



Syntactic structure and modal interpretation: the case of Basque "behar"

Irene Balza Tardaguila

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Irene Balza Tardaguila. Syntactic structure and modal interpretation: the case of Basque "behar". Linguistics. Université Michel de Montaigne - Bordeaux III; Universidad del País Vasco, 2018. English. NNT : 2018BOR30070 . tel-02136208

HAL Id: tel-02136208

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École Doctorale Montaigne Humanités (ED 480)

THÈSE DE DOCTORAT EN ÉTUDES BASQUES

**SYNTACTIC STRUCTURE
AND MODAL INTERPRETATION:
THE CASE OF BASQUE *BEHAR***

Présentée et soutenue publiquement le 09 mars 2018 par

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Thèse en cotutelle

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2018

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SYNTACTIC STRUCTURE AND MODAL INTERPRETATION

THE BASQUE NECESSITY MODAL *BEHAR*

Irene Balza Tardaguila

2018

Abstract

This dissertation is an investigation of the syntactic structure and modal interpretation of clauses involving the denominal necessity predicate *behar* ‘need’ and an infinitival complement. On the one hand, it analyses the syntactic status of non-finite complements of denominal *behar* by examining their interaction with syntactic phenomena sensitive to different structural and locality conditions, and concludes that the infinitival complements of *behar* can correspond to different underlying structures. The largest type of infinitive is a non-restructuring infinitive that projects a full clausal architecture (i.e. a CP), and the smallest one is a reduced restructuring infinitive that projects up to ν P. There is evidence for intermediate types projecting up to the inflectional domain (IP/TP). On the other hand, the dissertation examines the thematic and scope properties of the subjects in each of the different structural types and the modal interpretation that they can give rise to. On the basis of this analysis it is argued that modal interpretation is not constrained by any single factor (the presence of restructuring, the referential status of the subject and its relative scope vis-à-vis the modal predicate, among other frequently mentioned ones), but depends on the cumulative effect of several factors working together. The dissertation also shows the necessity of adopting a more fine-grained view of root modality, one that allows a simpler mapping of syntactic structures into modal meanings.

Acknowledgements

First of all, I would like to show my deepest gratitude to my advisors, Myriam Uribe-Etxebarria and Ricardo Etxepare, for their professional and human support, *mila esker bihotz-bihotzetik nigan sinisteagatik*. Without their invaluable help, I would not have been able to accomplish this work.

Many thanks as well to all the professors and researchers in the University of the Basque Country and IKER CNRS, specially to Pablo Albizu, Maia Duguine, Aritz Irurtzun, Urtzi Etxebarria, Ane Berro, Ane Odria, Alejo Alcaraz, Laura Vela-Plo, Natalia Jardón, Beñat Oyharçabal, Celine Mounole, Bryan Lefferman, Julian Maia, Iñaki Gaminde, and Julen Manterola for their precious suggestions and for their contribution in the data collection. Thanks also to *Blagan* association in Hondarribia, the members of IXA taldea, and to the people at Fundación Tecnia Research & Innovation and other participants for filling in the questionnaires.

My deepest gratitude to Maria Arche and Bill Haddican for their evaluation reports, and to Xabier Artiagoitia, Urtzi Etxebarria, Celine Mounole, Nerea Madariaga, Aritz Irurtzun, Ana María Falaus, Olga Fernández Soriano and Francesc Roca Urgel for accepting to be part of my dissertation committee.

Last but not least, thanks to all the members of the Doctorate Commission and the Doctorate School, specially to Joaquin Gorrotxategi, Carlos García Castellero, Kepa Erdozia and to Alberto Carrera for helping me with all the paperwork. Also to Dory Martínez and the whole Department of Linguistic and Basque Studies.

Esker berezi bat, azkenik, David Mardarasi, etxekoei eta lagunei.

This research has been developed thanks to the projects (i) *Hizkuntzalaritza Teorikorako Taldea (HiTT)* (Eusko Jaurlaritza, Ikerketa Taldeak IT769/13), (ii) *Variación Lingüística y Arquitectura del Lenguaje (VALAL)* (MINECO/ FFI2014-53675-P), (iii) *Sobre la Interfaz Sintaxis-Semántica, Condiciones de Legitimación en las derivaciones y la interpretación (INTERSYNSEM)* (MINECO/FFI2011-29218), (iv) *Significado y Gramática (SIGGRAM)*, (MINECO, Redes de Excelencia, FFI2016-81750-REDT), (v) *Significado y Gramática (SIGGRAM)*, MINECO, Redes de Excelencia, FFI2014-51675-REDT), (vi) University of the Basque Country UPV/EHU, UFI11/14 “*Hizkuntzalaritza Teorikoa eta Diakronikoa: Gramatika Unibertsala, Hizkuntza Indoeuroparrak eta Euskara (HiTEDi) /Lingüística Teórica y Diacrónica: Gramática Universal, Lenguas Indoeuropeas y Lengua Vasca (LINGTEDi)*”, and (vii) *Advancing the European Multilingual Experience (AthEME)*, Grant agreement 613465, funded by the European Union's Seventh Framework Programme for Research, Technological Development and Demonstration (FP7).

Contents

1. Introduction	1
1.1. SCOPE AND GOALS OF THE DISSERTATION	2
1.2. OVERVIEW OF THE CHAPTERS	9
2. Modality at the Syntax-Semantics Interface: Main Views	17
2.1. INTRODUCTION	18
2.2. MAIN APPROACHES TO THE SYNTAX OF MODALS UNDER THE TRADITIONAL EPISTEMIC/ROOT CLASSIFICATION	22
2.2.1. The traditional thematic account of modals	22
2.2.1.1. Expletive subjects	24
2.2.1.2. Quasi-argumental weather- <i>it</i> subjects	26
2.2.1.3. Idiom-chunk subjects	27
2.2.1.4. Quirky subjects	28
2.2.1.5. Selectional restrictions	31
2.2.1.6. Meaning preservation under passivization	32
2.2.2. Counterarguments to the traditional raising vs. control classification	34
2.2.2.1. <i>Modal verbs must be raising verbs</i> (Wurmbrand 1999)	35
2.2.2.2. Modals in passive constructions	36
2.2.2.3. Scope properties of the arguments of modal constructions	40
2.2.3. The hierarchical account	46
2.2.3.1. Scope interaction with the subject in height approaches	47
2.2.3.2. Negation	52
2.2.3.3. Tense	57
2.2.3.4. Interaction of Epistemic and Root modals with other modals	62
2.2.4. The subject-scope based account (Lee 2006)	65
2.2.4.1. Wh- subjects of epistemic constructions	66
2.2.4.2. Agreement patterns of group-denoting nouns	67
2.3. THE EPISTEMIC/ROOT DISTINCTION REVISED	70
2.4. CONCLUSION	77

3. On the functional vs. lexical nature of modals: <i>behar</i> and its crosslinguistic kin	81
3.1. INTRODUCTION	82
3.2. THE MORPHOLOGICAL AND SYNTACTIC PROPERTIES OF FUNCTIONAL MODALS	85
3.2.1. Morphological deficiency	85
3.2.2. Syntactic properties of modals that make them look as functional heads	87
3.2.2.1. The NICE properties of English modals	87
3.2.2.2. The Infinitive for Participle (IPP)	88
3.2.2.3. Bare infinitival complements without infinitival markers	88
3.2.2.4. No extraposition of the infinitival complement (German)	89
3.2.2.5. Ordering and co-occurrence restrictions	90
3.2.2.6. Restructuring	94
3.2.3. Semantic properties of modals: polyfunctionality	100
3.2.4. Interim summary	102
3.3. THE MIXED (FUNCTIONAL/LEXICAL) PROPERTIES OF BASQUE NECESSITY MODAL <i>BEHAR</i> AND ITS CROSSLINGUISTIC KIN	103
3.3.1. The shared nominal origin of <i>need</i> -type verbs	103
3.3.2. The complements of <i>behar</i> and <i>need</i> -type predicates	106
3.3.3. Other syntactic and morphological properties of <i>need</i> -type modals	113
3.3.3.1. Morphological deficiency and NICE properties	113
3.3.3.2. The Infinitive Pro Participium (IPP) effect	115
3.3.3.3. Extraposition of the infinitival complement	116
3.3.3.4. Restructuring with <i>need</i> -type modals	117
3.3.3.5. Ordering and co-occurrence restrictions	124
3.3.3.6. Thematic and selectional restrictions	129
3.3.4. Interim conclusion	135
3.4. DIFFERENT VIEWS ABOUT THE CATEGORIAL STATUS OF MODAL PREDICATES	137
3.5. THE DUAL NATURE OF <i>NEED</i> -TYPE VERBS AS FUNCTIONAL AND LEXICAL CATEGORIES	142
3.6. SUMMARY AND CONCLUSIONS	147

4. Syntactic asymmetries in the modal constructions with <i>behar</i>	151
4.1. INTRODUCTION	152
4.2. THE SYNTACTIC ASYMMETRIES OF THE MODAL CONSTRUCTIONS INVOLVING <i>BEHAR</i> AND <i>-TU</i> COMPLEMENTS	155
4.2.1. Word order alternations in infinitival constructions with <i>behar</i>	157
4.2.2. Asymmetries regarding case assignment and auxiliary selection	159
4.2.2.1. Auxiliary selection and case assignment in <i>inf>behar</i> constructions	160
4.2.2.2. Auxiliary selection and case assignment in <i>behar>inf</i> constructions	162
4.2.3. Agreement with the arguments of the embedded non-finite complement	164
4.2.3.1. Matrix agreement in <i>inf>behar</i> structures	164
4.2.3.2. Matrix agreement in <i>behar>inf</i> structures	166
4.3. UNDERLYING STRUCTURE OF THE INFINITIVAL CONSTRUCTIONS WITH <i>BEHAR</i>	170
 5. Cartography of the modal constructions involving <i>behar</i> and an infinitival complement	
5.1. INTRODUCTION	178
5.2. LOW ABSOLUTE SUBJECTS	180
5.2.1. Case in Basque is structurally assigned	183
5.2.2. ERG/ABS alternation in existential modal constructions	185
5.2.3. Type II lexical restructuring constructions	190
5.2.4. Type III non-restructuring constructions	191
5.2.5. Type I functional restructuring constructions	193
5.2.6. Conclusion: restructuring constructions involve a vP layer	194
5.3. NON-FINITE ASPECT	196
5.3.1. <i>-TU</i> complements and aspect	196
5.3.2. Aspect in the <i>-TU</i> complements of <i>behar</i>	198
5.4. INDEPENDENT TENSE PROJECTIONS	201
5.4.1. Conflicting adverbs in the contexts of modals and the case of <i>behar</i>	203
5.4.1.1. Restructuring vs non-restructuring constructions involving <i>behar</i>	205
5.4.2. Sequence of Tense (SOT) intervention effects	208
5.4.3. Sequence of Tense (SOT)	209
5.4.3.1. Sequence of Tense (SOT) with infinitive complements	212

5.4.3.2. Sequence of Tense (SOT) in the complements of <i>behar</i>	212
5.5. NEGATION PROJECTIONS	216
5.5.1. The contrast between <i>inf</i> > <i>behar</i> and <i>behar</i> > <i>inf</i> constructions	220
5.5.2. Asymmetries between 3 rd person and 1 st /2 nd person agreement	223
5.5.2.1. Licensing conditions of 3 rd person vs. 1 st /2 nd person agreement: LDA in substandard Basque	225
5.5.3. Number vs person agreement and the underlying structure of <i>behar</i> + <i>inf</i>	227
5.5.3.1. Two potential constructions for ABS>NEG configurations	227
5.5.3.2. Tense in the absence of negation in <i>behar</i> + <i>inf</i> : SOT intervention	230
5.5.3.3. The blocking effect of higher (NEG>ABS) negation	232
5.5.4. Conclusions on the interaction of negation and restructuring phenomena	236
5.6. FOCUS PROJECTIONS	239
5.6.1. Focus in non-finite contexts in Basque	240
5.6.2. The contrast between <i>inf</i> + <i>behar</i> and <i>behar</i> + <i>inf</i> constructions	241
5.6.3. Low focus and agreement	245
5.7. FINAL CONCLUSIONS	247
6. Revisiting the syntax-to-semantics mapping of modal constructions	251
6.1. INTRODUCTION	252
6.2. THE RAISING/CONTROL PROPERTIES OF <i>BEHAR</i> : REVISION OF THE THEMATIC AND SCOPE-BASED ACCOUNTS	255
6.2.1. Weather predicates	257
6.2.1.1. Weather predicates in Basque	257
6.2.1.2. Weather- <i>it</i> subjects with <i>behar</i>	259
6.2.2. Animacy restrictions	264
6.2.3. Expletive subjects	269
6.2.4. Reconstruction of idiom-chunk subjects	273
6.2.5. Scope reconstruction of indefinite subjects	278
6.2.5.1. Scope reconstruction in Basque	278
6.2.5.2. Scope reconstruction in modal construction with <i>behar</i>	281
6.2.5.3. Modal interpretation of scopally ambiguous constructions	284
6.2.5.4. Modal interpretation of non-restructuring constructions	287

6.2.5.5. Main conclusion about the scope properties of indefinite subjects with <i>behar</i>	288
6.2.6. Scope interaction of embedded objects associated to focus sensitive particles	290
6.2.7. Dative experiencer arguments and the raising vs. control division	298
6.2.7.1. Dative intervention effects	299
6.2.7.2. Dative intervention: the restructuring vs. non-restructuring contrast	301
6.2.7.3. Modal interpretation in the context of dative experiencer subjects	303
6.2.7.4. Impossibility of dative experiencer subjects in non-restructuring constructions	305
6.2.8. Interim summary	307
6.3. THE SCOPE OF BEHAR RELATIVE TO QUANTIFIERS AND NEGATION: AGAINST A HIERARCHICAL APPROACH TO THE SYNTAX-SEMANTICS OF MODALS	311
6.3.1. The scope interaction between quantificational subjects and modals	312
6.3.2. Quantificational subjects and <i>behar</i>	315
6.3.3. The scope interaction between modals and negation	321
6.3.4. Interaction of negation and <i>behar</i> in epistemic and root constructions	324
6.3.5. The polarity sensitivity of necessity modals	329
6.3.6. Basque necessity modal <i>behar</i> from a polarity sensitivity perspective	330
6.3.6.1. The scope of polarity neutral modals	333
6.3.6.2. The scope of <i>behar</i> relative to negation and the underlying structure of <i>inf</i> > <i>behar</i> restructuring constructions	334
6.3.6.3. The fine-grained classification of modality and negation	340
6.3.6.4. Conclusions on the scope interaction of modals with negation	342
6.4. CONCLUSION ON THE SYNTAX-TO-SEMANTICS MAPPING OF MODAL CONSTRUCTIONS	344
7. Conclusions	347
7.1. THE MAIN CONTRIBUTIONS OF THE DISSERTATION	348
7.1.1. The functional and lexical variants of <i>behar</i> and <i>need</i> -type verbs	348
7.1.2. The cartography of the modal constructions in which <i>behar</i> can occur	351

7.1.3. The modal meanings of <i>behar</i> and how they are derived	353
7.1.3.1. Thematic and selectional properties and modal interpretation	354
7.1.3.2. Scope interaction, structural height and modal interpretation	358
7.1.3.3. Summary of the syntactic constraints on modal interpretation	361
7.2. OPEN ISSUES	363
References	365
Abbreviations	391

1. Introduction

1.1. SCOPE AND GOALS OF THE DISSERTATION

In this dissertation I will investigate the Basque necessity modal *behar* by carefully examining the syntactic contexts in which it occurs, and how they relate to different modal interpretations.

Modals¹ have always received much attention in the linguistic literature; they have been described from different perspectives and within different theoretical frameworks.

One of the most intriguing puzzles concerning the category of modal verbs that has stood out in the centre of all debates has to do with the strong crosslinguistic tendency to use the same modal to convey different meanings. The modal sentences in (1) and (2) involving the necessity modal *must* of English and the necessity modal *behar* from Basque illustrate this semantic ambiguity.

(1) John must be at home

- a. It must be the case that John is at home
- b. John is required/obliged to be at home

(2) Ordu honetarako, Jon₁ek bulegoan egon behar du.

hour this-for Jon.sE office-in-the be need HAVE.3sE

- a. It must be the case that Peter is in his office by this hour
- b. Peter is required to be in his office by this hour.

The modal sentences in (1) and (2) are ambiguous between two main senses. (1a) and (2a) express epistemic modality, from Greek *episteme* ‘knowledge’. This type of modality is concerned with what is possible or necessary given what is known by an epistemic agent (the speaker). By contrast, (1b) and (2b) express what has been called root modality. Root modality entertains notions like obligation, permission, ability,

¹ With the cover term modals I refer to what have been informally called modal verbs or modal auxiliaries, leaving aside other modal expressions such as modal particles, modal adjectives, etc.

volition, etc., and it exploits the causal relation that holds between the subject and the modal.

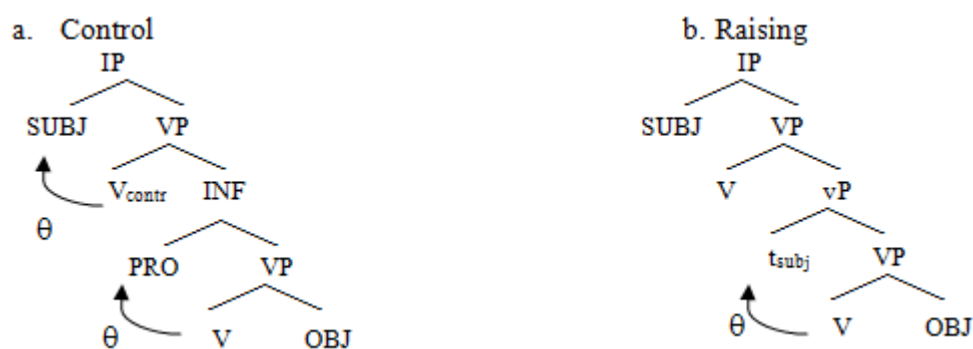
Since the same modal expression is used to convey these two meanings, the question arises as to whether modals are lexically ambiguous or whether the two meanings are derived by some other means. Different accounts have been put forth to answer this question.

One traditional account attributes the semantic difference in (1) and (2) to the different thematic properties that modals with an epistemic reading and modals with a root interpretation exhibit regarding their relation with the subject of the clause (i.e. whether or not they enter into a thematic relation with the subject). Let us refer to this view as the thematic account.

(i) The thematic account

It has been assumed that root modals assign a theta-role to the subject, while epistemic modals do not. Under the assumption that theta-roles are lexically specified (Chomsky 1981), in the cases in which the two meanings are conveyed by the same (PF) modal, the two meanings are taken to correspond to two separate lexical entries which differ in their argument structure. Based on the assumption that there is a one-to-one relation between arguments and theta-roles and that this is mapped onto the syntactic structure (Chomsky 1981, Baker 1988), some of the advocates of this account propose that the root/epistemic distinction is ultimately based on the structural difference between raising vs. control constructions. This distinction is illustrated in the structures in (3a-b).

(3) Control vs. Raising modals (the structures are from Wurmbrand 1990:600)



In the root configuration in (3a) the modal is a lexical verb that assigns a theta role to the subject of the clause. Thus, in this configuration there are two syntactic external arguments: the surface subject, which receives a theta-role from the modal, and a silent infinitival subject (e.g., PRO) which receives a role from the lower uninflected verb.

In contrast with the control configuration in (3a), in the epistemic configuration in (3b) the modal does not assign a theta-role to the subject of the clause; the subject receives its theta-role from the embedded uninflected verb. That is to say, the modal is a subject-raising predicate.

Other accounts link the two main meanings of modals with the different scope relations exhibited by epistemic and root modals regarding other scope bearing elements of the clause (QP subjects, negation, tense and aspect, other modal verbs).

One such account is Lee (2006), to which I will refer to as the subject-scope based account.

(ii) The subject-scope based account:

On the basis of the scope interactions between modal *have (to)* and the subject, Lee (2006) assumes that the epistemic and root interpretations of *have (to)* are derived from the variable scope position that the subject takes relative to the modal: the epistemic interpretation arises when the subject scopes below the modal (*Modal > Subj*), and the root interpretation when the subject scopes above the modal (*Subj > Modal*).

In many cases, the relative scope position of the subject vis-à-vis other scope bearing elements is embedded in a cartographic view of modal structures: the different scope taking positions of modals (and their associated readings) relative to not only the subject, but also negation, tense and aspect, follow from the fact that modals are inserted in different syntactic positions in the clausal architecture. I will refer to this view as the hierarchical account.

(iii) The hierarchical account:

One of the seminal hierarchical accounts of modals is Picallo (1990). Picallo situates epistemic modals in the functional domain of the clause, under Infl^o, and root modals in the lexical domain, as VP-adjuncts. However, not all authors agree with this simple division. Cinque (1999, 2004, 2006), for instance, assumes that modals are always functional elements, whether they have an epistemic or root interpretation. What distinguishes them is what specific position within the functional spine they occupy. A similar line of research is pursued by Butler (2003, 2004), Hacquard (2006 *et seq.*) and Ramchand (2012). These authors propose a high position above the subject and other scope bearing elements for epistemic modals in the CP periphery, and a low position below these elements in the functional vP periphery.

So within the hierarchical view, there are different opinions as to whether all modals are functional or there exist lexical modals too. I will refer to this as the lexical vs. functional debate.

(iv) The functional vs. lexical debate:

The debate on the categorial nature (lexical vs. functional) of modals can perhaps be better understood if we look at modals from a diachronic perspective. It has been argued that some modals that nowadays have an undeniable functional status were lexical predicates earlier in life, and have become functional elements as a result of a grammaticalization process (i.e. an originally lexical item develops a distribution typical of functional items) (Visser 1969, Quirk et al. 1985, Warner 1993, Benincà & Poletto 1993, Krug 2000, van der Wouden 2001, van der Auwera 2001, van der Gelderen 2009, Jedrzejowski 2016). This grammaticalization process is assumed to take place gradually; consequently, not all modals are grammaticalized to the same extent, both

across languages and within one language. In addition, the original lexical form may be kept for some uses, in which case it coexists with its new functional variants (Heine and Reh 1984; Hopper 1991; van Gelderen 2009). This would explain why, from a synchronical perspective, some modals exhibit full functional-like properties (and thus enter the structure as functional heads in the functional domain of the clause), whereas others exhibit a lexical-like behaviour (i.e. they enter the structure as lexical verbs).²

Summarising, the different accounts put forth in the generativist literature disagree with respect to various central questions concerning the syntax-to-semantics mapping of modal sentences.

- I. Whether or not modals differ in their thematic properties and therefore in their status as raising or control predicates.
- II. Whether or not modals differ in their scope position relative to the subject.
- III. Whether or not modals differ in their syntactic position.
- IV. Whether modals are functional or lexical elements.

My goal in this dissertation is to investigate the syntax-to-semantics mapping of the Basque necessity modal *behar* in relation with each of these questions. I should say that the Basque necessity modal *behar* has never been the object of such a thorough study.

What I will defend:

Regarding the first question, namely, whether or not modals differ in their thematic properties and therefore in their underlying raising vs. control structure, the analysis carried out in this dissertation leads me to conclude that the traditionally assumed correlation between epistemic and root modals on the one hand and raising and control structures on the other is not tenable. To be more specific, it does seem that

² It still remains to be seen whether all modals have necessarily started as lexical predicates or whether some of them have been functional elements from the very beginning. For instance, Romero (2005) argues against the traditional view that English modals are derived from Old English lexical verbs (Roberts 1985, Warner 1993 among others) and defends that they already functioned syntactically like modal heads in this period.

when *behar* occurs in a control configuration in which a thematic relation is established with the subject, the epistemic meaning of this modal is precluded; however, when it occurs in raising configurations, *behar* can give rise to either epistemic or root interpretations.

Regarding the second question, I will argue that, even if there exists a difference with respect to the way the modals interact with the subject under the different interpretations, the correlation assumed in Lee (2006) for the necessity modal *have to* whereby the low scope reading of the subject correlates with the epistemic interpretation of the modal, and the narrow scope reading correlates with its root interpretation does not hold for the Basque necessity modal *behar*. On the one hand, I will show that epistemic modals do seem to admit a wide scope interpretation of the subject relative to *behar* when the appropriate context is built up. On the other hand, some root interpretations are felicitous when the subject scopes below the modal, whereas others are not. This comes to show that the traditional epistemic vs. root division of modals is not adequate to capture the properties of these modals and calls for a different classification of types of modality.

Regarding the third question, whether the epistemic and root modal interpretations are derived from the distinct position of these modals in the clausal architecture, I will argue that they are not. The main arguments in favour of this conclusion come from the scope interaction of modals relative to quantificational subjects and negation. This interaction shows that the traditional two-fold classification of modals into epistemic and root is not adequate and this motivates the four-typed classification I adopt for Basque necessity modal *behar*.

Finally, with respect to the question of the functional versus lexical status of modals, I will defend that modals can pattern either with functional heads or with lexical modal predicates. I will claim that this assumption is necessary to account for the mixed properties exhibited by Basque modal *behar*. In this respect, *behar* behaves on a par with *need*-type (and *want*-type) modals in a range of languages that also exhibit a series of mixed (functional/lexical) properties. To begin with, there is the fact that *behar* as well as other *need*-type modals can not only take uninflected infinitival complements,

which is a crosslinguistic property of modals, but also a range of complements typical of lexical verbs (DP complements, and in some cases also finite clausal complements or non-finite complements with an overt subject). Another good reason for arguing that *behar* comes in two variants (one functional and the other one lexical) is its dual behaviour with respect to whether or not the construction it appears in is transparent to clausally-bound phenomena. This too calls into question a uniform analysis of *behar* as a functional modal, since functional modals occur in monoclausal structures in which the main predicate is the uninflected infinitival verb and are thus expected to always exhibit restructuring effects. After analysing in more detail the syntactic properties of the modal constructions involving *behar* and its infinitival complement, I will conclude that modal *behar* constructions correspond to three different underlying constructions. I will label these constructions as *functional restructuring*, *lexical restructuring* and *non-restructuring*. Functional constructions are transparent to the case and auxiliary selection properties of the embedded uninflected verb. Lexical restructuring and non-restructuring constructions are not: they invariably select for a transitive auxiliary (**edun* HAVE).

1.2. OVERVIEW OF THE CHAPTERS

Chapter 2. Modals at the syntax-semantics interface.

As explained in the introduction, the range of meanings modals can convey have traditionally been grouped under two main categories: epistemic modality and root modality.

In this chapter I discuss the major accounts that seek to explain how these two meanings are derived at the syntax-semantics interface: (i) the thematic account, in which epistemic and root modals are assumed to differ in their argument structure and in their underlying status as either raising or control structures (Ross 1969; Perlmutter, 1971; Jackendoff, 1972; Huddleston 1976, 1984; Zubizarreta 1982; Roberts 1985); (ii) the account whereby modals with an epistemic and root interpretation are taken to be merged at different positions of the clausal architecture, which I will name the hierarchical-account (Piccolo 1990, Cinque 1999, Butler 2003; 2004; Hacquard 2006 et seq., Ramchand 2012); and (iii) the subject-scope-based account put forward by Lee (2006) that derives the epistemic/root readings of necessity modal *have (to)* from the different scope positions that the subject takes relative to this modal (which occupies a fixed position in the clausal structure).

The analysis of modal *behar* I will carry out in this dissertation will show that all these accounts have problems to explain how the different modal interpretations are derived. One problem shared by these accounts is precisely that the two-fold classification of modals they assume is too narrow to capture the range of properties exhibited by *behar* and other modals across languages.

In this chapter I will present the classification of modals that I will adopt, which distinguishes four rather than two types of modality. Following previous work (Barbiers 1995, 2002; Eide 2002; Asarina & Holt 2005), I assume that the modal types that are referred to as root should be further divided into: non-directed deontic, directed deontic and dispositional/dynamic modality. Non-directed deontic modality patterns with epistemic modality in that it is not subject-oriented; that is to say, it is not directed to the

subject. By contrast, directed-deontic and dynamic/dispositional modalities are always directed/oriented to the subject. Finally, dispositional/dynamic modality contrasts with non-directed and directed modality in that the former is subject-internal (it expresses a force, capacity, desire... internal to the subject).

As I will show throughout the dissertation, this classification is not only semantically based, a syntactic analysis of the constructions involving *behar* will show that the classification is further substantiated by a series of syntactic properties that constrain the availability of each of these types of modalities.

Chapter 3. On the functional vs. lexical nature of modals: *behar* and its crosslinguistic kin

In this chapter I will concentrate on the second central question of this dissertation: the functional/lexical status of modals.

In the last decades, it has been standardly assumed that modals are functional heads located in the functional periphery of a monoclausal construction. This has long been thought for English modals which meet the morphosyntactic criteria for auxiliarihood (the so-called NICE properties, cf. Huddleston 1981), and Cinque's (1999) proposal of a universal hierarchy for functional heads has contributed to spread this analysis for modals across languages.

However, the comparative analysis I will pursue in this chapter will reveal that the modal necessity predicate *behar* and what I will refer to as the *need*-type modals across languages cannot be given a univocal analysis as functional categories.

In this chapter, I will provide a detailed analysis of the mixed functional/lexical properties of these modals and I will argue that the full range of properties exhibited by modal predicate *behar* can only be captured if we assume that it is ambiguous between a functional head and a lexical verb. This ambiguity should not be surprising if one

considers the grammaticalization process *need*-type modals have undergone in different languages (van der Wouden, 2001, van der Avera & Taeymans 2004, van der Gelderen 2004, Jedrzejowski 2016).

Chapter 4. Syntactic asymmetries in the modal constructions with *behar*

In this chapter, I will mainly focus in describing a series of syntactic asymmetries exhibited by the modal constructions formed by modal predicate *behar* and an uninflected infinitival complement. As will be shown, these constructions behave differently regarding (i) the word order in which the infinitival shows up relative to the predicate *behar* (to the left of *behar* or extraposed to its right), (ii) the case of the subject (absolutive or ergative) and the auxiliary selected (‘be’ or ‘have’) and (iii) the agreement exhibited by the auxiliary of the construction (i.e. whether or not the construction is transparent to agreement with the arguments of the infinitival predicate). The distribution of these properties will lead me to propose a tentative classification in which three types of constructions are distinguished. The classification is summarised in the next table.

Table 1 Syntatic properties of TypeI-III constructions

	Type I Functional restructuring	Type II Lexical restructuring	Type III Lexical non- restructuring
<i>Word order</i>	<i>Inf>behar</i>	<i>Inf>behar/Behar>inf</i>	<i>Behar>inf</i>
<i>Auxiliary/Case determined by uninflected verb</i>	✓	X	X
<i>Matrix agreement with embedded absolutive and dative arguments</i>	✓	✓	X

Chapter 5. Cartography of the modal constructions involving *behar* and an infinitival complement

In this chapter I analyse in more detail the syntactic properties of the three types of constructions in the previous chapter (Type I-III).

I first discuss that the infinitival complements involved in each of the constructions identified in chapter 4 embed a vP. This conclusion is based on the possibility that absolutive DPs get case-licensed inside the infinitival complement, which makes manifest the projection of a Voice/vP layer on top of the verb phrase. This conclusion argues against Wurmbrand's earlier view that lexical restructuring infinitives correlate with bare VPs.

I will then run an additional battery of tests in order to establish whether there are other functional layers above the vP domain (such as Aspect, Tense, Negation and Focus). The result of this analysis will lead me to conclude that of the three types of constructions of the classification, only Type III non-restructuring constructions project a left periphery. Also, it will be shown that lexical restructuring constructions can involve complements of different sizes: vPs, NegPs and TPs, while the complements of Type I functional constructions are no bigger than vPs.

Chapter 6. Revisiting the syntax-semantics mapping

This chapter is devoted to examine the main syntactic (thematic-based, scope-based and hierarchical) approaches to modal interpretation in the light of the new data coming from the exhaustive analysis of the Basque denominal necessity modal *behar*.

In Section 6.2., I investigate if the different constructions in which *behar* can occur license the presence of non-thematic subjects (i.e. weather-*it* subjects, (null)

expletive subjects and idiom-chunk subjects) and whether or not *behar* imposes thematic (animacy) restrictions on the subject it occurs with. Additionally, I look at some significant data regarding the distribution of dative experiencer arguments that will also help me to establish the raising or control status of the construction. The analysis will lead me to the conclusion that Type I and Type II are raising constructions whereas Type III constructions are control constructions. I also examine whether there is any correlation between the underlying raising vs control structures and the modal reading the construction gives rise to. I conclude that, contrary to what has been argued in traditional thematic approaches to modal interpretation (Ross 1969; Perlmutter, 1971; Jackendoff, 1972; Huddleston 1976, 1984; Zubizarreta 1982; Roberts 1985), there is no one-to-one correlation between the underlying raising/control structure of modal constructions and the type of interpretation (epistemic/root) they give rise to.

I also analyse the scope properties of indefinite and quantificational subjects, and conclude that the alleged scopal difference between epistemic and root modals with respect to these subjects does not hold up. On the one hand, at least one type of root reading (non-directed deontic one) is available in raising constructions where the subject takes narrow scope relative to the modal *behar*. On the other hand, the epistemic interpretation does not require that the subject take narrow scope relative to the modal.

Finally, the analysis of the scope interactions of the Basque necessity modal *behar* with quantifier subjects, and with negation, invalidates two of the strongest arguments used to sustain a hierarchical approach to the syntax-semantics mapping of modal interpretations. On this view, it is assumed that epistemic interpretations are derived from a high position of the modal in the structure (above negation, tense and the canonical scope position for subjects), whereas root interpretations are derived from a low position under all the afore-mentioned scope bearing elements. However, the scope interaction of necessity modal *behar* with respect to negation happens to be very different from what one would expect under such a hierarchical account. On the one hand, when interpreted epistemically, *behar* necessarily scopes below (rather than above) negation; on the other hand, it is shown that *behar* interacts in different ways with negation under each of the modal types discussed.

In conclusion, none of the accounts reviewed in Chapter 2 is adequate to explain the syntax-to-semantics mapping of the Basque necessity modal constructions under analysis. The analysis presented in this chapter suggests that, rather than one single linguistic factor (i.e. modal height, subject-modal scope, presence/absence of a thematic relation with the subject), it is a combination of different syntactic factors that determines which type of modality/ies *behar* can convey and which not. This will lead me to propose what I will refer to as the conspiracy approach to modal interpretation.

(i) A conspiracy approach to modal interpretation:

Neither of the syntactic properties analysed in this dissertation– i.e. the raising vs. control properties of the modal construction, the subject-modal scope, or the scope of *behar* relative to negation – can be considered to be decisive on their own for the choice of one modal meaning over the other. Rather, the combined effect of the following properties favours some modal readings and excludes others:

- A. Whether or not a thematic relation is established with the subject rules out the possibility of an epistemic reading.
- B. The presence of inanimate subjects rules out directed deontic and dispositional readings.
- C. The scope reconstruction of an indefinite/Q subjects to a complement internal position below the modal rules out directed deontic and dispositional readings.
- D. A wide scope reading of the modal relative to negation favours a deontic (directed/non-directed) interpretation and rules out epistemic and dispositional readings.

Table 2 Syntactic properties of TypeI-III constructions

CONSTRAINING FACTORS	MODALITY TYPED ALLOWED			
	Epistemic	Non-directed deontic	Directed Deontic	Dispositional
Presence of a thematic relation with the subject	NO	YES	YES	YES
Presence of inanimate subjects	YES	YES	NO	NO
Scope reconstruction of indefinite/Q subjects to a complement internal position below the modal	YES	YES	NO	NO
Wide scope of the modal relative to negation	NO	YES	YES	NO

2. Modality at the Syntax-Semantics Interface: Main Views

2.1. INTRODUCTION

Traditionally, modals have been classified into two big categories according to their semantic contribution: (i) *epistemic* modals (from Greek *episteme* ‘knowledge’³), which roughly express what is conceived as possible or necessary given “what is known and what the available evidence is” (von Fintel 2006), and (ii) *root* modals, which group any kind of modality which is not epistemic – such as (a) *deontic* modality (from Greek *deon*, meaning ‘duty’), expressing what is perceived as necessary, obligatory, permissible according to ‘a body of law or a set of moral principles or the like’ (von Fintel 2006), and (b) *dynamic* or *dispositional* modality, which concerns the capacity, ability, volition or will of a controlling participant (usually the agent) (Palmer 1979, 1983; Perkins 1983; among others). In essence, epistemic and root modality are assumed to differ in that the former follows from the speaker’s knowledge (it is speaker oriented), while root modality follows “from circumstances surrounding the main event and its participants” (it is subject or participant-oriented) (Bybee, Perkins & Pagliuca 1994; Hacquard 2011). The following examples illustrate the two categories.

(1) Epistemic modality

Context: John is not in his office. He never leaves his office in work time, but he has not been feeling any well in the last hours. One of his workmates concludes:

- a. He might be sick.
- b. He must be sick.
- c. He has to be sick.

