgrP position but had only passed through it during a derivation. This means that the proper notion to appeal to is not DP, but rather Chain, where a Chain consists of a DP and its coindexed traces.

We can now define a particular type of chain that will receive a familiar interpretation. Thus:

(5.61) A chain C=($\alpha_1 \ldots \alpha_n$) is an Agr-Chain iff some α_i specifies Agr.

This then allows us to reformulate the Familiarity condition in the following way:

(5.62) **Revised NFC**
Suppose something is uttered under the reading represented by ϕ and the discourse preceding ϕ has resulted in a discourse structure F. F contains a set of DRs, $\mathcal{U}$. Then for every chain $\mathcal{C}$ in ϕ it must be the case that:
Novelty Clause: there is a DR associated with $\mathcal{C}$
and
Familiarity Clause: If $\mathcal{C}$ is definite or an Agr-Chain then the DR associated with $\mathcal{C}$ is $\subseteq$ a DR in $\mathcal{U}$.
Otherwise, the utterance is not felicitous under this reading.

Consider now how this will work. Take the Catalan examples that were problematic for Diesing's account. In such cases we have an IP internal position that is not associated with agreement features (there is no agreement triggered on any element by the DP occupying this position). By the novelty clause of the NFC a DP in this position will introduce a discourse referent. The NFC does not require such a discourse referent to be new (in the sense that it is not linked to a preexisting DR) or familiar. This means that we need an account of the definiteness effect found in this position, in the same way that we need an account of the definiteness effect in English existentials. Let us just stipulate that the DP in this position must be unfamiliar; the Novelty Clause allows this.

Now when this DP has an associated object clitic, we can assume that it has moved from its base position, through the spec of AgrP to its final position. Vallduví 1992 argues on independent grounds that an object associated with a clitic is in an IP adjoined position, so we may assume that this is its final resting place. Now the chain formed will be an Agr-Chain since it has an element that is a specifier of Agr, under the definitions given already, therefore it will be subject to the familiarity clause of the revised NFC and hence be interpreted as familiar. Similar accounts can be given for all the data that we have already argued to involve a DP either being in spec AgrP, or moving through spec AgrP in the course of a derivation.

5.4.3 Agreement by Government

Note that the crucial reference to the specifier-related nature of Agr-Chains means that we allow cases where an agreement relationship is set up and yet the familiarity clause does not come into play. These will be structures where agreement occurs under government, rather that under the specifier relationship. One clear example is again given by existential constructions in English:

(5.63) There *is/are few things that can be done

Agreement of the copula is with the postcopular DP. Note that the nature of this agreement appears to be different from spec-head agreement. Thus in my spoken Scottish English the following are all well-formed:

(5.64) a. There's still three tickets to be sold
b. There's a lot of gorgeous actors in the Festival this year
c. There was tons of people at the opening night

but they contrast with the non-there versions, which do require agreement:

(5.65) a. Three tickets *is/are still to be sold
b. A lot of gorgeous actors *is/are in the Festival this year
c. Tons of people *was/were at the opening night

This suggests that the nature of the two types of agreement are different, with spec head agreement forcing feature matching. Since no spec head agreement obtains in the post-copular case, we don't expect the Familiarity Clause to play a part, and so the definiteness effect we find here can occur.

There is further evidence that there are two types of agreement relationship that comes from Arabic. Arabic is a VSO language with an alternative SVO order. Let us assume that VSO results from fronting the V into some head in the C-system. We then have the following paradigm (taken from Benmamoun 1992):

(5.66) a. daxal-a T-Tullaab-u
enter-3.m the-students(Masc)-Nom
'The students entered'
b. daxal-at T-Taalibaat-u
enter-3.f the-students(Fem)-Nom
'The students entered'

(5.67) a. kaan-a T-Tulaab-u ya-drus-uun
be-3.m the-students(Masc)-Nom Imp.3.m-study-pl.m
'The students were studying'
b. kaan-at T-Taalibaat-u ta-drus-na
be-3.f the-students(Fem)-Nom Imp.3.f-study-pl.f
'The students were studying'

Here we see that when the verb in C governs the subject we have agreement in person and gender. When, however, the subject is in spec AgrP then we have person number and gender inflection on the main verb, with again person and gender on the auxiliary in C. This is fairly clear evidence that there are two types of agreement relation, one mediated by the specifier head relationship and the other by a government relationship.

5.5 Reconstruction and Economy

The account presented here, and Diesing's account (and in fact that presented by Enç 1991) all suffer from one particular problem: how, in cases like (5.68) can we have a non-proportional (that is a cardinal, or unfamiliar) reading for the subject?

(5.68) Many foxes are available

Here the subject is unquestionably in spec IP/AgrP and hence by the Mapping Hypothesis, or by the Novelty Familiarity Condition, it should be interpreted as familiar/proportional. Of course such a reading is available, but the cardinal/unfamiliar reading is available too. Diesing's solution (and Enç's) is to assume that at LF the subject lowers to its D-Structure position in spec VP (reconstruction). It is then not in IP and hence, by the Mapping Hypothesis, does not necessarily receive a proportional interpretation. This lowering operation is not available for certain predicates that are assumed to not have a spec VP position. Such predicates are Carlson 1977a's individual-level predicates. Thus in the following example with a individual-level predicate only a proportional reading is possible:

(5.69) Many firemen are intelligent

This contrasts with the ambiguity when the predicate is stage level (5.68). This idea is argued for in detail by Kratzer 1988 who provides independent motivation that stage-level predicates lack a spec VP position, as well as by Diesing.

Of course the mechanism of lowering the subject at LF out of the spec AgrP position is available under the account we are considering here too. We need simply stipulate that for a chain to count as an Agr-Chain, the head of the chain (the overt element) must c-command the specifier of Agr, but such a solution seems undermotivated, although it mimics precisely Diesing's account.

Another case is the Scottish Gaelic FOP construction. This allows the fronting of weak DPs into spec AgrP but such DPs remain ambiguous:

(5.70)	Feumaidh	Daibhidh	cat	a	bhualadh
	Must	David	cat	Agr	strike-VN

'David must hit a cat'

The DP object here can be interpreted either specifically or non-specifically.

One of the problems with the idea of LF lowering is that often an element is in IP, or alternatively in spec AgrP and yet the cardinal/unfamiliar reading is not possible, regardless of the status of the predicate. Most of the cases we have discussed in this

chapter (French, Turkish, Dutch, Hindi, Catalan, Spanish, English ACDs etc) are like this.

In fact if we examine the data more closely we notice a correlation between the available readings and the obligatoriness of movement to spec AgrP: if the argument is required to move to spec AgrP, then it is ambiguous. On the other hand, if the argument may raise to spec AgrP, or may skip this position or remain in situ, then whenever the argument does raise to spec AgrP, it is obligatorily interpreted as familiar.

Consider the data we have discussed already. In Dutch, objects may scramble or not—if they do they are interpreted as familiar. Subjects in Dutch may appear in spec AgrP, or in the impersonal construction in spec VP. Again, in spec Agrp they are interpreted as familiar. Turkish objects behave in the same way as Dutch objects except that they also case mark; the same situation holds with respect to their interpretation. In Spanish clitic doubling is optional, with a doubled argument being necessarily familiar. In French, extracted objects may induce agreement on a participle or not—when they do they are obligatorily familiar.

Conversely, as already noted English subjects, unlike Dutch (or Swedish—Elisabet Engdahl (pc)) subjects, are obligatorily in spec AgrP and are ambiguous. Scottish Gaelic objects are also obligatorily in spec AgrP and are ambiguous. In French passives, where agreement is obligatory due to relativised minimality and improper movement constraints, the element inducing the agreement is ambiguous.

There appears then to be a correlation between optionality in the (S-Structure, or pre-Spellout) derivation, and obligatoriness of familiarity.

Is this expected? I would like to suggest that it is. Let us first accept the idea that syntactic derivations should be minimal (Chomsky 1992, Chomsky 1991). For the cases in hand, to derive two LF representations that will map into the right DRSs, we need to have one derivation leading to a representation with an argument in spec AgrP, and one with an argument that is not in spec AgrP. Assume that the pre-Spellout representation has an argument in spec AgrP, and that to derive the LFs, we may leave it there, or reconstruct it. Technically, if we want both options, we need to reformulate reconstruction so that it involves copying and deletion, rather than movement—see Chomsky 1992 for motivation. This will mean that a weak DP in spec AgrP will receive both interpretations, essentially along the lines proposed by Diesing.

Consider, however, if a language allows an alternative derivation to derive the representation that leads to a non-familiar reading (of course such an LF representation may lead to contextually induced ambiguity at the level of DRS, as argued in chapter 4). Moreover, say such a derivation does not require the operation of deletion, or reconstruction. If such a derivation exists, then the option of deriving this reading via reconstruction option is ruled out, since it will involve a lengthier derivation. That is, if there exists an alternative derivation for the non-familiar interpretation of the argument, then the reconstruction option is ruled out on grounds of economy. We therefore derive the observation that languages with constructions that involve optional movement to spec AgrP allow only a familiar interpretation when the object is in spec AgrP. That is reconstruction is ruled out because there is an alternative and shorter derivation. Languages which have no option have nothing which rules out reconstruction, and therefore have ambiguous elements in spec AgrP. A particularly striking case is the French data which we have already discussed: $\overline{\text{A}}$-movement involves optional movement through spec AgrP and whenever this option is taken, reconstruction is ruled out since spec AgrP could just have been skipped. $\overline{\text{A}}$-extraction with agreement leads to a familiar reading of the extractee. A-movement, however, requires movement through spec AgrP, because if spec AgrP were to be skipped, a relativised minimality violation would result. Accordingly, there is no alternative derivation and the economy constraint does not rule anything out. The moved object is therefore expected to be ambiguous (providing of course that it is weak), and this turns out to be the case.

There are a number of immediate problems with this account: how to deal with English existentials which appear to allow an option, but have ambiguity in the derived position (a similar problem arises in Swedish (T. Hoekstra (pc))):

(5.71) There arrived many men

(5.72) Many men arrived (*cardinal/proportional*)

For a fuller account of what motivates movement in these constructions and how these problems can be overcome see Adger 1994a. For a further application to Greek Clitic Doubling constructions see Anagnostopoulou 1994, who also argues for the applicability of these ideas to subject postposing in Italian (optional with ergatives, with an effect on interpretation) and object agreement in Basque (obligatory in all cases with no interpretative effect).

5.6 Summary

In this chapter we built on the theory of DP interpretation argued for in Chapter 4. We argued that the mapping principle that constructs DRS from LFs should be stated at least partially in terms of the local relationship that a DP chain bears to the functional head Agr. This is motivated by a range of data that shows that DPs that are in spec AgrP, or move through spec AgrP, are interpreted as familiar. We showed how an alternative view of the mapping, advocated by Diesing 1992, falls prey to some interesting data from Catalan, and we provided a revised version of the Novelty Familiarity Condition that allowed us to derive the correct results. Moreover, we provided a way of expressing the cross-linguistic differences that arise in the interpretation of weak DPs associated with Agr in a theory based on Economy of Derivation.

One final point I'd like to make concerns languages like Chinese, which have no agreement in terms of ϕ-features, but do seem to have syntactic operations which lead to specificity effects (Rhys 1993 and references there). The evidence presented in this thesis suggests that what is involved here is movement to the Spec of a projection we have so far termed AgrP because of the link with ϕ-feature agreement; and yet there is no morphological agreement in Chinese whatsoever. I would like to tentatively suggest that this projection is one with primarily semantic effect—term it Referential Phrase (RefP). The position of RefP in the phrase structure is just where we have been positing AgrP, and in many languages the content of RefP is in fact ϕ-features. In a language like Chinese the projection is still there, but it simply doesn't contain ϕ-features. It is an empirical question which features a language endows the head of RefP with. However, in the rest of this thesis we will maintain the link with Agr.

Chapter 6

Measure Phrases and Agreement

6.1 Introduction

The aim of this chapter is to examine in more detail the implications of the NFC as it has been formulated so far. In particular, the Familiarity Condition is a one way implication that has an obvious contraposition: that if a chain does not introduce a DR then it cannot be an Agr-Chain. We show that there is indeed a class of chain (chains whose lexical content is a measure phrase) that does not introduce a DR and that therefore the theory predicts that such a class should never be an Agr-Chain; that is no element of the chain should specify Agr, where specify is defined as in the previous chapter. We then test this prediction by taking from Chapter 5 the contexts where we supposed an Agr-chain to exist and looking to see if measure phrase chains can have an Agr-specifying element. The prediction turns out to hold.

6.2 A Prediction of the Theory

The NFC, as we have formulated it so far, takes the following form:

(6.1) **Revised NFC**
Suppose something is uttered under the reading represented by ϕ and the discourse preceding ϕ has resulted in a discourse structure F. F contains a set of DRs, $\mathcal{U}$. Then for every chain $\mathcal{C}$ in ϕ it must be the case that:
Novelty Clause: there is a DR associated with $\mathcal{C}$
and
Familiarity Clause: If $\mathcal{C}$ is definite or an Agr-Chain then the DR associated with $\mathcal{C}$ is $\subseteq$ a DR in $\mathcal{U}$.
Otherwise, the utterance is not felicitous under this reading.

Let us focus on the Familiarity Clause for the moment. Moreover, we shall ignore the reference to the inherent feature of definiteness in this clause, as it will not concern the argument we make in this chapter. Then this gives us:

(6.2) If $\mathcal{C}$ is an Agr-Chain then there is a DR associated with $\mathcal{C}$ and that DR is $\subseteq$ a DR in $\mathcal{U}$.

Given this formulation, we can show that if it were to be the case that a chain did not have an associated discourse referent, then that chain could not be an Agr-Chain[1]. Let us state this as:

(6.3) *The No-DR Corollary* If a chain $\mathcal{C}$ does not introduce a DR in $\mathcal{U}$, then $\mathcal{C}$ cannot be an Agr-Chain.

where Agr-Chain is defined as before as a chain which has a member that specifies Agr.

Now the No-DR Corollary has no effect if the Novelty Condition is correct as it stands, since it states that all chains introduce a DR. In the following sections, we show that the Novelty Condition must be reformulated, since there is at least one class of DPs that do not introduce discourse referents. This is the class of measure phrases (MPs):

(6.4) a. Anson weighs 70 kilos
b. The conference lasted three weeks
c. The book cost 30 dollars

6.3 Measure Phrases are Arguments

We have restricted our discussion about agreement so far to arguments, and the generalisations we have stated are intended to apply to arguments. Before showing that MPs do not introduce DRs, it would be advisable to show that they are arguments and so come under the generalisations we are trying to state.

Notions such as agent, experiencer, theme etc are useful in the descriptions required in lexical semantics (see Jackendoff 1990 and references therein). Such notions are also useful in syntactic analysis since they allow us to characterise constraints on the cooccurence of items in a clause (for example, only verbs with agents allow adverbial modification by *voluntarily* (McConnell-Ginet 1982); only verbs with themes allow resultative secondary predicates (Rothstein 1985)). We will follow Chomsky 1981 and term these notions *thematic roles* and we will assume that the set of thematic roles specified by a predicate is given by its lexical semantics.

[1] The proof is as follows: let P represent "$\mathcal{C}$ is an Agr-Chain"; let $DR(x)$ represent "x is a discourse referent associated with $\mathcal{C}$", and let $F(x)$ represent "x is $\subseteq$ a DR in $\mathcal{U}$". Let variables be represented by x etc. and constants by a etc.. Then we have:

(Proof:) i. assume $P \rightarrow \exists x(DR(x)\&F(x))$
ii. assume P
iii. then $\exists x(DR(x)\&F(x))$ by Modus Ponens
iv. then $DR(a)\&F(a)$ by Existential Elimination
v. and $DR(a)$ by and-elimination
vi. then $\exists x(DR(x))$ by Existential Introduction resting on assumptions (i) and (ii)
vii. it follows that $P \rightarrow \exists x(DR(x))$ resting on assumption (i) by Conditional Proof
viii. now assume $\neg\exists x(DR(x))$
ix. then $\neg P$ by Modus Tollens resting on assumptions (i) and (viii). QED.

Armed with these ideas we can say that a transitive verb like *devour* has an agent and a theme role. In a sentence like (6.5):

(6.5) Anson devoured a cake

the agent role is given its denotational content (ie what referent in the model/world will be assigned the interpretation of agent of the devouring event) by the meaning of the DP *Anson*. We can therefore say that the denotational contents of the thematic roles of a predicate are given by DPs and CPs that appear as satellites of that predicate. In fact there is a stricter locality condition than just syntactic satellite; the lexical item specified for the thematic role information must govern (m-command) the DPs that specify what the denotational content of those roles is. Moreover, there is a condition relating DP/CP satellites of predicates and thematic roles which specifies that there is some constrained relation between them. This will allow us to rule out cases like the following:

(6.6) a. *Anson devoured the cake the sandwich
b. *An hour elapsed Anson

Here we have too many DP satellites for the number of thematic roles that the verb assigns. Let us term the DP satellites *arguments*, again following Chomsky 1981. We can then state the following condition, which will rule out the data above:

(6.7) Each argument must receive a thematic role.

Examples like the following suggest that the converse is also true:

(6.8) a. *Anson devoured
b. *Anson put the book

so we state:

(6.9) Each thematic role must be assigned to an argument

These conditions are essentially the Theta-Criterion of Chomsky 1981[2]. The Theta-Criterion predicts that arguments are obligatory and that obligatory elements are arguments. This is the import of the *must* in the definitions. In fact this is too strong, since at least some arguments are optional:

(6.10) a. Anson ate the cake
b. Anson ate

[2] Chomsky's Theta-Criterion actually incorporates the condition that the relation between thematic roles and arguments is one to one. This is not relevant for the argument presented here.

We can overcome this by assuming these verbs allow the optional phonetic deletion of their argument (or alternatively that they allow a null argument). Note that at the level of interpretation the argument is still present. Thus Dowty 1989 claims that it is still an entailment of *Anson ate* that something was eaten. In order to capture this fact we could claim that at LF the theta-criterion holds and that the theme theta-role of *eat* is assigned to an empty category.

Given the Theta Criterion, it appears that the class of measure phrases are arguments[3]:

(6.11) a. Anson weighs 70 kilos
b. The conference lasted two weeks
c. The book cost a dollar

(6.12) a. *Anson weighs
b. *The conference lasted
c. *The book cost

Now given the fact that MPs are arguments, we can now proceed to show that they do not introduce DRs and hence that the Novelty Condition should be reformulated. But the reformulation of the Novelty Condition will then have the effect that the No-DR Corollary will make an empirical prediction: that measure phrases should never be Agr-Chains.