(2) Root modality

- a. According to hospital regulations, visitors have to leave by six pm. (von Fintel 2006)
- b. You may smoke in here. (Palmer 1986:102)

³ The term *epistemic* is sometimes also used as a broad term including the often associated *alethic* modality (from the Greek word *aletheia*, meaning ‘truth’; concerning what is possible or necessary in the widest sense, von Fintel 2006) and *metaphysical* modality (having to do with how the world may turn out, or might have turned out, to be, Condoravdi 2002). Alternatively, *epistemic*, *alethic* and *metaphysical* modals have been referred to as *non-root* modals, given their contrast with root modals.

- c. He can stand on his head without using his hands. (Nuyts & van der Avera 2016: 34)
- d. I want to hear the whole story. (Nuyts & van der Avera 2016: 37)

Thus, the sentence in (1) conveys an inference based on the knowledge and evidence possessed by the speaker; hence, *that John never leaves his office in work time* and that *he has not been feeling any well in the last hour*. It therefore falls within the class of epistemic modality. In contrast, the sentences in (2) express obligation (2a), permission (2b), capacity (2c) and volition (2d) following from particular circumstances (e.g. the hospital regulations (2a), the subject's physical condition (2c), etc.); they have therefore nothing to do with the knowledge or evidence possessed by the speaker. They rather illustrate root modal notions.

As will be shown, this two-fold distinction is thought to be well motivated not only on semantic grounds (i.e. meaning difference) but also syntactically. To be more specific, some works defend that the two types of modalities contrast in their argument structure and associate epistemic modality with a raising structure and root modality with a control structure (Perlmutter 1971; Jackendoff 1972; Huddleston 1976, 1984; Zubizarreta 1982; Roberts 1985). Other works attribute the split to a scope distinction between epistemic and root modals. The extended assumption is that the two types of modalities differ with respect to the scope they take with respect to other scope bearing elements in the clause, what is often correlated with a difference in the position the modal takes in the clausal architecture; further, they also differ with respect to the scope they take with respect to each other when they co-appear in a given clause (the epistemic interpretation taking scope over the root interpretation). For Lee (2006), the scopal differences between epistemic and root modality need not have to do with the different position of the modal in the structure; the two meanings can be rather derived from the different scope ordering between the subject and a raising modal, which occupies a fixed syntactic position, as in the case of English *have to*.

However, it has sometimes been argued that the epistemic/root distinction does not capture in a straightforward way the semantic and syntactic differences exhibited by

modal constructions. Based on the semantic relation established between the type of modality expressed by the modal predicate and the properties of the subject of the modal sentence, some scholars propose a different regrouping of epistemic and root modals. In this alternative classification, some of the modals traditionally considered as root (i.e. the so-called *ought-to-be* deontics⁴) are now aligned with epistemic modals (Feldman 1986; Brennan 1993) under the category they refer to as *ought-to-be* modality (which embraces those modalities which are not directed to the syntactic subject), while other root modals (i.e. *ought-to-do* deontics) are classified within the *ought-to-do* modality.

Finally, based on semantic as well as syntactic considerations, other authors adopt a finer-grained classification that distinguishes four subtypes of modalities (Barbiers 1995; Hall 2001; Eide 2002; Asarina & Holt 2005): (i) *epistemic*⁵, (ii) *non-directed deontic*, (iii) *directed deontic* and (iv) *dynamic/dispositional* modality. Non-directed deontic and directed deontic modalities differ in whether or not the permission, obligation or requirement⁶ expressed is directed to the subject of the sentences: directed deontic modality is directed to the subject, while the non-directed one is not. Dispositional (also known as dynamic) modality expresses a force, tendency or capacity internal to the subject (for Barbiers, this internal force can be a (strong) will or desire, a need felt by the subject, sympathy or attraction experienced by the subject or ability, capacity⁷).

⁴ The *ought-to-be* vs. *ought-to-do* terms are first used by Feldman (1986). *Ought-to-do* is used to refer to those modality-types where a relation is established between the subject (an agent) and a state of affairs; in contrast, *ought-to-be* is how Feldman refers to the modalities where no such relation is established. In this sense, *ought-to-be deontics* contrast with *ought-to-do deontics* in that, in the former case, the permission, obligation or requirement expressed is not directed to the subject, whereas in the second case, it is.

⁵ Actually, Barbiers (1995) uses the term *probability* to refer to epistemic modality.

⁶ See the definition of deontic modality given in page 1.

⁷ The following are the examples Barbiers provides to illustrate the different modalities expressed by the Dutch modal verb *moeten* 'must'.

(i) Jan moet schaatseh

John must skate

I. 'It must be the case that John is skating' probability(/epistemic)

For reasons that will become clear as the analysis develops, in this dissertation I will adopt the latter four-type classification.

The discussion is organized as follows: The first part of the chapter is devoted to summarize the major approaches to the syntax-semantics interface of modal predicates which defend that the different modal meanings correlate with different syntactic properties and different underlying structure for each type of modal interpretation. Section 2.2, reviews some influential accounts of modal interpretation which assume a two-fold epistemic/root division of modals, the main arguments they use to sustain such division and some of their drawbacks. Section 2.3, presents some alternative classifications to the traditional epistemic/root distinction. These proposals have one thing in common: based on the observation that root modals do not behave uniformly with respect to a variety of properties, they assume that root modality splits into different subtypes. On this background, in Section 2.4., I introduce the classification I will adopt for the analysis I will develop of the Basque necessity modal *behar* in this dissertation. This classification is mainly based on the four-type classification of modals defended by Barbiers (1995), which distinguishes between (i) *epistemic*, (ii) *non-directed deontic*, (iii) *directed deontic* and (iv) *dynamic/dispositional* modalities, However, I will differ from the analysis that this author defends for each type of modal, and propose an alternative analysis which will be developed in detail in Chapter 6.

II.	'John has the obligation to skate'	directed deontic
III.	'It is required that John skates'	non-directed deontic
IV.	'John definitely wants to skate'	dispositional

2.2. MAIN APPROACHES TO THE SYNTAX OF MODALS UNDER THE TRADITIONAL EPISTEMIC/ROOT CLASSIFICATION

As mentioned in the previous section, modal expressions can be used to convey a variety of modal meanings, which have often been subsumed into two major types: epistemic and root. Crucially, in roughly half of the world's languages (van der Auwera, Ammann & Kindt 2005) this variety of meanings tends to be expressed by the same modal forms. This fact has opened a long and fruitful debate upon how the different meanings exhibited by modal predicates should be derived.

In this section I will review the main proposals put forth to account for the derivation of modal meanings at the syntax-semantics interface under the traditional two-fold classification of modals into epistemic and root. I will first introduce the traditional thematic-based account of modals that derives the epistemic and root readings from a raising vs. control structural difference, as well as the main counterarguments raised against this view (2.2.1.). Next, I will discuss the main arguments in support of a hierarchical account of modals, whereby the epistemic and root readings are correlated with different insertion points of the modal in the clausal hierarchy (2.2.2.). Finally, I will review Lee's (2006) subject-scope based account (2.2.3.). Unlike the previous thematic account, Lee assumes that the modal is a raising verb under both the epistemic and root interpretations. Lee also defends that this raising modal is merged in a fixed position in the clausal structure, so the epistemic/root distinction is not derived by the different structural position of the modal; the epistemic and root distinction is rather derived from the variable scope interaction of the raised subject relative to the modal (*modal*>*subject* vs. *subject*>*modal*).

2.2.1. The traditional thematic account of modals

In an early influential work, Ross (1969) argued that English has transitive-intransitive modal pairs. This (in)transitivity split correlates with differences in the meaning of the modal predicate; thus, according to this author, root interpretations are derived from transitive two-place modal verbs, while epistemic construals involve an

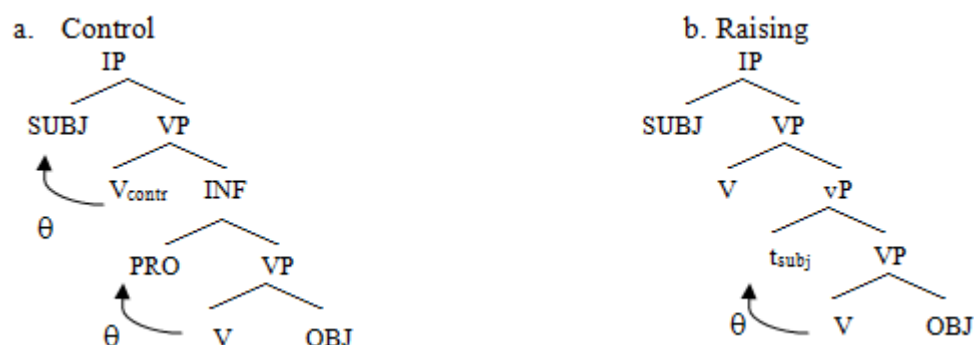
intransitive one-place modal. Ross's assumption is based on the contrast exhibited by the two types of modal verbs with respect to a series of syntactic properties, such as, for instance, the possibility of *there*-insertion (see the examples and explanation in Section 2.2.1.1.).

Since Ross (1969), a big effort has been devoted to derive the epistemic (non-root) vs. root ambiguity exhibited by certain modals from differences in the thematic structure associated with each type of modal. A very influential line of research defends that whereas root modals assign a theta-role the subject, epistemic modals do not (Perlmutter 1971; Jackendoff 1972; Huddleston 1976, 1984; Zubizarreta 1982; Roberts 1985; among others).

Assuming a one-to-one correlation between theta-roles and arguments (Chomsky 1982), under this thematic account the epistemic and root modals would be represented like this: the epistemic reading would have the structure associating with raising predicates (3b) while root construal would correlate with control structures (3a)⁸. As illustrated in (3a), a root modal construction involves two syntactic external arguments: the surface subject (in Spec/IP), which receives a theta-role from the modal, and a silent infinitival subject (e.g., PRO, sitting in Spec/VP) which receives a role from the lower uninflected verb. By contrast, epistemic modals would have the syntax of a subject-raising predicate, as illustrated in (3b). Following this line of analysis, in epistemic modal constructions there is only one external argument present in the syntax; this argument receives its theta-role from the uninflected verb within the modal complement, and undergoes movement to the empty matrix subject position (Spec/IP). In contrast to the previous case in (3a), the modal predicate in (3b) does not assign any theta-role to the surface preverbal subject.

⁸ The structures in (3a-b) are provided by Wurmbrand (1999:600) to illustrate how the structure of epistemic and root modal constructions would be from the perspective that root modals assign a theta-role to the subject, whereas epistemic modals do not.

(3) Correlation between the thematic properties of modals and syntactic structure⁹:



There are different syntactic tests that have been traditionally used to support this line of analysis. I will summarize them next.

2.2.1.1. Expletive subjects

The first test has to do with the possibility of licensing expletive *there* in the subject position of a modal predicate. Ross (1969) observed that modal constructions only admit the insertion of the expletive *there* if the construction is to be interpreted epistemically:

(4) Expletive *there* insertion:

a. *There may gladly be windows broken by rioters.

Root (permission) reading: Rioters are allowed to (gladly) break windows.

b. There may possibly be windows broken by rioters.

Epistemic (possibility) reading¹⁰: It may be that windows will be broken by rioters. (Adapted from Ross 1969)

⁹ See previous footnote.

¹⁰ The term *epistemic* is used by Ross in a wide sense, covering also *alethic* modality (derived from the Greek word *aletheia*, meaning 'truth') described by von Stechow (2006) as that concerning what is possible or necessary in the widest sense. Alethic modality is often alternatively referred to with the terms *logical* modality or *metaphysical* modality.

As illustrated in (4a), where the agent-oriented adverb *gladly* forces a root reading of the modal, the insertion of the expletive *there* is ungrammatical. In contrast, the expletive subject *there* is perfectly compatible with the construction occurring with the modal epistemic adverb *possibly* (4b).

The same contrast has been attested in other languages, like Danish and Icelandic (Thrainsson and Vikner 1995) and Norwegian (Lødrup 1996), as illustrated in (5a-c) and (5d), respectively.

(5) Modal constructions with expletive subjects: root reading unavailable

- a. Der vil komme ti studenter til foredraget. (Danish)
 There will come ten students to the talk.
 i. There will come ten students to the class. Epistemic probability
 ii. (#‘There want to come ten students to the talk.’)
- b. Það kunna að hlusta tíu stúdentar á fyrirlesturinn. (Icelandic)
 There may to listen ten students to talk-the
 i. ‘Ten students may listen to the talk.’ Epistemic probability
 ii. (#‘There are able/know how to listen ...’)
 (Examples from Thrainsson & Vikner 1995)
- c. Det vil komme noen. (Norwegian)
 there will come someone
 i. ‘Someone will come.’ Epistemic probability
 ii. (#‘There wants to come someone.’)
 (Lødrup 1996 cited in Eide 2005)

The contrast regarding the availability of epistemic vs. root readings in the above examples seems to provide evidence in support of the two structures in (4): root modals assign a theta-role to their subject, and consequently, they do not license non-thematic subjects like expletives; in contrast, epistemic modals do not assign a theta-role to their subject, and are therefore compatible with expletive non-thematic subjects.

2.2.1.2. Quasi-argumental weather-*it* subjects

Another piece of evidence taken to indicate that root modals assign a theta-role to the subject is the incompatibility of this type of modals with the quasi-argument subjects of weather predicates. Such incompatibility was first observed by Picallo (1990) in her study of Catalan root modals (6), and has also been attested for Scandinavian root modals (7a-b) by Thrainsson & Vikner (1995):

(6) Catalan root modals and weather predicates (Picallo 1990 : 296)

*Plovia sempre abans de poder nevar. *Root interpretation*¹¹

Rained-3sg always before to can snow

‘It always rained before it could snow.’

(7) Scandinavian root modals and *det/ Það* subjects of weather predicates

(Thrainsson & Vikner 1995:59)

a. Det kan regne i morgen. (Danish root modal *kan* ‘be able)

b. Það kann að rigna á morgun. (Icelandic root modal *kann* ‘be able)

It can to rain tomorrow

i. It *knows/*is able to rain tomorrow. *Root*

ii. It may rain tomorrow. *Epistemic*

Given the unavailability of a root reading in the modal constructions in (6) and (7), Picallo (1990) and Thrainsson and Vikner (1995) conclude that that root modals enter into a thematic relation with the matrix subject; in other words, the unavailability of the root reading in the examples in (6) and (7) is taken to follow from the fact that there is no argument to receive the theta-role assigned by the root modal, or put differently, that the quasi-argumental subject determined by the weather predicate cannot satisfy the selectional requirements of root modals. As shown by Thrainsson and

¹¹ Concretely, Picallo (1990: 296) argues that, since in Catalan untensed morphology is only possible under the root interpretation of a modal verb, “the ungrammaticality naturally results when modals appear in untensed sentences with quasi-functional subjects [...] or in constructions where the subject does not conform to the selectional restrictions of the root modal”, as in (6). That is to say, in Picallo’s view, the root sentence in (6) is ungrammatical because there is no argument to receive the theta-role assigned by the root modal.

Vikner (1995), in this, root modals pattern with transitive verbs (like the Scandinavian control verbs meaning ‘try’, which are also assumed to assign a theta-role to the subject¹²).

(8) Scandinavian control verbs (meaning ‘try’) and subjects of weather predicates:

- a. Det prøvede at regner i går. (Danish control verb ‘try’)
 - b. Það reyndi að rigna í gær. (Icelandic control verb ‘try’)
- It tried to rain yesterday.
- (Thrainsson & Vikner 1995)

To sum up, root and epistemic modals contrast with regards to the possibility of licensing quasi-argumental subjects of weather predicates, which has been commonly taken as indicative of their different thematic properties.

2.2.1.3. Idiom chunk subjects

In addition to expletive subjects and weather-*it* subjects, it has also been observed that root modals disallow idiomatic readings of non-argumental idiom-chunk subjects (licensed by the uninflected verb embedded under the modal). Again, root modals contrast with epistemics, which can perfectly co-occur with idiom chunk subjects while preserving the idiomatic reading. This difference is illustrated in the following set of examples by Thrainsson and Vikner (henceforth T&V) (1995):

(9) Possibility of idiom-chunk subjects (T&V 1995:59)

- a. Skörin færast upp í bekkinn. (Icelandic)
- step-the moves up in bench-the
- ‘This is going too far.’
- Lit. ‘Those who used to sit; in the lower seats are now sitting in the higher seats’
- b. Skörin kann að færast upp í bekkinn. (Icelandic)

¹² Picallo does not actually attribute the incompatibility of root modals with weather predicates to the control properties of root modals. She argues that this fact is “consistent with root modal verbs occurring within structures of obligatory control (as primary predicates) or as VP adjuncts (as secondary predicates)”.

- step-the can to move up in bench-the
 'This may go too far.' (* 'this knows to/is able to...') *Epistemic/*Root*
- c. Fanden er løs. (Danish)
 devil-the is loose
 'There is something seriously wrong.'
- d. Fanden skal være løs. (Danish)
 devil-the shall be loose
 'There is said to be something seriously wrong.'
 (*Something is obliged to be wrong.) *Epistemic/*Root*
- e. Der ligger hunden begravet. (Danish)
- f. Þarna liggur hundurinn grafinn. (Icelandic)
 there lies dog-the buried
 'This is where the problem is.'
- g. Der må hunden ligge begravet. (Danish)
- h. Þarna hlýtur hundurinn að liggja grafinn. (Icelandic)
 there must dog-the to lie buried
 'This must be where the problem is.' *Epistemic/*Root*

As shown in (9b), (9d) and (9h), idiom chunk subjects are only allowed when the modal is interpreted epistemically. If the modal receives a root interpretation (obligation, ability, etc), the idiomatic reading cannot be preserved and the sentences become semantically anomalous.

Again this contrast has been viewed as further support for the distinctive thematic properties of epistemic vs. root modals: whereas epistemic modals lack thematic subjects, root modals need to assign a theta-role to the subject and, consequently, they cannot co-occur with a non-thematic idiom chunk subject.

2.2.1.4. Quirky subjects

Another related asymmetry attributed to the thematic differences between root and epistemic modals concerns the possibility that the subject surfaces with quirky case, assigned by the the uninflected verb within the modal complement.

Some Icelandic verbs like *vanta* ‘lack’ and *líka* ‘like’ require a quirky (non-nominative) case: they take accusative and dative subjects respectively (see Sigurdsson 1989:204) (10a-b).

(10) Quirky-assigning verbs (T&V 1995:60)

- a. Harald / *Haraldur vantar peninga (“lack”:*NOM/okACC subject)
 Harold-ACC / *Harold-NOM lacks money
 ‘Harold lacks money’
- b. Haraldi / *Haraldur líkar vel í Stuttgart (“like”:*NOM /okDAT subject)
 Harold-DAT / *Harold-NOM likes well in Stuttgart
 ‘Harold likes it in Stuttgart’

As shown by T&V (1995), when quirky case assigning verbs are embedded by a control verb, this blocks the licensing of quirky (accusative/dative) case on the matrix subject¹³ (*Harald* (ACC)/*Haraldi* (DAT) in (13a-b)); but the sentence becomes grammatical if the subject surfaces with nominative case (*Haraldur* (NOM)). Since nominative case is the case assigned by control verbs to their subject, T&V conclude that the reason why quirky case cannot be maintained in constructions like (11a-b) is because the matrix subject is an argument of the control verb (rather than a subject of the quirky case assigning embedded predicate).

(11) Control verbs do not license quirky subjects

- a. Haraldur / *Harald vonast til að vanta ekki peninga (okNOM/*ACC)
 Harold-NOM / *Harold-ACC hopes for to lack not money
 ‘Harold hopes not to lack money’
- b. Haraldur / *Haraldi vonast til að líka vel í Stuttgart (okNOM/*DAT)
 Harold-NOM / *Harold-DAT hopes for to like well in Stuttgart
 ‘Harold hopes to like it in Stuttgart’

¹³ Although in control constructions quirky case is not visible on PRO, Sigurðsson (1991) provides evidence that quirky case is retained on the embedded subject. This is so because floating quantifiers associated with PRO show up with quirky case (i.e., the case the embedded verb would assign to an overt subject).

Under the assumption that root modals, like control predicates, assign a theta role to the subject, the prediction is they will not be able to license subject with quirky case¹⁴. In contrast, since epistemic modals do not enter into a thematic relation with the subject, the prediction is that they will be able to license quirky case subjects. This prediction is met, as T&V illustrate with the following examples:

(12) Unavailability of quirky case with root modals (T&V 1995:60)

- a. Harald vill oft vanta peninga. (Icelandic)
 Harold-ACC will frequently lack money
 'Harold frequently tends to lack money.'
 * 'H. frequently wants to lack money'
- b. Haraldi aetlar að líka vel í Stuttgart. (Icelandic)
 Harold-DAT intends to like well in Stuttgart
 'It looks like Harold will like it in Stuttgart.'
 * 'H. Intends to like it in Stuttgart'

Summarizing the discussion so far: the data we have discussed is all consistent with the hypothesis that root modals are predicates that assign a theta-role to the subject: they reject the presence of non-thematic subject selected by the uninflected verb in the modal complement (such as expletive subjects, quasi-argumental weather-*it* subjects and idiom-chunk subjects), and block the presence of subjects that exhibit a case assigned by the embedded uninflected predicate.

¹⁴ Thrainsson & Vikner's (1995) observe that it does not seem possible to license the root construal at all, even when the subject of the root modal shows up with nominative case assigned by the modal itself (see (ii) below), but they do not elaborate further on the reasons for this ungrammaticality.

- (ii) a. *Haraldur vill vanta ekki peninga.
 Harold(NOM) wants lack not money(ACC)
 (intended meaning: 'Harold wants not to lack money.')
- b. *Haraldur aetlar að líka vel í Stuttgart.
 Harold(NOM) intends to like well in Stuttgart
 (intended meaning: 'Harold wants to like it in Stuttgart.') (T&V 1995: 60)

In Chapter 6, I propose a possible explanation of these contrasts in terms of dative intervention (following Rezac 2006).

2.2.1.5. Selectional restrictions

In addition to the tests presented above (which support the hypothesis that root modals, as theta-role assigning predicates, are not compatible with non-thematic subjects), another diagnostic test typically used to determine the different thematic properties of epistemic vs. root modals concerns the ability of the modal predicate to impose selectional restrictions on the matrix subject. The observation is that, since root modals predominantly denote properties of sentient beings (which can be the holder of the obligation, permission, ability...), they cannot occur with inanimate subjects; in other words, root modals require that the subject be [+ animate].

Picallo (1990) uses the following pair of examples involving root modal sentences in Catalan to illustrate that root modals do impose selectional restrictions on the subject they occur with:

(13) Animate vs. inanimate subjects of root modals [Picallo 1990: 297]

- a. En Joan li_i gosava parlar [e]_i.
John CL-DAT dared to talk
'John dared to talk to him/her.'
- b. *Els libres hi_i gosaven cabre [e]_i.
the books CL-there dared to fit
'The books tried to fit there.'

Sentence (13b) where the root modal *gosar* 'to dare' co-occurs with the inanimate subject *els libres* 'the books' is semantically anomalous, while the same sentence is perfectly normal when it has an animate subject (13a).

A similar argument is brought by Lødrup (1996) regarding Norwegian root vs. epistemic modals. Lødrup argues that when a modal occurs with an inanimate subject which is interpreted as the patient subject of a passive construction, the only available modal reading is the epistemic one (14a); the root reading is not available (14b).

(14) Maten vil bli servert snart. (Lødrup 1996 cited in Eide 2005)
food-the MOD become served soon

- a. Epistemic meaning: 'The food will be served soon.'
- b. #Root (volitional) reading: 'The food wants to be served soon'.

The unavailability of the root interpretation is again taken to support an analysis of root modals as theta-assigning verbs: the matrix subject is a thematic argument of the modal and, consequently, it must meet the selectional requirements (+animate) of its theta-assigning predicate, the modal.

2.2.1.6. Meaning preservation under passivization

The last alleged difference between epistemic and root modals I will summarize here has to do with the ability to preserve the modal meanings under passivization (Newmeyer 1970, Zubizarreta 1982, Picallo 1990, Warner 1993).

The following set of examples (15a-f) show how root modals fail to preserve truth conditions when they undergo passivization. In particular, the observation is that the holder of the obligation (15a-b), volition (15c-d), ability and permission (15e-f) in the root interpretation of the active sentences of the examples is different from the holder of the obligation, volition and ability/permission in their passivized counterparts. Thus, in (15a), it is *Harry*, the subject of the active sentence, who is obliged to kiss *Greta*, whereas in (15b) the obligation is held by *Greta*, the patient subject of the passive counterpart. Likewise, in the Catalan active sentence (15c), it is the subject *El* 'he' who wants to consider *Jordi* a friend, whereas in the passive sentence (15d) the bearer of the volition is the patient subject *Jordi*. Finally, in (15e) it is the active subject *El metge* 'the doctor' who has the ability/permission to visit the patients, while in (15f) it is rather the patients (*els pacients*) who have the ability/permission.

(15) Different meaning in root active vs. passive modal constructions:

- a. Harry must kiss Greta. (Newmeyer 1970)
- b. Greta must be kissed by Harry.
- c. Ell volia considerar en Jordi com un amic. (Picallo 1990: 297-8)
 He wanted consider Jordi as a friend
 'He wanted to consider Jordi a friend.'

- d. En Jordi volia ser considerat com un amic.
Jordi wanted be considered as a friend.
'Jordi wanted to be considered a friend.'
- e. El metge podia visitar els pacients.
The doctor could visit the patients
'The doctor was able /allowed to visit the patients'.
- f. Els pacients podien ser visitants (pel metge).
The patients could be visited by-the doctor.
'The patients were able /allowed to be visited.'

By contrast, as shown in (16a-c), the difference with regard to the argument which is the holder of the obligation, volition, permission, etc. between the active and passive sentences in root modal construals does not take place if the sentences are interpreted epistemically:

(16) No difference in meaning in epistemic active vs. passive modal constructions (adapted from Newmeyer (1970) and Picallo (1990))

- a. Harry must have kiss Greta.
'(Given the evidence possessed by the speaker), it must be the case that Harry kissed Greta.'
- b. Greta must have been kissed by Harry.
'(Given the evidence possessed by the speaker), it must be the case that Greta has been kissed by Harry.'
- c. The doctor must have visited the patients.
'(Given the evidence possessed by the speaker), it must be the case that the doctor visited the patients.'
- d. The patients must have been visited by the doctor.
'(Given the evidence possessed by the speaker), it must be the case that the the patients were visited by the doctor'

Once again, the examples in (15a-e) vs. (16a-d) are taken to support an analysis whereby the epistemic/root divide correlates with distinct thematic properties of the modal: since the surface subject is assumed to receive a theta-role from the root modal

(which corresponds to the bearer of the obligation or necessity property expressed by the modal), whenever the DP subject that receives this role changes (as it occurs when the sentence undergoes passivization), the bearer of this obligation (or necessity) changes too.

However, as acknowledged by Newmeyer (1970), there is one problem with such an analysis of root modals: the difference in meaning between active and passive root constructions only holds when the DPs involved denote animate beings; if the corresponding DP argument denotes an inanimate object, the active and passive sentences have equal interpretations, as shown in (17a-b) and (17c-d).

(17) Meaning preservation with inanimate subjects (Newmeyer 1970)

- a. Visitors may pick flowers.
- b. Flowers may be picked by visitors.
- c. Sam must shovel the dirt into the hole.
- d. The dirt must be shovelled into the hole by Sam.

I will come back to this issue in Section 2.2.2., where I present an alternative account that defends that the apparent thematic relation (and, consequently, selectional requirements) between root modals and the subjects they occur with is in fact contextually derived (Bhatt 1998, Wurmbrand 1999).

2.2.2. Counterarguments to the traditional raising vs. control classification

In the sections 2.2.2.1. to 2.2.1.6., I have presented different arguments supporting a classification of modals based on their different theta-assigning properties. According to this view, modals are to be divided into two different types: one type of modals, epistemic ones, do not assign a theta-role to the subject of the clause and correlate with raising verbs; the other type, root modals, patten with control verbs in that they assign a theta-role to their subject (Perlmutter 1971; Jackendoff 1972; Huddleston 1976, 1984; Zubizarreta 1982; Roberts 1985).

This line of analysis has been challenged in view of a unified thematic approach to modals. In particular, Wurmbrand 1999 (also Bobaljik & Wurmbrand 1999 and Bhatt 1998) presents conclusive evidence that, on closer scrutiny, Germanic root modals can also co-occur with non-thematic subjects, on a par with subject-raising predicates.

2.2.2.1. *Modal verbs must be raising verbs* (Wurmbrand 1999)

Wurmbrand (1999) (and Bobaljik & Wurmbrand 1999) revisit the alleged thematic differences of modals and conclude that, in the appropriate context, root modals admit the presence of expletive subjects (18a-d), non-thematic subjects of weather predicates (19a-b), and quirky-case marked subjects licensed by the lower uninflected verb (20a-b). Recall that all these properties had been previously assumed to be constrained to epistemic constructions (see Section 2.2.1.).

(18) Expletive subjects: [Wurmbrand 1999]

- | | |
|--|-------------|
| a. There may be singing but no dancing on my premises. | <i>Root</i> |
| b. There can be a party as long as it's not too loud. | <i>Root</i> |
| c. There must be a solution to this problem on my desk,
tomorrow morning! | <i>Root</i> |
| d. There will be no complaints when we go to Aunt Cassandra's! | <i>Root</i> |

(19) Weather-*it* subjects: [in Bobaljik & Wurmbrand 1999]

- | | |
|--|-------------|
| a. It can rain in the Antarctic. | <i>Root</i> |
| b. In order for the crop not to fail, it must rain tomorrow. | <i>Root</i> |
| c. In order for the ski race to take place tomorrow, it must snow tonight;
it can be sunny tomorrow, but it must be cold, and it must not rain. | <i>Root</i> |

(20) Quirky case subject in modal constructions embedding quirky-case verbs
(Wurmbrand 1999:602)

- | |
|--|
| a. Haraldi /*Haraldur verður að líka hamborgarar
Harold-DAT/*Haraldur-NOM must to like hamburgers
'Harold must like hamburgers' (<i>in order to be accepted by his new American in-laws</i>) |
| b. Umsækjandann verður að vanta peninga
The-applicant-ACC must to lack money
'The applicant must lack money' (<i>in order to apply for his grant</i>) |

Compare the above constructions with those provided by Thrainson & Vikner (1995) in Section 2.2.1.4. example (12), where quirky case was taken to block a root reading. The examples in (24) show that if the context is constructed in a way that favours a root/deontic reading (as Wurmbrand does by adding the bracketed follow-ups), the root reading is no longer unnatural. What is more, in this favouring context, only quirky case is possible for the subject.

In virtue of the above data, Wurmbrand (1999) and Bobaljik & Wurmbrand (1999) conclude that root modals, like epistemic modals, do not assign a theta-role to their subject. More specifically, they contend that the subject starts out as an argument of the embedded uninflected verb, and undergoes subject-raising to a position in the matrix clause. In other words, they conclude that modals are subject-raising predicates, both under their root and epistemic construals.

In addition to this counterevidence, Wurmbrand (1999) and Wurmbrand & Bobaljik (1999) present additional data that modals, like raising predicates, lack an external argument of their own. The data comes from passive constructions involving modals and from the scope properties of exhibited by the arguments of epistemic and root modal constructions.

2.2.2.2. Modals in passive constructions

Passive constructions are taken to diagnose the presence of an external argument in German, since passivization is possible iff the predicate has an underlying external argument; that is, with transitive and unergative predicates, but not with unaccusative verbs and raising verbs, as they fail to project an external theta-role. The contrast is illustrated in (21a) vs. (21b-c).

(21) Transitive predicates ('try/decide') vs. raising predicates ('seem') in German passive constructions (Wurmbrand 1999:603-4)

- a. Es wurde zu tanzen versucht/beschlossen *transitive passive*
 It was to dance tried/decided
 'It was tried/decided to dance'
 (=Somebody tried/decided to dance)

- b. *Es wurde (zu) tanzengeschienen **raising passive*
 It was (to) dance seemed
 *‘It was seemed to dance’
- c. *Der Kaviar wurde zu essen gescheint/geschienen. **raising passive*
 The caviar was to eat seem-PPa/PPb
 ‘The caviar was seemed to eat’
 ‘It seemed that somebody ate the caviar’

If the hypothesis defended by Wurmbrand whereby both epistemic and root modals are raising verbs is on the right track, then the prediction is that modal predicates will not license passive constructions since they lack a thematic external argument. As shown in (22), this prediction is borne out, which provides additional support to Wurmbrand’s hypothesis that modals must be raising verbs, regardless of the interpretation they give rise to (epistemic or root/deontic).

(22) No passive with modal verbs

- a. *weil der Käse essen gemußt / gekonnt wurde
 since the cheese eat must-PP / can- PP was
 *‘since the cheese was musted/canned to eat’
 [‘somebody had to/can eat the cheese’]
- b. *weil der Kaviar essen gemußt / gekonnt wurde
 since the caviar eat must-PP / can-PP was
 *‘since the caviar was musted/canned to eat’
 ‘since somebody had to eat/can the caviar’

Moreover, Wurmbrand (1999) and Bobaljik & Wurmbrand (1999) (based on Warner 1993) show that root modals, unlike control predicates, are able to occur with inanimate passive subjects licensed by an embedded passivized infinitival verb. Recall that the impossibility of control verbs to occur with inanimate passive subjects is assumed to follow from the fact that control verbs impose selectional restrictions onto their theta-marked subject – an observation in line with the arguments presented by

Picallo (1990) and Lødrup (1996) in (15) and (16) in section 2.2.1.6., repeated here under (23).

(23) Passive subjects with raising vs. control verbs:

- a. The biscuits seem to have been finished by Paul.
- b. *The biscuits tried/decided to have been finished by Paul.

If modals were control verbs, we should expect them to be unable to cooccur with inanimate subjects of passivized verbs too, since such subjects fail to meet the alleged selectional (animacy) requirements modals are taken to impose. However, this expectation is not met. Therefore the root modals in (24) cannot correspond to predicates licensing an external thematic subject, and must rather correspond to raising verbs.

(24) Passive subjects with Root modal verbs:

- a. The biscuits may be finished by Paul. (Warner 1993)
- b. Weil der Kaviar gegessen werdenn muß/darf/soll. (Wurmbrand 1999)
Since the caviar eaten become must/may/should
'Since the caviar must/may/should be eaten'

The ability of root modals to occur with inanimate subjects can be extended to non-passive contexts too, as illustrated by the following examples by Newmeyer (1975), and McGinnis (1993):

(25) Possibility of licensing inanimate subjects under the root construals of modals

- a. An opening hand must contain thirteen points (Newmeyer 1975)
- b. Icicles may hang from the eavestroughs (McGinnis 1993)

The conclusion drawn is once more that the reason why root modals need not impose selectional restrictions on the subject is because this is not an argument of the modal at all. That is to say, root modals, unlike control verbs, do not assign a theta-role to the subject.

In relation with this, Wurmbrand (1999) (and also Bhatt (1998)) show that root modality need not be directed to the subject; that is to say, root modality is not always

subject oriented. As observed by these authors, roles like *obligee* or *permissee* associated with root modals are not always attributed to the subject of the clause; what is more, they do not have to coincide with a specific syntactic argument of the modal:

[...] roles/functions like ‘obligee’ or ‘permissee’ etc. do not have to coincide with a specific syntactic argument in the sentence [...] the determination of these ‘roles’ cannot be seen as a mapping between theta roles and syntactic arguments.(Wurmbrand 1999: 610-611)

Thus, in (26a) and (27a) the obligation is directed to an argument other than the matrix subject (the indirect object *Mary* and the agentive phrase *by John* respectively). By contrast, in (26b-c) and (27b) the bearer of the obligation does not coincide with any argument of the clause; rather, it is directed to a syntactically absent but contextually salient referent.

(26) Syntactic subject \neq obligee (From Bobaljik & Wurmbrand (1999))

- a. His boss told John that Mary must be home when the murder happens
- b. Mulder must die
- c. The old man must fall down the stairs and it must look like an accident

(27) Syntactic subject \neq obligee (From Bhatt (1998))

- a. Bill has to be consulted by John on every decision.
(John (not Bill) is the bearer of the obligation)
- b. John has to eat an apple today.
(said as an instruction to John’s caretaker at the day-care, who is therefore the carrier of the obligation)

Thus, in (26b), it is someone determined contextually (other than the subject *Mulder*) who must accomplish the objective that *Mulder* (the syntactic subject) should die. Likewise, in (26c) it is not the syntactic subject (*the old man*) but a contextually salient referent who is required *to bring about a situation such that the old man falls down the stairs* (Wurmbrand 1999: 610).