6.4 Measure Phrases have No Associated DR

6.4.1 Anaphoric Reference

Consider the following examples:

(6.13) a. *Anson weighed 70 kilos and David weighed them too.
b. Anson weighed two sacks of potatoes and David weighed them too.

(6.14) a. *The conference lasted three weeks and the film festival lasted them too.
b. The conference bored David and the post conference meeting bored him too.

(6.15) a. *This library cost a billion pounds and the books inside it cost them too.
b. This library buys books but the individual departments buy them too.

[3] In the example with the verb *weigh* the relevant interpretation is where Anson's weight is 70 kilos, rather than Anson being the agent of a weighing event of a 70 kilo weight. This other interpretation is clearer in examples like:

(i) Anson weighed a sack of potatoes

In this case we have a canonical object rather than a measure phrase.

In each case it appears that the MP is not able to be anaphorically referred to by a subsequent pronoun. One possible explanation for this fact within the framework of DRT would be that the MP introduces a DR but that DR is not accessible to the pronoun. Another possibility, of course, is that the MP does not introduce a DR and so there is no DR to make an anaphoric link to.

There seems to be little motivation to take the first route. As we have seen already, DRs become inaccessible to further anaphoric reference if they are in a subordinate DRS; but subordinate DRSs are always triggered by non-cardinal quantificational elements (or by negation), and there is no appropriate non-cardinal quantifier in MPs (and there cannot be, in fact, see below). Discarding this option then, we are left with the conclusion that MPs have no associated DR.

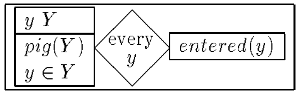
In fact, it is possible to use definite descriptions to refer anaphorically to MPs, as we can see from:

(6.16) a. Anson weighed 70 kilos and David weighed that too/the same.
b. The conference lasted three weeks and the film festival lasted that too/the same.
c. This library cost a billion pounds and the books inside it cost that too/the same.

This suggests that MPs do introduce a DR of some sort, but it is not the same sort of DR that canonical arguments introduce, since it can't be anaphorically referred to by the class of pronominals. This suggests that the NFC should be restricted in some fashion, so that it makes reference to the sort of DR that is introduced. The No-DR Corrolary would still hold, of course, but in a slightly different fashion. We shall not take up this line of reasoning here, as it would lead us too far afield. We will therefore maintain the idealisation that MPs do not introduce any DR at all.

6.4.2 A Consequence—Strong Quantifiers

Recall our discussion of the semantics of generalised quantifiers in Chapter 4. We followed the standard treatment in DRT which assumed that generalised quantifiers give rise to tripartite structures. We also claimed that an essential component of generalised quantifiers was that they gave rise to DRSs where the DR restricted by the quantifier was familiar, as follows[4]:

(6.17) a. Every pig entered.
b. 

This structure, where the DR restricted by the quantifier is anaphorically linked to another DR is motivated by van Eijck's data, discussed in chapter 4.

[4] I have used the member symbol here for familiarity since unary subset appears to be the appropriate semantics. Nothing rides on this (see the discussion in Chapter 4).

Now recall that the analysis we gave of definiteness restrictions made use of the notion of familiarity. Familiarity is a relation defined as:

(6.18) α is familiar iff there is a DR ξ and the DR y associated with α is $\subseteq \xi$ (where ξ is a variable ranging over singular and plural DRs)

where ξ is the antecedent DR. We claimed that the correct way to characterise a definiteness restriction such as that on the post-copular position in an existential sentence was to do so by stating that such a position forced the contextually supplied DR to be absent:

(6.19) **Definiteness Restriction:** The DP in the postcopular position of an existential cannot have an antecedent DR.

Thus, a DP containing a generalised quantifier would be ill-formed in post-copular position in an existential sentence because such a DP will necessarily give rise to the condition that y $\subseteq$ x, but the definiteness restriction ensures the absence of the antecedent DR x. This rules out cases like:

(6.20) *There is every pig in the park

There is also, of course, another possibility for definiteness restrictions that arises because of the relational nature of familiarity: that is if there is no DR y associated with α. If the conclusion we arrived at above is correct, and MPs have no associated DR, then we expect to see a definiteness restriction on MPs, because the anaphoric link will be missing one half. In this case there can be an antecedent DR, but there is no anaphoric DR.

The following examples show that generalised quantifiers are indeed ill-formed in MPs. This fact was first noticed by Klooster 1972 who based his work on an unpublished LSA talk by J.R Ross (1964):

(6.21) a. * Het duurde iedere minuut.
It lasted every minute

b. * Jan weegt elke kilo.
Jan weighs each kilo

This data is replicated in English:

(6.22) a. The conference lasted many weeks
b. The conference lasted three weeks
c. *The conference lasted every week
d. *The conference lasted most weeks

Here we see that strong quantifiers are ill-formed and that weak quantifiers can only have a cardinal reading. In essence, there appears to be a definiteness effect in this environment.

In fact the definiteness restriction is fairly general:

(6.23) a. The conference lasted those weeks
b. The conference lasted them
c. *The conference lasted the weeks

The (a) and (b) examples here are only possible if the measure phrase is interpreted not as an amount, but rather as a specific reified time. This can be made clearer by considering examples with strong DPs which are further modified:

(6.24) a. The conference lasted the week of the festival
b. The conference lasted every day of the festival
c. The book cost every penny I had in my bank account

Here the relative clause restricts the MP to mean a particular reified slot of time/physical amount of money rather than an abstract amount. The definiteness restriction is overruled because the MP is interpreted as though it referred and is associated with a DR.

6.4.3 A Further Consequence—Weak Islands

Chomsky 1986a discusses a number of cases where extraction of an argument and a non-argument from certain domains results in different degrees of grammaticality. He considers wh-islands, formed by verbs that take a CP complement that is introduced by *whether*:

(6.25) a. What did you think that Anson saw t?
b. ?What did you wonder whether Anson saw t?

Extraction of the object argument of *saw* here results in a mild form of ungrammaticality that Chomsky attributes to the principle of Subjacency. Contrast this with

(6.26) a. How did you think that Anson fixed the bike t?
b. *How did you wonder whether Anson fixed the bike t?

Here the extracted adjunct *how* cannot be interpreted as a modifier of the verb *fix* in the lower clause. Chomsky attributes this to the Empty Category Principle, since the trace of the adjunct is neither head-governed by the verb nor antecedent-governed by the extracted phrase. The domains that show this effect are termed *Weak Islands*.

Rizzi 1990 notes that this cannot be the correct explanantion since measure phrases give rise to the same effect, even though they are arguments and hence head-governed:

(6.27) a. What did you think that the book cost t?
b. *What did you wonder whether the book cost

In fact Rizzi widens the data set (see also Cinque 1990) to include other types of islands as well as wh-islands. The following examples show that the same effect obtains when the upper clause is negated (and hence forms an inner-island (see Ross 1983)), and when it contains a factive:

(6.28) a. What didn't you think that Anson saw t?
b. *What didn't you think that the book cost t?

(6.29) a. What did you think that Anson saw t?
b. *What did you regret that the book cost t?

Rizzi's explanation for this effect also relies on the ECP. He develops a view of the ECP whereby a trace must be governed both by head-government and by antecedent government. Government in general is blocked by any closer governor of the same type. Thus a closer governing head will block head antecedent government and derive the Head Movement Constraint of Travis 1984 and Baker 1988. A closer governing A-position will block A-antecedent government of a trace and thus rule out superraising structures of the following sort:

(6.30) *Anson seems that it is likely to be in the garden

The idea for the type of island violation we are considering here is that the trace must be both $\overline{\text{A}}$-antecedent governed and head governed. Head government obtains, since the measure phrases are selected, but the $\overline{\text{A}}$-antecedent government condition is not met, since in each case there is a closer governor (the wh-specifier of the lower CP, the negative element or an operator induced by the factive[5]). Arguments, in contrast, do not need to be $\overline{\text{A}}$-antecedent governed since they are referential and therefore may be directly $\overline{\text{A}}$-bound by their antecedents.

What does Rizzi mean when he says that arguments are "referential"? He claims that some arguments are assigned referential θ-roles, which induce a referential index. Adverbials, measure complements, idiomatic complements, etc. are not assigned referential θ-roles; this precludes binding as a way of connecting a trace of such an element with its antecedent.

Rizzi formulates binding as follows:

(6.31) X binds Y iff
(i) X c-commands Y and (ii) X and Y have the same referential index

Let us tentatively construe Rizzi's referential indices with our DRs. We can then say that:

(6.32) X binds Y iff
(i) X c-commands Y and (ii) X and Y are associated with the same DR

Now, if, as we have already argued, MPs are not associated with a DR, then under Rizzi's system an MP will never be able to be bound. The only way of connecting the trace of an extracted MP with its antecedent is by antecedent-government; but this is blocked by Relativised Minimality in the relevant cases. This slight reformulation of

[5]This statement is anachronistic. Rizzi's actual explanation was that the factive moved into an $\overline{\text{A}}$-position at LF. A more conceptually appealing idea is that factives introduce an operator in the spec CP of the lower clause that serves as the minimality barrier. See Progovac 1988 for empirical evidence to this effect

binding then allows us to explain the restricted extractability of MPs if MPs do not introduce a DR.

Note that if this view is correct it provides an explanation for the contrast between the following data (see Klooster 1972):

(6.33) a. Anson kissed David and David kissed Anson
b. Anson and David kissed each other

a. A hotel costs five houses and five houses cost a hotel
b. *A hotel and Five houses cost each other

Where the final example is not even felicitous in a Monopoly game situation. This is explained of course if binding has to involve DRs and the complement of a measure phrase verb doesn't refer to a DR thus making the reciprocal anaphor unbindable.

6.5 Summary

So far we have shown that the Novelty Condition of the NFC should be reformulated, since there appears to be a class of argument chains that does not introduce a DR—MPs. We therefore give the final version of the NFC as:

(6.34) **Revised NFC—Final Version**
Suppose something is uttered under the reading represented by ϕ and the discourse preceding ϕ has resulted in a discourse structure F. F contains a set of DRs, $\mathcal{U}$. Then for every chain $\mathcal{C}$ in ϕ it must be the case that:
Novelty Clause: unless the head of $\mathcal{C}$ lexically specifies otherwise, there is a DR associated with $\mathcal{C}$
and
Familiarity Clause: If $\mathcal{C}$ is definite or an Agr-Chain then the DR associated with $\mathcal{C}$ is $\subseteq$ a DR in $\mathcal{U}$.
Otherwise, the utterance is not felicitous under this reading.

The evidence that MPs do not introduce DRs comes from the behaviour of pronominals, and is backed up by the fact that there is a definiteness effect in MPs that derives quite straightforwardly from our earlier treatment of definiteness effects, coupled with the non-DR-introducing nature of MPs. Furthermore, the claim that MPs do not introduce DRs allows us to explain why MPs don't extract from weak islands, given a reformulation of Rizzi's definition of binding which replaces referential indices with DRs. Given this, the contraposition of the Familiarity Condition comes into play, predicting that MPs should never be Agr-Chains. This means that chains containing MPs as their lexical content will never have an element that specifies Agr. We can test this prediction quite easily by considering the constructions which we have already argued to involve the formation of Agr-Chains and seeing if MPs participate in these constructions in the same way that canonical arguments do[6].

[6]I have been unable to find clear examples of MPs in Hindi, so I shall not consider the Hindi facts.

6.6 Testing the Prediction

6.6.1 Measure Phrases in Turkish

Our first argument involved Turkish[7]. We showed that object NPs in Turkish scrambled out of their VP and were accusatively Case marked. We correlated this derived syntactic position with specific interpretation. Now objects in Turkish undergo this process rather generally, with concomitant interpretational effects. MPs in Turkish are obligatory, and thus we may assume that they are represented in the argument structure of the verb:

(6.35) a. Kitap 500 lira tutuyor
book 500 lira cost-pres
'The book costs 500 lira'

b. * Kitap tutuyor
book cost-pres

a. Konferans iki habta sürdü
Conference two week last-past
'The conference lasted two weeks'

b. * Konferans sürdü
Conference last-past

However, unlike canonical arguments, MPs may not scramble over a VP adverb:

(6.36) a. Kitap dün akşam 500 lira tuttu
book yesterday evening 500 lira cost-past
'The book cost 500 lira yesterday evening'

b. * Kitap 500 lira dün akşam tuttu
book 500 lira yesterday evening cost-past

(6.37) a. Konferans geçen sene iki habta sürdü
Conference last year two week last-past
'The conference lasted two weeks last year'

b. * Konferans iki habta geçen sene sürdü
Conference two week last year last-past

Moreover, unlike canonical arguments which may receive accusative case in the scrambled position, MPs under their usual interpretation may not:

(6.38) a. * Kitap 500 lirayi dün akşam tuttu
book 500 lira-acc yesterday evening cost-past

b. * Konferans iki habtayi geçen sene sürdü
Conference two week-acc last year last-past

[7] Many thanks to And Turken for this data.

In fact such examples are possible, but they have a different meaning from the usual meaning of measure phrases. In these cases the MP has to be interpreted as a physically realised amount of some sort, in the same way as we saw for English MPs with strong determiners. This is in fact predicted by the theory outlined here, if the correct way to interpret such data is by assuming that the MP here is exceptionally interpreted as introducing a DR and hence referring like a canonical argument.

6.6.2 Clitic Doubled Measure Phrases

Unfortunately it is not possible to test whether MPs can be clitic doubled in Spanish Dialects that allow clitic doubling. This is because the doubled DP must be animate in a clitic doubling construction. Suñer 1988 gives:

(6.39) * la compramos (a) esa novela
it-F bought-1pl (a) that novel
'We bought that novel'

MPs are obviously not animate, so the fact that they do not clitic double tells us nothing.

6.6.3 Scrambled Measure Phrases in Dutch

In Chapter Five we argued that another example where a DP raises to spec AgrP is the scrambling phenomenon found in Dutch. We assumed that an adverb like *gisteren*, 'yesterday' marked the boundary of VP and that an object that appeared before this had moved from its original position to spec AgrP. An example:

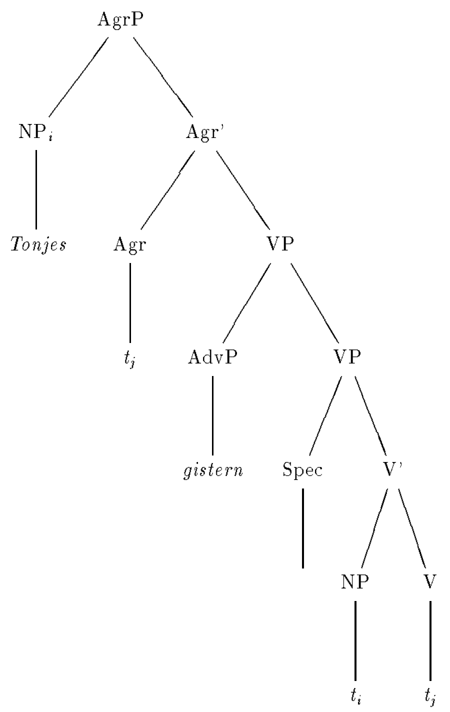
(6.40) a. ... dat Jan gisteren Tonjes gezien heeft
... that Jan yesterday Tonjes saw has
'... that Jan saw Tonjes yesterday'

b. ... dat Jan Tonjes gisteren gezien heeft
... that Jan Tonjes yesterday saw has
'... that Jan saw Tonjes yesterday'

The object is interpreted as familiar only when it is in the scrambled position, but it can be either familiar or unfamiliar if it is in its base position. We attributed this to the fact that the object moves into the specifier of AgrP when it scrambles, and therefore the chain of which it is the lexical content becomes an Agr-Chain. By the Familiarity Condition, such an utterance will only be felicitous when there is a DR in the DRS with which an anaphoric link may be made. This accounts for the necessarily familiar interpretation of the object in this position. Weak DPs in the non-scrambled position are, of course, expected to be ambiguous, since the NFC says nothing about their interpretation.

The following structure illustrates this process:

(6.41)



Now observe what happens when we try to scramble a MP:

(6.42) a. . . . dat Jan gisteren 70 kilos gewogen heeft
. . . that Jan yesterday 70 kilos weighed has
'. . . that Jan weighed 70 kilos yesterday'

b. *. . . dat Jan 70 kilos gisteren gewogen heeft
. . . that Jan 70 kilos yesterday weighed has
'. . . that Jan weighed 70 kilos yesterday'

MPs may not be scrambled, that is, under this analysis, they may not move to the specifier of AgrP. Given this, they are not possible Agr-Chains, as predicted.

In fact MPs in this position may receive the reified referential interpretation that we saw for Turkish and in English MPs with strong quantifiers. Again this is what we expect under the theory developed already.

6.6.4 Measure Phrases and Antecedent Contained Deletion

On similar lines we argued that Antecedent Contained Deletion structures in English also involve movement of the object to spec AgrP. The motivation for this was that the

object must escape VP to avoid a structure that would lead to infinite recursion and hence uninterpretability. The following data show that MPs are unacceptable in ACD constructions and furnish us with further evidence that they do not raise to spec AgrP:

(6.43) a. *Anson weighed every/some kilo that David did.
b. *The conference lasted every/some hour that the concert did.
c. *The book cost every/some pound that the CD did.

6.6.5 Measure Phrases and Participle Agreement in French

In our discussion of French past participle agreement, which is optionally triggered by the extraction of a WH-element from the complement position of a past participle, we argued that the morphological agreement on the participle was triggered by a filled spec AgrP during the course of the derivation. The examples we considered were:

(6.44) a. Combien de chaises a-t-il repeint?
How-many of chairs has-he repaint-PPart
'How many chairs has he repainted?'

b. Combien de chaises a-t-il repeintes?
How-many of chairs has-he repaint-PPart-Agr3m.pl
'How many chairs has he repainted?'

and the structures we posited were:

(6.45) [Combien de chaises]$_i$ a-t-il [[$_{AGR}$ repeint$_j$][$_{VP}$ t$_j$ t$_i$]]

(6.46) [Combien de chaises]$_i$ a-t-il [t'$_i$ [$_{AGR}$ repeintes$_j$][$_{VP}$ t$_j$ t$_i$]]

Smith 1992 provides data which show that MPs never trigger morphologically overt agreement, in contrast to canonical arguments. He provides the following examples with relative clause extraction:

(6.47) a. Les douze francs que ce livre avait coûté(*s)
The twelve francs that this book has cost-(*Agr)
'The twelve francs that this book cost'

b. Les vingt grammes que cette lettre a pesé(*es)
The twenty grammes that this letter has weighed-(*Agr)
'The twenty grammes that this letter weighed'

We can provide similar examples for non-relative extractions:

(6.48) je me demande combien de semaines la conferance a duré(*es)?
I me ask how-many of weeks the conference has last-PPart-(*Agr)
'I wonder how many weeks the conference lasted?'