In conclusion, Wurmbrand (1999) and Bhatt (1998) argue that the apparent semantic relation between the modal and the subject is not syntactically specified by

means of the theta-role assigned by the root modal to the subject; rather, it is derived contextually *as part of the conversational background* (Wurmbrand 1999: 611) by means of an inference mechanism that identifies the bearer of the obligation (see also Kratzer 1991 for related discussion and further evidence in favour of this view).

2.2.2.3. Scope properties of the arguments of modal constructions

A further argument put forward by Wurmbrand (1999) (also Wurmbrand and Bobaljik 1999) to support a unified analysis of epistemic and root modals as raising verbs is provided by the scope relation between the modal and the arguments of the clause¹⁵.

2.2.2.3.1. Scope properties of the subjects

It is assumed that raising and control structures differ with respect to the availability of a narrow scope reading of the subject relative to the modal (May 1977, 1985; Fox 1999). This contrast is illustrated the examples in (28a) vs. (28b).

(28) Scope properties of raised subjects

- a. Someone from New York is likely to win in the lottery.
 - i. There is someone, who happens to be from NY, who has bought more than half the available tickets and it is therefore likely that this person will win the lottery.

∃ politician > likely

¹⁵ Although Wurmbrand (1999) and Wurmbrand and Bobaljik (1999), on the one hand, and (Brennan 1993, Butler 2003, Lee 2006, Hacquard 2006 et seq.), on the other, analyse the same type of evidence, they assign these data different grammaticality judgement, which leads them to support two opposite views regarding the scope properties of epistemic and root modals. The former allege that there is no difference in the scope interaction of epistemic and root modals with subjects (even if the context and knowledge of the world may favour one scope interpretation over another), and they take this to support a unified raising analysis of the two types of modal constructions. The latter sustain that there is a difference in the scope interpretation of subjects in epistemic and root modal constructions, and use it to support different hypotheses: some argue that epistemic and root modals take different scope positions at LF (Brennan 1993, Butler 2003, Hacquard 2006 et seq.) whereas Lee (2006) claims that the epistemic and root readings correlate with different scope interpretations of the derived subject relative to a raising modal which occupies a fixed position (modal>subject vs. subj>modal, respectively).

- ii. More than half the available tickets were purchased in NY and thus it is likely that the winner will be someone (whoever it is) from there.

likely > \exists *politician*

- b. Someone from New York tried/promised to win in the lottery.

- i. There is someone from NY who has tried/promised to win the lottery.

\exists *politician* > *likely*

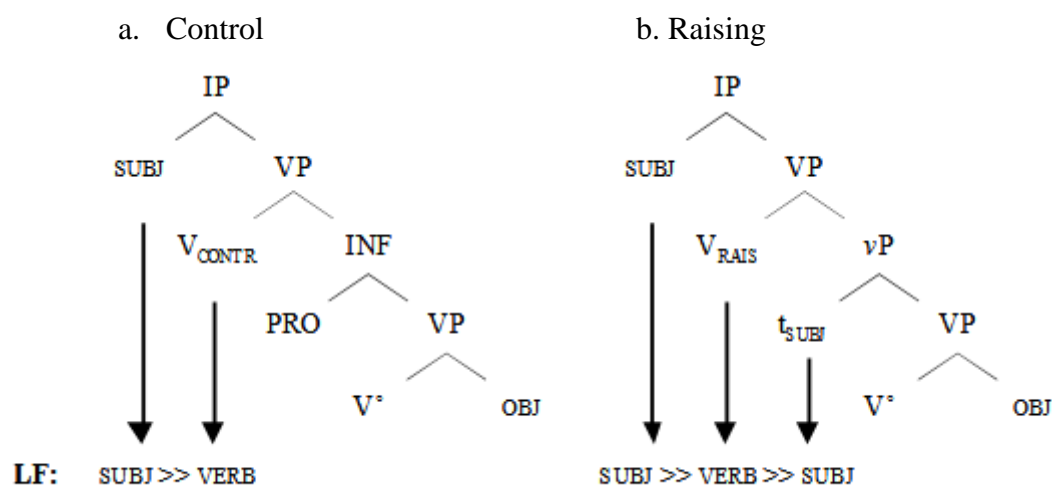
- ii. #Someone from NY (whoever) tried/promised to win the lottery.

likely > \exists *politician*

(Fox 1999, cited in Bobaljik & Wurmbrand 1999:9)

Following May (1977, 1985), Wurmbrand argues that the contrast between the sentences in (28a) and (28b) can be accounted for on syntactic grounds: the two sentences correlate with different representations at LF, as shown in the simplified structures in (29a-b).

(29) Scope properties of control predicates vs. raising constructions at LF (Wurmbrand 1999:607)



These differences give rise to asymmetric readings concerning the scopal interaction of the argument in the subject position of the matrix inflected verb and the modal predicate. Thus, in the control structure in (29a) (which would correspond to the examples in (38b) involving the control predicates *try* and *promise*), the subject is generated in the external argument position of the higher, inflected [Spec, IP] and the

only possible reading is one in which the subject scopes over the modal below it (i.e. the subject take *wide/surface scope* relative to the modal). By contrast, in (29b) (which would correspond to the example (28a) involving the raising predicate *be likely (to)*), the subject is generated in a lower position [Spec, vP] and undergoes movement to the external argument position [Spec, IP]. Thus the subject in (39b) may scope in its raised position, over the modal (*wide/surface scope*) or in its base position, under the modal (*narrow/inverse scope*).

Using this criterion as an indication of the type of structure (raising vs control) which underlies a given construction, Wurmbrand (1999) and Wurmbrand & Bobaljik (1999) analyse the scopal interaction of subjects in both epistemic and root modal constructions to show that, under the two construals, the modal patterns with raising verbs. In other words, regardless of the modal interpretation conveyed, modal constructions are always ambiguous as to the scope the subject takes relative to the modal: in both epistemic and root construals, the subject can either take wide/surface scope or narrow/inverse scope relative to the modal, as shown in (30a-c).

(30) Variable scope of the subject in epistemic and root modal constructions (Bobaljik & Wurmbrand 1999:23-24)

- a. Jemand von New York muß in der Lotterie gewonnen haben *Epistemic*
‘Somebody from New York must have won in the lottery’
 - i. *Modal* > *Subj.*: In view of the evidence available it is necessarily the case that somebody from N.Y. won the lottery.
 - ii. *Subj.* > *Modal*: There is somebody from N.Y. and in view of the evidence available it is necessarily the case that he won the lottery.
- b. Ein Österreicher muß das nächste Rennen gewinnen (damit Österreich die Führung im Weltcup übernimmt) *Root*
‘An Austrian must win the next race (in order for Austria to have the most gold medals.’
 - i. *Modal* > *Subj.*: It is necessary that an Austrian (whoever it is) win the next race.
 - ii. *(#)Subj.* > *Modal*: *(#)*There is an Austrian and it is necessary that he win the next race

- c. Zwei Österreicher müssen das nächste Rennen gewinnen (um Weltcupsieger zu werden) Root

‘Two Austrians must win the next race (in order for either of them to win the World Cup)

- i. $(\#)Modal > Subj : (\#)$ It is necessary that two Austrians win the next race
- ii. $Subj. > Modal$: There are two Austrians and for each of them it is necessary to win the next.

The epistemic sentence in (30a) is compatible with two interpretations: (30ai) where the subject *Jemand von New York* ‘Somebody from New York’ takes low scope; and (30aii), where the subject takes wide scope. Crucially, the same ambiguity can be observed in the root modal construction in (30bi-ii), although contexts and knowledge of the world favours different readings. For example, as Wurmbrand explains, a wide scope reading of the subject over the modal results unnatural in (30b-ii), since for a country to win the most gold medals does not require that specific racers win the medals (hence the symbol $(\#)$, which means that the sentence is not adequate pragmatically); by contrast in (30c), involving the quantifier ‘two’, the unnatural reading is that in which the subject takes narrow scope relative to the modal.

2.2.2.3.2. Scope properties of quantificational objects

In addition to the variable scope of subjects, Wurmbrand (1999) and Bobaljik & Wurmbrand (1999) appeal to another test to show that root modals, like epistemics, pattern with raising predicates; this test has to do with the scope relation between the embedded object and the matrix subject. More specifically, the aforementioned authors assume that, in German, raising constructions¹⁶ involving universal quantifier objects and existential quantifier subjects are ambiguous between a reading where the subject scopes over the embedded object ($\exists > \forall$) and a reading where the embedded object scopes over the surface subject ($\forall > \exists$).

(31) Variable scope of the embedded object in raising constructions

¹⁶ As pointed out by Wurmbrand (1999) the wide scope reading of the embedded object is less clear in English raising constructions.

Ein Professor scheint jeden Studenten zu betreuen “seem” (raising verb)

‘Lit. Some professor seems every student to supervise.’

i. $\exists > \forall$: “There seems to be at least one professor that supervises all the students.”

ii. $\forall > \exists$: “Every student is supervised by at least one professor.”

In contrast, control structures only give rise to a narrow scope reading of the embedded object.

(32) Scope properties of the embedded object of control constructions: only narrow scope

Ein Professor versprach jeden Studenten zu betreuen

‘Lit. Some professor promised every student to supervise.’

i. $\exists > \forall$: “There is at least one professor who will supervise all students”

ii. $*\forall > \exists$: “Every student will be supervised by at least one professor”

The account provided by these authors for the ambiguity found in (31 vs. 32) is based on two assumptions:

(i) As previously shown, A-reconstruction provides an additional scope reading for the subject in raising constructions, but not in control constructions.

(ii) Quantifier raising is always short-distance (Fox 1999), hence the object can only scope over material inside the infinitive.

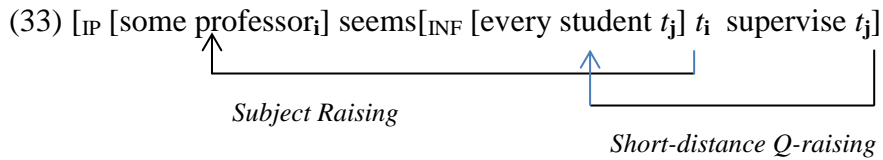
Under these two assumptions, the two scope orderings available in raising construction like (31) are derived as follows:

In (31ii), the raised subject undergoes A-reconstruction to its original/trace position while the embedded quantified object undergoes short-distance raising to a landing position that is higher than the base-generated subject position. This gives us the $\forall < \exists$ reading (cf. the derivation in (33)).

In (32ai), in turn, the subject is interpreted in its surface position, a position that is higher than the object, given that long-distance QR of the embedded object across the

infinitival complement is unavailable. Hence, the sentence gets the $\exists < \forall$ reading, which corresponds to the derivation in (34).

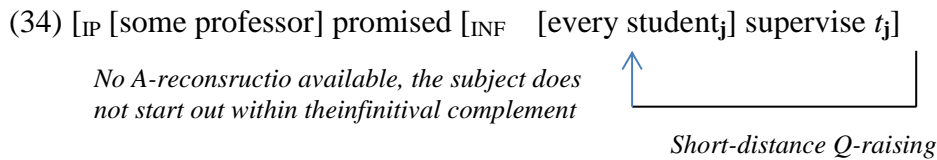
Let us illustrate the derivation of raising structures like (31) above and its two available subject readings:



$\exists > \forall$: Some professor is read in its trace-position (A-reconstruction of subject to trace-position)

$\forall > \exists$: Some professor is read in its target position (no A- reconstruction of subject to trace-position)

In contrast, in control constructions the object cannot target a position higher than the subject. On the one hand, A-reconstruction is not available for the subject in control constructions. On the other hand, the embedded object cannot undergo quantifier raising outside the complement and can only scope over material inside the infinitive. As a consequence, only the $\exists < \forall$ reading is available¹⁷.



$\forall > \exists$: Some professor is read in its surface position

Going back to modal constructions, Wurmbrand's prediction is the following:

If root modal constructions (just like epistemic constructions) pattern with raising rather than with control structures, they will exhibit the same ambiguity with

¹⁷ In later work Wurmbrand suggests that long-distance quantifier raising is possible out of control infinitivals although it is more difficult and restricted than in simple and raising constructions (cf. Wurmbrand 2015 and references therein).

respect to scope interpretation as the raising construction in (31). Wurmbrand provides the example in (35) to show that this prediction is borne out.

(35) Scope properties of the embedded object of root modal constructions

Gemäß Universitätsbestimmungen muß mindestens ein Professor jeden Studenten betreuen

‘According to university regulations, at least one professor must supervise every student’

- i. University regulations require that there is at least one professor who supervises every student” $\exists > \forall$
- ii. University regulations require that every student is supervised by at least one professor $\forall > \exists$

Wurmbrand contends that a sentence like (35) can give rise to the scope orderings in (35-i) and (35-ii). In her analysis, the ordering in (35-i) arises when the subject *ein Professor* ‘one professor’ takes scope in its surface position. By contrast, the ordering in (35-ii) is derived when the subject is interpreted in its base-generated position within the infinitival complement, and short distance QR of the object targets a position higher than this lower subject position (cf. the derivation in (35)).

To recap, the variable scope properties of the subjects and embedded objects of epistemic and root modal constructions leads Wurmbrand (1999) to the conclusion that the two types of modal construals correlate with raising structures, since raising structures provide an additional scope position for the subject to reconstruct at LF.

2.2.3. The hierarchical account

In the present section, we will review some alternative approaches that derive modal interpretation from a difference in the structural height occupied by the modal predicate under the epistemic and root construals, rather than from a difference in the theta-assigning properties of epistemic and root modals, and the type of syntactic structure (raising vs. control) they license.

Under this view, epistemic modals are merged in a high position within the functional domain of the clause, whereas root modals that occupy a much lower position (Picallo 1990; Cinque 1999, 2000, 2004, 2006; Butler 2003, 2004; Hacquard 2006 et seq.; Ramchand 2013)¹⁸. In what follows, we present the main evidence taken to support this view.

2.2.3.1. Scope interaction with the subject under height approaches

The main arguments employed to support the idea that modals take different scope positions relative to the subject are owed to Brennan's (1993) semantic analysis of modals. Brennan argues for the existence of two semantic types of modal auxiliaries: *ought-to-be* modals, which operate at the S-level and *ought-to-do*¹⁹ modals, which operate at the VP-level:

[...] the first type is that of a sentence operator and is at work in the interpretation of modal sentences with an epistemic sense and for those with a deontic 'ought-to-be' sense; the second type is that of a relation between a property and an individual and it is at work in the interpretation of modal sentences expressing ability, disposition, rights and obligations (traditionally, the root interpretations)²⁰ [Brennan 1993]

¹⁸ For Picallo (1990) epistemic modals are generated under Inf^p whereas root modals are VP-adjuncts. By contrast, Cinque (1999, 2000, 2004, 2006) assumes that epistemic and root modals are merged as functional heads that occupy a different position in the highly articulated functional structure of the clause (Cinque's hierarchy is provided in (51) below). Butler (2003, 2004) proposes that epistemic modals are merged in the CP periphery and root modals in the vP periphery of the clause. Hacquard (2006 et seq.) too defends that root modals are merged in the vP periphery and epistemics are merged above Tense.

¹⁹ Brennan refers to the two types with the terms *ought-to-be* and *ought-to-do* modals, coined by Feldman (1986).

²⁰ In Brennan's view, modals operating at the VP-level (*ought-to-be modals*) take a complement of type <e,st>, in which case they will yield a root interpretation. Modals operating at the IP-level (*ought-to-do modals*) take a complement of type <st> and yield an epistemic interpretation

Brennan motivates this difference regarding the height at which these two types of modals operate from the asymmetries that they exhibit in contexts where they occur with quantificational subjects and subjects of symmetric predicates²¹.

She observes that when modals occur with quantificational subjects, *ought-to-be* and *ought-to-do* modals contrast in their scope interaction with quantificational subjects^{22,23}.

(36) Quantificational subjects (Hacquard 2011, based on Brennan 1993)

- a. Every radio may get Chicago stations and no radio may get Chicago stations.
 - i. It's possible that every radio gets Chicago stations, and it is also possible that none of them do.
- b. #Every radio can get Chicago stations and no radio can get Chicago stations.
 - ii. Every radio is such that it gets C. stations, and no radio is such that it gets Chicago stations.

²¹ Another piece of evidence provided by Brennan is the behaviour of the two types of modals with regards to idiom chunk subjects; as shown in Section 3.2., other authors take this test to rather support a thematic difference between epistemic and root modals (Thrainsson & Vikner 1995).

(iii) Idiomatic readings of epistemic vs. root modals:

- a. The shit might hit the fan. (Adapted from Brennan 1993)
Idiomatic readings: 'It might be the case that the situation gets dramatic'
- b. #The shit can (=is able to) hit the fan.
Idiomatic reading: '#The situation can (=is able to) get dramatic.'

²² Note that Brennan's examples involve the dynamic use of *can*, understood as physical ability (to get Chicago stations), versus *may*, which lacks this dynamic meaning of physical capacity and is interpreted instead as (non-directed) possibility. This suggests that subject-orientation (more specifically, whether a modal expresses subject-directed modality or not) is a significant factor determining the behaviour of modals with regard to, for instance, the scope interaction between the modal and the subject of the clause. As I will show in the analysis I develop for the Basque necessity modal *behar* in Chapter 6, in order for this modal to convey a dynamic/dispositional or a direct deontic reading, the subject must be interpreted as taking wide scope (subj>modal); epistemic and non-directed deontic modals, by contrast, are not subject to any specific subject-modal scope ordering.

²³ Recall from Section 2.2.2.3. above that Wurmbrand (1999) and Wurmbrand and Bobaljik (1999) do not share this view. The data they examine leads them to conclude that epistemic and root modals do not differ with respect to their scope relation with the subject: the two types of modals admit both a wide scope and a narrow scope reading of the subject relative to the modal. As I show in Chapter 6, Wurmbrand's and Wurmbrand and Bobaljik's (1999) assumption only holds for the case of non-directed deontic root modals. Directed deontic and dynamic/dispositional modals require that the subject is interpreted above the modal.

The two types of modals also behave differently when they occur with predicates denoting a symmetric relation.

(37) Readings of symmetric predicates (Brennan 1993)

a. Arthur looks like Susan

→ Susan looks like Arthur

b. Arthur must/might look like Susan

→ Susan must/might look like Arthur

‘It must/might be the case that ...’

Epistemic: symmetry maintained

c. Arthur must must/can look like Susan

–/–> Susan must/can look like Arthur

‘Arthur is obliged to/is able to look like Susan.’

Root: symmetry not maintained

The above examples show that, when the arguments of the symmetric predicate are switched (as in (37a-c)), symmetry is only maintained (i.e. the truth values are not altered) iff the sentence receives an *ought-to-be* modal reading (37b vs. 37c)²⁴.

Inspired by Brennan’s semantic account of modals, various works have tried to explain the asymmetric behaviour of modals at the syntax-semantic interface, proposing that epistemic and root modals occupy different positions in the syntactic structure.

One such work is Butler (2003, 2004). Butler’s main argument is that epistemic and root modals²⁵ are both inserted at the upper-most level of a phase (Chomsky 1999). The phase corresponding to epistemic modals is the higher CP periphery above Tense, however, the phase of root modals is the vP periphery below Tense.

²⁴ Lee (2006) interprets the asymmetries of modals with symmetric predicates in terms of the scope position that the subject takes relative to the modal (cf. Section 2.2.4.); the main difference between Lee’s approach and different modal-height approach is that, under Lee’s view, it is the subject rather than the modal that takes variable scope positions, while the modal always sits in a fixed position (which is identical whatever type of modality is expressed).

²⁵ Actually the difference Butler (2003, 2004) draws is between epistemic and root modals, rather than *ought-to-be* vs. *ought-to-do* modals. He is not concerned with the possible split between root modals.

One direct consequence of the height difference between epistemic and root modals is precisely that epistemic modals will invariably take scope over subjects, whereas root modals will take scope below. Therefore, in Butler's account the asymmetries observed by Brennan regarding the scope interaction of modals with subjects are accounted for in terms of the different position the modal is generated in under the two readings.²⁶

Like Butler, Hacquard (2006) too argues that the contrast in (36a-b) and (37a-b) falls out naturally under the assumption that epistemic and root modals are merged at different heights²⁷. In what follows, I briefly sketch out how Hacquard relates the insertion point of modals in the syntax to the interpretation they give rise to.

According to Hacquard, when the modal is in the VP-periphery, modality gets anchored to the VP-event, and consequently, it is relativized to an individual (the VP subject or alternatively, another VP-participant). On the contrary, when the modal is merged higher (above the Tense head), the modality will get anchored to the speech event, and as a result, it will be speaker oriented (as in the case of epistemics), rather than subject oriented.

²⁶ More specifically, Butler (2003) argues that, since the scope position for canonical-scope subjects is [Spec, TP], when the modal is merged in the functional domain dominating TP it will take scope above the subject; by contrast, when the modal is merged in the functional domain below TP, the subject will outscope the modal, as illustrated in (iv-a-b) below. (See Chapter 6 for a more detailed account of Butler's explanation of the relative scope between quantification subjects and epistemic/root modals)

(iv) Modals and subject scope (Butler 2003:980)

- a. All languages might ultimately originate from a single mother tongue (epistemic)
 - i. 'it is a possible assumption that all languages originate from a single mother tongue'
 - ii. modal > subject
- b. All users can post messages (root)
 - i. 'all users are permitted to post messages'
 - ii. subject > modal

From this scope interaction, it follows that epistemic and root modals will interact differently with QP subjects and subjects of symmetric predicates.

²⁷ Like Butler (2003, 2004), Hacquard (2006) too adopts an epistemic vs. root distinction rather than an *ought-to-be*, *ought-to-do* distinction.

Now, only when the modal is merged higher up in the structure is the subject able to reconstruct (when it is merged lower in the VP periphery, once modality gets anchored to the VP the subject will not be able to reconstruct).²⁸ The lower position of the modal in the root examples therefore makes it impossible for the subject to reconstruct; this explains why root modals scope below QP subjects and why meaning is not preserved when the subjects of root modal constructions involving symmetric predicates are switched.

Summing up, based on Brennan's observation that the different types of modals contrast in the way they interact with the subject of the clause, authors like Butler (2003, 2004) and Hacquard's (2006) have argued that epistemic and root modals occupy different positions in the clausal architecture: a high position for epistemic modals, within the extended left periphery, and a lower position for root modals, within the vP/VP periphery²⁹.

However, as will be shown in Chapter 6 (and as already shown by Wurmbrand (Section 2.2.2.3)), there is a large body of counterevidence suggesting that epistemic modals do not always take wide scope relative to quantificational subjects. Hacquard (2006, 2011), for instance, provides us with the following example in which quantifier *each* is taken to take wide scope over epistemically interpreted *may*.

(38) Each student may be home.³⁰

²⁸ Her explanation is a bit more intricate in that she adopts Kratzer's (1981, 1991) semantics of modals with some relevant modifications, and assumes that the insertion point of modals constrains the accessibility to a given modal base. The reader is referred to Hacquard (2006) for the details.

²⁹ Proposals like Cinque (1999) where modals are rather taken to be merged in different positions within the functional periphery of the clause do not elaborate much on this question. Roberts & Rousseau (2000) argue that if modals are to be directly inserted into the functional domain, these must be absent of an argument structure; consequently, the apparent subject orientation must be accounted for in terms of scopal properties of the relevant modal heads (Roberts & Rousseau 2000:17-18).

On the relation between modals and subjects. Cinque (2004) otherwise suggests that the apparent subject-orientation of certain restructuring (hence functional) predicates is related to the semantics of the restructuring verb involved. I will go back to this question in Chapter 5.

³⁰ The sentence came up in a seminar taught by von Stechow and Iatridou in (2004).

As will be shown in Chapter 6, *each* is not an exception; quantificational subjects can outscope Basque necessity modal *behar* ‘need’ whether the modal is interpreted as root or epistemic; even *every* (which is the quantifier involved in Brennan’s examples) appears to be able to take wide scope relative to epistemic modals if the context is carefully built.

In addition to this, Chapter 6 will also demonstrate that it is not true that quantificational subjects always scope above root modals. Non-directed deontic (hence root) modality, unlike directed deontic and dispositional modality, behaves on a par with epistemic modality in that the two can take variable scope relative to quantificational subjects.

2.2.3.2. Negation

Another source of evidence taken to indicate that modals differ with respect to their position in the hierarchy is the scope interaction of modals with Negation. It has been assumed that Negation tends to be interpreted below epistemic modals (cf. Dubrig 2001); by contrast, in root (deontic) interpretations, negation is most naturally interpreted above negation. The following examples from Drubig (2001) and Hacquard (2006) are taken to illustrate this contrast:

(39) Examples from Malay (Drubig 2001: 8)

- a. Dia mesti tidak belajar. (epistemic)
‘He must not study’
- b. Dia tidak mesti belajar. (deontic)
‘He not must study’

(40) Interaction of modals with Negation (Hacquard 2006: 120)

- a. Darcy must not be at home.
- b. Darcy may not be at home.

Under an epistemic interpretation, the following examples negation tend to be interpreted under the modal, whereas in the deontic interpretation it scopes above the

modal (e.g. ‘It may be the case that Darcy is not at home’ (*Epis* > *Neg*) vs. ‘Darcy is not allowed to be at home’ (*Neg* > *Deon*)). This scope ordering is transparently reflected in Malay, but not in English, where negation invariably follows the modal in the surface.

The data examined in (39a-b) and (40a-b) is consistent with the assumption that epistemic and root modals are located at different heights of the structure: above negation in the case of epistemics and below negation in the case of root modals. However, it has been alternatively claimed that, in English, necessity and possibility modals interact with negation in different ways. Consider the following examples by Cormack & Smith (2002)³¹:

(41) Root and epistemic necessity modals

- | | |
|---|------------------|
| a. Alfred shouldn’t eat nuts | <i>root</i> |
| i. ‘It is advisable for Alfred not to eat nuts’ | should > not |
| ii. *‘It is not the case that it is advisable for
Alfred to eat nuts.’ | *not > should |
| b. Bob shouldn’t be late | <i>epistemic</i> |
| i. ‘It is predictable that Bob will not be late’ | should > not |
| ii. *‘It is not the case that it is predictable that Bob
will be late’ | *not > should |

(42) Root and epistemic possibility modals

- | | |
|---|-------------|
| a. Edwin can’t climb trees | <i>root</i> |
| i. *‘Edwin is able not to climb trees’ | *can > not |
| ii. ‘It is not the case that Edwin can climb trees’ | not > can |

³¹ For simplicity, the examples involve only the necessity modal *should* and the possibility modal *can*. Actually, Cormack & Smith (2002) group together epistemic and deontic *should*, *must*, *ought to*, *will*, *would*, *is to* under the category of *Pre-Pol modals* (that is, modals who scope above sentential negation) and deontic and epistemic *can*, *could*, *dare*, under the category of *Post-Pol modals*, which scope below sentential negation. The exceptions to the necessity/possibility split are modals *may*, *might*, which behave as *pre-Pol modals* when interpreted epistemically, and the modals *need to* and *have to*, whose status as verbs rather than modals forces them to scope lower than negation. As for ‘*need* (without to)’, they simply assume that because it is a NPI, it must scope under negation. It must be however noted that Cormack & Smith do not support that epistemic are generated higher and root modals lower than negation, rather, they assume that the merging position of modals, whether Pre-Pol or Post-Pol, is lexically specified for each modal, independently of their modal interpretation.

b. Jean can't have left.	<i>epistemic</i>
i. *'It is possible that Jean has not left'	*can > not
ii. 'It is not the case that it is possible for Jean to have left.'	not > can

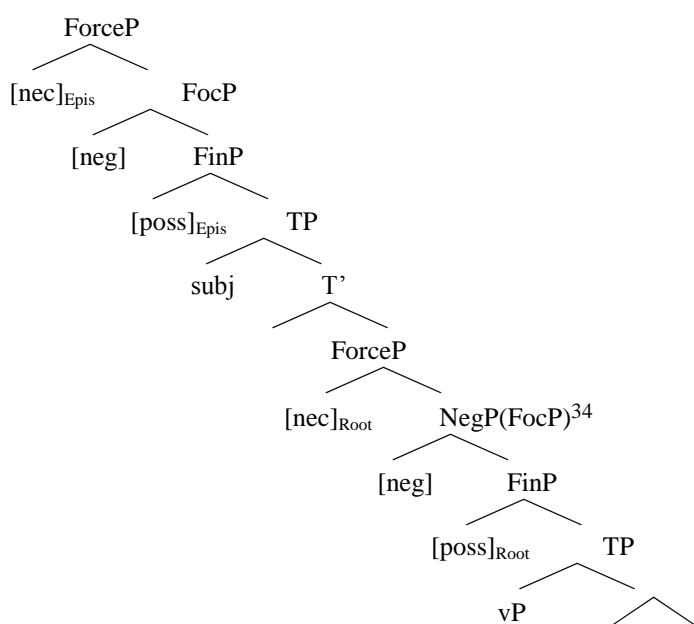
Based on the observable differences between necessity and possibility modals in English, Butler argues for a split between the two types of modalities regarding their position relative to sentential negation. Butler also assumes that there are different scope positions available for negation: the lower position corresponds to what he refers to as NegP, located in the lower periphery of the clause (below T) (Pollock 1989, 1997; Haegemann 1995); the higher one corresponds to the FocusP in the higher periphery of the clause (Rizzi 1997)³². This is in line with his view of how clauses are structured; more specifically, with the view that some layer of functional structure that sits on the top of the clause (in the left periphery) is iterated lower down in the clause, on the top of the extended verbal layer (vP) (Jayaseelan 2001; Starke 1993, 2001; Hallman 1997, 2000; Beghelli & Stowell 1997; Sportiche 2002; Belletti 2003; Jelinek & Carnie 2003; Brody & Szabolcsi 2003).

As shown in (43) necessity modals sit above the lower position for negation (NegP), but differ with respect to their position relative to higher negation (FocP) depending on whether they are interpreted as epistemic or root. By contrast, possibility modals are merged below higher negation (FocP), with epistemic possibility located above and root possibility below the lower (NegP) negation³³.

³² The idea that negation can scope in different positions in the clausal hierarchy has gained much prominence in the last decades (see Zanuttini 1997, Poletto 2008, De Clercq 2013, among others), and is the assumption I will defend in this dissertation, concretely in Section 3.3. of Chapter 5 (where I examine the interaction of the Basque necessity modal *behar* with negation in the different constructions (restructuring and non-restructuring) this modal can occur in) and in Section 6.3 of Chapter 6, where I analyse the relation of this modal with negation under the different interpretations it can give rise to.

³³ Butler (2003, 2004) further argues that, when negation scopes under the subject it is the lower scope position (NegP) that is instantiated; and when negation scopes over the subject, it is the higher one (FocP).

(43) *Butlers's clause structure* (Butler 2003: 988)



In Butler's view, this hierarchy explains the contrast between necessity and possibility modals observed in (41)-(42) above: the scope interpretation of the pair (40a-b) is due to the fact that possibility modals are always merged below higher negation; however, they differ with respect to their position relative to lower negation, with epistemic possibility located higher and root possibility lower than (NegP). By contrast, necessity modal *should* (also *must*, *ought to*, etc) scopes over lower negation in its deontic interpretation in (41a), but between higher (FocP) and lower (NegP) negation in the epistemic one (41b).

For Butler, the case of *needn't* and *can't* is different than that of other necessity and possibility modals, in that they instantiate the higher position for negation. In a footnote, Butler attributes this to the NPI properties of these modals. Thus, the narrow scope of *needn't* relative to negation in (43) is attributed to the fact that, unlike in the examples involving *shouldn't* above, it is the higher negation (FocP) that is instantiated.

³⁴ For convenience I have kept the label NegP for lower negation, but in Butler's original diagram both the higher and lower positions are labelled FocP, in consistence with the idea that the left periphery of vP is structurally akin to CP, both CP and vP being phases of a propositional nature (Butler 2003: 968).

Likewise, *can't* is interpreted below negation under its epistemic reading in (42b) above because it is again the higher scope negation which is instantiated. But (42b) contrast with (44b), showing that the modal *mightn't*, like *may*, instantiates lower negation and systematically scopes above negation when interpreted epistemically.

(44) Scope of the modals *need* and *might* relative to negation

- a. The children needn't do that. *higher neg(FocP) > need*
(Butler 2003:985)
- b. The registrar mightn't have got my letter. *Mightn't(epis) > lower neg (NegP)*
(Butler 2003:984)

The hierarchy is also taken to correctly predict the contrast between epistemically interpreted necessity and possibility modals shown in (45a-b) below.

(45) Epistemics' scope relative to negation (Butler 2003: 984)

- a. The registrar mustn't/mightn't have got my letter
epistemic modality > subject > negation
- b. The registrar can't have got my letter
negation > epistemic possibility

In sum, the syntactic distribution of necessity and possibility modals proposed by Butler (2003) in (43) yields the scope ordering in (46).

(46) *epistemic necessity > (negation) > epistemic possibility > (strong)subject > root necessity > negation > root possibility > vP* (Butler 2003: 986)

In Chapter 6, I will show that Butler's account is however insufficient to account for the behaviour of necessity modals crosslinguistically. Even in English, it has actually been argued that there exist epistemically interpreted necessity modals that systematically exhibit narrow scope relative to negation (*need*³⁵, *have to*). This

³⁵ Butler (2002) claims that the epistemic interpretation of *needn't* is acceptable only to a very small fraction of speakers, see however Papafragou's data in (47).

inevitably calls into question the assumption that epistemic necessity modals are merged higher than negation.

(47) John need not be the prime suspect. (Papafragou 2005: 1694)

negation > need (epistemic)

(48) The murder didn't have to take place in the study. It could have happened in the garage. (Lee 2006: 246)

negation > have to (epistemic)

To recapitulate, it has been argued that the contrast between epistemic and root modals regarding their scope relative to negation is directly related with the height at which these modals are inserted to (Butler 2003); however, the alleged contrast is not as clear as it looks at first sight, and the existence of modals that scope below negation both under a root and under an epistemic reading posits serious problems for such hierarchical approaches.

2.2.3.3. Tense

Perhaps one of the most robust arguments in favour of a different height approach to modals is the interaction of modals with Tense.

It has been generally assumed that the time of evaluation of root modals is the event time – that is, the time provided by Tense – whereas the time of evaluation of epistemic modals, that is, the time at which the epistemic inference is made, corresponds to the speech time (in matrix contexts) (Groenendijk & Stockhof 1975, Iatridou 1990, Abusch 1997, Picallo 1990, Abraham 2001, Stowell 2004).

Given this, epistemic modals are unaffected by the time provided by the Tense head, and consequently, they can never be forward-shifted (54a) or back-shifted (54b). I illustrate this with the following examples owed to Hacquard (2009).

(v) */% The registrar needn't have got my letter
Scope: */% negation > epistemic necessity

(49) Evaluation time Epistemic modals (Hacquard 2009:24; the paraphrases are mine)

a. Marikos may be dead tomorrow.

Given what is known (at speech time) it may be that Marikos will be dead tomorrow. $mod_{epis} > tomorrow, *tomorrow > mod_{epis}$

→Time of evaluation of the epistemic inference: speech time

b. Mary had to be the murderer.

Given what is known (at speech time) it is necessary that Mary was the murderer $mod_{epis} > past, *past > mod_{epis}$

→Time of evaluation of the epistemic inference: speech time

Note that if modality is interpreted deontically, the interaction with tense is significantly different. The modal in (50) is interpreted in the scope of the time provided by Tense (past); it cannot express a necessity given her circumstances *now* to have taken the train *then*.

(50) Evaluation time root modals (Hacquard 2009: 24)

Mary had to take the train to go to Paris.

Given Mary's circumstances then, Mary was required to take the train then .

**Given Mary's circumstances (at speech time) it was necessary that Mary took the train then.*

→Time of evaluation of the (root) obligation: time provided by Past Tense

By assuming that epistemic and root modals are inserted in different positions relative to the Tense head (epistemics above Tense vs. root modals below Tense), the difference concerning the temporal interpretation of the two modals is successfully accounted for.

Let us now summarise briefly where different authors place modals relative to tense and how the scope relation between modal and tense is derived³⁶:

³⁶ For space reasons, given the commonness of the claim, I will not give a wide review of all the work cited. I will rather summarise where they locate the relevant modal types in the structure and the implications of this for the scope interaction between modals and tense.

In Cinque's (1999, 2000, 2004, 2006) cartography account of functional heads, epistemic modals sit higher, and root modals lower than the Tense head. The position of modals relative to Aspect is more intricate, as Cinque proposes different positions for different types of Aspect. Epistemics are again higher than the different aspectual heads attested by Cinque, but the different root modals take different positions with respect to the various aspectual heads³⁷:

(51) Cinques hierarchy of functional heads (adapted from Cinque 1999)

MoodPspeech act > *MoodPevaluative* > *MoodPevidential* > *ModPepistemic* > *TP(Past)* > *TP(Future)* > *MoodPirrealis* > *ModPaethic* > *ModPnecessity* > *ModPpossibility* *AspPhabitual* > *AspPrepetitive(I)* > *AspPfrequentative(I)* > *ModPvolitional* > *AspPcelerative(I)* > *TP(Anterior)* > *AspPterminative* > *AspPcontinuative* > *AspPretrospective* > *AspPproximative* > *AspPdurative* > *AspPgeneric/progressive* > *AspPprospective* > *ModP obligation* > *ModPpermission/ability* > *AspPcompletive* > *VoiceP* > *AspPcelerative(II)* > *AspPrepetitive(II)* > *AspPfrequentative(II)*

In Cinque's view, the scope interaction between each modal and tense(/aspect) are thus taken to follow directly from the different positions that different modals occupy in the hierarchy.