We conclude from this that MPs do not move into spec AgrP during the course of the derivation.

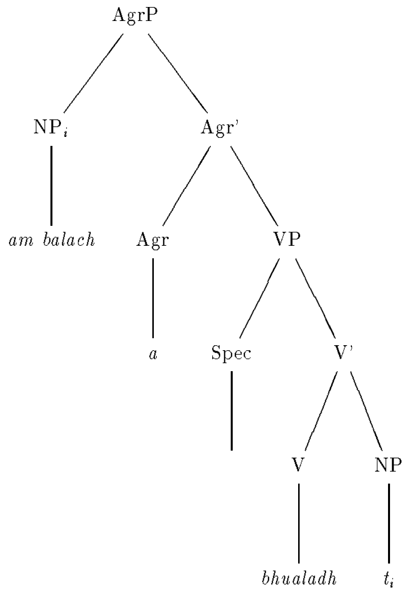
6.6.6 Measure Phrases in Scottish Gaelic

Finally consider the Fronted Object construction in Scottish Gaelic. We argued at some length in Chapter 3 that the position of the fronted object was spec AgrP. This is motivated by the analogous way that different types of objects behave in standard agreement constructions and in fronted object constructions. The examples were of the type:

(6.49) Feumaidh Daibhidh [$_{AGRP}$ [am balach]$_i$ [$_{AGR'}$ a [bhualadh t$_i$]]]
Must David the boy Agr strike-VN
'David must hit the boy'

as a tree structure:

(6.50)



The data we have considered so far would lead us to expect that MPs in SG are barred from participating in fronted object constructions. This is the case:

(6.51) a. Feumaidh a' cho-labhairt mairsinn seachdainn
Must the conference last-VN week
'The conference must last a week'

b. *Feumaidh a' cho-labhairt seachdainn a mhairsinn
Must the conference a week Agr last-VN

(6.52) a. Feumaidh a' cho-labhairt cosg tri mile not
Must the conference cost three thousand pounds
'The conference has to cost 3000 pounds'

b. *Feumaidh a' cho-labhairt tri mile not a chosg
Must the conference three thousand pounds Agr cost-VN

This furnishes with further evidence that MPs do not raise to spec AgrP.

In fact the data from Gaelic is more complicated. As we saw earlier, the object fronts in a number of situations, including modal contexts such as those given above. However, the object also fronts obligatorily in the perfective and prospective aspectual constructions. Interestingly, here a MP object may not remain in situ either, and a paraphrase must be given instead. We discuss these facts in Chapter 7.

6.6.7 Further Consequences

We have so far restricted our attention to the specifier of AgrO. But the No-DR Corollary makes predictions for subjects and complements of non-verbal elements as well. We explore some of these here.

A-Movement Constructions

Note that passives, which involve movement of the object to the spec AgrP position where the subject usually lies, are ill-formed when the object is a MP:

(6.53) a. *Seventy kilos were weighed (by Anson)
b. *A week was lasted (by the conference)
c. *Thirty pounds were cost (by the book)

Similar data can be found for tough-constructions:

(6.54) a. *Seventy kilos is hard for Anson to weigh
b. *A week is tough to last in the outback
c. *Three dollars is easy for a book to cost

This is of course predicted by our account which bars MPs from a Spec AgrP position.

However, there may be other reasons why such sentences are ill-formed. Data from languages which allow impersonal passives where no promotion of the object to subject position is required, and where the subject position is instead filled by an expletive, suggests that this is the case. Impersonal passives of verbs that take MP complements are ill-formed in Dutch, for example:

(6.55) a. * Er werd door Dennis 52 kilos gewogen.
Expl be-past by Dennis 52 kilos weigh-ppart

b. * Er werd door het congres twee weken geduurd.
Expl be-past by the conference two weeks last-ppart

Another explanation for the fact that MPs do not appear in subject position might involve the lexical structure of V's that take MP complements. Jackendoff 1972 argues that the lack of passivisability of MPs follows from the interaction between the thematic structure of the MP verb and an independent principle regulating the occurrence of elements with particular thematic roles in a sentence. Although I am not inclined to accept the details of this proposal, its spirit seems correct, given the Dutch data.

Gerundive Constructions

If we accept Chomsky 1992's proposal that the specifier of AgrP is a position of structural case marking then we make another prediction. We expect to see case marking effects as well as agreement effects. We noted that this was true for Turkish above. Another interesting phenomenon which shows that MPs interact with Case differently to other arguments is the following.

English has two types of gerund, verbal and nominal. Verbal gerunds mark their complements accusatively, while nominal gerunds Case-mark their complements with the preposition *of*. The complement marking can be forced by the type of modification that the gerund accepts — nominal gerunds are modified by adjectives, while verbal gerunds are modified by adverbials. This results in the following paradigm (see Adger and Rhys 1991 for an account of these facts):

(6.56) a. Anson's constant devouring of cakes
b. *Anson's constant devouring cakes
c. Anson's constantly devouring cakes
d. *Anson's constantly devouring of cakes

Compare this paradigm with the analogous one for QAs:

(6.57) a. *Anson's constant weighing of 70 kilos
b. *Anson's constant weighing 70 kilos
c. Anson's constantly weighing 70 kilos
d. *Anson's constantly weighing of 70 kilos

It appears here that MPs do not allow Case marking by *of*. At first blush, this would seem to contradict our hypothesis that MPs do not raise to spec AgrP for structural Case, since this Case marking by *of* is usually considered to be inherent (Chomsky 1986b). I would like to assume, though, that it is actually structural, and therefore related to an agreement projection. This seems sensible, since this Case marking is thematically neutral, in the same way as nominative and accusative Case are thematically neutral. It also regularises the projection of an agreement head over all the lexical categories, and makes syntactic sense of the fact that many languages have inflecting prepositions. If this is the case then the claim that the MP may not raise into the spec AgrP position would explain the ill-formedness of (6.57a) as a violation of Case licensing.

6.7 Summary

In this chapter we have shown that the Novelty Condition which causes all argument-chains to introduce a DR must be modified somewhat, since MPs do not introduce DRs. We have also shown how this fact interacts with a corollary of the Familiarity Condition to predict that MPs can never participate in Agr-Chains. This prediction was tested with respect to a number of constructions, and shown to be valid, supporting the formulation of the NFC.

Chapter 7

Syntactic Licensing

7.1 Introduction

One of the questions which runs through this thesis, but which has not been addressed as yet is whether there is a relationship between the syntactic licensing of an element in a position and the interpretation of that element. De Hoop in her thesis answers this question positively, arguing that there are two types of Case assignment, and that each type correlates with a different interpretation for the Case-assigned argument (de Hoop 1992). Chomsky 1992 also argues that all DPs must be syntactically licensed at LF, by structural Case, and he links structural Case assignment with the spec AgrP position.

We have already seen that in the FOP construction in Scottish Gaelic all arguments except measure phrases move to spec AgrP overtly. Under Chomsky's system they are all assigned structural Case in this position. Under de Hoop's story the Case assigned VP internally is what she terms *weak* and leads to a non-proportional (unfamiliar) interpretation. The Case assigned by Agr is generally parametrised, so that, in English, Agr assigns both types of Case, giving rise to both types of interpretation for weak DPs in subject position. Dutch on the other hand has an Agr that assigns only the type of Case that leads to a strong (in our terms familiar) reading for the subject. Presumably the preposed position in Scottish Gaelic is like English subject Agr in that it assigns both types of Case.

This account seems to me to be too stipulative by far, and essentially just describes the data. We have already shown in chapter 5 that positions like the English subject position, or the SG preposed object position are associated with ambiguity for weak DPs because there is no alternative syntactic derivation that would allow the unfamiliar reading to emerge. We therefore don't need to have ambiguous Case assignment by Agr. We can adopt Chomsky's position that Agr assigns a structural Case which syntactically licenses the DP in its spec.

However, this will not quite work. There are of course in situ DPs which we would like to be structurally Case-licensed but which are not in spec AgrP. One solution would be to allow them to raise between S-Structure and LF, but this does not seem particularly satisfying theoretically, since it has only theory internal motivation. Moreover, this would mean that we have the NFC applying at S-Structure rather than LF, which seems unintuitive. Moreover, we have argued that DPs in Spec AgrP have a particular interpretation at LF, and that it is transparent from the S-structure which DPs are in Spec AgrP at LF because we can inspect alternative derivations. So we cannot adopt the standard Minimalist assumption that all DPs are in Spec AgrP for reasons of Case

checking at LF. However, we are now in a position to adopt a version of de Hoop's idea, since we do not require Agr to be able to assign two different types of Case. We can simply correlate one type of Case assignment with Agr, and the other with a VP internal position.

This however means that we lose the strict mapping between type of syntactic licensing, and type of interpretation. What emerges instead is that the apparent interpretational effects of different types of syntactic licensing derive from other factors, such as contextual factors, or general mapping constraints between LF and DRS.