The problem with Cinque's hierarchy, as stated by Falaus & Laca (2016: 11-12) is that *it seems to a large extent arbitrary, as it fails to provide the rationale behind the observed scopal differences*. That is to say, it does not explain the correlation between modality-type and structural position.

In the same spirit, Hacquard (2006) derives the temporal interpretation of epistemic and root modals from the distinct position of these modals relative to the Tense head in the clausal hierarchy (52).

³⁷ Recall that the hierarchy in (51) concerns only functional heads; hence, root modals, like epistemic modals are considered to be functional heads and consequently they are all devoid of argument structure. This means that all the asymmetries between epistemic and root modals, including the relation of the modal with the clausal subject, must be solely ascribed to the distinct positions of these modals in the hierarchy. As shown above, Hacquard (2006, 2009), Butler (2003, 2004) and Ramchand (2012) modals must also be taken to be functional elements, as they are located different positions in the functional layer of the clause (epistemic modals in the left CP periphery above Tense, and root modals in the functional layer on top of the vP).

(52) Position of modals relative to Tense (and Aspect) (adapted from Hacquard 2006: 133-134)

[Mod_(epis) [T [Asp₁ Mod_(root) [VP t_i

But importantly, unlike Cinque, Hacquard tries to motivate the cartographic facts semantically, by relating the differences between the two types of modals to differences in event anchoring (i)-(ii). More explicitly, Hacquard assumes that:

- (i) When the modal is above Tense, *the modality will be relativized to the speaker and to the speech time (the agent and temporal trace of the speech event)*³⁸. (Hacquard 2006: 134). To put it simply, the modal will be interpreted in the scope of the time provided either by the attitude predicate or in the scope of the speech time, but out of the scope of (49a) above.
- (ii) When the modal is below Tense, *the modal will be relativized to the subject and the time provided by Tense (again, the agent and temporal trace of the event quantified by Aspect)*. (Hacquard 2006: 135). This explains the temporal interpretation of (49b-50) above.

Butler's (2004) explanation of the scope asymmetries between epistemic and root modals takes the interpretive distinction between the two types of modal readings in (49a) and (49b-50) to be correlated with the temporal specification of the situation the modal operates over; hence, whether the modal operates over a temporally anchored situation or not^{39, 40}. Thus, epistemic readings are argued to derive from modal

³⁸ Alternatively, in the presence of an embedding attitude verb, modality can also be relativized to the attitude holder at his/her internal now: the agent and the temporal trace of the attitude event. (Hacquard 2006: 134)

³⁹ Actually, Butler (2004) does not consider the temporal interpretation of modal sentences to be a matter of scope; he claims that tense itself does not have scope properties, *and so it doesn't make formal sense to talk about other elements scoping around it* (Butler 2004:151; fn 5)

operators taking scope over temporally anchored situations, i.e. propositions, giving a propositional attitude-like reading, whereas root readings derive from modal operators scoping over temporally unanchored situations (i.e. vP). For a detailed description of the position modals can be inserted in the structure and their distance relative to the Tense head see (43).

To sum up, different works agree that the temporal interpretation of epistemic and root modal sentences is in some way or another related with the different positions the modal occurs in the structure: a higher position in the functional layer above Tense gives rise to an epistemic reading, and a lower position below Tense, in the periphery of the vP yields a root reading.

There are however some researchers who have argued that, across languages, epistemically interpreted modals can scope under past tense (Eide 2002; Boogart 2007; von Fintel & Gillies 2007, 2008; Homer 2010, 2011; Mari 2009; Mari & Schweiter 2010; Martin 2009, 2010; Rullmann & Matthewson 2012; Demirdache & Uribe-Etxebarria 2012). This can be seen in the following examples owed to von Fintel & Gillies (2008b) and Homer (2010), where the evaluation time of the epistemic modal, that is, the time of the epistemic inference, correlates with a past time⁴¹.

⁴⁰ Like Butler (2003, 2004), Ramchand (2012) too assumes epistemic modals are introduced after the temporal information has already been specified (ie. after T). As a result, the event is already settled by the time the modal is evaluated and this gives us, by definition, an epistemic modal base. On the contrary, root modals are introduced before Tense, therefore the modal quantifies over worlds or situations which are underspecified at this stage, and this gives us a metaphysical or circumstantial modal base (see Ramchand 2012 for a detailed account)

⁴¹ Hacquard (2006, 2009) argues that examples such as the ones provided under (53-54) below, past morphology on the epistemically interpreted modal is not a true semantic past tense, but a present tense in disguise. She argues that the sentences must involve a hidden past tense attitude verb ('I thought that') and that the past tense on the modal is in fact the result of a sequence of tense rule (Ogihara 1995a, b, 1996, 2007), by which the embedded tense morphologically agrees with the past tense of the silent attitude verb. See however arguments against the presence of a silent attitude verb in Homer (2010).

(53) Epistemic modals scoping below past tense (von Fintel and Gillies 2008b)

A: Why did you look in the drawer?

B: My keys might have been in there. (=It was possible that my keys were in there)

(54) *Context: On the day of the utterance DO, the speaker's grandfather asks her why she panicked and stormed out of the house yelling on D-6, when she saw him lying on the floor. The man is 90 years old but the speaker knows at DO that he has never had any health problem; right after her fit of panic on D-6, the speaker realized that her grandfather was in fact meditating on the floor.*

Tu pouv-ais très bien/dev-ais sûrement avoir eu une crise cardiaque.

You might-PAST very well/must-PAST surely have had a attack cardiac

'It was held very likely/certain (by me) that you had had a heart attack.'

(Homer 2011)

Under the assumption that in such examples, the past perspective of the modal is contributed by the syntactic Tense projection⁴², the claim that epistemic modals sit higher than Tense in the syntactic structure is thus falsified.

2.2.3.4. Interaction of Epistemic and Root modals with other modals

It has been noticed that, across languages, when two modals are stacked together, there is no ambiguity as to how the two modals should be interpreted: the leftmost modal must be necessarily interpreted epistemically, while the embedded modal can only receive a root interpretation. The following examples from Picallo (1990) and Hacquard (2011) are taken to illustrate the hierarchical ordering between epistemic and root modals:

⁴² See Falaus and Laca (2016) for a summary of the arguments against and for the presence of real past tense.

(55) Adjacent modals:

- a. En Pere deu poder tocar el piano Catalan (Picallo 1990)
- P. must can play the piano
- i. It must be the case that Pere is able/allowed to play the piano.
- ii. *It must be the case that it is possible that Pere would play the piano.
- b. En Jordi pot haver de venir. Catalan (Picallo 1990: 294)
- J. may have to come
- i. It is possible that Jordi is obliged/compelled to come.
- ii. *It is possible that it is necessary that Jordi come.
- c. John may have to watch TV. (Haquard 2011: 21)
- i. It is possible, given what is known, that John has an obligation to watch TV'
- ii. *It is allowable that it be epistemically necessary that John watches TV.

Thus, in the examples from Catalan in (55a-b) and English (55c) above it is shown that deontically interpreted modals cannot scope over a modal that gets an epistemic interpretation (55a-b-c-ii).

What is more, in his crosslinguistic approach to modality, Nauze (2008) shows that the scope ordering *epistemic* > *deontic/root* may actually be universally fixed, as it is attested in a significant number of unrelated languages including Dutch, Korean, Lillooet, the Fon cluster, Turkish and Tuvaluan.

These data is again consistent with an analysis in which different types of modalities correlate with different positions in the clausal configuration⁴³: if modals that

⁴³ Nauze (2008) rather argues that epistemic modality cannot be interpreted in the scope of deontic modality due to semantic incompatibility: epistemic modals operate on whole information states whereas deontic modals operate on deontic plans (inside possibilities); in Nauze's update semantics framework, this combination results in the failure to update the information state required by the epistemic interpretation (for further details on how this is formally implemented see Nauze 2008, Chapter 5). However, Nauze makes no assumption on whether the semantic model he proposes correlates with syntactic differences between the different modal interpretations: *the ungrammatical combinations of*

are interpreted epistemically sit higher in the syntactic structure, it follows without more ado that epistemic modals will necessarily outscope modals that receive a non-epistemic, deontic or root reading.

The problem with the structural height account is that it only accounts for the scope interaction between different types of modal verbs, while it remains unclear why it is possible to embed a modal adjective with an epistemic interpretation under a root modal, as observed by von Stechow and Iatridou (F&I) (2004).

(56) For the test costs to be reimbursed, it has to (DEONTIC) be possible (EPISTEMIC) that the patient has Alzheimer's. (Hacquard 2009 on F&I 2004)

As acknowledged by Hacquard, what examples like (64) show is that this ordering restriction is not conceptually motivated.

Adjectives and modal auxiliaries may have different properties that would allow the former to embed, but not the latter, so that Cinque's hierarchy may not be so much about types of modality, but rather types of modal auxiliaries. (Hacquard 2009: 21)

The lack of semantic motivation for the *epistemic* > *deontic* ordering is further evidenced by the interaction of narrow scope *have to* modal with other modal verbs in English, as shown by Lee (2006).

(57) Interaction of epistemic *have to* with other modals (Lee 2006: 246)

- a. Pam must have to work tonight. She's not home yet. *Epis* > *Root*
- b. The suspect must have to be six feet tall, if these are his shoes. *Epis* > *Epis*
- c. The suspect may have to be six feet tall, if these are his shoes. *Epis* > *Root*
- d. Pam may have to work tonight. She'll call us when she finds out. *Epis* > *Epis*

modal verbs are not ruled out on their syntactic properties but because of their interpretations (Nauze 2008: 119).

Hacquard (2009) too suggests the possibility that the unattested *deontic* > *epistemic* ordering *could perhaps be ruled out on conceptual grounds: no matter how tyrannical the issuer of a command, he may not be able to demand that a state of affairs be epistemically necessary* (Hacquard 2009: 21)

Lee takes these data to indicate that *epistemic modality can be expressed more than once in the same proposition, and thus must be able to be licensed in multiple positions.* (Lee 2006: 246)

So once more, in view of the contradictory data presented, it seems controversial to claim that there is a fixed universal hierarchy between epistemic and non-epistemic modality. The fact that in some languages some modals are subject to ordering constraints of this type does not mean that modal interpretation is straightforwardly correlated with structural height. The claim appears to lack both empirical and conceptual support.

2.2.4. The subject-scope based account (Lee 2006)

Lee (2006) examines a series of scope properties of modal constructions involving necessity modal *have to* and concludes, along the line of Wurmbrand (1999) and Bobaljik & Wurmbrand (1999) that, regardless the modal interpretation conveyed, *have to* is always a raising predicate. However, her analysis differs from Wurmbrand's (1999) in that she further argues that there is a direct correlation between the scope-position of the subject relative to the modal and the modal interpretation it legitimates.

In particular, Lee defends that, when the modal is interpreted as taking scope over the subject it is interpreted epistemically; in contrast, when the subject takes scope over the modal, the modal receives a root interpretation⁴⁴. Her hypothesis is based on two main pieces of evidence: (i) the unavailability of epistemic interpretations in contexts where a wide scope reading of the subjects is forced, such as Wh-questions, summarized in Section 2.2.4.1., and (ii) the correlation between the type of agreement

⁴⁴ Lee's analysis is more complex in the sense that she assumes four potential scope-taking positions for subjects of modal *have*: the specifiers of embedded clause VP and TP, the specifier of matrix TP, and the specifier of matrix CP. These positions are marked with 'X' in the following structure provided by Lee (2006:249):

(vi) [_{CP} X [_{TP} X [_{VP} have [_{CP} t c/p [_{TP} X to [_{VP} X verb]]]]]]

(singular vs. plural) exhibited by group-denoting subjects with a given modal interpretation, to be discussed in Section 2.2.4.2.

2.2.4.1. Wh- subjects of epistemic constructions

As mentioned above, Lee argues that modal constructions in which the subject takes scope over modal *have to* exclusively correlate with a root reading. That is to say, the subjects of epistemically interpreted *have to* constructions should not be able to take scope in the matrix clause. If this account is correct, then contexts in which a wide subject scope is forced, such as subject wh-questions, should be banned in epistemic construal.

Let us consider the following sentence in (58):

(58) Epistemic reading ruled out in Wh-subject questions:

Who has to be in call tonight?	Root/#Epistemic (unless interpreted as an echo question)
--------------------------------	---

The example in (58) involve modal *have to* in the context of an interrogative sentence in which the subject undergoes wh-movement to a position where it takes matrix clause scope, hence, scoping over *have to*. As expected, the natural interpretation of this sentence is a root interpretation in which the speaker is asking who is obliged to be in call that night. Note that an epistemic interpretation is ruled out, unless the sentence is interpreted as an echo question, and not a true question.

As argued by Lee, echo readings with epistemic modals are licensed because echo questions do not involve the same movement constraints as normal wh-questions do. Following Dayal (1996) (cited in Artstein 2002) she assumes that in echo questions, wh-expressions do not raise at LF; instead, they are bound in situ by operators in CP. Thus, Lee takes the obligatory echo question interpretation of subject wh-questions out of epistemic *have to* constructions to indicate precisely the inability of the subject to outscope epistemically interpreted modals.

(59) Obligatory echo-question reading of epistemic *have to* construals (Lee 2006: 250)

- a. Pam has to be crazy to like that movie.
- b. Who has to be crazy to like that movie?

To sum up, Lee takes the construction involving *wh*-subject questions to evidence the different scope interaction between modal *have to* and the subject in root and epistemic construals. Under the assumption that the unmarked interrogative reading is licensed when the *wh*-subject is interpreted in the matrix scope position, while the in-situ scope reading of the *wh*-subject correlates with a marked echo question reading, the obligatory echo-question interpretation of epistemic *have-to* construals further supports her hypothesis that epistemic interpretations correlate with a narrow scope reading of the subject relative to the modal.

2.2.4.2. Agreement patterns of group-denoting nouns

The second empirical argument that the subject of epistemic *have to* sentences must take narrow scope with respect to the modal predicate in the epistemic construal concerns the agreement of group-denoting nouns.

As is well known, group denoting nouns can either trigger plural or singular agreement in British English.

Sauerland and Elbourne (2002) argue that plural agreement corresponds to a high position of the subject at LF (in the TP)⁴⁵.

(60) Agreement of group denoting nouns and subject scope (adapted from Sauerland and Elbourne 2002)

- a. A northern team are likely to be in the final. ($\exists > \text{likely}$, *likely $> \exists$)

⁴⁵ In Sauerland & Elbourne's (2002) view, British English has two distinct number features: the standard number feature indicates how many nominal entities are being referred to and the second feature, dubbed Mereology, signals if the entity being defined has more than one member. In group denoting nouns like *a northern team* in (60), the Mereology feature is plural. According to this authors, in order for the Mereology feature to surface as plural verbal agreement this must be checked by overt syntactic movement and LF interpretation of the DP in Spec,TP. This accounts for the absence of a narrow-scope reading of the indefinite subject in (60).

- b. A northern team is likely to be in the final. (* \exists > likely, likely > \exists)

Lee observes that when *have to* constructions involve group-denoting subjects, as in (61), there is a correlation between the type of agreement exhibited by the verb and the modal interpretation the sentence can give rise to: singular verbal agreement correlates with an epistemic modal reading (61a) whereas plural verbal agreement is associated with a root interpretation (61b).

(61) Agreement of group-denoting nouns in *have to* modal contexts (Lee 2006: 251)

- a. The committee has/*have to have made a decision already. *Epistemic*
 b. The committee have/has to make a decision by this afternoon. *Root*

Based on Sauerland and Elbourne's analysis whereby plural mereology agreement requires that the relevant DP overtly move and be interpreted in Spec, TP (see fn. 45), Lee argues that the correlation in (61a-b) provides further evidence that in root construals the subject takes scope over modal *have to*, whereas in epistemic construals the subject takes a narrow scope position relative to modal *have to*.

To sum up, the different scope interaction between the subject and the modal predicate in wh-subject questions and sentences involving group denoting nouns allows Lee to derive the different modal readings exhibited by necessity modal *have to* in a simple and compositional way.

However, it is unclear whether Lee's scope-based account of modal interpretation can be extended to other modals.

On the one hand, it is impossible to test whether other modals that admit epistemic readings in British English (i.e. *must*, *should*, *might*, *may*, *could*, *cannot*, *need not*, etc.) behave like modal *have to* with respect to the verbal agreement morphology triggered by group denoting noun subjects, since these other modals do not inflect for number in British English.⁴⁶

⁴⁶ The only other modal that inflects for number in British English is *need (to)*. However, it seems that in a context parallel to (61), epistemic interpretations of modal *need (to)* are unavailable regardless of the number agreement the modal shows up with. When I asked my British informants about the the following

On the other hand, there is evidence that some epistemic modal construals can have a non-echo, unmarked interrogative readings in constructions with *wh*-subjects. We find an example in the following sentence provided by Brennan (1993):

(62) Who can have left this baby on my doorstep (1993: 24)

These facts lead us to conclude that Lee's analysis is insufficient to explain the whole range of modal constructions available, and that more research is necessary in order to derive the (un-)availability of epistemic readings with modal predicates in the different syntactic environments in which they can appear.

counterpart examples involving *need (to)* and the group-denoting subject *the committee* (i-ii), they reported that the only available interpretation in all cases is a root interpretation.

- (vii) The committee need to have made a decision already. *Plural agreement*
 - a. 'The committee are required to have made a decision.' *Root*
 - b. #'As far as I know, it needs to be the case that the committee have made a decision.'
(#Epis)
- (viii) The committee needs to have made a decision already. *Singular agreement*
 - a. 'The committee is required to have made a decision.' *Root*
 - b. #'As far as I know, it needs to be the case that the committee has made a decision.'
(#Epis)

2.3. THE EPISTEMIC/ROOT DISTINCTION REVISED

In the literature, it has often been assumed that modals differ with respect to whether or not the modality they express is directed to the subject. This difference was first made explicit in Feldman's (1986) essay in formal deontic logic, in which Feldman distinguished between *ought-to-be* and *ought-to-do* modals:

Sometimes, instead of saying that a certain person ought to do a certain thing, we may say that a certain state of affairs ought to be, or ought to occur [...]. The ought-to-do involves a relation between an agent and a state of affairs. The ought-to-be involves a property of a state of affairs. (Feldman 1986: 179)

From the point of view of the syntax, different authors have tried to capture the split between *ought-to-do/subject directed* modality and *ought-to-be/non subject-directed* modality compositionally.

One such syntactic account which shares the intuition that modals split into subject-directed and non subject-directed is Barbiers (1995). More specifically, Barbiers argues for a four-type classification of modalities in Dutch: *directed deontic modality*, *non-directed deontic modality*, *probability modality* (which is how he refers to the epistemic modality) and *dispositional modality*. The classification is based on two semantically and syntactically motivated parameters: one of these parameters is polarity transition, which I will not treat here explicitly (the reader is referred to Barbier's work for a detailed explanation). The other is subject orientation⁴⁷. It is precisely subject-orientation that determines the split between directed and non-directed deontic

⁴⁷ Concretely, subject orientation is determined by the syntactic relation between an abstract head (D^0/P^0) – encoding notions like origin, source, possessor, starting point, agent and cause of the event –, the modal and the subject. Polarity transition is contingent on whether the verbal complement of the modal denotes a definite or an indefinite event. A definite event gives rise to the probability (i.e. epistemic) interpretation, whereas an indefinite event gives rise to polarity (i.e. non-epistemic) interpretations. The interpretation of an event as definite or indefinite depends on the syntactic position of the modal: when the modal is merged above D the event is interpreted as definite, and when it is merged below it it is indefinite (how the two interpretations (definite/indefinite) are derived is somewhat intricate, the reader is referred to Barbier's (op. cit.) work for a detailed description). Thus, the main syntactic difference between the four type of modals has to do with their different syntactic position relative to the abstract head D^0/P^0 and with the syntactic relation established between this head, the modal and the subject of the construction.

modalities. Let us briefly explain how exactly each of the types in Barbier's classification behaves with respect to the parameter of subject orientation.

For Barbiers, *non directed deontic* readings are those where the necessity, obligation or permission conveyed by the modal is not directed towards the subject of the clause; that is to say, it is not the subject who has an obligation or permission to do something. By contrast, in directed modality the bearer of the necessity, obligation or permission conveyed by the modal is always the subject of the clause. The examples in (63a) vs. (63b) illustrate the two types of deontic readings:

(63) Jan moet schaatsen

John must skate

- | | |
|---------------------------------------|-----------------------------|
| a. 'John has the obligation to skate' | <i>directed deontic</i> |
| b. 'It is required that John skates' | <i>non-directed deontic</i> |

The *dispositional* reading expresses a force, tendency or capacity internal to a subject⁴⁸. It differs from the directed deontic reading in that the latter has an external source; this is illustrated in (63c).

(63) Jan moet schaatsen

John must skate

- | | |
|-------------------------------------|----------------------|
| c. 'John definitely wants to skate' | <i>dispositional</i> |
|-------------------------------------|----------------------|

Finally, the probability (/epistemic) reading "involves a qualification of the truth value of the proposition expressed by the sentence, i.e. an estimation of the degree of probability of a proposition." (Barbiers 2006: 145), and it is not ascribed to the subject; hence, it is not subject-oriented. An example of this type of reading would be (63d).

(63) Jan moet schaatsen

John must skate

- | | |
|---|--------------------|
| d. 'It must be the case that John is skating' | <i>probability</i> |
|---|--------------------|

⁴⁸ For *moeten* 'must', *iflilen* 'will' and *willen* 'want', this internal force is a (strong) will or desire. For *hoeven* 'need' it is a need felt by the subject. For *mogen* 'may' it is sympathy or attraction experienced by the subject. For *kunnen* 'can', it is ability, capacity. (Barbiers 1995: 142)

Summing up, probability/(epistemic) and non-directed deontic readings are characterized for being non-subject oriented (adopting Feldman's terminology, we could say they correspond to *ought-to-be* modality). By contrast, dispositional and directed-deontic readings fall within the subject-oriented (*~ought-to-do*) group.

Another account concerned with the *ought-to-be/ought-to-do* distinction is Eide (2002). Concretely, Eide correlates the *ought-to-be* vs. *ought-to-do* distinction with a thematic difference, along the traditional view pursued in the early Parameters & Principles literature (Perlmutter 1971; Jackendoff 1972; Huddleston 1976, 1984; Zubizarreta 1982; Roberts 1985) reviewed in Section 2.2.1. The difference with respect to these early proposals is that rather than assuming that the split is between epistemic and root modals, Eide assumes, along the line of Barbiers⁴⁹, that the split is between epistemic and non-directed deontic modals on the one hand, grouped under the *ought-to-be* type, and directed-deontic and dynamic/dispositional modals on the other hand, grouped under *ought-to-do* modality. Thus, Eide contends that *ought-to-be* modals are one-place predicates which do not enter into a thematic relation with the subject; whereas *ought-to-do* modals are always two-placed predicates that establish a thematic relation with the subject of the clause.

Although the one-place vs. two-place relation hence cannot be maintained as a dichotomy between root modals on one side and epistemic modals on the other, it is still the case that epistemic modals can never be construed as a relation between the subject and the embedded proposition, whereas the dispositional root modals always encode such a relation. Deontic root modals are ambiguous between two possible readings; one 'ought to do' reading and one 'ought to be' reading. Hence, our findings suggest that epistemic modals are always one-place predicates, dispositional root modals are always two-place predicates, whereas deontic root modals are ambiguous between a one-place predicate and a two-place predicate construal. (Eide 2002: 21)

For Eide, the thematic relation of Norwegian *ought-to-do* (dynamic/dispositional and directed deontic) modals and *ought-to-be* (epistemic and non-directed deontic) modals is syntactically encoded by means of theta-role assignment, and correlates with

⁴⁹ Notice that, in this, Eide's (2002) account differs from Barbier's, who rather than to a thematic difference, ascribes the *ought-to be*/non-directed vs. *ought-to do*/directed distinction to modal height and the interaction between the subject, the modal and the abstract head D°/P°

a raising vs. control distinction. This is made manifest by the behaviour of the two big groups of modals in pseudo-cleft modal constructions^{50, 51}.

Thus, whereas epistemic and non-directed deontic modal readings are unavailable for a modal with a pseudoclefted complement, dynamic and dispositional modals are perfectly allowed in the same context. Eide argues that this is so because epistemic and non-directed deontic modals pattern with raising verbs, and raising verbs are ungrammatical in these constructions. In contrast, directed deontic and dispositional/dynamic modals pattern like control verbs.

(64) Modal interpretations of pseudo-cleft modal construction in Norwegian (Eide 2002)

a. Det Jon vil, er å kjøpe bilen.

it Jon wants, is to buy car-DEF

'What John wants, is to buy the car.'

Dispositional/dynamic

#'What will be the case, is that John buys a car'

b. Det vi ikke trenger, er å kjøpe flere bøker.

it we not need, is to buy more books

'What we don't need, is to buy more books.'

Dispositional/dynamic

#'What need not be the case, is that we buy more books'

c. Det Marit må, er å snakke med ham.

it Marit must is to talk to him

'What Marit must (do), is to talk to him.'

Directed-deontic

#'What must be the case, is that John buys a car'

⁵⁰ Thrainsson & Vikner (1995) were the first to observe that different modals contrast with respect to their ability to be licensed in pseudo-cleft constructions; the difference between these authors' and Eide's (200) account is that the former assume a traditional two-fold epistemic/root distinction whereas for Eide the division is rather between *ought-to-be* and *ought-to-do* modals.

⁵¹ In her view, the thematic relation between the modal in pseudocleft sentences must be syntactically encoded – it cannot be a contextually derived relation, since in this type of construction the non-directed reading is never available. "An approach that invokes contextually determined "θ"-assignment would have to explain why this is so. In which way are the contextual properties of the pseudocleft able to prevent the non-directed reading from arising?" (Eide 2002:134).

- d. Det du skal, er å pusse tennene.
 it you shall is to brush teeth-DEF
 'What you will (do), is to brush your teeth.' *Directed-deontic*
- e. Det vi alle bør, er å tenke gode tanker.
 it we all should, is to think good thoughts
 'What we all should (do), is to think good thoughts.' *Directed-deontic*
- f. *Det en kvinne bør, er å bli vår neste statsminister.
 it a woman should, is to be our next prime minister.
 (Intended: 'What should happen is that a woman
 becomes our next prime minister.') *Non-directed-deontic*
- g. *Det apene ikke må, er å mates av besøkende.
 it the monkeys not must, is to feed-PASS by visitors
 (Intended: 'What must not take place is that
 the monkeys are fed by visitors.') *Non-directed-deontic*

Note that none of the sentences in (64) can convey an epistemic reading; they cannot have the interpretation 'What will be (/must be/need not be/should be...) the case, is that...'; likewise, if the sentences are interpreted deontically (e.g. 64c-g), the permission, obligation or requirement expressed cannot be interpreted as directed to the subject. This comes to support Eide's assumption that, unlike dispositional and directed deontic modals, epistemic and non-directed deontics are raising verbs.

Like Eide (2002), Asarina and Holt (2005) too draw a distinction between directed and non-directed deontic modalities based on their different theta-assigning properties. Their analysis focuses on the Tagalog deontic modal *kayangan* 'must'.

In Tagalog, lexical control verbs that assign an external theta-role to the subject license unmarked case (*NG*) on the subject. In contrast, raised subjects are marked with the case assigned by the embedded verb (*ANG*). Crucially, when *kayangan* 'must' occurs with an unmarked subject (*NG*), the latter is interpreted as the bearer of the obligation (hence, the deontic modality is directed to the subject); however, when the subject of *kayangan* 'must' exhibits the case properties of the uninflected complement

verb, the deontic modality is interpreted as non-directed to this subject. This is illustrated in (65a) vs (65b).

(65) *Deontic modal kaylangan* (Tagalog) (Asarina & Holt 2005: 4-5)

- a. Kailangan mawama ang tinapay. *Subj. marked ANG by lower verb*
 must dissappear ANG bread (Raising)
 ‘The bread must disappear’.
 → Non-directed deontic: inanimate subject allowed.
- b. #Kailangan ng tinapay mawala. *Subject NG marked by modal*
 Must NG bread disappear (Control)
 #’The bread must make itself disappear.’
 → Directed deontic: inanimate subject disallowed.

Notice that the impossibility that inanimate subjects surface as the unmarked controlled subject of *kaylangan* in the directed deontic construal in (65b) further supports that these are in fact control constructions, since, as explained in Section 2.2.1., the subject of control constructions, unlike those of raising constructions, must meet the selectional animacy requirement of control predicates.

Summarizing, Eide (2002) and Asarina & Holt (2005) show that in languages other than English deontic modals split into two classes regarding their thematic and control properties: non-directed deontic modals, like epistemics, do not assign a theta-role to the subject (hence, they cannot occur in pseudo-clefts in Norwegian and cannot case mark the subject in Tagalog); by contrast, directed-deontics modals, like dynamic/dispositional ones, do assign a theta-role to the subject (they can thus occur in pseudoclefts in Norwegian⁵² and assign case to the subject in Tagalog).

All things considered, it can be concluded that the epistemic/root distinction fails to capture the full range of crosslinguistic data. As it will become clear through the

⁵² To credit Eide (2002), what she in fact states is that deontic modals optionally assign an external θ -role. Their external θ -role being optional, they accept non-argument subjects and prohibit pseudo-cleft constructions in a non-directed (/proposition-scope) reading; by way of contrast, under the directed deontic reading, Norwegian modal constructions reject non-thematic subjects and in turn admit pseudo-cleft constructions.

analysis worked out in Chapter 6, the best classification is one that distinguishes four types of modality – epistemic, non-directed deontic, directed deontic and dispositional/dynamic – along the line proposed by Barbiers (1995).⁵³

⁵³ In my analysis, the reasons for adopting a four-type classification will be different than those argued by Barbiers (1995) and by Eide (2002) and Asarina & Holt (2005). Unlike Barbiers, I will not assume that the different modalities are derived from the relation of the modal and the subject with an abstract adpositional head D^0 or from the position of the modal in the clause structure (cf. footnote 37). Also, I will not assume that the difference between these modal-types only lies in their theta-assigning properties; if this was the whole story, then we could just draw a two-fold ought-to-be (or non subject-directed) /ought-to-do (subject-directed) division of modals. What I will defend, instead, is that the behaviour of the modal under each of these interpretations in relation to a combination of (thematic, selectional and scopal) properties leads us to assume the four-type classification adopted here as a natural conceptual paradigm of modal interpretation (see the concluding section of this chapter and Chapter 6 for more details)

2.4. CONCLUSION

In this chapter, we have reviewed the main syntactic accounts that have tried to derive modal interpretation through a direct syntax-semantics mapping: (i) traditional control vs. raising account of epistemic and root modals, (ii) alternative non-thematic approaches in which modal interpretation is derived from structural height and (ii) Lee's subject-scope based account of the epistemic/root interpretations of the *have to* modal. I have shown that these views face various problems.

Regarding the epistemic vs control account, some scholars have convincingly shown that (at least not all) root modal constructions pattern like control structures (Bhatt 1998, Wurmbrand 1999, Bobaljik & Wurmbrand 1999, Lee 2006). Therefore, it cannot be maintained that there is a no one-to-one correlation between epistemic and root construals and raising and control structures respectively.

However, neither is the case that modals are unambiguously raising verbs (contra Wurmbrand 1999); for instance, besides dispositional/dynamic modal, which are widely assumed to enter into a thematic relation with the subject, it has been attested that in some languages certain deontic modals also pattern like control verbs (i.e. Eide's (2002) analysis of pseudo-cleft modal constructions with deontic modals; and Asarina & Holt's (2005) analysis of the case pattern exhibited by deontic modal constructions in Tagalog).

On the other hand, even if there might be reasons to think that in some languages different modals may take different positions in the clausal architecture, it is unclear whether this necessarily correlates with a difference in modal interpretation, as there is sound evidence that some modals tend to always scope low (i.e. under quantificational subject, negation, past tense or other modal verbs), even when they receive an epistemic interpretation.

I will take up again the question concerning the syntax-to-semantics mapping of modal constructions in Chapter 6, where I provide an analysis of the raising/control properties of Basque modal constructions involving necessity modal *behar* 'need', and of the scopal interaction of this modal with quantificational subjects and negation.

There I will conclude that none of the syntactic accounts presented in this chapter is adequate to explain the set of properties this modal predicate exhibits in Basque.

To start with, the epistemic/root distinction proves too coarse to account for the syntax-semantics mapping of necessity modal *behar*. From the point of view of its semantics, the Basque necessity modal *behar* can convey the four-type of modal meanings proposed in Barbiers (1995) for Dutch modal *moeten*, as illustrated as follows:

(66) Types of modalities conveyed by the necessity modal *behar*

a. *EPISTEMIC*:

Diruak hor egon behar du, nonbait.
 money.sE there be need HAVE.3sE apparently
 ‘The money must be there, apparently.’

b. *NON_DIRECTED DEONTIC*:

Biharko diruak nire mahai gainean egon behar du.
 Tomorrow-by money.sE table on-the be need HAVE.3sE
 ‘It is necessary that the money be on my table by tomorrow.’

c. *DIRECTED DEONTIC*:

Jonek berandu arte lan egin behar du.
 John.sE late until work do need HAVE.3sE
 ‘John is required to work until late.’

d. *DISPOSITIONAL/DYNAMIC*:

Non dago komuna? Txiza egin behar dut.
 Where is toilet.3sA pee do need HAVE.1sE
 ‘Where is the toilet? I need to pee.’

Crucially, in addition, these four modalities not only differ in their semantic interpretation, they also exhibit different syntactic properties. However, as mentioned, none of the accounts reviewed in this chapter – the thematic account, the subject-scope based account or the hierarchical account – can straightforwardly derive the four types of modalities expressed by *behar*. I will argue that, rather than relying on a single syntactic factor (i.e. the argument structure, the syntactic position or the scope relation

of the subject relative to the modal), the syntax-to-semantics mapping of the four types of modality *behar* can convey rather relies on a combination of different syntactic factors (whether the modal enters into a thematic relation with the subject, the subject's animacy, the scope interpretation of the subject relative to the modal and the scope of the modal relative to negation).

3. On the functional vs. lexical nature of modals: *behar* and its crosslinguistic kin

3.1. INTRODUCTION

In this chapter I will concentrate on the categorial status of the Basque necessity modal *behar*, which encompasses the meanings of the English necessity modals *need/have to/must/should*, and I am going to discuss whether or not it should be best analysed as a functional or lexical modal.

The question whether the different modals are functional or lexical items has been long debated in the literature.

For instance, in early thematic accounts of English modals, these are considered to be lexical one-place (epistemic) or two-place (root) predicates (Ross 1969, Jackendoff 1972, among others); however, in later thematic accounts, English modals (whether epistemic or root) are taken to be auxiliaries (Roberts's 1985, 1993; Roberts and Roussou 2003), some of which (i.e. root modals) have the atypical property of assigning a special type of theta-role to the subject⁵⁴.

Within the hierarchical view, some early accounts (Picallo 1990) draw a correlation between the functional vs. lexical status of modals and their interpretation; more specifically, it is argued that, in Catalan, epistemic modals are auxiliaries generated under Inf^o whereas root modals are lexical predicates (vP-adjuncts)⁵⁵. Cinque (1999 et seq.) (also Butler 2003, 2004; Hacquard 2006), however, assumes that the different types of modals occupy different positions in a universal hierarchy of functional heads; that is, in his view, modals are functional categories universally. This view of modals as uniformly functional categories contrasts with Cardinaletti & Shlonsky's (2004) assumption that modals in Italian (i.e. *volere* 'want' or *dovere*

⁵⁴ Despite the change from being a lexical verb to becoming an auxiliary, in Roberts' (2000) (also Roberts and Roussou's (2003)) accounts root modals keep the potential to theta-mark their subjects. These authors follow Zubizarreta (1982) in the assumption that root modals assign a special adjunct-theta role:

Adjunct θ -roles differ from 'main' θ -roles [...] in that they are not subject to the θ -criterion. So adjunct θ -roles can be assigned to some argument already bearing a θ -role. Also adjunct θ -role assignment is optional. [...] So root modals appear in ungoverned positions in present day English and assign adjunct θ -roles to the agent argument in the clause in which they appear. (Roberts 1993: 51).