7.2 Licensing Arguments

Arguments then, following de Hoop are licensed either by structural Case assigned within the projection of their selecting head, or by structural Case assigned by some other functional head that the argument associates with via movement. SG evidences both types of licensing in non-finite verb constructions, with the obligatory movement of all objects to spec AgrP in FOP constructions, and in situ licensing of objects in non-FOP constructions:

(7.1) a. Feumaidh Daibhidh cat a bhualadh
Must David cat-COM Agr strike-VN
'David must strike a cat'

b. Tha Daibhidh a' bualadh cat
Be-Pres David ASP strike-VN cat-COM
'David is striking a cat'

In both cases I have given the morphological case marking as the common (neutralised nominative-accusative) case. Actually, this is controversial for example (b), since when the object is definite, it is marked with morphological genitive case:

(7.2) a. Feumaidh Daibhidh an cat a bhualadh
Must David the cat-COM Agr strike-VN
'David must strike a cat'

b. Tha Daibhidh a' bualadh a' chait
Be-Pres David ASP strike-VN the cat-GEN
'David is striking a cat'

Ramchand 1993 argues that in both the indefinite and definite examples, the case that is assigned is the same: partitive. She correlates partitive case assignment with a particular interpretation of the object, much as de Hoop does. The reason that Ramchand can claim the indefinite example to be partitive, even though morphologically it is common case is that SG does not have a separate partitive paradigm. Ramchand claims that there is actually a partitive paradigm but that it is constructed out of the common case paradigm for indefinites, and the genitive for definites. I am skeptical of this claim, since the genitive form of the indefinite does exist, and this is what is used in real partitive constructions.

It seems more likely that what is happening here is something akin to a definiteness effect. In general definites are ruled out, but they can be saved by overt case assignment.

Since it is not my concern to give an account of definiteness effects in this thesis, I will leave these examples for further analysis, noting only that there appear to be two types of syntactic licensing via Case.

7.3 Generalized Visibility

Typically argument NPs have to be licensed in two ways: they must be licensed by theta theory and they must be licensed by Case. The link between these is made explicit in the Visibility Condition, credited to Aoun by Chomsky 1986b:

(7.3) **Visibility:**
An DP chain can be interpreted as an argument iff it has structural Case.

This condition can be read as a licensing condition, given that an NP chain must be licensed at LF in order to receive an interpretation:

(7.4) **Visibility:** (revised)
An DP chain can only be interpreted if it is theta-theory licensed and Case-theory licensed.

Measure phrases generally seem to engender problems for this conjunctive formulation of Visibility, since they are theta-marked but don't seem to need Case. These appear to be licensed by argument structure, since as we have already seen, they are obligatory and they are NPs in as much as they are projections of N. As we have already noted, they seem to be Case-resistant, so they can never be marked by the inserted case-marking preposition *of* in gerundive nominals. Thus compare:

(7.5) Anson's constant devouring of cakes

(7.6) *Anson's constant weighing of 70 kilos

and as we have seen in chapter 6 they never raise to spec AgrP for structural case licensing there. Given these facts the question arises as to how measure phrases satisfy Visibility.

Two options are possible: either they are only theta-licensed, and need no Case licensing to count as legitimate LF objects or they are licensed in some other fashion. The former option involves showing that measure phrases are exceptions to Visibility for some principled reason, or that Visibility is in some way falsified by the behaviour of these elements. The latter option involves generalizing Visibility so that it takes into account other modes of licensing, rather than just Case theory. It is this latter option we will defend here.

Consider the first option. To argue that measure phrases are exceptions to Visibility we could show that they project only to NP rather than DP and provide evidence that abstract Case is assigned only to DPs. Measure phrases do in fact only allow a restricted set of determiners, as we showed in chapter 6. However, it would seem theoretically more attractive to allow all nominals to project the full functional structure associated with them and to rule out certain projections to D for independent reasons. Also allowing

certain verbs to select NP rather than DP seems to place to great a burden on the theory of selection since it allows selection for functional as well as lexical categories (see Grimshaw 1991 for discussion and for a theory that rules this out in principle).

Discarding this option then, we would like to show that measure phrases are licensed in some other way. Let us term this X-licensing, for the moment.

(7.7) **Visibility:**
An DP chain can only be interpreted if it is theta-theory licensed and either Case-licensed or X-licensed

This formulation of Visibility resolves the problem engendered by measure phrases, but we would like to eliminate the disjunction in the consequent since it undermines the generalisation.

Consider what 'Case-licensed' means. The type of Case we are interested in here is structural. As we have noted already there seem to be two types of case-licensing: licensing by Agr, and licensing in VP. Specifier-Head agreement, the progenitor of Case-licensing by Agr is a standard coindexation relationship, which allows us to reformulate Visibility as:

(7.8) **Visibility:**
An DP chain can only be interpreted if it is theta-theory licensed and either coindexed with Agr or case-licensed in VP or X-licensed.

Case-licensing in VP seems to involve a morphologically marked type of case (partitive in Finnish, genitive for SG definites—see de Hoop 1992 for a thorough discussion of this type of fact). Let us assume that this type of case marking typically involves coindexation with a case particle, K (see Fukui and Speas 1986). Visibility then can be reformulated as:

(7.9) **Visibility:**
An DP chain can only be interpreted if it is theta-theory licensed and either coindexed with Agr or K or X-licensed.

This gives us a clue to the nature of X-licensing. We can eliminate part of the disjunction in this formulation of Visibility by defining a notion of F-Licensing:

(7.10) **F-Licensing:**
An DP chain is F-licensed if it is coindexed with a functional head

and then generalise Visibility in the following way:

(7.11) **Generalized Visibility:**
An DP chain can only be interpreted if it is theta-theory licensed and F-licensed

This theoretical move would suggest that X-licensing involves coindexation with a functional head. In the rest of this chapter we will argue that in the case of measure phrases the relevant functional head is Asp(ect).

7.4 Licensing Measure Phrases

Turning to the syntactic licensing of measure phrases in SG, note that these never raise into the spec AgrP position (as we saw in Chapter 6):

(7.12) a. Feumaidh a' cho-labhairt mairsinn seachdainn
Must the conference last-VN week
'The conference must last a week'

b. *Feumaidh a' cho-labhairt seachdainn a mhairsinn
Must the conference a week Agr last-VN

(7.13) a. Feumaidh a' cho-labhairt cosg tri mile not
Must the conference cost three thousand pounds
'The conference has to cost 3000 pounds'

b. *Feumaidh a' cho-labhairt tri mile not a chosg
Must the conference three thousand pounds Agr cost-VN

In these examples with modals the measure phrase remains in its base position and preposed measure phrases are ungrammatical. In the following examples the progressive construction which allows VO order is well formed but the perfective construction which forces OV order is ungrammatical.

(7.14) a. Tha a' cho-labhairt a' mairsinn seachdainn
be-PRES the conference ASP last-VN week
'The conference is lasting a week'

b. *Tha a' cho-labhairt air seachdainn a mhairsinn
be-PRES the conference ASP a week Agr last-VN
'The conference has lasted a week'

(7.15) a. Tha a' cho-labhairt a' cosg tri mile not
be-PRES the conference ASP cost three thousand pounds
'The conference is costing 3000 pounds'

b. *Tha a' cho-labhairt air tri mile not a chosg
be-PRES the conference ASP three thousand pounds AgrO cost-VN
'The conference has cost 3000 pounds'

Preposing of measure phrases into the spec AgrP position is therefore ungrammatical in SG, but they can remain in base position, at least when the AgrP is a complement of a modal or of progressive aspect. Preposing of measure phrases is also ill-formed in the perfective construction, which essentially just seems to be another case of FOP. Here, however, an interesting difference arises: the measure phrase is also ungrammatical in *base* position in the perfective construction. Thus:

(7.16) a. *Tha a' cho-labhairt air seachdainn a mhairsinn
be-PRES the conference ASP a week Agr last-VN
'The conference has lasted a week'

b. *Tha a' cho-labhairt air a mhairsinn seachainn
be-PRES the conference ASP Agr last-VN week
'The conference has lasted a week'

It seems then that measure phrases are simply not licensed in the perfective construction. The rest of this chapter is devoted to showing how an independently motivated analysis of tense and aspect in SG gives us reasons why this should be the case[1].

7.5 Aspectual Chains

We will now consider how the functional categories Tense and Aspect affect interpretation. We will argue for the existence of Tense chains which are composed of smaller aspectual chains that instantiate the relationship between Reichenbachian temporal reference points and morpho-syntactic structure. We build on the work of Giorgi and Pianesi 1992, Drijkoningen and Rutten 1991, and Stowell 1992, Hornstein 1990, Zagona 1990.

7.5.1 Lexical Specification, Selection and Indexation

We will follow much recent work (Williams 1981, Higginbotham 1985, Zwarts 1991, Zwarts 1992) and assume that lexical categories have both an argument structure (Grimshaw 1990) (or theta-grid) and a special distinguished argument that acts as a syntactically accessible variable and specifies the denotational type of the category. We will term elements of the former theta-arguments and we will term the latter the denotational argument. We represent this type of information enclosed in angled brackets, with the denotational argument to the left and the theta-arguments, structured as a nested list (following Grimshaw 1990), to the right. Thus the lexical specification of a verb like 'kiss' has the following structure:

(7.17) kiss
$\langle e, (a(b))\rangle$

The notion of theta-marking relevant for the theta-criterion involves matching elements of the argument structure with XP sisters of the theta-marking head. We will follow Zwarts 1992 and represent this as coindexation between the appropriate theta-argument and the denotational argument of the complement XP. Thus 'kiss Anson' involves the structure:

(7.18) kiss Anson
$\langle e, (a(b_i))\rangle$ $\langle x_i, 0\rangle$

[1] This work was already reported in Adger 1993a and in Adger to appear.

where x_i is the denotational argument of the head of the NP 'Anson' which has a null argument structure. We will refer to this type of indexing as 'selection indexing'. Note that this type of indexing involves the denotational argument of the N head, intervening functional categories are irrelevant. But it is well known that semantically N determines the range of the dominating determiner or quantifier, thus we expect there to be another type of indexing where the operator associated with the determiner or quantifier also binds the denotational argument of N. We will refer to this type of indexing as 'binding indexing' and represent it as super-indexation. Thus:

(7.19) kiss every man
$\langle e, (a(b_i))\rangle$ D^j $\langle x_i^j, 0\rangle$

Selection indices are established at whatever point in the derivation lexical insertion takes place (D-Structure in conventional theories and on application of the generalised transformation GT in Chomsky 1992), while binding indices are established at LF.

7.5.2 Morphosyntactic Tense and Interpretation

Reichenbach 1947 provides an analysis of the tense/aspect system of English which uses three temporal reference points: the speech time (S), the event time (E) and a reference time relating the two (R). Reichenbach argues that R is implicated in the analysis of all the tenses. If R precedes S then some variety of the past tense is involved; if R and S are contemporaneous then we have a present tense variety and if R follows S then we have a variety of the future. Which particular variety is involved depends on the relationship between R and E: E preceding R results in a perfect; E following R results in a prospective and E contemporaneous with R results in a simple tense. We provide some examples below $\rangle$, $\langle$, and = can be glossed as 'follows', 'precedes' and 'is contemporaneous with', respectively)[2]:

(7.20) a. Anson sings (S=R, E=R)
b. Anson sung (S$\rangle$R, E=R)
c. Anson has sung (S=R, E$\langle$R)
d. Anson had sung (S$\rangle$R, E$\langle$R)

Recently, a number of authors have argued that this system of relationships is directly instansiated in the morphosyntax. Giorgi and Pianesi 1992 (hence G & P), for example, argue that past participial morphology (the functional head Asp) in Italian represents the E$\langle$R relation while the finite tense (the functional head T) represents the relation between S and R (see also Drijkoningen and Rutten 1991, Stowell 1992). Thus:

(7.21) avevo mangiato
have-Past eat-PPart
S$\rangle$R E$\langle$R
'I had eaten'

[2]This analysis ignores phenomena such as imperfectivity, for which it is necessary to view the Reichenbachian points as temporal intervals with internal structure.

Here T is realised by an auxiliary verb while the main verb has moved into Asp. G & P argue that the denotational event arguments of the auxiliary verb and the main verb must be coindexed for the structure to be interpreted. This means that a Tense chain is established via head movement of Aux to T and V to Asp.

We will follow the thrust of G & Ps ideas, but we shall be more explicit about how the tense chain is composed. G & P provide no way of ensuring that R in T and R in Asp are coindexed, as they must be to ensure proper interpretation. Likewise, they offer no insight as to how E in Asp is coindexed with the event argument in V, another prerequisite for correct temporal interpretation. The mechanisms we have outlined above to deal with theta-marking are in fact all that is necessary.

Asp dominates and is sister to VP[3]. If the relationship between them is one of selection, then Asp takes VP as its internal argument and coindexes the denotational argument of VP with its internal theta-argument:

(7.22) Asp VP
$\langle R, (E_i)\rangle$ $\langle e_i, (a(b))\rangle$

We thus establish the coindexation between E in Asp and e in VP via selection indices. Now the coindexation relationship between R and E in Asp can be read off the semantics of Asp. If Asp is simple (R=E) then R and E are lexically coindexed. Otherwise they are contraindexed. The relationship between R in Asp and R in T is likewise established by selection. AspP is the internal argument of T, and therefore T coindexes its internal theta-argument with the denotational argument of Asp, establishing the coindexing relationship via selection indices. Thus we have the following representation for a simple present tense:

(7.23) T Asp VP
$\langle S_i, (R_i)\rangle$ $\langle R_i, (E_i)\rangle$ $\langle e_i, (a(b))\rangle$

The indexing relationship between S and R can again be read off the semantics of T. If T is present tense then S=R and coindexing occurs; otherwise we have contraindexing.

We will refer to the substructures formed by Asp and V and by T and Asp as aspectual chains (trivially all three heads form aspectual chains singly). These are composed into a single domain via selection. The tense chain for the clause is formed, as seems semantically plausible, by binding from a temporal operator. The temporal operator associated with the utterance time is projected in the specifier of TP at LF (along the lines of Stowell 1992) and this operator binds the denotational arguments that it governs:

(7.24) Op T Asp VP
Op^j $\langle S_i^j, (R_i)\rangle$ $\langle R_i^j, (E_i)\rangle$ $\langle e_i^j, (a(b))\rangle$

This system allows the temporal interpretation to run directly off the morphosyntactic structure with no further stipulations than are already required for canonical theta-marking. The Tense chain is composed of smaller aspectual chains via the mechanism of

[3]Asp is actually probably sister to AgrP, but we shall abstract away from Agr in the discussion here. This abstraction is derivable from Relativised Minimality (see Roberts 1991).

selection. One interesting point about this system is that it dissociates thematic structure (associated with lexical heads) from argument structure (associated with both lexical and functional heads). This is a position recently argued for by Adger and Rhys 1991, Rhys 1993 and Cann 1993b among others.

7.5.3 Tense and Aspect in Scottish Gaelic

Compound tenses

SG appears to reflect Reichenbach's analysis rather directly. The most common way of marking the difference between present and past tenses is to use a form of the verb *bith* 'be' as an auxiliary with a nominalised form of the main verb which occurs with an aspectual particle. The verb *bith* marks the relationship between S and R (*tha*, *bha* and *bithidh* are respectively the present, past and future forms of *bith*):

(7.25)

a.	Tha	Daibhidh	a'	falbh
	Be-Pres	David	Asp	leave-VN
	'David is leaving'			
b.	Bha	Daibhidh	a'	falbh
	Be-Past	David	Asp	leave-VN
	'David was leaving'			
c.	Bithidh	Daibhidh	a'	falbh
	Be-Fut	David	Asp	leave-VN
	'David will leave'			

The particle *a'* here marks that E=R. This becomes even clearer if we inspect the perfect paradigm:

(7.26)

Tha/Bha/Bithidh	Daibhidh	air	falbh
Be-Pres	David	Asp	leave-VN
'David has/had/will have left'			

Here *air* marks that E⟨R. The paradigm is completed by the prospective:

(7.27)

Tha/Bha/Bithidh	Daibhidh	gu	falbh
Be-Pres	David	Asp	leave-VN
'David is/was/will be about to leave'			

where *gu* marks that E⟩R.

The analysis of the SG tense/aspect system we propose is simply that the auxiliary verb in T marks the S,R relation while the particle in Asp marks the E,R relation. The domain for the tense chain is composed as discussed above, by selection, from the smaller aspectual chains. An example of this for the present perfect is given below:

(7.28)

Tha	Daibhidh	air	falbh
Be-Pres	David	Asp	leave-VN
$\langle S_i, (R_i)\rangle$		$\langle R_i, (E_j)\rangle$	$\langle e_j, (a)\rangle$
'David has left'			

a bhith

As well as the simple compound tenses discussed above, SG allows the use of an auxiliary to carry the aspectual particle:

(7.29)

Tha/Bha	Daibhidh	air	a bhith	a'	falbh
Be-Pres/Past	David	Asp	be-VN	Asp	leave-VN
'David has/had left'					

(7.30)

Tha/Bha	Daibhidh	gu	bhith	a'	falbh
Be-Pres/Past	David	Asp	be-VN	Asp	leave-VN
'David is/was about to leave'					

This device allows the composition of aspectual particles:

(7.31)

a.	Tha	Daibhidh	gu	bhith	air	a bhith	a'	falbh
	Be-Pres	David	Asp	be-VN	Asp	be-VN	Asp	leave-VN
	'David is about to have left'							
b.	Tha	Daibhidh	air	a bhith	gu	bhith	a'	falbh
	Be-Pres	David	Asp	be-VN	Asp	be-VN	Asp	leave-VN
	'David has been about to leave'							

One constraint that emerges here though is that the simple aspect marker must come finally (this was first noted by Cram 1981):

(7.32)

a.	Tha	Daibhidh	air	a bhith	a'	falbh
	Be-Pres	David	Asp	be-VN	asp	leave-VN
	'David has left'					
b.	*Tha	Daibhidh	a'	a bhith	air	falbh
	Be-Past	David	Asp	be-VN	asp	leave-VN

Recall G & P's claim that, in order for a structure with an auxiliary and main verb to be interpreted, the denotational arguments of the auxiliary and main verb must be coindexed. If we accept this claim, we immediately provide an explanation for the contrast in (7.32). The relevant structure for the well formed (a) is:

(7.33)