⁵⁵ Picallo (1990) also proposes that *voler* 'want' and a few other verbs function both as verb-adjuncts (secondary predicates) and main verbs (primary predicates).

‘must’) can be merged either as hierarchically arrayed functional heads (as proposed by Cinque 1999), or as lexical verbs.

In this chapter, I will first present the reasons that have led some scholars to consider modals to be auxiliaries or functional heads in different languages. For instance, in English, as well as in German, modals exhibit morpho-syntactic properties that set them apart from lexical verbs. In Romance languages like Spanish, Catalan or Italian, and in German, modals exhibit a series of observable restructuring properties which align them with functional verbs. Among those observable properties are their co-occurrence and ordering restrictions, which have figured prominently in the discussion about the functional/lexical status of modals.

I will show that Basque *behar* ‘need’ as well as do not behave homogeneously for the different properties for which modals have been considered functional heads. This observation can be extended beyond Basque *behar* to other comparable modal predicates crosslinguistically. I will argue that all these modals belong to the class of what I will refer to as *need*-type predicates. One of the properties shared by these modal predicates is that they appear to be derived from a homophonous (or morphologically related) noun ‘need’ (Harves & Kayne 2012). Another thing these modals have in common is that they all exhibit to a more or lesser extent other morpho-syntactic properties that make it difficult to determine in an unequivocal way whether they should be assigned to the class of functional or lexical verbs. The intuition that *need*-type modals constitute an atypical case of modal (as compared, for instance, with English *must/may/might/should*,...) is shared by different authors who refer to these modals with labels like semi-auxiliaries, semi-modals, quasi-modals, marginal modals or peripheral modals (Quirk et al. 1985, Biber et al 1999, van der Auwera & Plungian 1998; Depraetere and Reed 2006)⁵⁶. The innovative aspect of the present work is that it

⁵⁶ In English, many works draw a distinction between what it is referred to as the class of core or central modals (e.g. *can, could, may, might, shall, should, will, would* and *must*), on the one hand, and the class of peripheral/marginal/semi-/quasi- modals (e.g. *need, dare, ought to, have to*, etc.), on the other hand (Quirk et al. 1985, Biber et al 1999, van der Auwera & Plungian 1998; Krug 2000, Hopper & Traugott 2003, Depraetere and Reed 2006, among others). As will be shown in this chapter, the former class of modals differs from the latter in that they display a behaviour typical of functional heads (i.e. they exhibit the typical properties associated to functional heads).

provides a more thorough crosslinguistic analysis, including properties that have previously gone unnoticed.

After discussing these morpho-syntactic properties, I will conclude that they can only be fully captured if we assume that these modals can be merged as either functional or lexical verbs (as claimed by Cardinaletti & Shlonski 2004, and contra Cinque 2000, 2006). This view will help us to account in an elegant way for the syntax-semantics mapping of the modal constructions in which *behar* can occur.

The chapter is organized as follows: in Section 3.2., I introduce the main properties that have led scholars to view modals as functional heads. In Section 3.3., I present the special properties exhibited by predicate *behar* and other denominal modals with a comparable meaning which show similar properties in other languages. In Section 3.4., I introduce the two main approaches in the literature to restructuring and clause structure and explain how they account for the dual behavior of some modals and restructuring verbs. In Section 3.5. I argue that *need*-type modals can be merged as either functional or lexical heads. Section 3.6. summarises the main conclusions reached in the discussion.

3.2. THE MORPHOLOGICAL AND SYNTACTIC PROPERTIES OF FUNCTIONAL MODALS

In this section I will introduce some of the morphological and syntactic properties of modals in a number of well studied languages that have led researchers to conclude that modals are functional heads. As we will see, some of the properties are specific of a language or a family of languages, however others are considered to hold universally.

3.2.1. Morphological deficiency

In some languages (e.g. Germanic languages) modals have some common morphological properties that separate them from standard lexical verbs.

English modals have no 3rd person inflection (1a) no tense inflection⁵⁷ (1b) and non-finite forms (1c) (Palmer 1990: 100). A modal that illustrates these properties in a consistent way in English is the modal *must*.⁵⁸

(1) Morphological deficiency

- a. She must(*musts) come.
- b. *She musted come.
- c. *To must, *musting, *musted

This morphological deficiency is also found to a lesser extent among German modals. German modals, unlike full verbs, do not inflect for 3rd person agreement (i.e. they lack the *-t* ending), although they exhibit regular verbal morphology otherwise

⁵⁷ The present-day modal verbs of English come from the class of preterit-tense verbs of Old English which morphologically had a perfect form but a present meaning. Therefore, they lacked the past tense alternation and the third person marking form the start (Krug 2011).

⁵⁸ As referred in fn. 3, *must* belongs to the class of core or central modals and, as we will see, it displays a homogeneous behaviour for all the functional properties examined in this chapter. In what follows, I will use modal *must* as the prototypical case of functional modal, which, as will be shown, contrasts with *need* and its crosslinguistic kin in many relevant properties.

(tense, finiteness). Note the contrast between the inflection for the 3rd person between *brechen* ‘break’ (4) and the modals in (6).

(2) er/sie/es brich-t

he/she/it breaks

(3) er/sie/es darf(*-t)/kann(*-t)/ muss(*-t)/soll(*-t)/will (*-t)

he/she/it may /can /must /should /want

Many scholars have interpreted the morphological deficiency of English and German modals to reflect the change of status of these verbs as a result of a reanalysis or grammaticalization process (Visser 1969, Lightfoot 1979, Heine 1993, Roberts 1993, Warner 1993, Bybee et al. 1994, Roberts and Roussou 2003, Krug 2000, Kuteva 2001, Romero 2005, Tragoutt 2011, among others).

German modals to reflect the change of status of these verbs as a result of a reanalysis or grammaticalization process (Visser 1969, Lightfoot 1979, Heine 1993, Roberts 1993, Warner 1993, Bybee et al. 1994, Roberts and Roussou 2003, Krug 2000, Kuteva 2001, Romero 2005, Tragoutt 2011, among others).

the (partial) lack of inflectional material has often been seen as a reflex of the fact that modals are auxiliaries that occupy the position of inflectional heads (and hence compete with inflectional affixes) rather than main verbs. (Wurmbrand 2003:157)

Some other languages of Europe in which modals show specific morphological properties setting them apart from fully lexical verbs are, for instance, Balto-Finnic, Greek, Slavonic, Albanian, Maltese and Romani.⁵⁹ However, as noted by Hansen

⁵⁹ The information has been gathered from Hansen (2014). In particular, Hansen provides the following selection:

Balto-Finnic (loss of inflection for person/number, mood, voice, tense, negative forms (Kehayov & Torn-Leesik 2009: 376ff)

Greek (in which modals exhibit no person and number marking (Tsangalidis 2009: 151)

Slavonic: lack of aspect marking; South Slavonic: also lack of person and number marking (Besters-Dilger et al. 2009)

Albanian: loss of inflection for person, number, and tense (Breu 2009)

Maltese: lack of person and number marking (Vanhove et al. 2009)

(2014:112), at least among the European languages, there does not seem to be *a uniform set of morphological features that set modals apart from full lexical verbs or other lexical word classes*. What is more, in some languages modals exhibit regular verbal morphology (i.e. in Romance modals fully inflect for tense and person). It can thus be concluded that morphological deficiency is not a universal property of modals.

3.2.2. Syntactic properties of modals that make them look as functional heads

In this section I provide a summary of the syntactic properties that have been claimed to show that modals are functional heads. The summary is based on the analysis of modals in Germanic and Romance languages.

3.2.2.1. The NICE properties of English modals

In English, modals exhibit the so-called NICE properties typical of auxiliaries (NICE is the acronym for “Negation, Inversion, Code and Emphatic Affirmation”, coined by Huddleston 1976). Let us consider modal *must* for an illustration of these properties:

(4) NICE properties of modals:

- a. You mustn’t go.
- b. Must I come?
- c. She never comes, but she must.
- d. She **MUST** come

The property concerning “Negation” is illustrated in (5a). Auxiliaries and modals like *must*, unlike lexical verbs, form negation without *do*-support, and have contracted negated forms. “Inversion” refers to the fact that, in a range of environments (yes/no

Romani: lack of TAM marking and person/number marking (Elsik & Matras 2009)
(From Hansen 2014: 111-12)

questions, wh-questions, after clause initial negative constituents etc.), subject-modal inversion is required (5b). “Code” refers to the ability of modals to allow the following verb phrase to be deleted (5c). Finally, “Emphasis” refers to the ability of modals to be emphasized bearing heavy stress, where lexical verbs need *do*-support (5d). These NICE properties are thus taken to indicate that modals are not lexical verbs.

3.2.2.2. The Infinitive for Participle (IPP)

As for German, one syntactic property of modals that separates them from lexical verbs is that they exhibit the *Infinitive for Participle* (*Infinitivus Pro Participio*, henceforth *IPP*) property. In West Germanic languages, auxiliaries and functional restructuring verbs in the scope of perfective *have* show up with the infinitive form rather than as a participle, hence, they exhibit the IPP effect. The same effect is found with modals, as illustrated below.

(5) *The IPP effect*

- | | | | | | | |
|----|------------|------------|-------|--------|-----------|---------|
| a. | Hans hat | nach Hause | gehen | dürfen | /*gedurft | |
| | John | has/d to | home | go | may-INF/ | may-PP |
| b. | Hans hat | nach Hause | gehen | können | /*gekonnt | 'can' |
| c. | Hans hat | nach Hause | gehen | müssen | /*gemußt | 'must' |
| d. | Hans hätte | nach Hause | gehen | sollen | /*gesollt | 'shall' |

3.2.2.3. Bare infinitival complements without infinitival markers

In addition to the afore-mentioned properties, modal verbs in English, German and Norwegian differ from lexical verbs in that they take bare infinitival complements without the infinitival marker *to/zu/X*:

(6) Infinitives without *to* (English)

- a. He must (*to) come to the party.
- b. Birds can (*to) fly

(7) Infinitives without *zu* (German) (Wurmbrand 1998: 241)

- a. weil er in Lied (*zu) singen kann
since he a song (*to) sing must

- b. weil er in Lied (*zu) singen muss
since he a song (*to) sing must

(8) Infinitives without *å* 'to' (Norwegian) (Eide 2002: 25)

- a. Marit kan (*å) svømme.
'Marit can/may swim/be swimming.'
- b. Pasienten må (*å) behandles forsiktig.
'The patient must be-treated carefully.'

3.2.2.4. No extraposition of the infinitival complement (German)

Additionally, German modals also pattern like functional verbs and unlike lexical verbs in that the infinitival complement cannot be extraposed.

(9) Extraposition with modals (Wurmbrand 2003:157)

that John VERB (the) cake eat

- a. *dass Hans darf [den Kuchen essen] 'may'
- b. *dass Hans dürfte [den Kuchen essen] 'might'
- c. *dass Hans kann [den Kuchen essen] 'can'
- d. *dass Hans muß [den Kuchen essen] 'must'

That John may/might/can/must eat the cake'

As shown in (9), the infinitival complement *den Kuchen essen* 'eat the cake' cannot undergo extraposition to the right of the modal, contrary to what occurs with lexical verbs. Note the contrast with the examples under (10):

(10) Extraposition with lexical verbs (Wurmbrand 2003:157-8)

- a. Dass Hans versprach den Kuchen zu essen
that Hans promised the cake to eat
'That Hans promised to eat the cake.'
- b. Dass Hans beabsichtigte den Kuchen zu essen
'That John intended to eat the cake.'

3.2.2.5. Ordering and co-occurrence restrictions

Another syntactic property typical of modals is their co-occurrence and/or ordering restrictions.

In English modals do not co-occur⁶⁰ (Palmer 1990:100); however, lexical verbs can occur more than once in a sentence (11 vs 12).

(11) *You must can go.

(12) You promised to go.

The co-occurrence restrictions of English modals have been taken to indicate that these compete for the same morphosyntactic slot: T°/Infl°/Aux°/Mod°⁶¹.

In Catalan (Picallo 1990) and in German (Wurmbarnd 1998), modals can co-occur but only under a given distribution: the epistemic modal must always precede the other modals and auxiliaries. In Catalan, this is illustrated by the examples in (13).

(13) Co-occurrence restrictions of Catalan epistemic modal *deure* ‘must’ (Picallo 1990: 293)

a. *En Pere havia degut venir.

Pere had must come

b. *En Joan hauria degut visitarte

Joan would-have must visit-you

c. *La Núria et va deure telefonar.

Núria you [+perf] must call

⁶⁰ It is argued that these NICE properties were already displayed by Old English preterit-tense modals, from which the class of central or core modals have developed. Other emerging semi-/quasi-modal modals (for instance *have to*) do not display these properties and do not exhibit co-occurrence restrictions too. As we will see below, need is a special case in that it shows a dual behavior: it behaves closer to a central modal (e.g. *must*) when it is negated, but closer to a lexical verb when it is not.

(ix) He might have to go.

⁶¹ Roberts (1993) proposes T° for English modals, Picallo (1990) Infl° for Catalan epistemic modals and Wurmbrand has epistemically interpreted modals in the Aux° position in the German clause structure.

As shown in (13), no auxiliary can precede *deure* ‘must’, which can be interpreted only epistemically (Picallo 1990: 293)

The strict ordering restrictions of German modals are illustrated in the examples in (14) and (15), provided by Wurmbrand (1998, 2001):

(14) Impossibility of embedding German epistemic modal *dürften* ‘might’ (Wurmbrand 1998: 258)

- a. *Er wird wieder singen dürften.
He will again sing might
‘It might be the case that he might sing again.’
- b. *Er hat ein Lied singen dürften
He has a song sing might
‘It might have been the case that he sang the song.’
- c. *Er muss wieder singen dürften
He must again sing might
‘It must be the case that he might sing again.’

(15) Epistemic/root ordering restrictions (Wurmbrand 2001: 186)

- a. Er dürfte zu Hause sein müssen
He might at home be must
‘He might have to be at home’ *Epis > Root (*Root > Epis)*⁶²
*‘It might be that it must be the case that he is at home’ **Epis > Epis*
- b. *Er wird wieder singen dürften
He will again sing might
*‘It will be the case that he might sing again’ **Epis > Epis*
- c. *Er muß wieder singen dürften
He must again sing might
‘It must be the case that he might sing again’ **Epis > Epis*

⁶² The orderings between modals (i.e. *Epis > Root*) provided in italics are not originally Wurmbrand’s; I have introduced them to make it easier to observe the restrictions under discussion here

The examples in (14) evidence that the purely epistemic modal *dürften* ‘might’ cannot be embedded by any other modal or auxiliary. Moreover, (14) shows that, in multiple modal constructions in which several modals can co-occur, the higher modals will always be interpreted epistemically.

The strict ordering restrictions exhibited by German and Catalan modals have been taken to indicate that the different modals sit in different positions in the clausal spine⁶³.

These ordering restrictions are not exclusive of Catalan or German; rather, Cinque (1999 et seq.) argues that, universally, modals are ordered relative to each other and other functional heads according to a richly articulated and rigidly ordered universal hierarchy of functional heads. This hierarchy is illustrated in (16).

(16) Cinque’s hierarchy of functional projections (Adapted from Cinque 1999: 106)

MoodP_{speech act} > MoodP_{evaluative} > MoodP_{evidential} > **ModP_{epistemic}** > TP(Past) > TP(Future) > MoodP_{irrealis} > **ModP_{alethic}** > **ModP_{necessity}** > **ModP_{possibility}** > AspP_{habitual} > AspP_{dispositional} > AspP_{repetitive(I)} > AspP_{frequentative(I)} > **ModP_{volitional}** > AspP_{celerative(I)} > TP(Anterior) > AspP_{terminative} > AspP_{continuative} > AspP_{retrospective} > AspP_{proximative} > AspP_{durative} > AspP_{generic/progressive} > AspP_{prospective} > **ModP_{obligation}** > **ModP_{permission/ability}** > AspP_{completive} > VoiceP > AspP_{celerative(II)} > AspP_{repetitive(II)} > AspP_{frequentative(II)}

The following examples involving Italian modals *dover* ‘must’ and *poter* ‘can/be able to’ and other functional verbs of Italian (e.g. the aspectual *star per* ‘be about to’) serve as an illustration of the ordering restrictions found crosslinguistically:

⁶³ Picallo (1990) takes epistemic modals to be generated in Inf^o and root modals in a vP adjunct position. For Wurmbrand (1998, 2001) the position of epistemic modals is higher than root modals too. More specifically, the position of epistemic modals would be Aux^o, whereas that of root modals is the Mod head above AspP and vP. Cinque (1999, 2004, 2006) distinguishes a wide range of modal types (Mod_{epis}, Mod_{alethic}, Mod_{necessity}, Mod_{possibility}, Mod_{obligation}...), all of which take a different position in a highly articulated functional hierarchy in which the highest modal position corresponds to epistemic modality (see 17 below).

(17) Ordering restrictions with Italian modals

- a. Gli stave per dover ridare tutti i soldi
To-him was.3s about to-have to-give-back all the money
che le aveva prestato
that to-her had.3s lent
'He was about to have to give him back all the money he had lent her.'
- b. *Gli doveva star per ridare tutti i soldi
To-him had.3s to-be about to-give-back all the money
che le aveva prestato⁶⁴
that to-her had.3s lent
'He had to be about to give heim back all the money he had lent her.'
- c. Per quel posto Gianni si dovrà poter dedicare al lavoro
For that job G. reflx will-have-to be-able-to devote to work
16 ore al giorno
16 hours per day.
'For that job John will have to be able to devote himself 16 hours per day to work.'
- d. *Gianni si potrà dover dedicare di più al suo lavoro.
G. clitic will- be-able-to have-to devote more to his job
'G. will be able to have to devote himself to more work.'

The above examples show that the obligation modal *dover* (Mod_{obligation}) follows the prospective aspect head *star per* (Asp_{prospective}) and precedes the modal head of ability *poter* (Mod_{ability}) (18a). In turn, *dover* cannot be followed by Asp_{prospective} nor can it be preceded by Mod_{ability} (18b-d).

If Cinque is on the right track, this means that modal verbs are crosslinguistically functional; even in languages like Italian where modals behave

⁶⁴ Cinque notes that the sentence is marginally possible if *dovere* is interpreted epistemically. Actually, he argues that *dovere* can realize different modal heads: Mod_{obligation}, Mod_{necessity(alethic)}, and Mod_{epistemic}.

morphologically like lexical verbs, the fact that they are subject to ordering restrictions would evidence their *universal* functional status⁶⁵.

3.2.2.6. Restructuring

Finally, another typical syntactic property of modals found language after language is that they trigger restructuring; that is to say, across languages, modal constructions are transparent to certain phenomena that are otherwise sensitive to clause-boundaries (e.g. clitic placement, scrambling, etc.).

The strong correlation between modals and restructuring effects is summarized in the following generalization by Wurmbrand (1998:238):

- (18) If a language has ‘modal’ verbs, modal verbs are always RVs
[restructuring verbs]

In the last decades, the phenomenon of restructuring has been associated to the functional nature of the relevant verbs. As argued by Cinque (2006), the phenomenon of restructuring follows naturally under the assumption that restructuring verbs are in fact functional heads in a monoclausal configuration. That is to say, in Cinque’s view, restructuring is always between a main verb (e.g. the uninflected verb embedded by the modal) and a functional head (e.g. a modal). Thus, from Cinque’s point of view, the restructuring properties typical of modal constructions can be seen as independent evidence that modal verbs are functional heads (see Wurmbrand 1998 et seq. for a different view).

In what follows, I introduce the main restructuring properties exhibited by modals in various Romance and Germanic languages.

⁶⁵ Note that, crucially, as I show below, English *must* too cannot occur following *Asp_{propective}* or aspectual verbs like *begin to* realizing an aspectual functional head (*Asp_{inceptive}*) located lower in the hierarchy:

- (x) He must be about to come.
- (xi) *He is about to must come.
- (xii) You must begin to come.
- (xiii) *You begin to must come.

3.2.2.6.1. Transparency to the arguments of the embedded verb

In Catalan, Spanish or Italian, modals can host clitics associated with the complements of the embedded non-finite verb. Consider the following pairs in (19a-b) and (19c-d) from Catalan. While in (19a) and (19c) the clitics follow the non-inflected lexical verb with which they are thematically related, they precede the modal *deure* ‘must’ and *voler* ‘want’ in (19b) and (19d).

(19) Clitic climbing in Catalan modal constructions (Picallo 1990)

- a. En Pere deu explicar -ho. modal *deure* ‘must’
must to-explain it
- b. En Pere ho_i deu explicar-[e]_i
it must to-explain
‘Pere must explain it.’
- c. La Núria volia arribar -hi modal *voler* ‘want’
wanted to-arrive there
- d. La Núria hi_i volia arribar-[e]_i
there wanted to-arrive
Núria wanted to arrive there.

These examples show that these modal verbs are transparent to the licensing of the clitic arguments of the embedded verb, which is interpreted by Picallo (1990: 287) to mean that the modal + infinitive construction acts as a monoclausal construction.

The same phenomenon can be observed in Spanish. In the pair in (20), the clitic *lo* ‘it’, which receives a theta-role from the internal argument of the lower uninflected verb *leer* ‘read’, can climb to a position preceding the inflected modal verb.

(20) Clitic climbing with Spanish modals:

- a. Debió leelo.
Must.3s(past) read-it

- b. Lo debió leer.
 It must.3s(past) read
 ‘(S)he must have read it.’

Likewise, the Italian sentences in (21) below show that clitic climbing is also observed in this language. In (21b-c), the clitic *ci* associated with the non-finite verb *andare* ‘go’ can optionally climb to a position preceding the restructuring modal *poter* ‘can’ or, even higher, to a position attached to modal *volere* ‘want’.

(21) Clitic climbing with Italian modals: (Cardinaletti & Shlonsky 2004)

- a. (?) Vorrei poter andar-ci con Maria.
 Would-like can go-there with Maria
- b. Vorrei poterci andare con Maria.
 Would-like can-there go with Maria
- c. Ci vorrei poter andare con Maria.
 There would-like can go with Maria
 ‘I would be able to go there with Maria.’

In sum, in Romance, the infinitival complements of modal verbs are transparent domains for the raising of clitics associated to the non-finite verb. This has been taken as evidence that modals are functional restructuring heads in a monoclausal construction (Cinque 1997 et seq.).

Note that the assumption that the ability to license clitic climbing signals the functional status of the modal is not uncontroversial.

To start with, as the reader may have noticed, in none of the languages examined in is clitic climbing obligatory: in the Catalan constructions in (19a), (19c), the locative clitic *-ho* can surface to the left of the uninflected lexical verb it is associated to, and the same phenomenon can be observed in the Spanish and Italian constructions in (20a) and (21a) respectively, where the clitics *-lo* and *-ci* can remain in their base-generated position attached to the uninflected lexical verb. This raises the question whether, in the

cases where the clitics do not climb, the modal is also functional or not. As I will show in Section 3.4, there are different views with respect to this question.

In addition, there is also a discussion related to the assumption that when clitic climbing applies, this necessarily indicates that the modal is a functional head (hence, with the assumption that restructuring phenomena like clitic climbing are only licensed with functional verbs). As argued by Wurmbrand (1998 *et seq.*), clitic climbing (and other restructuring phenomena observed in German too) can also be licensed in the constructions where a lexical verb takes a reduced infinitive (smaller than a CP) as complement. In contrast with Cinque's view that restructuring is a property ascribed to functional verbs, Wurmbrand (1998 *et seq.*) defends that there also exist lexical restructuring verbs. In her view, lexical restructuring takes place when a lexical verb takes a reduced complement rather than a full clause (i.e. it takes a complement smaller than CP). Her account is further motivated by other properties that distinguish lexical restructuring verbs from functional ones: (i) lexical restructuring verbs, unlike functional heads, have an argument structure; (ii) they do not exhibit the IPP effect; (iii) they admit extraposition of the uninflected complement; (iv) they are not subject to ordering and co-occurrence restrictions; and (v) restructuring is optional with them.

In conclusion, we must take into account that while clitic climbing is a clear indication of the transparency of the infinitival structure selected by restructuring verbs, it must not necessarily mean that these restructuring verbs are functional categories.

3.2.2.6.2. Auxiliary switch

Another typical restructuring property of modals in Italian is the 'auxiliary switch' they display. The following examples involving modal *dover* 'must' illustrate this phenomenon.

(22) Auxiliary switch with Italian modals (Rizzi 1982)

- a. Maria ha dovuto venirci molte volte.
Maria has had to-come-here many times
- b. Maria c'è dovuta venire molte volte.
Maria-here is had to-come many times

- c. **Maria ci ha dovuto venire molte volte.*
 Maria-here has had to-come many times
 ‘Maria has had to come here many times.’

The example in (22) involving a perfect construction shows that when clitic climbing applies, the choice of auxiliary (between the transitive *habere* ‘have’ and the intransitive *essere* ‘be’) is determined by the lower unaccusative verb; this is illustrated in (22b) and explains the ungrammaticality of (22c). By contrast, in the examples in (22a) where the clitic remains attached to the uninflected unaccusative verb without raising to the modal predicate, the auxiliary selected is *avere* ‘have’ (the one associated to transitive constructions). This has been taken to uncontroversially indicate that the modal verb (*dovere* ‘must’) in (22b) is a functional verb transparent to the selection of an auxiliary determined by the non-finite unaccusative verb (*venire* ‘come’) (cf. Cardinaletti & Shlonski 2004, Wurmbrand 2015)⁶⁶.

Note however that, as pointed out about the Romance modal constructions in (10-21) above in relation with the apparent optionality of clitic climbing, the fact that in examples like (22a) too both clitic climbing and auxiliary switch are not obligatory with modal *dovere* gives rise to the question whether in this construction *dovere* is a functional or a lexical verb (Cardinaletti & Shlonski 2004, Wurmbrand 2015). Nevertheless, unlike in the clitic climbing examples, in those cases where the auxiliary is determined by the uninflected unaccusative verb, there is no doubt about the functional status of the modal; otherwise, if the modal were a lexical predicate, it would impose restrictions on the type of auxiliary (i.e. HAVE instead of BE).

⁶⁶ More specifically, Cardinaletti & Shlonsky (2014: 12) argue that it is the properties of the infinitive lexical verb itself (i.e. its argument structure and/or its related functional field) which determine the auxiliary the construction will surface with. Along the same lines, Wurmbrand (2015: 10) states that the auxiliary is determined by the type of verb in its local inflectional domain, which in functional restructuring constructions is no other than the infinitive verb. This means that we will never find auxiliary switch with either lexical or quasi-functional/semi-lexical verbs, since these two types participate in auxiliary selection. (Quasi-functional and semi-lexical verbs are the terms used by Cardinaletti & Shlonsky (2004) and Wurmbrand (2001) respectively, to refer to a class of verbs that have an intermediate (functional/lexical) status. These verbs are generated under v^0 ; they can take an external argument, but no internal argument; and they determine the choice of the transitive auxiliary HAVE)

3.2.2.6.3. Lack of complementizers in the non-inflected complement

Another property taken by Wurmbrand (1998 *et seq.*) to indicate that modals are functional heads is the lack of overt CP material in the non inflected complement of modal verbs. Consider the following examples in (23) from Dutch, a language that licenses complementizers in infinitival complements. As shown in the examples, in Dutch, modal constructions allow no complementizers inside their infinitival complement.

(23) Dutch: *overt complementizers (Wurmbrand 1998:264)

- a. Dat Jan (*om) morgen niet kan komen
That Jan (*COMP) tomorrow not can come
'That Jan cannot come tomorrow'
- b. Dat Jan (*om) morgen niet komen can.
That Jan (*COMP) tomorrow not come can
'That Jan cannot come tomorrow'

3.2.2.6.4. No independent tense properties

Another property of modal constructions that provides support for the hypothesis that modals are functional heads has to do with their temporal interpretation. Infinitives in restructuring configurations selected by functional modals can involve a temporal interpretation that is different from the one provided by the tense in the matrix predicate (24).

(24) *Must: independent tense properties* (Wurmbrand 1998:265-269)

[t_{SCR} besuchen sollen(/müssen/dürfen)]_{VP} hat nur der Josef [den Peter]_{SCR} t_{VP}
[t_{SCR} visit shall(/must/may)]_{IPP}VP has only the Josef *the Peter*
morgen
tomorrow
'Only Joseph had to/was allowed to visit Peter tomorrow'

In the restructuring construction in (24) the matrix predicate ('had to/was allowed to') is interpreted as past whereas the embedded infinitive ('visit') involves a future interpretation, as illustrated by the presence of the temporal adverb *morgen* 'tomorrow'.

In other words, the infinitival complement licenses a temporal interpretation different from that of the matrix clause. This is striking if we are to assume that modals are functional restructuring verbs, since functional verbs combine with TP-less complements.

However, Wurmbrand argues that the future orientation of the embedded infinitival comes as a consequence of the meaning of modal verbs per se, and is not represented structurally. She defends that the temporal contribution of modals derives from Kratzer's (1981, 1991) assumption that these are quantifiers over worlds. In particular, she relates the temporal properties of modals to the fact that modals are evaluated according to a conversational background which includes worlds that conform to the intended modal meaning (cf. Chapter 2). These worlds include times, and consequently an independent temporal specification is granted.

In conclusion, despite the fact that the apparent independent tense properties shown by the infinitival complements of modals seem to raise a problem for the hypothesis that modals are functional restructuring heads, this problem can be overcome once we assume, following Kratzer, that their temporal properties follow from the semantics of modal verbs.

As Wurmbrand (1998:274) points out, there are other typical restructuring properties of German, such as long passive or remnant extraposition. Unfortunately they cannot be tested with modals, since modals in German cannot undergo passivization and extraposition for independent reasons.

3.2.3. Semantic properties of modals: polyfunctionality

So far I have summarised a series of morpho-syntactic properties that set modals apart from lexical predicates in several languages of the Germanic and Romance families. In addition to these morpho-syntactic properties, there is also the widespread assumption that functional modals, as opposed to lexical ones, have special semantic properties. In particular, many scholars relate the fact that the same modal verb can be

used to express different modal meanings to its grammaticalized status; that is to say, modal polyfunctionality (term often used to refer to the semantic alternation between various modal readings) is frequently taken to follow from the functional status of modals, as illustrated by the following quotation from de Haan & Hansen (2009):

[...] we propose to define modals as word-like elements which are polyfunctional in the sense that they express no less than two types of modality [...] Polyfunctionality can be seen here as a process of semantic bleaching and, thus, as the result of semantics shifts that are typically encountered in the grammaticalisation parameter of integrity. (de Haan & Hansen 2009: 3)

Hacquard (2006) too argues that the fact that they can convey different meanings is what differentiates functional modals from lexical modal expressions (i.e. nouns, adjectives) which are *overwhelmingly fully specified for meaning* (Hacquard 2013:5)⁶⁷.

However, the assumption that polyfunctionality is a property exclusive of functional modals has been contested in recent crosslinguistic work. As a matter of fact, Hansen (2014: 113) himself affirms that, in the languages of Europe, we come across modals which show the morphology and syntax of adjectives (e.g. Russian and Polish), adverbs (e.g. Balkan languages, Slovene) and even nouns (e.g. Irish) which can be used to convey root and epistemic readings. So, the assumption that modal polyfunctionality is related to the functional status of modals is at the very least questionable. This is also the view I will defend in the present work, where I will claim that, in its lexical variant, *behar* can also be used to express more than one modal meaning; hence, *behar* is a polyfunctional modal regardless of whether it is merged as a functional or as a lexical modal.

⁶⁷ Neither de Haan & Hansen (2009) nor Hacquard (2013) take this to mean that all modal verbs are functional; rather, what they say is that the modals which are functional are polyfunctional. They in fact acknowledge the possibility that in some languages there exist lexical modal verbs, in which case, they are expected not to be polyfunctional. Nonetheless, the assumption that it is by virtue of its functional status that modals give rise to different modal readings has been contested in recent crosslinguistic work.

3.2.4. Interim summary

To recap, in this section we have introduced a series of morpho-syntactic properties that have led scholars to analyse modals as functional heads in English (Palmer 1979, 1990), German (Wurmbrand 1998, 2001) and as a general category (Cinque 1999). These properties involve (i) morphological deficiency, (ii) the so-called NICE properties, (iii) the ability to take bare infinitival complements (without *to/zu*), (iv) the co-occurrence and ordering restrictions and (v) the ability to restructure. Some of these properties correspond to modals in some specific languages (for instance, the NICE properties are exclusively displayed by English modals, the ability to occur with bare infinitival complements and the morphological deficiency are properties exhibited by Germanic modals, the most deficient being English modals); however, the ordering restrictions of modals and their ability to restructure (i.e. to occur in monoclausal configurations) are taken to be universal (Cinque 1999 et seq.). In addition, there is also the potential connection between modal polyfunctionality and the grammaticalized status of modals verbs (de Haan & Hansen 2009, Hacquard 2006).

However, in what follows I will argue, against Cinque (1999), that not all modals behave homogeneously like functional elements. Even in languages like English, some modals exhibit evident asymmetries with respect to the afore-mentioned properties. One clear case is that of English *need* and its crosslinguistics kin, to which Basque necessity predicate *behar* belongs.

3.3. THE MIXED (FUNCTIONAL/LEXICAL) PROPERTIES OF BASQUE NECESSITY MODAL *BEHAR* AND ITS CROSSLINGUISTIC KIN

In this section I will present some properties of the necessity modal *behar* similar denominal modals that make it difficult to classify them uniformly as either a functional or a lexical category. These properties involve (i) the unexpected complementation pattern of these modal predicates; (ii) the presence of verbal morphology; (iii) the unstable distribution of the Infinitive Pro Participium effect and the ability to occur with extraposed complements (in the case of German); (iv) their special behavior with regard to restructuring phenomena like clitic climbing (in Italian, Spanish and Basque); (v) the absence of ordering and co-occurring restrictions (English, Spanish); and (vii) the asymmetric behavior of some of these verbs with respect to their thematic/selectional properties. Some of these properties have already been reported previously in different works (i.e. (i-iii) and (vi))⁶⁸, but others are pointed out for the first time in this work (i.e. (iv) and (v)).

3.3.1. The shared nominal origin of *need*-type verbs

Before I examine the mixed properties exhibited by the class of denominal necessity modals, let us first consider an important property shared by these modal verbs that independently motivates their grouping under the same class: the fact that they all have a homophonous noun meaning ‘need’. The following table adapted from (Harves & Kayne 2012) makes manifest the shared root of the verb-noun pairs meaning ‘need’ in a range of unrelated languages:

⁶⁸ The absence of verbal morphology of modal *behar* is noted in Etxepare & Uribe-Etxebarria (2012), who attribute it to its denominal nature (Etxepare & Uribe-Etxebarria 2012). The denominal nature of other *need*-type verbs is attested in (Harves & Kayne 2012). The data regarding their unexpected complementation has been gathered from Harves & Kayne (2012) and (Grano 2012) in the case of English, Wurmbrand (1998, 2001) in the case of German, and Eide (2002) in the case of Norwegian); the data regarding the *Infinitive Pro Participium* effect and extraposition has been found in Wurmbrand (1998, 2001), Maché (2004) and Evers (2010), finally the data concerning the thematic and selectional properties of the subjects of English *need* comes from (Harves 2008) and that of Norwegian in (Eide 2002).

Table 3 Shared root of the verb-noun pairs meaning ‘need’

	NOMINAL <i>need</i>	VERB <i>need</i>
ENGLISH	<i>need</i>	<i>need</i>
SWEDISH	<i>behov</i>	<i>behöva</i>
NORWEGIAN	<i>behov</i>	<i>behove</i>
SPANISH	<i>necesidad</i>	<i>necesitar</i>
CATALAN	<i>necessitat</i>	<i>necessitar</i>
CZECH	<i>potreba</i>	<i>potrebovat</i>
POLISH	<i>potrzeba</i>	<i>potrzebowac</i>
SLOVENIAN	<i>potreba</i>	<i>potrebovati</i>

In addition to the verbs gathered in the table, the sentences in (25a-d) illustrate that the Basque necessity modal *behar* too has a homophonous noun. The nominal status of *behar* in these examples is evidenced by the fact that (i) it can be modified by an adjective (25a), (ii) it can be selected by a postposition (25b) or a determiner (25c) and (iii) it can select a genitive object, as occurs in typical binominal structures (25d).

- (25) a. Behar handia dut b. Beharrean naiz c. Beharra
 Need big HAVE.1sE need-Det-pos BE.1sA need-Det
 ‘I have a big need’ ‘I am in need’ ‘The need’
- d. Ez dut horr-en beharr-ik
 neg HAVE.1sE that-gen need-partitive
 ‘I don’t have any need of that’

Recently, it has been proposed that the modal verb *need* – which is often described as a marginal or peripheral modal, as opposed to the class of core or central modals (Quirk et al. 1985, Biber et al. 1999, van der Auwera & Plungian 1998, Depraetere and Reed 2006) – and its crosslinguistic kin, are in fact derived from their homophonous nouns. For Harves & Kayne (2012), the *need*-type verbs listed in Table 3 are derived as a result of incorporation of their homophonous nominal onto an empty

verb with the meaning of ‘have’⁶⁹. In the case of Basque, E&UE (2012) have also argued that modal *behar* is derived from an underlying structure involving the noun *behar* and the light verb HAVE/(BE). However, Etxepare & Uribe-Etxebarria (2012) argue that, unlike in the case of English, *behar* ‘need’ does not incorporate to HAVE.

In addition, many scholars have shown that, across languages, *need*-type modals have undergone, or are still currently undergoing, a grammaticalization process whereby they evolve from being originally predicative expressions to becoming auxiliary-like functional elements. This grammaticalization process is a gradual one (Visser 1969, Quirk et al. 1985, Warner 1993, Benincà & Poletto 1993, Krug 2000, van der Wouden 2001, van der Auwera 2001, Loureiro-Porto 2002, 2003, Taeymans 2004, van der Auwera & Taeymans 2004, van der Gelderen 2009, Jedrzejowski 2016). This entails that (i) different variants may coexist over a linguistic period or either (ii) different variants may survive and be used in different contexts (Heine and Reh 1984; Hopper 1991; van Gelderen 2009) (see the last section of this chapter for more details).

It is not in the scope of this dissertation to elaborate further on how exactly *need*-type modals have evolved from their original homophonous nouns into the verbal-like categories they are now, and at what point of their grammaticalization process each of these modals currently stands (the reader is referred to the cited works for the particulars). What is interesting for the question under discussion here is that (i) many of these verbs have started as something which is clearly not a functional element, but a lexical (nominal) predicate, and (ii) that the functional and lexical variants of these verbs may at present coexist (and maybe be used in different contexts) as a result of their gradual grammaticalization process. With all this in mind, it should then not be surprising that they exhibit, to a higher or lesser extent, properties they may retain from their initial structure/meaning, as well as properties of their target structure/meaning.

⁶⁹ Van der Auwera & Taeymans (2004: 331) argue that present-day English verb *need* actually “replaces at least four earlier constructions: (i) a personal *need* verb meaning ‘compel’, (ii) and impersonal *need* verb meaning ‘it is necessary’, (iii) a non-*need* verb meaning ‘need’ in negative polarity contexts and (iv) a set of polarity neutral nominal constructions meaning ‘need’”.

3.3.2. The complements of *behar* and *need*-type predicates

In this section I will present another property that the Basque necessity modal *behar* shares with *need*-type predicates in many other languages: its ability to select for a range of unexpected complements which only transitive verbs (not functional modals) can take.

Let us first introduce the type of complements *behar* can take in Basque:

To begin with, modal *behar* can take infinitival complements headed by the suffix *-tu*⁷⁰, as shown in (26).

(26) [Abes-tu] behar dut.

sing -TU need HAVE.1sE

‘I need to sing.’

All the modals in Basque license *-TU* complements (27a-b). However, lexical verbs do not take this type of complements. Notice the ungrammaticality of (28), involving the transitive verbs *pentsatu* ‘think’ and *erabaki* ‘decide’.

(27) Modals in Basque: $\sqrt{-TU}$ complements

a. [Abes-tu] ahal/nahi/behar dut.

Sing-TU can/want/need HAVE.1sE

‘I can/want/need to sing.’

⁷⁰ In Basque, the suffix *-tu* alternates with the variants *-i/-n/-Ø*, which ‘used to be productive in previous stages of the language’ (Berro 2015:19); for convenience in citation, I will henceforth refer to the complements headed by *-tu* and its alternative variants *-i/-n/-Ø* as *-TU* complements.

The suffix *-tu(-i/-n/-Ø)* is also used in the citation forms and in the perfect forms of predicates. Traditionally this suffix have been regarded a perfective suffix (Laka 1990, Ortiz de Urbina 1989, Zabala and Odriozola 1996). However, Haddican (2007) and Haddican and Tsoulas (2012) propose a recent alternative analysis of *-tu* as an infinitival heads (see Chapter 4 for further details), rather than as an aspectual affix. It is argued that the perfective interpretation gives rise when the complex from verb+*-tu* is raised to a (null) perfective modal head. In view of the robust evidence provided there (crucially, the fact that in central dialects the perfective head to which the XP formed by the verb+*-tu* raises is overtly realized, and the lack of a perfective reading of the complements headed by *-tu* in modal contexts), I will adopt this latter analysis, and henceforth I will refer to *-TU* complements as infinitival complements

- b. Ezin dut [abes-tu]
cannot HAVE.1sE sing-TU
'I cannot sing.'

(28) Lexical verbs: *-TU complements

- *[Abes-tu] pentsatu/erabaki dut.
sing -TU think/ decide HAVE.1sE
'I have thought/decided to sing.'

On a first approximation this can lead us to think that this is due to the fact that *behar* is functional. However, in addition to uninflected *-TU* complements, *behar* can also take other complements that not all modals in Basque license, such as (i) nominalized complements headed by *-tea/tzea* (let us refer to them as *-TZEA* complements), (ii) finite complements and (iii) DP complements⁷¹. Lexical verbs in Basque can also take these complements; what is more, DP complements are only possible with lexical transitive verbs (31b).

(29) -TZEA complements

- | | |
|--|----------------------|
| a. Nik [Jon etor-tzea] behar dut. | <i>-TZEA + behar</i> |
| I-E John come-TZEA need HAVE.1sE | |
| 'I need him/her/you/them.../John to go' | |
| b. Nik [Jon etor-tzea] pentsatu/erabaki dut. | <i>Lexical verbs</i> |
| I-E Jon come-TZEA think/decide HAVE.1sE | |
| 'I have thought/decided to go' | |

(30) Finite complements

- | | |
|--|---------------------|
| a. Miserable eta koldar hil zintezela | <i>Behar 'need'</i> |
| miserable and coward die BE.2sA-(past)compl need | |

⁷¹ There is another modal verb in Basque, *nahi* 'want' (and its dialectal synonyms: *gura*, *gogo*, *gei*), which, in addition to uninflected *-TU* complements, can occur with DP complements, *-TZEA* nominalized complements and finite complements. The other modals verbs in Basque, the potential *ahal* 'can' and *ezin* 'cannot', can only take uninflected *-TU* complements.

behar zuten denek⁷²

HAVE.3pE(past) all-pE

‘Lit. They all needed that you died as a miserable
and coward.’

- b. Zain egon zaitezela eskatu/agindu du. *Lexical verbs*
Waiting be BE.2sA-(pres)compl ask/order HAVE.3sE
‘(S)he asked/ordered that you be waiting.’

(31) DP complements

- a. Jonek auto berria behar du. *Behar ‘need’*
John-E car new-sA behar HAVE.3sE
‘John needs a new car.’
- b. Jonek auto berria erosi/garbitu du. *Lexical verbs*
John-E car new-sA buy/wash HAVE.3sE
‘John has bought/clean a/the new car.’

To recap, Basque necessity modal *behar* can not only take as a complement (i) non-finite –*TU* complements, like all other modal verbs in Basque and unlike lexical verbs; it can also take (ii) non-finite –*TZEA* complements, (iii) finite complements, and (iv) DP complements (which can only be licensed by lexical transitive verbs).

Let us now consider the type of complements of *need*-type modals, to which class, as mentioned, modal *behar* belongs.

First, English *need* is special among modals in English because, in its non-negated form, it takes infinitives headed by the infinitival suffix *to*. Note the contrast between (32a) and (8a-b) above, involving the functional modals *must* and *can*. However, the negated form *need not* always take bare infinitives without *to* (32b)⁷³.

⁷² Retrieved from Sarasola e al. (2011).

⁷³ Note that there also exists the negated form ‘John does not need to go’, involving *do*-support. This further shows that *need* occurs in two variants. *need not* – which exhibits a more functional-like behavior and always occurs in negative contexts; its is thus considered to be a negative polarity modal (van der

(32) Infinitival complements of *need* vs. *need not*:

- a. John needs to go.
- b. John need not (*to) go.

In Norwegian too, the non-negated forms of *trengje/behove* ‘need’ always occur with the infinitival marker *å* ‘to’ (like English *need*), whereas the negated form can optionally occur with or without *å* ‘to’. Note the contrast between (33a) and (33b).

(33) Infinitival complements with/without the infinitival marker (*zu/å* ‘to’)

- a. Du trengjer/behøver ikke (å) pakke den inn. [Norwegian]
you need not pack it in
‘You need not wrap it/There is no need to wrap it.’
- b. Du trengjer/behøver * (å) pakke den inn⁴⁷.
you need to pack it in
‘You need to wrap it/ #It is necessary to wrap it.’
(Eide 2002:41)

As for German, Wurmbrand (1998) reports that *brauchen* ‘need’ differs from other modals in this language in that it can occur with infinitives with or without the infinitival marker *zu* ‘to’⁷⁴. He further observes that, when *brauchen* ‘need’ occurs without *zu* ‘to’, the construction must exhibit the *Infinitive Pro Participium* (*Infinitive for Participle*) effect; that is to say, the modal must surface as an infinitive rather than as a participle in contexts in which it should otherwise bear participial morphology (see Section 3.3.3.2. below); by contrast, when *brauchen* ‘need’ occurs with *zu* ‘to’, speakers

Wouden 1995, 2001; Iatridou & Zeilstra 2010, 2013) – and the lexical form *need*, which can independently be negated as ordinary lexical verbs in English, introducing do-support.

⁷⁴ In Modern German *brauchen* appears to be restricted to negative contexts (see van der Wouden 2001, Haider 2010, Swartz 2006 and Jedrzejowski 2016, among others). Note the ungrammaticality of the affirmative form:

- (xiv) Hans braucht Angst zu haben.
Hans needs fear to have
‘Hans needs to be afraid.’
(Swartz 2006: 271, cited in Harves 2008: 216)

differ as to whether or not the construction can show up with the IPP effect (the participial form (PP) is always correct.)

(34) German *brauchen* ‘need’ with and without the infinitival marker

- a. Weil er das Lied *nicht* singen brauchen hat
Since he the song not sing need-IPP has
- b. *Weil er das Lied *nicht* singen gebraucht hat
Since he the song not sing needed has
- c. %Weil er das Lied *nicht* zu singen brauchen hat
Since he the song not to sing need-IPP has
- d. Weil er das Lied *nicht* zu singen gebraucht hat
Since he the song not to sing needed ha
‘since he didn’t have to sing the song
(Wurmbrand (1998:244)

That is to say, as shown in (36a-d) *brauchen* ‘need’ can optionally take infinitives with or without *zu* ‘top’, but when it occurs with a *zu* ‘to’-less infinitive, speakers prefer the IPP form to the participial form; hence, the form associated with functional rather than lexical categories.

Second, as it was the case with Basque *behar*, *need*-type modals in many other languages can also pattern with transitive verbs in that they can take DP complements (35). Besides, in some of these languages, they can occur with finite complements too (36). English *need* does not take finite complements; however, it can take infinitival complements with an overt (non-coreferential) subject, which is impossible for functional modals like *must*⁷⁵.

⁷⁵ Note that, Basque *-TZE*A complements, unlike *-TU* complements, also admit the presence of a phonetically realized subject and, when selected by *behar*, it also requires that the subject (whether null or over) be not co-referential with the matrix subject:

(xv) Niki [e*i/k /Jon joa-tea] behar dut. -TZE + behar
I-E John go-TZE need HAVE.1sE
‘I need him/her/you/them.../John to go’

(35) DP complements of *need*-type modals

- a. John needed an apple. [English]
 Anna need.3SG a new car
 Anna needs a new car.’
 (Harves & Kayne 2012:124)
- b. Jeg trenger en god plan. [Norwegian]
 I need a good plan.
- c. Cristina necesita un auto nuevo. [Spanish]
 Cristina need.3SG a car new
 ‘Cristina needs a new car.’
 (Harves & Kayne 2012:124)
- d. Hans braucht (kein) Geld⁷⁶. [German]
 ‘Hans needs (no) money.’
 (Schwarz 2006: 271)

(36) Finite complements of *need*-type modals (Spanish/Italian)

- a. Juan necesita que vengas. [Spanish]
 J. need.3s that come.2s
 Lit. ‘Jon needs that you come.’
- b. Bisogna che Mario parta subito. [Italian]
 Need.3s that Mario leave immediately
 ‘It is necessary that Mario leave immediately.’
 (Benincà & Poletto 1990: 31)

(xvi) Niki [ei/*k/*Jon joan behar dut. -TU + behar
 I-E John go-TU need HAVE.1sE
 ‘I need him/her/you/them.../John to go’
 (Adapted from San Martin 2000)

So, *behar* and *need* behave in the same way as to their ability to take complements with disjoint reference.

⁷⁶ Schwarz (2006) points out that German *brauchen* ‘need’ behaves as an NPI with infinitival complements, but not with DP complements.

(37) Complements with overt infinitival subjects (English)

- a. John needs (**must*) Bill to do it. (Grano 1012:170)
- b. I need (**must*) for you to do it

The following table illustrates the type of complements admitted by *need*-type verbs across different languages.

Table 4. The complements of *must* vs. *need*-type predicates

	<i>must</i>	<i>need</i> not	German <i>nicht</i> <i>brauchen</i>	Norwegian: <i>behove/treng</i> <i>ikke</i>	<i>need</i>	German <i>brauchen</i> + ⁷⁷	Norwegian: <i>Behove</i> <i>/treng</i>	Spanish <i>necesitar</i>	Basque <i>behar</i>
Bare infinitival complements	✓	✓	% (Obligatory IPP)	Optional	X	-	X	Not applicable	Not applicable
To infinitival complements	X	X	% (Preferred without IPP)	X	✓	-	✓		
DP complements	X	X	X	X	X	✓	✓	✓	✓
Finite complement (or infinitival complements with subjects in English)	X	X	- ⁷⁸	-	✓	-	-	✓	✓

Summing up, the fact that *behar* and *need*-type predicates in many languages can: (i) take DP complements (e.g. Basque, English, Swedish, Spanish, German...), (ii) finite complements (e.g. Basque, Italian, Spanish) and/or complements with an independent subject (e.g. Basque and English) and, in some contexts, infinitival complements headed by *to* (e.g. English, German, Norwegian), suggests that these verbs

⁷⁷ Recall from fn. 74 and f. 76 that German *brauchen* tends to behave as a NPI except when it takes DP complements (Schwarz 2006).

⁷⁸ The symbol ‘-’ means that I do not have data in relation with this property in this language.

should be set apart from other functional modals (e.g. English *must*, German *müssen* ‘must’, Norwegian *måtte* ‘must’).

3.3.3. Other syntactic and morphological properties of *need*-type modals

This section discusses some morphological properties of *need*-type verbs that make it difficult to classify them as functional or lexical elements. As will be shown, while these properties set these modals apart from functional modals like English *must* or German *müssen* ‘must’; they do not entirely pattern like ordinary verbs either.

3.3.3.1. Morphological deficiency and NICE properties (English)

I have previously shown that modal *must* in English (which behaves homogeneously for all the properties taken to evidence the functional status of modals discussed in Section 3.2) lacks many of the morphological properties exhibited by verbs: it shows no 3rd person inflection, no tense inflection and it lacks finite forms (examples 1-3). In addition, functional modals like *must* show the so-called NICE properties (5). However, it must be noted that English *need* only shows morphological deficiency and NICE properties in the negated form (*need not*) (38b, 38d) and (40b, 40d, 40f, 40h); in its non-negated form, the modal inflects for person and tense (38a-b), has non-finite forms (39) and fails to exhibit the NICE properties (40a, 40c, 40g⁷⁹), just like regular verbs in English^{80 81}.

⁷⁹ The exception seems to be the CODA property concerning the ability to allow deletion of the following verb phrase; as shown in (47e) this is also possible with the non-negated form *need (to)*.

⁸⁰ Eide (2002: 41) also reports that Norwegian *trengje* ‘need’ is different from other modals in that it has a present participle (*trengende*) form; however *behøve* ‘need’ does not (**behøvende*).

⁸¹ Like English *need*, Basque *behar* too exhibits some morphological properties that separate it from lexical verbs. On a first approximation, this could be taken to favour a functional analysis of this modal: it does not possess infinitival (xvii-a), nominalized (xvii-b) and stem (xvii-c) forms; it takes no suffixes in

(38) Morphological deficiency of negated vs non-negated need

- a. John needs to do it. 3rd person
- b. John need not do it.
- c. John needed to do it yesterday. Tensed forms
- d. John need not do it yesterday

(39) Non-finite forms of need:

to need, needing, needed

(40) NICE properties:

its citation form (compare (xviii-a-f) with (xviii-g); and it does not admit aspectual inflectional suffixes either (these must attach to a dummy auxiliary *izan* ‘be/have’ (xix-a-d).

(xvii) Infinitival, nominalized and stem forms in Basque (Etxepare & Uribe-Etxebarria 2012: 298)

- | | | | |
|----|----------------------------|-----|---------------------------|
| a. | Dantza-tu | vs. | *Behartu |
| | Dance-INF | | behar-INF |
| | ‘to dance’ | | ‘to need’ |
| b. | Dantza-tze | vs. | *Behartze |
| | Dance-NOM | | need-NOM |
| | ‘dancing’ | | ‘needing’ |
| c. | Dantza dezan | vs. | *Behar dezan |
| | dance HAVE.3E(subjunctive) | | need HAVE.3E(subjunctive) |
| | ‘So that (s)he may dance’ | | ‘So that (s)he may need’ |

(xviii) Citation form of canonical verbs (a-c) vs. *behar* (g):

- a. Har-tu: to take
- b. Ema-n: to give
- c. Irakurr-i: to read
- d. Behar: to need/must/have to

(xix) No aspectual suffixes

- | | | | |
|----|---------------------|-----|---------------------------|
| a. | Har-tu dut | vs. | Behar(*-tu) izan dut |
| | take-perf HAVE.1sE | | need be-perf HAVE.1sE |
| | ‘I have taken it’ | | ‘I have needed it’ |
| b. | Har-tzen dut | vs. | Behar(*-tzen) iza-ten dut |
| | take-imp HAVE.1sE | | need be-imp HAVE.1sE |
| | ‘I usually take it’ | | ‘I usually need it’ |

Hualde & Ortiz de Urbina (henceforth H&OU) (2003) and Haddican 2004 take this morphological behavior to signal the functional-like behavior of *behar*, which in this work is considered a semi-auxiliary (H&OU 2003) or a quasi-functional verb (Haddican 2004). However, it has also been discussed that this ‘non-verbal-like’ morphological behavior is only but just a reflex of the denominal nature of this predicate (a possibility I have previously discussed in section 3.1.; Etxepare and Uribe-Etxebarria 2012, Berro 2015)).

- a. You don't need to go.
- b. You needn't go.
- c. Do you need to come?
- d. Needn't you come?
- e. She never sleeps but she needs to.
- f. She can come but she need not.
- g. You do need to learn these things.
- h. She NEEDN'T do it.

Summing up, the contrastive behaviour of *need* in its negated and non-negated forms suggests that it is not a clear case of functional modal as it is, for instance, modal *must*.⁸²

3.3.3.2. The Infinitive Pro Participium (IPP) effect (German)

German *brauchen* 'need' too exhibits an asymmetric behavior regarding the *Infinitivus pro Participio* (IPP) property. Recall from Section 3.2.2.2. that functional modals in German show up with the infinitive form in the scope of perfective *have* (see the examples in (6)). As for *brauchen* 'need', Wurmbrand (1998) observes that, while the IPP is obligatory when it takes complements without the infinitival marker *zu* 'to' (41), it appears to be optional when it occurs with infinitives with *zu* 'to' (42). In this context (that is, in the presence of the infinitival marker *zu* 'to'), the grammaticality judgements for the IPP construction vary from speaker to speaker (42a), as reported by Wurmbrand (1998:244).

⁸² Some authors explicitly take *need* to be a quasi-modal, semi-modal, marginal or peripheral modal, rather than a core or central modal (Quirk et al. 1985:137; biber et al. 1999: 73, Hopper & Traugott 2003: 55). As explicitly argued by Hopper & Traugott (2003:55) what is different about *need* and other quasi-modals is precisely that their grammaticalization process has not reached an endpoint; hence, these modals are still undergoing the gradual process of grammaticalization (Hopper & Traugott 2003:55). The more grammaticalized behavior of the negated form *need not/needn't* has also been explained by Van der Wouden (2001), who defends that *need* (and *need*-type modals in other languages; e.g. German, Dutch) is developing NPI properties in its path to grammaticalization.

(41) *Need* predicates without *zu* infinitival marker: IPP effect obligatory

- a. Weil er das Lied nicht singen brauchen hat
Since he the song not sing need-IPP has
- b. *Weil er das Lied nicht singen gebraucht hat
Since he the song not sing needed has
'since he did't have to sign the song'

(42) *Need* predicates with *zu* infinitival marker: IPP effect optional

- a. %Weil er das Lied nicht zu singen brauchen hat
Since he didn't have to sing the song'
- b. Weil er das Lied nicht zu singen gebraucht hat
Since he the song not to sing needed has
'since he did't have to sign the song'

Thus, the heterogeneous behavior exhibited by *brauchen* 'need' with respect to the IPP effect suggests that, like English *need*, German *brauchen* 'need' is not a clear case of functional modal too.

3.3.3.3. Extraposition of the infinitival complement (German)

Another syntactic property characteristic of functional modals in German is the ability of their infinitival complement to undergo extraposition, as explained in Section 3.2.2.4. Let us now consider how *brauchen* 'need' behaves with respect to this property.

Although Wurmbrand (1998, 2001) does not provide data regarding the possibility of extraposition with *brauchen* 'need'. Maché (2004) provides an example evidencing that extraposition of the infinitival complement is allowed. In this context, the infinitive can either occur with or without the infinitival marker *zu* (to).

- (43) Clara braucht den Film nicht (zu) sehen
Clara needs the film not (to) see
'Clara does not need to/need not see the film.'

Evers (2010:91; fn. 4) too argues that the extraposition of the infinitival complement of verbs like *brauchen* (as well as *scheinen* ‘seem’, *beginnen* ‘begin’, *plegen* ‘be in the habit of, usually happen to’) is grammatical and ‘even preferred’ only in certain dialects ‘no matter whether the complement is or is not *zu*-marked’, however, he only provides examples with *scheinen zu* ‘seem to’⁸³.

However, as argued by Osborne (2005), there is one context in which the infinitival complement may not be extraposed: when *brauchen* ‘need’ is negated (44).

(44) Extraposition with (*brauchen zu* ‘need to’) (Osborne 2005: 223)

*weil Thomas nicht braucht, die Zeitung zu lesen
 because Thomas not need the paper to read'
 Weil die Zeitung Thomas nich zu lesen braucht.
 Because the paper Thomas not to read need
 'because Thomas doesn't need to read the paper'

To conclude, although there seems to be significant variation among the speakers of different dialects regarding the occurrence of properties like the extraposition of the infinitival complement (and the IPP effect) with German *brauchen*; it can be concluded that these functional properties are not always obligatory with this modal, at least for a subset of speakers of German.

3.3.3.4. Restructuring with *need*-type modals

As stated above, modals are assumed to belong to the class of verbs that trigger restructuring language after language. However, in some languages there is significant

⁸³ Extraposition with *scheinen zu* ‘seem to’ from Evers (2010:91):

(xx) % Weil es/König Siegmund scheint [den Frosch zu verstehen]VP
 because it/king Siegmund seems (/braucht) [the frog to understand]
 ‘because it/the king seems (/needs) to recognize the frog’
 (xxi) Weil König Siegmund den Frosch zu verstehen scheint.
 because king Siegmund the frog to understand seems (/needs)
 ‘because king Siegmund seems (/needs) to understand the frog ‘

variation across dialects and among speakers of the same dialect with regard to the licensing of restructuring phenomena with *need*-type modals.

Let us first consider Romance languages:

3.3.3.4.1. Restructuring properties of Spanish and Italian *need*

I have questioned speakers of different varieties of Spanish and, even if a more thorough investigation is required, the judgments reveal significant variation regarding the ability of *necesitar* ‘need’ to license clitic climbing. Some of these speakers (in their great majority from non-peninsular varieties) accept clitic climbing with this verb, but a significant number (myself included) do not admit it.⁸⁴

(45) Clitic climbing with *necesitar* ‘need’

- a. % Si lo necesito hacer, lo hago⁸⁵.
If CL need.1s do CL do.1s
‘If I need to do it, I do it.’
- b. % Lo necesito saber. Para correr hacia ti. Para tenerte otra vez⁸⁶.
CL need.1s know for run towards you for have-you(CL) again
‘I need to know it. For running to you. For having you again.’
- c. % No es urgente, pero lo necesito saber!!!⁸⁷
Not be.3s urgent but CL need.1s know
‘It is not urgent,, but I need to know it.’

As for Italian *bisognare* ‘need’, although its ability to license clitic climbing has been questioned⁸⁸, a Google search returns quite many occurrences of clitic climbing with this verb. The sentences in (46c-d) illustrate this fact.⁸⁹

⁸⁴ The items of the questionnaire I used to check its acceptability are based on occurrences found in a Google search, as shown in footnotes 35 to 37.

⁸⁵ Recovered from <https://ca.answers.yahoo.com/question/index?qid=20081001094643AA4ABrL>

⁸⁶ Recovered from <https://www.youtube.com/watch?v=2XaQaxcqXxM>

⁸⁷ Recovered from <https://es.answers.yahoo.com/question/index?qid=20160902124235AAoh8ZO>

(46) *Clitic climbing with bisognare*:

- a. *Lo bisogna fare.

CL need-impers. do

‘It is necessary to do it.’

- b. Bisogna farlo.

need-impers. do-CL

‘It is necessary to do it.’

(Kayne 1989b:50)

- c. Lo bisogna sapere usare.

CL need know use

‘It is necessary to know how to use it.’

Retrieved from <http://goa.forumcommunity.net/?t=28917104&st=15>

- d. Ma *lo bisogna fare* con buon propósito

But it need.3s do with good purpose

‘But it is necessary to do it with a good purpose.’

Retrieved from <https://books.google.es/books?id=uGNCAAAAcAAJ>

⁸⁸ The alleged unavailability of clitic climbing with *bisognare* is considered to be rather related with the fact that it is an impersonal verb, and clitic climbing is not allowed in impersonal constructions (Kayne (1989b: 50); Benincà and Poletto (henceforth B & P) (1996)). In fact, as argued by B & P (1996: 35) it is not only the case that *bisogna* disallows climbing of clitics thematically related to the embedded predicate via restructuring; even benefactive clitics, which in Italian are possible with any verb (including restructuring verbs; e.g. of *vuole* ‘want’ or *andare* ‘go’) cannot be attached to *bisogna*.

⁸⁹ Regarding the other property displayed by functional modals in Italian – namely, their ability to trigger auxiliary switch – unfortunately it cannot be tested with *bisognare* ‘need’. This is so because *bisognare* has a defective paradigm. It only has present and imperfect indicative and subjunctive forms, and future and conditional forms, so, as it does not combine with an auxiliary of any type (either *have* or *be*) to form compound tenses.

(xxii) Italian *bisognare*: *past participle and compound tenses (adapted from Benincà & Poletto 1996)

*E’ (era, etc.)/ha ... bisognato partire/ farlo.

is/has needed leave/do-it.

‘It is (was...)/has been-necessary to leave/do it’.

Summing up, the significant variation found among speakers of the same language with respect to restructuring phenomena like clitic climbing suggests that *need*-type verbs are not a clear case of restructuring⁹⁰.

Recall also that, as argued in 2.2.6., the ability of a modal verb to restructure (i.e. to license clitic climbing or auxiliary switch phenomena) need not be taken to indicate that the modal always acts as a functional verb, since restructuring is not always obligatory; it only indicates that the modal takes a reduced infinitival complement that is transparent to these phenomena. So the question whether clitic climbing is possible in Spanish or Italian does not help us draw any significant conclusion with regards to the lexical status of *need*-type modals in these languages.

3.3.3.4.2. Monoclausal properties of the modal constructions with *behar*

I will now show that the modal constructions formed by *behar* and its complement too can act like monoclausal constructions for a series of phenomena that are clause-bound.

One such clause-union phenomena is the possibility that the auxiliary of the construction agrees with the arguments of the uninflected verb. As shown in (47), the

⁹⁰ There are other properties apart from clitic climbing we could look at to determine whether *need*-type predicates allow restructuring in other languages: (i) whether or not their complements exhibit CP-properties and (ii) whether they exhibit independent tense properties. I do not have data regarding the possibility of *need*-type verbs to take complements with overt complementizers in those languages that admit this type of complementizers. As for the presence of independent tense, it must be noted that, even if the complements of *need*-type predicates can admit an independent future interpretation, it may well be argued that the future orientation of the embedded infinitival comes as a consequence of the semantics of the verb verbs per se (which like modals in general contribute a future-shifted interpretation), rather than too syntactic tense projections (see above the arguments given for *must* by Wurmbrand 1998).

- (i) Yesterday, John needed to come tomorrow.
- (ii) Ayer, Juan necesitaba venir mañana.
Yesterday J. need.3s(imperf.) come tomorrow

It must also be noted that, although Wurmbrand (2001) includes *need* among restructuring predicates in her crosslinguistic classification, including German (Wurmbrand 2001; table 4.1: 342), in the classifications by authors she provides through tables 5.1 to 5.11, *need* is only listed once as a restructuring verb (concretely, it is included in Rutter's (1991) classification of restructuring verbs in German).

modal constructions involving *behar* are transparent to agreement with the arguments of the uninflected verb.

(47) Transparency of modal constructions to the arguments of the uninflected verb

- a. Jon-ek etxerako lana-k bukatu behar ditu.
 Jon._E home work._{pA} finish need HAVE._{3pA}._{3sE}
 ‘Jon needs to/must finish his homework.’
- b. (Ni-k) Amari oparia erosi behar diot.
 (1ps-_E) Mother._D present buy need HAVE._{3sD}._{1sE}
 ‘I need to/must buy mummy a present.’

Under the view that transparency phenomena are a property of functional verbs (Cinque 1997 *et seq.*), this may well be taken to indicate that *behar* is a functional modal. However, as mentioned before, there are some problems with this assumption. First, it has been argued that restructuring can not only occur with functional verbs (see Sections 3.2.2.6.). Some lexical verbs too have the ability to combine with reduced uninflected complement and exhibit clause-union phenomena (Wurmbrand 1998 *et seq.*). Second, as will be shown in the next chapter in more detail, in some varieties of Basque in which the complement can surface in an extraposed position to the right of the modal, the aforementioned transparency property becomes optional; that is to say, the matrix auxiliary may or may not agree with the arguments of the complements, and in both cases, the sentence is grammatical. Consider for instance (48):

(48) Transparency with regards to agreement with embedded arguments: optional

- a. Jon-ek behar d-it-u /du etxerako lana-k bukatu.
 Jon.E need HAVE._{3pA}._{3sE} / HAVE._{3pA}._{3sE} home-work._{pA} finish
 ‘Jon needs to/must finish his homework.’
- b. (Ni-k) behar d-io-t /dut Amari oparia erosi.
 (1ps-E) need HAVE._{3sD}._{1sE} / HAVE._{3sD}._{1sE} mother._{sD} present buy
 ‘I need to/must buy mummy a present.’

Note that the auxiliary in (48a) can surface with the agreement morphology associated to the embedded 3rd person singular absolutive argument (*d-it-u* ‘HAVE.**3pA**.3sE’) or not (*du* ‘HAVE.**3pA**.3sE’), and in both cases the sentences is judged correct. Likewise, agreement with the embedded 3rd person dative argument in (58b) is optional (*d-io-t* ‘HAVE.**3sD**.1sE’/ *dut* ‘HAVE.**3sD**.1sE’).

Another restructuring property of *behar* is the possibility that the modal construction shows up with an auxiliary corresponding to the embedded uninflected verb; hence, the possibility of auxiliary switch. That is to say, as it was the case in Italian, the constructions involving the modal predicate *behar* and a *-TU* infinitival complement do sometimes exhibit ‘auxiliary switch-like’ phenomena; i.e. they exhibit the auxiliary selection properties of single verb constructions, in the sense that the verb that acts as the main (lexical) predicate for purposes of auxiliary selection is the embedded uninflected verb rather than the modal. In this context, the case assigned to the subject is also determined by the uninflected verb.

In order to understand this better, let us first briefly explain how case assignment and auxiliary selection take place in Basque.

In (Standard) Basque, unaccusative predicates take auxiliary *izan* (BE) and absolutive subjects, whereas transitive and unergative predicates take auxiliary **edun* (HAVE) and ergative subjects. The different case assignment and auxiliary selection patterns are illustrated in the following examples (49-50).

(49) Case assignment and auxiliary selection of *unaccusative* predicates

Jon- Ø etorri da
 Jon-**A** come_{UNACC} BE.3sA
 ‘Jon has come.’

(50) Case assignment and auxiliary selection of *transitive and unergative* predicates

Guraso-ek auto berria erosi dute.
 Parents-**E** car new-**A** buy_{TR} HAVE.3sA.3pE
 The parents have bought a new car.

Going back to the modal constructions with *behar*, it can be observed that, when *behar* takes an unaccusative verb as complement, most speakers admit the presence of an auxiliary BE determined by the unaccusative uninflected verb, as shown in (51a); however, many of these speakers can also accept the constructions where the auxiliary is determined by the modal, rather than the unaccusative verb (e.g. (51b)).

(51) Auxiliary selection in the modal constructions involving *behar*

- a. Bederatzietarako, ikasle guztiak ikasgela barruan egon behar dira.

Nine-by student all.p[A] classroom inside be need [BE.3pA

‘By nine, every student must be inside his/her classroom.’

- b. Bederatzietarako, ikasle guztiek ikasgela barruan egon behar dute.

Nine-by student all.p[E] classroom inside be need [HAVE.3pA

‘By nine, every student must be inside his/her classroom.’

Note that, when *behar* is not present, the unaccusative verb *etorri* (‘come’) must necessarily occur with auxiliary *izan* (BE) and an absolutive case-marked subject (cf. the ungrammaticality of (52)). The auxiliary **edun* (HAVE) and the presence of ergative subjects are absolutely ungrammatical in Basque in this context (cf. (49) above); therefore, the presence of the transitive auxiliary in this context must be attributed to the presence of *behar*.

- (52) *Ni-k etorri dut

I-E come_{UNACC} HAVE.3sA

‘I have come.’

I will go back to the question concerning the transparency of the modal constructions with *behar* in Chapter 4, where I provide further evidence for the dual functional/lexical behaviour of this modal. For the time being, let us just bear in mind that the modal constructions involving *behar* (as well as those involving *need*-type modals in Spanish and Italian) do not always exhibit clause-union or restructuring phenomena, and this poses a serious problem for the view that modals (and

restructuring verbs) are always merged as functional heads (Cinque 1999, 2000, 2004, 20006). In Section 3.5, I will follow Cardinaletti & Shlonsky (2004) and I will assume that the optionality of restructuring with modals is one among the many reasons that allow us to conclude that modals occur in two variants: as functional heads or as lexical predicates.

3.3.3.5. Ordering and co-occurrence restrictions

Next, I will argue that, unlike modals like *must*, *need*-type modals are not subject to ordering or co-occurrence restrictions, a fact that, to my knowledge, has not been noticed so far.

For instance, English *need* can co-occur with modals like *must* or *might*, as evidenced by the following examples:

(53) No co-occurrence restrictions (English *need*)

- a. The first requirement is that you must need to process the information for the purposes of your legitimate interests.

Retrieved from <https://ico.org.uk/for-organisations/guide.../conditions-for-processing/>

- b. Who might need to see a dietitian?

Retrieved from www.esht.nhs.uk › Our services › Nutrition and Dietetics

- c. I'm thinking you might need to chill a bit, dude.

Retrieved from <https://9gag.com/gag/aj65KGQ/i-m-thinking-you-might-need-to-chill-a-bit-dude>

- d. [...] citizens *might need not* only lobbies that deal with relevant retailers

Retrieved from <https://books.google.es/books?isbn=0195173279>

What is more, as I show below, English *need* is not even subject to the same ordering restrictions modal verbs are. For instance, *need* can surface either preceding or following *tend to* (54a-b) which realizes the predispositional aspect head (*Asp_{predispositional}*) located below *Mod_{necessity}* in Cinque's hierarchy of functional projections (16). Likewise, *need* can either precede or follow *begin to* (*Asp_{inceptive}*) (56c-

d) assumed to be located below the Voice head (hence, below *Mod_{necessity}*) (Cinque 2006: 59). (Note the contrast between English *need* and the functional modal *must* in Fn. 65).

(54) No ordering restrictions (English *need*)

- a. You tend to need to look at the controller much more than the interface

Retrieved from <https://melodics.com/more>

- b. You need to tend not to expose your ears to high volume

Retrieved from <http://fox13now.com/2014/12/29/united-airlines-sues-22-year-old-who-found-method-for-buying-cheaper-plane-tickets/>

- c. You may also begin to need to urinate more.