Tha	Daibhidh	air	a bhith	a'	falbh
Be-Pres	David	Asp	be-VN	asp	leave-VN
		$\langle R_j, (E_i)\rangle$	$\langle e_i(a_i)\rangle$	$\langle R_i, (E_i)\rangle$	$\langle e_i\rangle$
'David has left'					

Here the denotational arguments of the auxiliary and the main verb are coindexed via the normal selection process which passes up the index through the simple aspect marker (where the denotational argument and the internal theta-argument of *a'* are specified lexically to be coindexed because of the meaning of *a'*). We can assume that the auxiliary verb *bith* adds no extra aspectual information in terms of reference points (although it does tell us about the internal constituency of current reference points), nor does it add information that there is another event taking place; it simply serves to morphologically carry the aspectual marking of the particle *air*. The auxiliary then, basically requires that its internal argument and its denotational argument carry the same information, so that the internal argument of *bith* and its denotational argument are coindexed. This is a characteristic property of auxiliaries. Now consider the structure for the other example:

(7.34) *Tha Daibhidh a' a bhith air falbh
Be-Past David Asp be-VN asp leave-VN
$\langle R_j, (E_j)\rangle$ $\langle e_j(a_j)\rangle$ $\langle R_j, (E_i)\rangle$ $\langle e_i\rangle$

Here, because the lexical specification of *air* marks that E⟨R, E and R cannot be coindexed. A contra-indexation is then passed up to the auxiliary, which will then be contra-indexed with the main verb, in violation of G & P's constraint. We also predict that *gu*, the prospective marker, will behave in the same way as *air*. This is the case:

(7.35) a. Tha Daibhidh gu bhith a' falbh
Be-Pres David Asp be-VN asp leave-VN
'David has left'

b. *Tha Daibhidh a' a bhith gu falbh
Be-Past David Asp be-VN asp leave-VN

7.5.4 Summary

This section has motivated the idea that the Tense chain used in the licensing of measure phrases is composed from smaller aspectual chains via the mechanism of selection. Once the separate aspectual chains have been composed via selection indices the temporal operator of the clause can bind all of the denotational arguments within its selection domain via binding indices to form the T-chain proper. The advantage of this system is that it allows temporal interpretation to run directly from morphosyntactic structure. The system also predicts an unexpected constraint in the tense/aspect system of SG.

7.6 Consequences for Licensing Measure Phrases

Recall that a tense chain is essentially formed via the mechanism of selection, encoded as coindexation of the internal theta-argument of a head with the denotational argument of that head's XP sister. This immediately predicts that internal arguments of verbs are possible elements of a Tense chain. Note, however, that the selection driven process of aspectual chain composition relies on a lexical indexing of the denotational argument and internal theta-argument of either aspectual particles or auxiliaries. This lexical indexing is read off the semantic properties of the head (see (7.23)). It follows that the internal theta-argument of a verb will only be part of an aspectual chain if there is lexical coindexing of the denotational argument of the verb and its internal theta-argument that follows from the meaning of the verb. Any such verb we then expect to behave much like an auxiliary, since this type of lexical indexing is characteristic of auxiliaries.

In fact this is exactly the kind of property we would like to attribute to verbs that take measure phrase complements. These can almost always be paraphrased by a copular verb. Crucially, this same copula is used as an auxiliary in the languages concerned:

(7.36) a. Anson weighs 70 kilos

b. Anson is 70 kilos

(7.37) a. The book cost twelve dollars

b. The book is twelve dollars

(7.38) a. Tha dà clach deug de chudrom ann an Daibhidh
Be-pres two stone teen of weight in(redup) David
'David weighs twelve stone'

b. Tha trì not air an leobhar seo
Be-pres three pounds on the book that
'That book costs three pounds'

We therefore specify the lexical entry of a verb like 'cost' as:

(7.39) cost
$\langle e_i, (a(b_i))\rangle$

Consider then the licensing of measure phrases in postverbal position in SG:

(7.40) Tha a' cho-labhairt a' mairsinn seachdainn
be-PRES the conference ASP last-VN week
$\langle S_i, (R_i)\rangle$ $\langle R_i, (E_i)\rangle$ $\langle e_i, (a(b_i))\rangle$ $\langle x_i, 0\rangle$
'The conference is lasting a week'

Here the denotational argument of the measure phrase is coindexed with that of the verb and that of Asp. It therefore is part of a composed aspectual chain via selection indices. Note that it also conforms to the generalised version of Visibility if we take 'coindexed' in this definition to refer to selection indices.

Now consider the structure with the perfective particle:

(7.41) *Tha a' cho-labhairt air mairsinn seachdainn
be-PRES the conference ASP last-VN week
$\langle S_i, (R_i)\rangle$ $\langle R_i, (E_j)\rangle$ $\langle e_j, (a(b_j))\rangle$ $\langle x_j, 0\rangle$
'The conference has lasted a week'

Here the measure phrase is coindexed with the event argument of the verb but the semantics of the aspectual particle means that the denotational argument of the *air* carries a different index. This means that the measure phrase is not coindexed with a functional head and that the generalised version of Visibility is violated since *seachdainn* is not F-licensed. The same explanation extends to the analogous structure with the prospective marker *gu*, which is also ill formed.

The question now arises as to why the corresponding English structures are grammatical:

(7.42) a. The conference has lasted a week

b. ?This book has cost twenty pounds

We will attribute the slight ill-formedness of the (b) example here to a semantic tension between the perfective, which requires a final bound on an event, and the measure verb *cost* which is lexically specified as some kind of unbounded state. Recall that we require the measure phrase to be coindexed with a T functional head. This requirement is satisfied by the head movement of V into the functional head realised by *-ed*, under the standard assumption that head movement leaves a trace.

One final prediction is made by the system we have outlined in this paper. We predict that measure phrases in structures with the auxiliary verb *bith* and the R=E aspectual particle *a'* should be well-formed, even if the auxiliary carries the perfective particle. This follows since the measure phrase will be coindexed with the aspectual head *a'*, as above. This proves to be the case, and such structures are actually a paraphrase for the ill-formed bare perfective structures:

(7.43) Tha a' cho-labhairt air a bhith a' mairsinn seachdainn
be-PRES the conference ASP be-VN ASP last-VN week
'The conference has been lasting a week'

We can now turn to the problem that we noted in Chapter 3, when we argued that the fronted object had indeed moved into the Spec of AgrP. the problem was that this violated the generalisation that object shift is only possible if the verb has raised to AgrS. The verb here has obviously raised no further than AgrO.

The way that Holmberg and Platzack's Generalisation is encoded in Chomsky 1992 is that the raising of the verb to AgrS extends the domain of the verb so that its arguments count as equidistant and therefore the subject position is not relevant for the calculation of whether the object has moved economically. If the verb has not raised, then the domain is not extended and an economy violation results.

We can capture this same intuition here since the domain of the verb has essentially been extended by the independently motivated mechanism of aspectual chain formation, thus allowing object shift and maintaining Holmberg and Platzack's insight.

7.7 Summary

In this chapter we have briefly considered the syntactic licensing of arguments, and claimed that it is constrained by a generalised form of Visibility. This interacts with an independently motivated analysis of tense and aspect in Gaelic to explain why measure phrases are not licensed in simple perfective structures.

Chapter 8

Concluding Remarks

This thesis has shown that the functional head Agr is at least one of the contributing factors in determining the semantics of an argument. Other factors, such as lexical specification for definiteness, or focal factors undoubtably enter into the equation too (see Partee 1991), but the crucial point is that something we recognise as a functional head has semantic effect. More to the point, it has a semantic effect on another element in the sentence, its specifier. This is a new and interesting observation, given that any semantic effect attributed to a functional head before has been seen as either a direct effect of the head on its complement (such as is the case with Tense, see chapter 7), or on its maximal projection (as is the case with D determining the definiteness of DP). Furthermore, the case for the independent projection of Agr is strengthened, given that there are now semantic, as well as syntactic and morphological motivations.

More generally, the thesis has argued for a DRS level of representation, and has construed this level as one which can contain contextually supplied information, thus extending the notion of the interpreted proposition from one where purely linguistic factors are relevant. The consequence that the thesis has for views of the relationship between syntactic and semantic categories is that the definitions of these terms must make reference to functional heads on the syntactic side, and to contextually supplied information on the semantic side. Of course the thesis says nothing about the actual semantic interpretation (mapping the DRS structures to a non-linguistic representation); I think that this work is important, especially with respect to determining why it is that measure phrases introduce no discourse referent, and a more adequate account of the weak island facts almost certainly will involve examining aspects of the model structure denoted by measure phrases (see eg, Szabolcsi and Zwarts 1992).

The main points of the thesis can be summarised in a number of slogans:

- The mapping from LF to DRS makes reference to Agr
- Checking theory can be constrained by semantic factors
- The ambiguity of weak DPs in situ is contextually induced
- Economy considerations constrain the possibility of reconstruction
- Measure phrases aren't associated with a discourse referent
- Tense/Aspect as well as Agr are involved in syntactic licensing

One further point that the thesis makes is that there does not have to be a special mapping hypothesis, but rather the more general theory of definiteness has to be extended. This opens up interesting possibilities for exploring definiteness effects. Is there a specific syntactic configuration that leads to these effects in the same way that the spec AgrP position leads to a kind of anti-definiteness effect (what we termed a cardinality restriction in chapter 4)?

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