Retrieved from <https://www.stmarysregional.com/hospital-services/the-birthplace-at-st-marys/the-first-trimester>

- d. We need to begin to prepare people for war

Retrieved from <https://thinkprogress.org/rubio-we-need-to-begin-to-prepare-people-for-war-with-iran-11fbc28cdbfa>

Along the same lines, Spanish *necesitar* too can either embed or be embedded under aspectual verbs like *tender* ‘use to’ or *comenzar a* ‘begin’, as illustrated in the following examples gathered from a *Google* search⁹¹:

(55) No ordering restrictions with Spanish *necesitar*

- a. las empresas en expansión *comenzaron a necesitar* consultar grandes

⁹¹ Consider the contrast between the Spanish verb *necesitar* ‘need’ and the necessity modal *deber* ‘must’. The latter shows clearly a more restricted behaviour.

(xxiii) Ordering restrictions with *deber* ‘must’

- a. Debes comenzar a hacerlo.
Must.2s begin to do-it
- b. Lo debes comenzar a hacer.
It Must.2s begin to do-
‘You must begin to do it.’
- c. *Comienzas a deber hacerlo
begin.2s to must do-it
- d. Lo comienzas a deber hacer
It begin.2s to must do-
‘*You begin to must do it.’

the companies in expansion begin.3plE to need to consult large
cantidades de información desde distintos puntos de acceso⁹².

amounts of information from different points of access

‘The growing companies began to need to consult massive amounts of
information from different access points.’

begin > need

- b. Los líderes eclesiásticos *necesitan comenzar a* creerlo, a vivirlo y a

The leader.pl ecclesiastical need.3pl begin to believe-it, to live-it and to
compartirlo⁹³.

share-it

‘The church leaders need to begin to believe it, to live it and to share it.’

need > begin

It must be however noted that most of the speakers who accept restructuring phenomena
like clitic climbing with *necesitar* do not admit clitic climbing when this is embedded
under aspectual verbs like *comenzar a* ‘begin’.

(56) Clitic climbing (CC) and ordering restrictions:

- a. %Lo_i necesito hacer_i ya!

CL need.1sg do right-now

‘I need to do it right now!’

- b. Necesito comenzar a hacerlo ya!

Need.1sg begin to do-CL right-now

I need to begin to do it right now!’

need > begin (- CC)

- c. %Lo_i necesito comenzar a hacer_i ya.

CL need.1sg begin to do right-now

‘I need to begin to do it right now!’

%need > begin (+ CC)

⁹² Retrieved from <https://www.makesoft.es/es/breve-historia-del-cloud-computing/>

⁹³ Retrieved from <https://books.google.es/books?isbn=1602554889>

- d. $*(\%)Lo_i$ comienzo a necesitar hacer_i ya.
 CL begin.1sg to need do right-now
 ‘I begin to need to do it right now!’
 $*begin > need (+ CC)$
- e. Comienzo a necesitar hacerlo ya
 begin.1sg to need do right-now
 ‘I begin to need to do it right now!’
 $begin > need (- CC)$

Note that (56c) is not judged as bad as (56d) by the speakers questioned. I consider this can be due to the fact that, when clitic climbing applies (for the speakers who admit it) in context like (56d), *necesitar* is acting rather as a functional modal head (e.g. $Mod_{necessity}$) located higher than the aspectual verb *comenzar a* ‘begin’ in the hierarchy; in these contexts, *necesitar* can embed (but cannot be embedded by) this aspectual verb⁹⁴.

In conclusion, Spanish *necesitar* acts asymmetrically with respect to the ordering restrictions that apply to functional heads: in the absence of restructuring effects like clitic climbing, *necesitar* can either embed or be embedded by certain aspectual verbs; however, when *necesitar* is embedded by these aspectual verbs, clitic climbing is unacceptable even for the speakers who most readily admit clitic climbing with *necesitar*. This suggests that there exist both a functional and a lexical variant of the verb *necesitar* ‘need’. The lexical variant exhibits no ordering restrictions and allows the clitics to remain attached to the verb they are thematically related to; by contrast, the functional variant is subject to strict ordering restrictions (Cinque 1999) and exhibits clitic climbing.

As for Basque modal *behar*, the following data show that it is not conditioned by ordering restrictions in the presence of aspectual verbs.

⁹⁴ Note that in the sentences where clitic climbing is admitted (56a; 56c) *necesitar* gets a deontic interpretation; that is to say, it expresses obligation or requirement, rather than a need or necessity internal to the subject (which is the meaning associated with dispositional or dynamic modality that *necesitar* conveys when it does not restructure; i.e. when it acts as a lexical predicate).

(57) No ordering restrictions with Basque *behar*:

- a. Teknologia berri-ak erabiltzen hasi behar dira.
 technology new.3pA using start need BE.3pA
 ‘They have needed/had to start using new technologies.’
- b. Hasi dira teknologia berria erabili behar izaten.
 start BE.3pA technology new.3pA use need aux.progress.
 ‘They have started to need to use new technologies’.
- c. Segitu/Jarraitu dute teknologia berriak erabili behar izaten.
 continue HAVE.3pE technology new.3pA use need aux.progress.
 ‘They have continued to need to use new technologies.’
- d. Behar dute teknologia zaharrak erabiltzen segitu/jarraitu.
 need HAVE.3pE technology old.3pA using continue
 ‘They need to continue using old technologies.’

The sentences in (57a-b) show that, like Spanish *necesitar*, *behar* can either embed or be embedded by aspectual verbs like *hasi* ‘begin’ or *jarraitu/segitu* ‘continue’. That is to say, it is not subject to the type of ordering restrictions functional heads are. Note also that *behar* cannot be embedded unless it occurs with the dummy auxiliary *izan* BE; as argued before, this is presumably related with the nominal nature of this modal, which does not admit infinitival, nominalized or stem forms.

Assuming Cinque’s hierarchy (cf. 16) is correct, the absence of ordering restrictions in the examples in (57a-d) must thus be taken to mean that *behar* can occur as a lexical verb.⁹⁵

⁹⁵ It must be noted the co-occurrence of *behar* with other modals is not easily admitted by Basque speakers, although this may well be due to pragmatic considerations. The following data retrieved from a Google search show that, in the appropriate context, *behar* can co-occur with other modals (e.g. *nahi* ‘want’, *ahal* ‘can, be able to’); but the truth is that I have found very few examples where two modals co-occur.

(xxiv) Gaur egun euskaraz egiteko, ez da nahikoa euskaraz jakitea. Lehenik
 nowadays Basque speak-for neg BE.3sA enough Basque know-TZEA first
 Euskaraz egin *nahi izan behar duzu*
 Basque do want AUX need HAVE.2sE

3.3.3.6. Thematic and selectional restrictions

As mentioned in Chapter 2, it has been often argued that some modal predicates (e.g. Catalan *gosar* ‘to dare’ (Picallo 1990) or Norwegian *ville* ‘want’ (Lodrup 1996)) can impose thematic restrictions to the subject they occur with. This clearly indicates that, in this context, these modals act like lexical rather than functional verbs. Next I will show that there is significant variation as to whether or not *need*-type predicates can occur with non-thematic and inanimate subjects.

For instance, English *need* is perfectly grammatical with non-thematic and inanimate subjects:

(58) Weather-it and expletive subjects

- a. It needs (*wants) to rain tomorrow.
- b. There needs (*wants) to be an adult in every car. (Harves 2008⁹⁶)
- c. The flowers need watering.

Furthermore, when it occurs with animate subjects, the modality need not be directed to the subject of the modal sentence, as claimed by Wurmbrand (1999) to be the case with necessity modal *must*.

(59) Syntactic subject ≠ obligee

- a. The traitor needs to die.
- b. The old man needs to fall down the stairs and it must look like an accident.

(xxv) [...] bazterkeria arriskupean dagoen pertsonak parte hartu nahi izan behar
 exclusion risk-in BE.3sA-1st person.sE parte take want AUX need
 du, jakin egin behar du eta ahal izan behar du.
 HAVE.3sE know do need HAVE.3sE and can AUX need HAVE.3sE

‘To get into the socialization process is not always an easy job; [...] the person that is in risk of exclusion needs to take part, needs to want to, needs to know and needs to be able to.’

⁹⁶ The contrast between *want* and *need* with regards to the (im-)possibility of non-thematic subjects leads Harves (2008) to argue that *want* is a control verb, while *need* is a raising verb, thus contradicting Cinque’s analysis of *want* as a functional restructuring verb.

Thus, as (59a), (59b) can be paraphrased as ‘it is necessary that somebody (determined contextually) bring about a situation such that the old man falls down the stairs’ (based on Wurmbrand 1999: 610)⁹⁷. This can be taken to indicate that the verb *need* does not enter into a thematic relation with the subject of the clause it occurs in⁹⁸.

With regard to the case of Norwegian *need*-type verbs, Eide (2002) observes that they behave alike. Concretely, the Norwegian *need* verbs (*treng* and *behøve*) need not be subject-oriented when they are used in combination with negation *ikke* ‘not’; however, the non-negated version obligatorily yields a subject-oriented reading; the non-directed reading is not felicitous in this context (60b)⁹⁹.

(60) Subject-orientation of *treng/behøve* ‘need’ (Eide 2002: 41, example (48))

- a. Du trenger/behøver ikke (å) pakke den inn.
 you need not (to) pack it in
 i. ‘You need not wrap it.’
 ii. ‘There is no need to wrap it.’

⁹⁷ The examples and the paraphrase provided are based on the one provided by Wurmbrand (1999:610) for modal must:

(xxvi) The old man must fall down the stairs and it must look like an accident

⁹⁸ Recall that some scholar take the modal verb *need* to replace at least four earlier constructions: (i) a personal *need* verb meaning ‘compel’, (ii) a non-*need* verb meaning ‘need’ in negative polarity contexts, (iii) a set of polarity neutral nominal constructions meaning ‘need’, and (iv) an impersonal *need* verb meaning ‘it is necessary’ (Van der Auwera & Taeymans 2004: 331). If this is correct, then it may well be the case that *need* is actually ambiguous between an imperosnal raising verb and a theta-assigning verb with the meaning ‘compel’. Consider for instance the contrast with respect to the grammaticality of the following pseudo-cleft constructions:

- (xxvii) What you need to do is get out of here!
 (xxviii) ??What there need to be is an adult in every car.

Following Thrainsson & Vikner (1995) and Eide (2002), the fact that non-thematic expletive subjects are disallowed in these constructions might be taken to indicate that *need* is here acting like a control verb that needs to discharge an external theta-role.

⁹⁹ Note that there is no contrast between *need to* and the negated *need not* forms of English in this respect:

- (xxix) It needs not rain before it's slippery on the roads. (Google)
 (xxx) There need not have been any language. (Google)
 (xxxi) The traitor need not die.

- b. Du trenger/behøver * (å) pakke den inn.
 you need (to) pack it in
 i. 'You need to wrap it'
 ii. #'It is necessary to wrap it.'

As for Spanish *necesitar* 'need', once again there is considerable variation among speakers as to whether or not *necesitar* enters into a thematic relation with the subject. It has been proposed that there exist different underlying constructions (a periphrastic¹⁰⁰ one and a non-periphrastic one) which correlate with different thematic/syntactic properties (Gómez Torrego, 1988, 1999).

When *necesitar* occurs with an animate subject, this is preferably interpreted as the *experiencer of the need* for many speakers; that is to say, the necessity is preferably directed to the subject of the clause, rather than to some other person determined contextually (there is significant speaker variation; hence the symbol %). Note that, for many speakers, the example with *necesitar* cannot be paraphrased with 'it is necessary that somebody (determined contextually) has the necessity to bring about a situation such that the old man falls down the stairs (61b)'. This reflects the preference of many speakers for the subject-oriented reading in the contexts where *necesitar* occurs with an animate subject.

(61) *Spanish necesitar 'need' and subject orientation*

- a. %El traidor necesita morir.
 The traitor need.3s die
 'The traitor needs to die'
- b. %El viejo necesita caer por las escaleras y tiene que parecer un
 The old need.3s fall down the stairs and has to look-like an

¹⁰⁰ The underlying assumption behind the periphrastic vs. non periphrastic constructions is that, in the periphrastic construction, the modal is a functional auxiliary-like element (it takes no arguments and is totally or partially grammaticalized) while the uninflected verb stands as the lexical predicate. By contrast, in the non-periphrastic constructions both the modals and the infinitive are lexical verbs (Gómez Torrego 1999)

accidente.

accident

‘The old man needs to fall down the stairs and it must look like an accident.’

% *somebody (determined contextually) has the necessity to bring about a situation such that the old man falls down the stair.*

By contrast, many speakers admit the use of *necesitar* in impersonal constructions and with weather-*it* and inanimate subjects, as observed by Gómez Torrego (1999).

(62) *Spanish* *necesitar* ‘need’ with impersonal and weather constructions and inanimate subjects

- a. ??/% Necesita haber un adulto en cada coche.

need.3s be an adult in every car

‘There needs to be an adult in every car.’

- b. ??/% Aún necesita llover más para que no se sequen los árboles.

still need.3s rain more for that not self dry the trees

‘It still needs to rain more for the trees not to get dried.’

- c. Aquellas noticias necesitaban difundirse de inmediato.

Those news need.3pl.imperf spread-self immediately

‘Those news needed to spread immediately.’

It is necessary that somebody (whoever) spreads those news immediately.

In his work about Spanish periphrases, Gómez Torrego (1999) points at the asymmetric behavior of *necesitar*. He argues that when it takes animate subjects the complex verbal form created by *necesitar* and the infinitive does not form a periphrasis; in turn, when it occurs with inanimate or non-thematic subjects, it functions like a periphrasis. In particular, this author observes that when *necesitar* occurs with an animate subject, (i) the infinitival complement admits commutation (substitution by a pronominal form) (63b), (ii) the infinitival can be transformed into an interrogative (63c), (iii) and it can

be focalized in a pseudo-cleft-like construction¹⁰¹ (63d); in addition, he argues that (iv) there is no meaning preservation when the infinitival is passivized (63e vs. 63f).

(63) *Necesitar* (animate subject)

- a. Juan necesita presentar el carné.
 Juan needs present-inf the card
 ‘Juan needs to present his license.’
 - b. Juan lo necesita.
 Juan it needs
 ‘Juan needs it.’
 - c. ¿Qué necesita Juan? -Presentar el carné.
 What needs Juan present the card
 ‘What does Juan need? – To present the card.’
 - d. Lo que aquel señor necesitó fue darnos el dinero.
 What that man needed was give-us the money
 ‘What that man needed was to give us the money.’
 - e. Los alumnos necesitaron ser aprobados por el profesor.
 The students needed be passed by the professor
 ‘The students needed to be passed by the professor’
 - f. El profesor necesitó aprobar a los alumnos.
 The profesor needed pass to the students
 ‘The professor needed to pass the students’
- (Adapted from Gómez Torrego 1999)

By way of contrast, when *necesitar* occurs with an inanimate subject (i) the infinitival complement resists commutation (substitution by a pronominal form) (64b) (ii) cannot be transformed into an interrogative (64c), (iii) does not admit a pseudo-

¹⁰¹ Note the similarity with Norwegian necessity modals reported by Eide (2002) (cf. Chapter 1). Recall that Eide concludes that pseudo-cleft constructions only admit directed deontic and dynamic modal readings, because in these types of constructions, the subject is thematically selected by the modal. Likewise, Spanish *necesitar* only admits pseudo-clefts when the modal is [+animate], indicating that *necesitar* imposes thematic animacy restrictions on the subject.

cleft-like focalization (64d) and (iv) there is no meaning preservation when the infinitival is passivized (64e-f).

(64) *Necesitar* (inanimate subject)

- a. Hay cosas que necesitan conocerse ya.
Be things that need.3p know-refl already
'There are things that need to be known already'
- b. *Hay cosas que lo necesitan.
Be things that it need.3p
'There are things that need it.'
- c. *¿Qué necesitan las cosas? - Conocerse ya.
What need.3p the things know-refl already
'What do the things need? – To be known already.'
- d. *Lo que las cosas necesitan es conocerse.
What the things need is know-refl
'What the things need is to be known.'
- e. *Lo que necesitaban esas noticias era difundirse.
What needed those news was spread
'What those knows needed was to be spread.'
- f. La carta necesita ser leída
The letter needs be read
'The letter needs to be read.'
- g. =/=Juan necesita leer la carta
Juan needs read the letter
'Juan needs to read the letter.'

(Adapted from Gómez Torrego 1999)

It can thus be concluded that Spanish *necesitar* comes in two different variants: in one variant it forms a periphrasis with a lexical verb and does not enter into a thematic relation with the subject. In this case, the modal behaves as a functional head. In the second variant, *necesitar* is a main verb imposing thematic and selectional restrictions on the subject.

With regard to the thematic and selectional restrictions of Basque *behar* ‘need’, in Chapter 6 of this dissertation I will defend that, like Spanish *necesitar* and unlike English *need*, in some varieties of Basque too¹⁰² *behar* too exhibits a dual behavior. In some constructions – i.e. in those where it exhibits no restructuring – *behar* patterns like a control predicate (i.e. it takes an external argument onto which it imposes selectional restrictions), whereas in the constructions where it exhibits restructuring phenomena it clearly acts like a subject raising verb (i.e. it can co-occur with non-thematic null weather-*it* subjects, null expletive subjects and inanimate subjects that do not conform to the selectional requirements of necessity predicates; hence, they cannot be interpreted as the experiencers of the need)¹⁰³.

Summing up, in this subsection devoted to discuss the thematic and selectional properties of *need*-type verbs I have argued that, although English *need* behaves homogeneously as a raising predicate for the properties examined¹⁰⁴, other *need*-type verbs (e.g. Spanish *necesitar* and Basque *behar*) exhibit a dual behavior.

3.3.4. Interim conclusion

Table 5 summarizes the conclusions of the discussion in this section with regard to the properties of *need*-type modals in the languages under discussion. It shows that, in contrast with *must*-type modals, which behave uniformly as functional verbs; *need*-type verbs display mixed properties as lexical and as functional elements.

¹⁰² The varieties in question are those spoken in the regions close to the French border, although some speakers of other Central varieties and Western varieties have pointed out to me that they also admit this uses of *behar*.

¹⁰³ However, as I argue in Chapter 6, it is not the case that everytime *behar* licenses non-thematic subjects it acts like a functional head; in some constructions, *behar* does exhibit the behavior of a functional modal (i.e. when it exhibits auxiliary switch it consistently acts like a raising predicate); however, in other constructions (in which *behar* determines the auxiliary and case properties of the construction) it is rather a subject raising lexical verb. The reader is referred to Chapter 6, Section 6.2 where I provide substantial evidence for this claim.

¹⁰⁴ See however the discussion in Fn. 60 where I suggest that *need* *might* actually be ambiguous between a raising and a control modal too.

Table 5: Mixed properties of need-type predicates¹⁰⁵

	<i>Must-type verbs</i>	<i>need not</i>	German (nicht) <i>brauchen</i>	Norwegian <i>trengje</i> /behove <i>ikke</i>	Spanish <i>necesitar</i> (inani- -mate)	Need (+)	German <i>Brauchen</i> (+)	Norwegian <i>trengje</i> /behove (+)	Spanish <i>necesitar</i> (ani- -mate)	Basque <i>behar</i>
Functional properties										
Deficient verbal morphology	√	√	-	-		X	-	-	-	* ¹⁰⁶
IPP effect	√	-	%	-		X	-	-	-	-
<i>To/Zu</i> -less complements	√	√	%	√		X	-	X	-	-
Restructuring properties	-	-	-	-	%	-	-	-	%	√ /% optional
Co-occurrence restrictions	√	√	-	-	%	X		-	%	X
Ordering restrictions	√	√	-	-	%	X	-	-	%	X
Lexical properties										
Extraposition	X	X	%	-	-	-	-	-	-	-
DP complements/ Finite complements /Complements with overt infinitival subject	X	X	X	X	X	√	√	√	√	√
Thematic /selectional restrictions	X	X	-	X	X	X	-	√	%	% Only when restructuring effects are absent

¹⁰⁵ The symbol ‘-’ means that either this property cannot be tested in this language or that I have not data in relation with this property in this language.

¹⁰⁶ Recall that even if *behar* exhibits morphological deficiency, this is attributed to its nominal status (Ettxepare & Uribe-Etxebarria 2012, Berro 2015)

3.4. DIFFERENT VIEWS ABOUT THE CATEGORIAL STATUS OF MODAL PREDICATES

In the literature on restructuring and clause structure, there have been two opposed views regarding the nature of verbs which exhibited a dual (functional restructuring vs. lexical non-restructuring) behaviour: one view argues that certain verbs can optionally enter the structure as functional or lexical heads, and the other defends that restructuring verbs are invariably merged into functional heads and can never head a lexical VP.

In early work (published in 2001, 2002a) but originally written and circulated in 1997 and 1998), Cinque argued that certain verbs admitted two possibilities: they could either be merged as lexical verbs or as functional heads.

[...] those verbs which happen to match semantically the content of a certain functional head admit of two distinct possibilities. They are either regular verbs, heading a VP (in which case they take a full-fledged sentential complement (CP) - cf. [11a], or 'functional' verbs, directly inserted in the head position of the corresponding functional projection (2006:12)

The two possibilities correlate with different underlying configurations: a restructuring monoclausal configuration for the functional variant, and a non-restructuring biclausal one for the lexical variant:

(65) Two distinct configurations of restructuring verbs (Cinque 2001, 2002a, 1998)

- a. [CP...[FP...[FP...[VP *V_{restr}* [CP...[FP...[FP...[VP V]]]]]]]]
- b. [CP...[FP... [FP *V_{restr}* [FP...[VP V]]]]

This is also the analysis proposed by Cardinaletti & Shlonsky (2004), who defend that modal verbs and aspectual verbs can either be merged into functional heads – in which case they admit restructuring phenomena like clitic climbing and auxiliary switch – or head a lexical VP – in which case they can occur with CP size complements involving clausal negation and no restructuring effects:

Like modal verbs, aspectual verbs can also be fully lexical verbs, as confirmed by their selecting a DP complement [...] and a clause containing clausal negation [...] (Cardinaletti & Shlonsky 2004: 70, fn° 28).

We have proposed that the apparent optionality of restructuring phenomenology is due to a choice between inserting verbs in V or in F (C&S 2004: 65, fn° 9).

Wurmbrand (1998) does not take modals or aspectual verbs to come in two variants¹⁰⁷; however, in the particular case of German *brauchen* she claims that this verb is ambiguous between a modal and a lexical verb.

I will assume that the verb [*brauchen*] *need* is ambiguous between a modal and a lexical verb. In the lack of a clear judgment [...], however, I will leave aside here the intermediate status of [*brauchen*] *need* as a full verb. But I will conclude that the verb [*brauchen*] *need* does fit the correlation between bare infinitives and IPP in that, when it is used as a modal, it takes bare infinitives and shows the IPP effect (Wurmbrand 1998:244)

However, in posterior work, Cinque (2000b, 2006) makes the strong claim that the predicates whose meaning matches that of a functional head need to be necessarily merged in the position that correspond to this head in the hierarchy of functional projections. This means that, even in the cases where certain verbs exhibit lexical, non-restructuring properties, they will still be functional raising heads in a monoclausal construction.

This stronger assumption forces him to make some additional stipulations in order to account for the apparent lexical properties of some of the predicates classified as functional verbs and for their apparent optionality to undergo restructuring.

For instance, in the case of Italian *volere* ‘want’, which, like *need*-type predicates, can occur with DP complements and finite complements, Cinque argues that such complements are not in fact directly selected by the functional restructuring

¹⁰⁷ In earlier work (Wurmbrand 1998), she takes modals to be functional heads (merged at different points in the structure: epistemic modals occupy Inf° and root modals a lower functional head (Mod°)). Posteriorly (Wurmbrand 2001, 2003) she acknowledges the existence of modals which can be merged as either quasi-functional verbs (under v°) or functional verbs (Mod°), such as German ‘want’. In Wurmbrand (2015) follows Cardinaletti & Shlonsky (2004) in assuming that modal verbs in Italian are functional when they exhibit auxiliary switch, and lexical when they do not.

modal *want*. Cinque follows Den Dikken, Larson and Ludlow (1996) (on earlier proposals by McCawley (1979) and Ross (1976)) in assuming that these type of constructions where *volere* apparently selects for a DP complement or a finite complement are *structurally more complex than they look* and involve an abstract verbal complement, paraphrasable with *HAVE* (or *OBTAIN*), which is the one that takes the DP or finite clause as complements (see (66-67) below).

(66) Gianni_i vuole [VP t_i *HAVE* [DP una bicicletta]]

G. wants a bicycle

(67) Gianni_i vuole [VP t_i *OBTAIN* [CP che Maria resti]]

G. wants that M. rests

This analysis allows him to maintain the strong thesis that the verbs that match the semantics of a head in the functional hierarchy are always inserted as a functional head in the clausal domain. As such, they always embed a VP headed by the lexical (main) verb (in this case null *HAVE* or *OBTAIN*) of the construction, which, by virtue of being lexical, can itself take complements like DPs and CPs¹⁰⁸.

Although Cinque does not treat predicates like *need*, Grano (2012) extends his proposal to account for the lexical properties of *need*-type predicates. As argued by this author, the presence of an abstract head *HAVE* not only explains the unexpected complementation of *need*-type (and *want*-type) verbs, but also the fact that the complement of *need*-type verbs can have an independent temporal interpretation and a partial control¹⁰⁹ interpretation.

¹⁰⁸ In addition, Cinque (2000, 2006) argues that the subject orientation and the selectional restrictions of certain restructuring verbs like *volere* 'want' (also *osare* 'dare', *osare* 'dare', *sapere* 'know how', and *provare* 'try') in Italian is a consequence of their semantics. "If verbs like 'want', just like volitional adverbs such as *willingly*, *voluntarily*, etc. (cf. **The house willingly belonged to Bill*), or, for that matter, manner adverbs (cf. **The house hid the horizon carefully*), must be predicated of a sentient being, the ungrammaticality of [e.g. **La casa gli voleva appartenere* 'The house wanted to belong to him'] follows without having to assume that they take an external argument of their own."

¹⁰⁹ *Partial Control* refers to the phenomenon whereby the controllee (i.e. PRO) denotes a plurality than includes the controller, but not exhaustively. The term is used in opposition to *Exhaustive Control* where the reference of the controllee includes only the controller.

As observed by Grano, the complements of *need* (and *want*) admit the presence of conflicting temporal adverbs which situate the time of the event at different time intervals relative to the speech time (68)¹¹⁰. However, functional verbs are not expected to admit complements with temporal modifiers that refer to a point in time distinct than that of the matrix clause. Grano explains that this is possible in the case of *need* due to the fact that it embeds null *HAVE*; that is to say, Grano assumes that it is the null (main) verb *HAVE*, rather than the modal, which selects for a complex complement contributing an independent temporal frame (hence, a TP).

(68) Temporal modification in *want*+DP constructions

- a. A week ago, Bill wanted your car yesterday.
- b. A week ago, Bill needed your car yesterday.
- c. A week ago, Bill promised Mary a bracelet yesterday.

The presence of null *HAVE* also helps him to explain why sentences like (76) involving the functional restructuring modal *want* admit a partial control interpretation. Grano (2012) argues that English *want* exhibits partial control properties¹¹¹, since it can occur with inherently collective predicates like *gather* or *meet* or with a predicate made collective via *together*.

(69) Partial control

- a. (John told Mary that) he wanted to meet at 6.
- b. (John told Mary that) he wanted to eat together at 6.

(Grano 2012:20;172)

¹¹⁰ See Wurmbrand's discussion in Chapter 5, Section 5.4.1. as to the possibility that this type of non-agreeing or conflicting adverbs are licensed because of the semantics of the verbs, which per se contribute a future oriented reading, rather than from the presence of a syntactic Tense head.

¹¹¹ Grano further argues that the above examples involve partial control (and not split control), since a plural anaphor like *each other* is disallowed:

(xxxii) *(John told Mary that) he wanted to see *each other* other at 6.

To put it simply, in the sentences in (69a-b) the functional modal *want* embeds the null verb *HAVE*. This null verb *HAVE* itself takes a Partial Control infinitive as complement, as illustrated in the structures in (70a-b).

- (70) a. John_i wanted [VP t_i HAVE/OBTAIN [CP PRO_i gather at noon]]
 b. John_i needed [VP t_i HAVE/OBTAIN [CP PRO_i gather at noon]]

To sum up, there exist two main views regarding the status of those verbs that present a mixed or dual behaviour with respect to their ability to restructure and other functional/lexical properties. One point of view (Cinque 2001, 2002a; Cardinaletti & Shlonsky 2004) simply assumes that these verbs come in two variants: a functional (hence, restructuring) variant and a lexical non-restructuring one. By contrast, the advocates of the strictest view (Cinque 2000, 2004, 2006) argue that the verbs whose meaning matches that of a functional head must always be merged under their corresponding functional head. To accommodate this to the cases where certain verbs (e.g. the modals under discussion) present lexical, non-restructuring properties, they must make some additional stipulations. For instance, Cinque (2006) attributes the absence of restructuring effects (and the partial control properties) of the constructions involving modal *volere* ‘want’ to the presence of a null verbal head *HAVE*, and Grano (2012) adopts the same analysis for the case of *need* to (see the structure provided under (70))¹¹².

¹¹² In addition, both Cinque (2000, 2006) and Grano (2012) must provide an additional explanation for the lack of subject-orientation of *want* and its Italian counterpart *volere* ‘want’ (see Fn. 51 and the cited works for the details). They do not make any assumption for *need*, however, which as shown before, is not subject oriented in English and is impersonal in Italian (Benincà & Poletto, 1996).

3.5. THE DUAL NATURE OF *NEED*-TYPE VERBS AS FUNCTIONAL AND LEXICAL CATEGORIES

In the previous section I have presented two opposed views in relation to the question whether the verbs that fall within the class of restructuring verbs (to which class modals belong to) are merged as functional or lexical verbs.

In this section I am going to show that only the view that considers that restructuring verbs can be merged as either functional or lexical verbs (Cardinaletti & Shlonsky 2004 and Cinque's early work published in 2001, 2002a) can capture the full range of mixed properties exhibited by the *need*-type predicates under discussion and that the postulations made by the advocates of the strict view of restructuring (Cinque 2000, 2004, 2006; Grano 2012) to account for the problematic cases in which these verbs show no restructuring properties present major drawbacks.

To start with, the proposal put forth by Grano (2012) to account for the apparent non-restructuring (hence, lexical) behavior of *need*-type verbs with regards to the possibility of licensing DP complements and non-restructuring complements with an independent temporal interpretation is problematic. Recall that following Cinque (2000, 2006), Grano argues that *need*-type verbs, like *want*-type verbs, can optionally embed a null abstract head *HAVE*. The presence of null *HAVE* allows these authors to explain why, despite being functional, these modals appear to display non-restructuring or biclausal properties.

However, if *need*-type verbs do in fact embed null *have*, it remains to be explained why English *need*, unlike *want*, fails to exhibit control properties (compare the examples with *need* with those in provided for *want* in (78) below. That is to say, if as argued by Grano, partial control (PC) is contingent on the presence of biclausality, and biclausality is granted by the presence of null *HAVE* – consider again the structure provided for the PC examples repeated below under (71) –, why should then *need* differ from *want* in not allowing a partial control reading?

(71) English *need*: *PC interpretation

- a. John wanted to gather at noon.
- b. ??John needed to gather at noon.

- (72) a. John_i wanted [VP t_i HAVE/OBTAIN [CP PRO_i gather at noon]]
 b. John_i needed [VP t_i HAVE/OBTAIN [CP PRO_i gather at noon]]

If all that is required for the PC interpretation is the presence of this silent transitive verb, then (71b) should be as acceptable as (71a); however, it is not¹¹³. In

¹¹³ Furthermore, the connection between partial control and biclausality is called into question when we consider Spanish *querer* ‘want’. One of the arguments Grano employs to support his claim that *PC want* involves biclausality (\emptyset HAVE/OBTAIN + CP) is precisely that, when PC is available, restructuring phenomena like clitic climbing is prohibited. He illustrates this in the following examples with Italian *volere* ‘want’.

- (xxxiii) Partial control with *volere*: *clitic climbing
 a. Gianni ha detto a Maria che voleva incontrarsi alle 5.
 John has told Maria that preferred meet-self-CL at 5.
 b. ? Gianni ha detto a Maria che si voleva incontrare alle 5.
 John has told Maria that self-CL_i preferred meet-t_i at 5.
 ‘John told Mary that he wanted to meet at 5.’

Volere in (xxxiii-a) acts as a partial control predicate in being able to take the inherently collective predicate *incontrarsi* ‘meet each other’, however, the sentence turns less acceptable if clitic climbing takes place (xxxiii-b), although as acknowledged by Grano, the difference might be slight. Actually, the same construction is perfectly compatible with clitic climbing in Spanish (xxxiv-a-b).

- (xxxiv) Partial control with *querer*: \checkmark clitic climbing
 a. Juan (le dijo a María) que quería reunirse a las 5.
 John CL_{dat} say to Mary that wanted.3sg meet-self-CL at the 5
 b. Juan (le dijo a María) que se quería reunir a las 5.
 John CL_{dat} say to Mary that self-CL_i wanted.3sg meet-t_i at the 5
 ‘John told Mary that he wanted to meet at 5.’

Sheehan (2012) too provides evidence that European Portuguese allows clitic climbing in the counterpart example in (v).

- (xxxv) %O João queria-se reunir às 6. [*=11, ??=6, \checkmark =5]
 the João wanted.3SG-self.3 meet.INF at.the 6

As reported by her, around a quarter of the informants surveyed (5/22) fully accepted clitic climbing in (xxxiv), and another quarter (6/11) found it marginally possible¹¹³. The crosslinguistic evidence thus undermines Grano’s hypothesis that the PC properties of *want*-type verbs derive from a structure like (72b) involving a null head *HAVE/OBTAIN* + a full clausal complement.

conclusion, we must find an explanation other than the presence of an abstract *HAVE* to account for the ability of *need* to take DP/CP complements.

In addition to this, there is another crucial question the strict view leaves unexplained: why is it that *need*-type verbs exhibit no ordering or co-occurrence restrictions (see Section 3.3.3.5). Recall that the ordering and co-occurrence restrictions of functional heads constitute the main argument supporting Cinque's cartographic approach, however, in English, *need*, unlike *must*, is not subject to either co-occurrence or ordering restrictions, and, in Spanish, *necesitar* 'need' only exhibits ordering restrictions in the contexts in which clitic climbing applies. This calls into question the analysis of need-type verbs as strictly functional.

Finally, the strongest view that *need*-type modals are always and everywhere functional heads is undesirable for another reason: it fails to capture the contrastive properties of the negated and non-negated versions of the Germanic *need*-type modals examined in Section 3.3; that is to say, neither Cinque's (2006) nor Grano's (2012) account can provide a satisfactory explanation for (i) why the non-negated (vs. the negated) version of English *need* does not present the morphological deficiency characteristic of modal verbs in English, (ii) why English *need not* (/needn't), Norwegian *ikke trenge/behove* 'not need' (vs. *trenge/behove* 'need') or German *nicht brauchen* 'not need' (vs. *brauchen* 'need') admit complements without the infinitival marker *zu* 'to', (iii) why, *nicht brauchen* admits more readily the presence of IPP effects or (iv) why Norwegian *trenge/behove* 'not need' (vs. *trenge/behove* 'need') disallows non-thematic subjects.

In view of the problems described above, I will therefore argue that, however appealing a uniform analysis of modals as functional heads may be, the only explanation which can fully capture the full range of properties exhibited by *need*-type predicates across languages is to have these modals merged as either functional heads or lexical verbs, along the lines proposed by Cardinaletti and Shlonsky (2004), Cinque's earliest work (2001, 2002a), (and Wurmbrand's (1998) for the case of German *brauchen* 'need').

Actually, the assumption that *need*-type modals come in two variants (a functional one and a lexical one) should not be surprising if we consider the regular grammaticalization pattern found with these modals across languages.

In languages for which we have long historical records, it has been argued that modal expressions have evolved from lexical forms (verbal and non-verbal) into functional elements, as a result of a grammaticalization process (Lightfoot 1979, Bybee et al. 1994, Warner 1993, Roberts 1993, Heine 1993, Kuteva 2001, Roberts & Rousseau 2003; Tragoutt 2011; Narrog 2012; Haquard 2016; among others)¹¹⁴. This grammaticalization process is believed to take place gradually and cyclically¹¹⁵, in such a way that different variants may coexist over a linguistic period or even different variants may survive and be used in different contexts (Heine and Reh 1984; Hopper 1991; van Gelderen 2009). The latter is known as the Principle of Divergence.

The principle of Divergence, or Split, as Heine and Reh call it (1984:57-9 et pass.), refers to the fact that when a lexical form undergoes grammaticalization, for example to an auxiliary, clitic or affix, the original form may remain as an autonomous lexical element and undergo the same changes as any other lexical items. The Principle of Divergence results in pairs of multiples of forms having a common etymology, but diverging functionally. The grammaticalized form may be phonologically identical with the autonomous lexical form... (Hopper 1991:24)

Although it still remains to be seen whether all modals have necessarily started as lexical predicates, in the particular case of *need*-type predicates, this grammaticalization process is well attested and documented in historical studies of modals in Germanic

¹¹⁴ I will however depart from the assumption held in these works that, in the process of grammaticalization affecting modals, root meanings have extended to epistemic meanings; as there is evidence that epistemic uses of the modals existed as late as in Old English (Goossens 1982, cited in Papafragou 1998)

¹¹⁵ As highlighted by Mortelmans, Boye, and van der Auwera (2009), it is well-known that there are significative differences both with respect to individual modal items within the paradigm of a particular language (with some items being less grammaticalized than others; e.g. the German modal *wollen*) and crosslinguistically with respect to entire paradigms ("such that the entire modal verb paradigm in one language can be said to be grammaticalised to a larger extent than in another; the English modal verb paradigm is a case in point" (Mortelmans, Boye, and van der Auwera (2009: 11)).

languages (Visser 1969, Quirk et al. 1985, Warner 1993, Krug 2000, van der Wouden 2001, van der Auwera 2001, Loureiro-Porto 2002, 2003, Taeymans 2004, van der Auwera & Taeymans 2004, van der Gelderen 2009, Jedrzejowski 2016) and Romance (cf. Benincà & Poletto 1993 for Italian *bisognare*). Interestingly, van der Wouden (2001) further argues that, universally, *need*-like elements are developing into grammaticalized NPIs (as attested in various Germanic (English, Dutch, German...) and non-Germanic (i.e. Greek *chriazete*) and non-indoeuropean languages (i.e. Chinese *yòng*).

In the particular case of Basque too, we find direct diachronical evidence in support of the grammaticalization process of *behar* in Mounole's (2010) study of the syntactic evolution of modal and aspectual periphrasis. Concretely, Mounole provides evidence that, in the 17th century, the most frequent construction involving *behar* and a *-tu/-i/-n/-Ø* complement is a biclausal transitive construction in which the subject exhibits ergative case and the auxiliary selected is HAVE. However, from this century on, we find an increasing use of monoclausal constructions in which *behar* occurs with the auxiliary BE and an absolutive subject determined by the presence of a lower unaccusative verb.

In sum, my assumption with respect to the functional/lexical status of *need*-type modals, and in particular Basque necessity modal *behar* (of which I will provide a detailed analysis in forthcoming chapters), is that, by virtue of the grammaticalization process these modals have undergone(/are undergoing), synchronically, they can occur in either its original lexical form or as functional elements¹¹⁶. This is the account that best explains the full range of properties exhibited by these modals in various languages (the totality of which cannot otherwise be explained by assuming a uniform functional or lexical analysis). The account is also consistent with the findings of larger studies on the diachrony of these modals.

¹¹⁶ Not to mention the possibility that they may also appear with an intermediate (e.g. quasi-functional) status (cf. Corver & van Riemsdijk 2001, Cardinaletti & Shlonsky 2004, among others).

3.6. SUMMARY AND CONCLUSIONS

In this chapter I have addressed the question whether modals are functional heads (Cinque 2000, 2004, 2006) or whether they can be both functional and lexical elements.

I have first introduced a series of formal properties of modals that have led researchers to consider them auxiliaries or functional heads. Some of these properties are language specific, such as (i) the morphological deficiency of Germanic modals, (ii) the NICE properties that English modals share with auxiliaries, or (iii) the ability of modals to take bare infinitives without the infinitival marker *to/zu* (Germanic). Other properties are taken to be universal, such as (i) the ordering and co-occurrence restrictions that modals appear to be subject to and (ii) the ability of modals to restructure.

I have however argued that, not all modals behave homogeneously with respect to these properties. We have seen that, in general, the set of *need*-type modals across languages, as well as the Basque necessity modal *behar*, exhibit quite a heterogeneous behaviour with respect to the alleged functional properties of modals.

To begin with, as regards the type of complements they admit, I have shown that in addition to infinitival complements, Basque *behar* and *need*-type modals can also take DP complements, and, in some cases, finite complements (e.g. Basque *behar* and Spanish *necesitar*) or uninflected complements with overt infinitival subjects (e.g. English *need*). In contrast, prototypical functional modals like English *must* can only occur with bare infinitival complements.

In addition, in Germanic, *need*-type verbs show morphological properties that make it difficult to classify them as uniformly functional or lexical elements. For instance, unlike other English modals, *need* possesses non-finite forms and is not always morphologically deficient (in its non-negated form it exhibits the same morphology as regular verbs in English). Second, for some speakers, German *brauchen* ‘need’ need not exhibit the IPP effect and can admit the extraposition of the infinitival complement (a property restricted to lexical verbs in German).

Third, I have also shown that the ability of *need*-type verbs to restructure is unclear. In languages where modals exhibit observable restructuring properties, there is considerable speaker variation regarding the acceptance of these properties with *need*-type verbs (e.g. some speakers of Spanish readily admit clitic climbing while the majority does not).

Fourth, *need*-type verbs do not behave like functional modals with respect to ordering restrictions. For instance, many of the Spanish speakers questioned report that *necesitar* is only subject to ordering restrictions if clitic climbing applies.

Last, in some of the languages examined, *need*-type verbs impose thematic and selectional restrictions on their subject, in certain contexts. For instance, Norwegian *trengje/behove* does not admit non-thematic or inanimate subjects with in its non-negated variants, and many speakers ~~too~~ do not readily admit non-thematic subjects with Spanish *necesitar*. English *need*, however, behaves homogeneously as a raising modal. This suggests that at least in some languages, there is a lexical variant of *need* that patterns like a control rather than a raising verb (against the hypothesis defended by Wurmbrand (1999) (also Wurmbarnd and Bobaljik (1999) that modals verbs must be raising (see Chapter 2, Section 2.2.2.1).

Finally, in Section 3.4, I have presented two different points of view concerning the functional/lexical status of modals and restructuring predicates in general: the view that considers that restructuring verbs (modals included) can be merged as either functional heads or lexical verbs, and the strictest view whereby restructuring verbs are always merged in the functional domain of the clause even in the cases where they exhibit lexical/non-restructuring properties.

I have finally argued (Section 3.5.) that only the view that the full range of mixed properties of the *need*-class, to which *behar* belongs, can only be captured under the view that these predicates can occur as either functional or lexical verbs. This view is further supported by many diachronic studies which show that these verbs have developed from originally lexical (in many cases nominal) predicates.

As I will show in the next two chapters, the assumption that *behar* can occur both as a functional element and as a lexical predicate is crucial for a better understanding of the syntax-semantics mapping of the constructions involving modal *behar*. In these chapters, I provide a more detailed description of the underlying syntax and the thematic properties of the Basque modal constructions involving *behar*, and I show that there are significant syntactic and semantic differences between the constructions in which *behar* occurs as a functional modal and those in which *behar* occurs as a clearly lexical predicate.

4. Syntactic asymmetries in the modal constructions with *behar*

4.1. INTRODUCTION

As shown in the previous chapter, the Basque necessity modal *behar*, like *need*-type modals in other languages (e.g. English, German, Norwegian, Spanish) and unlike the modals which show a more functional-like behaviour (e.g. English *must*), can take different types of complements. It can take *-TU* infinitival complements¹¹⁷ (the type of complements also selected by other modals in Basque); nominalized *-TZE*A complements, inflected complements and DP complements.

Crucially, not in all these cases can the necessity modal be used to express different modal meanings (i.e. epistemic modality, directed and non-directed deontic modality, and dispositional modality). Polyfunctionality (which, recall, is how scholars refer to the ability of certain modals to express no less than two types of modality; Haan & Hansen 2009: 3) only arises when *behar* combines with *-TU* complements, as illustrated in (1). Otherwise, when *behar* takes DP complements, inflected complements or *-TZE*A complements, *behar* can only give rise to a dynamic necessity interpretation, as shown (2)^{118 119}.

(1) Modal readings of *behar* with *-TU* complements

- a. Diruak hor egon behar du, nonbait. Epistemic
 money.sE there be need HAVE.3sE apparently
 ‘The money must be there, apparently.’

¹¹⁷ Recall from Chapter 3, that I am assuming, together with Haddican (2007) and Haddican and Tsoulas (2012) that *-tu* is an infinitival head of nominal category, rather than an aspectual affix.

¹¹⁸ The fact that, when combined with other complements, *behar* can only express dispositional or dynamic readings is common to all *need*-type predicates, not only Basque.

¹¹⁹ As shown in the examples, Basque necessity modal *behar* can express at least the same range of readings Barbiers (1995) identifies for Dutch modals. The modal sentence in (1a) expresses an epistemic judgment (a probability interpretation, in Barbier’s classification). In turn, (1b) and (1c), both express an obligation or requirement. In contrast to (1c), in (1b), the requirement is not directed to the subject of the sentence; rather, it is the situation expressed by the entire proposition which is required. Hence (1b) conveys a non-directed deontic interpretation, whereas (1c) can be used to express directed-deontic modality (as reflected in the paraphrases provided). Finally, (1d) expresses a need felt by/internal to the subject; therefore, it should be considered an instance of dispositional/dynamic modality.

- b. Biharko diruak nire mahai gainean egon behar du. Non-directed deontic
 Tomorrow-by money.sE table on-the be need HAVE.3sE
 ‘It is required that the money be on my table by tomorrow.’
- c. Jonek berandu arte lan egin behar du. Directed-deontic
 John.sE late until work do need HAVE.3sE
 ‘John is required to work until late.’
- d. Non dago komuna? Txiza egin behar dut.
 Dynamic/dispositional
 Where is toilet.3sA pee do need HAVE.1sE
 ‘Where is the toilet? I need to pee.’

(2) Interpretation of *behar* (DP, -TZE and inflected complements)

- a. Jonek [auto berria] behar du. Dynamic/dispositional
 Jon.E car new.sA need HAVE.3sA.3sE
 ‘John needs a new car’
- b. Jonek [Miren etor-tzea] behar du. Dynamic/dispositional
 Jon.E Miren.A come-TZE need HAVE.3sA.3sE
 ‘John needs for Miren to come.’
- c. Jonek [Miren etor dadin] behar du. Dynamic/dispositional
 Jon.E Miren.A come BE.3sA.subj need HAVE.3sA.3sE
 ‘John needs that Miren come.’

Since the central goals of this dissertation is to show how the syntax-semantics mapping of modal constructions operates, I will concentrate on the constructions where *behar* takes –*TU* complements.

One of the main properties of the constructions where this modal predicate takes –*TU* complements is that they also present syntactic variability. More specifically, the structures where *behar* takes –*TU* complements come in three different guises, to which I will here refer to as Type I, Type II and Type III. The different configurations will be shown in this and in subsequent chapters to differ with respect to the functional/lexical

status of the modal, their syntactic complexity and their thematic and scope properties. So the syntactic variability of these structures proves an extraordinary opportunity to factor out the structural elements that enter into the determination of modal meanings.

This chapter will be devoted to provide a preliminary basic description of those three structures, and show that they differ in three accounts: (i) the word order between the modal and the *-TU* complement (ii) the auxiliary selection and case pattern they exhibit; and (iii) the asymmetries they manifest with respect to the possibility that the matrix auxiliary agrees with the arguments of the embedded *-TU* complement. This basic description, where I lay the basic properties of the three constructions that will be developed in detail during the next chapters, will thus help the reader in the forthcoming discussion.

The chapter is structured as follows: Section 4.2 introduces the syntactic variability of the modal constructions involving *behar* and *-TU* complements, namely: (i) the word order between *behar* and the *-TU* complement, (ii) the auxiliary selection and case patterns they exhibit, and (iii) the asymmetries regarding the possibility of agreement between the matrix verb and the arguments of the embedded complement. In Section 4.3., I argue that these asymmetries reflect the existence of different underlying constructions involving *behar* and *-TU* complements, and I propose a tentative three-type classification of the constructions under analysis, based on the distribution of the properties analysed: Type I/Functional restructuring, Type II/Lexical restructuring and Type III/Lexical non-restructuring constructions.

4.2. THE SYNTACTIC ASYMMETRIES OF THE MODAL CONSTRUCTIONS INVOLVING *BEHAR* AND *-TU* COMPLEMENTS

In this section I will describe the word order alternation exhibited by the constructions involving *behar* and uninflected *-TU* complements in the varieties surrounding the French border, and the asymmetries this word order alternation introduces in relation with the case and auxiliary selection pattern and the agreement properties they exhibit in each word order configuration.

As mentioned before, I follow Haddican (2007) and Haddican & Tsoulas (2012) (see also Berro 2015) in assuming that the *-TU* suffixes these complements are headed by are infinitive heads rather than participial suffixes (Laka 1990, Ortiz de Urbina 1989, Zabala and Odriozola 1996). Let us briefly present the main arguments for considering them infinitival heads.

On the one hand, these suffixes do not always convey a perfective aspectual interpretation; one of the contexts in which the perfective interpretation is absent is precisely when they are embedded by a modal. Note the contrast between (3) and (4).

(3) Perfective interpretations of *-TU* complements

- a. Peru-k abes-tu du.
Peru-E sing-tu HAVE.3sE
'Peruk has sung.'
- b. Amaia-k auto berria eros-i du.
Amaia-E car new.sA buy-i HAVE.3sE
'Amaia has bought a new car.'

(4) *-TU* complements of modals: non-perfective

- a. Jon-ek abes-tu behar du.
Jon-E sing-tu need HAVE.3sE
'John needs to/must sing.'
- b. Amaia-k auto berria erosi behar du.
Amaia-E car new.sA buy-i need HAVE.3sE
'Amaia needs to/must buy a new car.'

As argued by Haddican (2007) and Haddican & Tsoulas (2012), the fact that (4a-b) necessarily give rise to a perfective interpretation is not due to the perfective nature of the *-TU* suffix, it is rather due to the fact that the complex formed by the verb+*-TU* has raised to a null perfective head. We find independent evidence for the existence of this perfective head in some Central dialects where it is overtly realized¹²⁰.

(5) Overtly realized perfective head (Oiartzun Basque)

Ez nuen arazorik iza-n-du.

NEG AUX problem have-N-TU

‘I didn’t have problems (Haddican & Tsoulas 2012)

In addition to this, the suffix *-TU* can be selected by determiners (6ab) and adpositions (e.g. the genitive postposition *-ko* and the postposition *gabe* ‘without’) (6c-d), which typically select nominal categories in Basque. This is taken to indicate that the constituents headed by this suffix are noun-like constituents; that is why it is argued that *-TU* suffixes are infinitival heads of nominal category (Haddican & Tsoulas 2012).

(6) *-TU* complements of modals: non-perfective

a. Jon-ek abes-tu behar du.

Jon-E sing-tu need HAVE.3sE

‘John needs to/must sing.’

b. Amaia-k auto berria erosi behar du.

Amaia-E car new.sA buy-i need HAVE.3sE

‘Amaia needs to/must buy a new car.

¹²⁰ Haddican (2007) and Haddican and Tsoulas (2012) further argue that in verb focus constructions involving the dummy verb *egin* ‘do’, the focalized main verb can co-occur with the suffixes *-tu/-i/-n/-Ø* whereas the dummy verb *egin* bears aspectual morphology (such as the imperfective the imperfective affix *-t(z)en* and future *-ko*).

(xxxvi) Erori egi-n da etxea.
fall-I do-N BE-3sA house.A

‘Lit.It is to fall that the house has done.’ (Haddican and Tsoulas 2012)

(7) *-tu/-i/-n/-Ø + Det./-ko/ gabe.*

- a. Bezeroak etorr-i-a-k dira
 guest.ABS come-TU-Det-pl BE.3sA
 ‘The guests are come’
- b. Begira-tu bat
 look.at-TU Det
 ‘a look’
- c. Ametsek bihar dantza-tu-ko du.
 Amets-E tomorrow dance-TU-GEN HAVE.3sA
 ‘Amets will dance tomorrow.’
- d. Ezer esa-n gabe, ikus-i gabe
 nothing say-n without, see -i without
 ‘without saying anything’, ‘without seeing anything’
 (Berro 2015: 220-224)

Therefore, having made clear the reasons for considering these suffixes infinitival markers rather than aspectual suffixes, I will henceforth refer to the uninflected complements headed by *-TU* as *infinitival* complements.

Let us now proceed to describe the aforementioned word order alternation exhibited by these constructions in some varieties of Basque spoken in the surroundings of the French boarder.

4.2.1. Word order alternations in infinitival constructions with *behar*

Basque, which displays a SOV surface word order, manifests evident cross-dialectal variation in the possible word orders between *behar* and the infinitival complement it combines with.

All the varieties admit the constructions where the infinitive is placed to the left; but, as mentioned in the introduction, at least in some varieties close to the French boarder, the alternative word order where the infinitival complement surfaces to the

right of *behar* is also naturally accepted, as illustrated in the set of examples in (7a-c) from Etxepare and Uribe-Etxebarria (2009) (adapted from Montoya 2004¹²¹). For notational convenience, I will henceforth refer to the constructions where the infinitive headed by *-TU* precedes the modal as *inf>behar* constructions, and to the constructions where the infinitive headed by *-TU* follows the modal as *behar>inf* constructions.^{122 123}

(8) Word order alternations in infinitival constructions with *behar*

¹²¹ The examples provided by Montoya (2004) correspond explicitly to the varieties spoken in Zugarramurdi and Urdazubi.

¹²² Interestingly, in addition to *behar*, *nahi* ‘want’ too can occur in two word orders when it combines with an infinitival complement headed by *-TU*:

- | | |
|--|--|
| <p>(xxxvii) Angelesa perfekzionatu nai zuen.
 English improve want HAVE</p> | <p><i>inf > nahi</i> word order</p> |
| <p>(xxxviii) Nai zuen perfekzionatu angelesa
 want HAVE improve English
 ‘(S)he wanted to improve his(/her) English.’
 (Montoya 2004)</p> | <p><i>nahi > inf</i> word order</p> |

¹²³ The attentive reader may have noted the resemblance of the cases where the infinitive surfaces to the right of the modal (*behar>inf*) as in (8b) with the phenomenon of extraposition that takes place in Germanic languages (Chapter 3), for which, as in Basque, an SOV order is also assumed. Let us bring the German examples again.

- (xxxix) Clara braucht den Film nicht (zu) sehen
 i. Clara needs the film not (to) see
 ii. ‘Clara does not need to/need not see the film.’
- (xl) Dass Hans versprach den Kuchen zu essen
 that Hans promised the cake to eat

Recall from Chapter 3 that in languages like German, the extraposition of the infinitival complement is prohibited with the modals that typically exhibit functional behaviour (ie. modals like *müssen* ‘must’). This has led Wurmbrand (1998, 2001) to conclude that this type of operation is only available with lexical verbs. With respect to Basque, Etxepare & Haddican (2013) propose a different explanation: they assume that the word order alternation (*inf>behar/behar>inf*) exhibited by the modal constructions at stake are rather related with focus considerations and/or the syntactic complexity of the infinitival complements in question (see also Etxepare & Uribe-Etxebarria 2009). More specifically, Etxepare & Haddican argue that some *inf>behar* cases occur as a repair strategy of a Final over Final Constraint violation (see Chapter 6, section 6.3.6.2.). For time and space limitations, I will not explore this question in full detail here; the interested reader is referred to the works cited for a more detailed account.

- a. Eta jendeak nonbait egon bear du *inf>behar*
 And people-E somewhere be need HAVE-3sE
 ‘And the people must/need to be somewhere.’
- b. Muntra oi bear nauzu jautsi *behar>inf*
 Watch that need HAVE.1sA.2sE bring-down
 ‘You must/need to bring me that watch.’
- c. Bear-ko’uzu dibu[x]atu, bertzenaz naastu-ko zaa doike!
 Need-fut-HAVE.2sE draw otherwise mix-fut BE.2sA without-doubt
 ‘You will have to draw it, otherwise you will get confused without doubt!’
 (Montoya 2004: 217-8)

What is interesting about these varieties is that the two word order configurations (*inf>behar/behar>inf*) correlate with some asymmetries regarding (i) case assignment and auxiliary selection and (ii) the possibility of agreement with the arguments of the infinitival predicate.¹²⁴

Let us first consider the asymmetric behaviour of *behar* infinitival constructions with respect to case assignment and auxiliary selection.

4.2.2. Asymmetries regarding case assignment and auxiliary selection

As explained in the previous chapter, in (Standard) Basque, unaccusative predicates take auxiliary *izan* (BE) and absolutive subjects, whereas transitive and unergative predicates take auxiliary **edun/ukan* (HAVE) and ergative subjects. For convenience, let us once more illustrate this with the examples provided there.

¹²⁴ As reported to me by some speakers, the *behar>inf* word order is also possible in other dialects of Basque; however, as far as I could determine, the *behar>inf* constructions attested in these other varieties do not exhibit exactly the same properties as the varieties I will focus on (the reader is referred to the remarks made in the footnotes for the details).

(9) (= X, Ch 3) Case assignment and auxiliary selection of *unaccusative* predicates

Jon- Ø etorri da
 Jon-**A** come_{UNACC} BE.3sA
 ‘Jon has come.’

(10) (= X, Ch 3) Case assignment and auxiliary selection of *transitive and unergative* predicates

Guraso-ek auto berria erosi dute.
 Parents-**E** car new-**A** buy_{TR} HAVE.Ø(3sA).3pE
 ‘The parents have bought a new car.’

The Case assignment and auxiliary selection pattern exhibited by the modal constructions involving *behar* ‘need’ and an infinitival complement is however somewhat intricate, as I will show next.

4.2.2.1. Auxiliary selection and Case assignment in *inf>behar* constructions

To begin with, the constructions where the infinitive precedes the necessity modal *behar* (*inf>behar*) *can*, but *need not*, exhibit transparency to the Case assignment and auxiliary selection properties of the embedded uninflected verb.

Thus, when the infinitival complement headed by *-TU* precedes *behar* (*inf>behar*) and the embedded infinitive verb is an unaccusative predicate, the auxiliary selected can be either *izan* (BE) or **edun* (HAVE). As illustrated in (10a-b), the case assigned to the subject in the former case is absolutive (Jon-Ø), whereas in the latter case, the subject bears ergative case (Jon-ek). This variability is in fact common to most varieties of Basque.¹²⁵

¹²⁵ It appears to be difficult to circumscribe the use of the two construction (the one where the case of the subject and auxiliary are determined by an unaccusative infinitive verb (to which Mounole refers to as the intransitive construction), on the one hand, and the one where the auxiliary is invariably HAVE despite the presence of an unaccusative infinitive (to which Mounole refers as the transitive construction), on the other) to one particular geographical area. In her study about the alignment variations in the diachrony of the Basque, Mounole (2010) affirms that the use of the intransitive construction was already systematic in the Low- Navarrese texts of the 19th century, and is also found in the same century in some Biscayan

(11) *inf*_{UNACC}+*behar*: variability in auxiliary selection (BE/HAVE) and case assigned to the subject (absolutive (A) / ergative (E))

- a. Jon etorri behar da.
Jon-A come_{UNACC} behar BE-3sA
- b. Jon-ek etorri behar du
Jon-E come_{UNACC} behar HAVE-3sE
'Jon needs to/must/has to come'

Recall from Chapter 3 that, when *behar* is not present, the unaccusative verb *etorri* ('come') must necessarily occur with auxiliary *izan* (BE) and an absolutive case-marked subject (11). The auxiliary **edun/ukan* (HAVE) and ergative subjects are absolutely ungrammatical in Basque in this context (cf. (8)-(9) above); therefore, the presence of the transitive auxiliary in this context must be attributed to the presence of *behar*.

- (12) * (Ni-k) etorri dut
I-E come_{UNACC} AUX-TR(HAVE)-3sA
'I have come.'

Following the assumption made in Chapter 3 that auxiliary switch¹²⁶ is the reflection of the functional status of the modal, the contrast exhibited by the *inf*>*behar*

tests (i.e. Zavala 1848); in turn, it is at this moment that it starts to spread among Guipuscoan, Souletin and High Navarrese writers. She adds that the different cross-dialectal works draw different conclusions too: the *General Basque Dictionary* (Euskaltzaindia 1987-2005) states that the use of the intransitive construction is more frequent in Eastern and Central varieties (Low-Navarrese, Labourdin and Gipuscoan); by contrast, the cross-dialectal survey *Erizkizunde Irukoitza* ((Azkue 1921, Etxaide 1984) concludes that the intransitive construction brings together the Low-Navarrese, High-Navarrese and Biscayan varieties, whereas the Labourdin, Gipuscoan and Souletin varieties show a preference for the transitive.

¹²⁶ As explained in Chapter 3, I will take the transparency of auxiliary selection exhibited by Basque constructions and the auxiliary switch phenomenon of Italian described by Rizzi (1978, 1982) and Cardinaletti & Shlonski (2004) (see Chapter 3) to be the same type of phenomenon. In the two cases the constructions exhibiting it are simple sentences with a functional verb (the modal) and a unique lexical verb (the uninflected verb); hence, auxiliary switch is seen as a consequence of the grammaticalization of the modal which has evolved from being an originally lexical predicate to become a functional head. In both Italian and Basque, auxiliary switch takes place not only with modals but also with other

configurations in (11a-b) with respect to auxiliary selection and Case assignment must be taken to indicate the different functional/lexical status of the necessity modal *behar* in each case: in (11a) this modal behaves as a functional head, being the uninflected verb the one acting as the main predicate for purposes of Case assignment and auxiliary selection¹²⁷; whereas in (11b) it behaves as a lexical verb, in that it is able to license ergative case and the presence of a transitive auxiliary.

4.2.2.2. Auxiliary selection and Case assignment in *behar*>*inf* constructions

Crucially, in contrast with *inf*>*behar* constructions, the *behar*>*inf* constructions attested in the relevant varieties invariably show the auxiliary HAVE, regardless of the

restructuring verbs, such as aspectual verbs. The next examples illustrate auxiliary switch with aspectual verbs in Italian (xli) and Basque (xlii):

(xli) Auxiliary switch with Italian *continuare* ‘continue’ (Rizzi 1982: 19)

- a. La pioggia è aumentata.
‘The rain ‘is’ increased’
- b. La pioggia è continuata/ha continuato ad aumentare.
the rain is continued.fem/has continued to increase
‘The rain has continued to increase.’
- c. La pioggia ha danneggiato i vigneti.
‘The rain has damaged the vines’
- d. The pioggia ha continuato/è continuata a danneggiare i vigneti.
‘The rain has continued to damage the vines.’

Note that *continuare* basically takes *avere* ‘have’, but can optionally take *essere* ‘be’ in restructuring construction involving an embedded unaccusative verb.

(xlii) ‘Auxiliary switch’ with Basque *ari+izan* (progressive) (Mounole 2010)

- a. Zorionaren bizitasunak ithotzen ari nau (Laphitz 1867)
Happiness-gen liveliness kill-imperf ari HAVE.1sA.3sE
‘The liveliness of happiness is killing me.’
- b. Ongarriak hedatzen ari zituzten sorho guzietan, beltz beltza, Fertilizer-pA
spread_{imperf} ari HAVE.3pA field all-in black-black
dena khe, dena lanho, lasto mutzitu batzuz ihaurriak (Barbier 1926)
all smoke all cloud straw mouldy some-with scattered
‘They were spreading fertilizer through all the fields, deep black, all smoke, all cloudy, scattered with some mouldy straws.’

¹²⁷ Note that what I am assuming is that in the cases where the modal is functional, the auxiliary (and the case the subject is assigned) are determined by the infinitive verb, which is the main verb of the construction. This means that when the infinitive verb is not unaccusative, it is impossible to determine whether the presence of auxiliary HAVE is determined by the infinitive verb (transitive or unergative), and the modal is a functional head, or whether HAVE is determined by the lexical modal verb. In this dissertation, the examples I will use to illustrate the functional constructions will always involve an unaccusative verb, to avoid ambiguity.

presence of an unaccusative uninflected verb in the complement (12). In this context, the case exhibited by the subject of the construction is ergative (morphologically realized as the suffix *-(e)k* on the subject).¹²⁸

(13) *behar*>*inf*_{unaccusative}: auxiliary **edun* (HAVE) obligatory

- a. Ume-ek behar dute (*dira) ikastola-ra joan.
 children-pE need HAVE.3pE (*BE.3spA) school -to go_{UNACC}
 ‘The children need to/must go to school.’
- b. Jon-ek behar du (*da) parke-ra joan.
 Jon-E need HAVE.3pE (*BE.3spA) park-to go_{UNACC}
 ‘Jon needs to/must go to the park.’

Hence, in the construction in (13) the modal *behar* acts as the main lexical predicate for purposes of auxiliary selection and case assignment, bringing the presence of auxiliary HAVE instead of BE.

Let us sum up the behaviour of *inf*>*behar* and *behar*>*inf* constructions in the dialects under examination:

- (i) When the infinitival complement precedes *behar* (*inf*>*behar*), the construction *can*, but *need not*, surface with auxiliary BE licensed by the presence of an

¹²⁸ The *inf*>*behar* constructions attested in Western and other Central varieties is in fact the same as the one exhibited by the *behar*>*inf* constructions of the varieties under examination: the auxiliary selected is HAVE and the case assigned to the subject is ergative. However, in Eastern varieties, *behar* + *inf* constructions may also occur with the auxiliary *izan* (BE) licensed by an unaccusative embedded infinitival verb; that is to say, in Eastern varieties *behar*>*inf* and *inf*>*behar* constructions behave on a par with respect to the case and auxiliary selection pattern they can license. Consider the following examples:

- (xliii) Zergatik beraz Eskribek erraiten dute ezen Elias behar dela lehen ethorri?
 Why then scribes-the.3pE say-imperf HAVE.3pE that Elias need BE.3sA before come
 ‘Why then do the scribes say that Elias is to come earlier?’
 (Leizarraga 1571)
- (xliv) Agertzen diren behar berriei behar gira plantatu.
 show-up BE.3pA-rel need new.pD need BE.1pA stand-up
 ‘We need to stand up for the new needs that show up.’
 (Contemporary Reference Prose; Sarasola et al 2011).

unaccusative verb in the complement; when this occurs, the subject shows up with absolutive case.

- (ii) When the infinitival complement follows *behar* (*behar>inf*), auxiliary HAVE is required, and the subject necessarily surfaces with ergative case.

In consistence with the assumption that the presence/absence of the auxiliary switch phenomenon reflects the functional vs. lexical nature of the modal, it can be argued that what these case and auxiliary selection asymmetries reflect is the dual nature of *behar* as a functional and a lexical modal: in the *inf>behar* word order, it acts either as a functional head or as a lexical predicate; in *behar>inf* word, it always behaves as a lexical predicate.

4.2.3. Agreement with the arguments of the embedded non-finite complement

In the previous section I have shown that in the varieties we are focusing on the two available word order configurations for infinitival constructions with *behar* contrast with respect to their case assignment and auxiliary selection properties. In this section I will show that this is not the only property distinguishing them. The two word order configurations also correlate with other asymmetries in the possibility exhibited by the matrix auxiliary to agree with the arguments of the embedded uninflected predicate in each type of structure.

4.2.3.1. Matrix agreement in *inf>behar* structures

In the following set of examples where the modal precedes the complement, we observe that when the embedded verb selects for an absolutive complement, the matrix auxiliary is required to agree with it; hence, agreement with the absolutive argument is not only available, but obligatory.

(14) *Agreement with the direct object: obligatory*

- a. (Ni-k) patata-k erosi behar ditut (/ *dut¹²⁹)
 1s-E potato-pA buy need HAVE.3pA.1sE (HAVE.1sE)
 ‘I must/need to buy potatoes.’
- b. (Zu-k) liburuak irakurri behar dituzu (/ *duzu)
 2s.E book.pA read need HAVE.3pA.2sE (HAVE.2sE)
 ‘You must/need to read the books’
- c. (Nik) (zu) ondo zaindu behar zaitut (/ *dut)
 1sE 2sA well care for need HAVE.2sA.1sE (HAVE.1sE)
 ‘I must/need to take good care of you’
- d. Gurasoek (ni) Gazteizeraingo eraman behar naute. (/ *dute)
 Parents-E (1sA) Gasteiz-to take need HAVE.1sA.3pE (HAVE.3sE)
 ‘My parents must/need to take me to Gasteiz.’

In addition, in this word order, agreement is obligatory not only with the embedded absolutive argument, but also with embedded dative arguments¹³⁰:

¹²⁹ Note that if the auxiliary fails to agree with the complement (d-~~it~~-u-t ‘HAVE.3pA.1sE), the sentence is ungrammatical.

¹³⁰ This agreement pattern is again common to all Western and Central varieties; however, Eastern varieties show a different behaviour: agreement with the dative argument is not obligatory, but optional. Optional dative agreement in Eastern varieties:

- (xlv) Peiori mintzatu behar niz.
 Peio.3sD talk need BE1sA
 ‘I need to/must talk to Peio.’ (Norantz database; Iker 2009)
- (xlvii) Handik hara ez zen eri hari deusik erran behar apezan kontra.
 there-from there-to not BE.3sA sick-person that.3sD nothing say need priest against
 ‘You were not to say anything against priests to him.’ (Sarasola et al. 2011)

This is not surprising, given that in these varieties agreement of the auxiliary with the dative argument is optional in monoclausal constructions lacking modals too, as shown next (for further detail see Etxepare 2014, Ormazabal & Romero 2013, Odria 2017, among others).

- (xlviii) Liburu bat eman dut/dakot gizon horri (E/*C)[E=Eastern ; C=Central]
 Book one-3sA give (HAVE.1sE/HAVE.3sD.1sE) man that-3sD
 ‘I gave a book to that man’ (Etxepare 2014)

(15) *Agreement with the indirect object: obligatory*

- a. (Ni-k) Ama-ri opari politak erosi behar
 1sE mother-3sD gift nice-3pA buy need
 dizkiot (*dut)
 HAVE.3pA.3sD1sE (*HAVE.1sE)
 ‘I must/need to buy my mum nice gifts.’
- b. (Zu-k) Gurasoei kasu egin behar diezu (*duzu)
 2sE parents.3pD attention do need HAVE.3pD2sE (*HAVE. 2sE)
 ‘You must/need to pay attention to your parents.’
- c. (Gu-k) (zu-ri) bi kontu aipatu behar dizkizugu (*dugu)
 1pE 3sD two things mention need HAVE.3pA.2sD1pE (*HAVE. 2sE)
 ‘I must/need to tell you a couple of things.’
- d. (Zuek) (ni-ri) giltz-ak itzuli behar dizkidazue (*duzue)
 2pE 1s-D key.3pA return need HAVE.3pA.1sD2pE (*HAVE. 2pE)
 ‘You must /need to give me back the keys.’

4.2.3.2. Matrix agreement in *behar>inf* structures

Interestingly, in the border region varieties we are focusing on where the *behar>inf* word-order is naturally allowed, we again find a significant contrast between the two word order configurations (*inf>behar* vs *behar>inf*) with regards to the possible agreement features that can be realized on the matrix auxiliary. As observed by Etxepare & Uribe-Etxebarria (2009, 2010a-b), whereas in *inf>behar* constructions it is always required that the auxiliary agree with the all the arguments of the embedded uninflected verb, in *behar>inf* constructions agreement with the 3rd person absolutive and dative arguments is only optional¹³¹.

¹³¹ As far as I could attest, other varieties of Basque show a different behavior from the varieties under examination. To start with, some speakers of Central and Western varieties pointed out to me that they do not like as much the *behar>inf* constructions exhibiting agreement with the embedded absolutive and dative arguments. They prefer (xlvi) to (xlix):

(xlvi) Behar dut Jon eta Miren zaindu.
 need HAVE.1sE J.A and M.A look-after
 ‘I need to take care of Jon and Miren.’

The following set of examples illustrates the optionality of 3rd person¹³² absolutive agreement marking on the matrix auxiliary when the uninflected infinitival complement follows predicate *behar* ‘need’:

(16) Agreement with 3rd person absolutive DPs: optional

- a. Behar dituzu lanak bukatu.
 need HAVE.3pA.2sE work-3pA finish
 ‘You must/need to finish your assignments.’
 (→ agreement with 3rd pl. abs.)

(xlix) ??Behar ditut Jon eta Miren zaindu.
 need HAVE.3sA1sE J.A and M.A look-after
 ‘I need to take care of Jon and Miren.’

(The examples were provided by Pablo Albizu (p.c.))

I will leave for future research a more thorough cross-dialectal analysis of the word order and agreement variability exhibited by the modal constructions involving *behar* and infinitive complements.

¹³² It must be noted that there is a significant contrast with respect to the behaviour exhibited by *behar>inf* constructions when agreement is with 3rd person arguments vs. 1st/2nd personal arguments. Consider for instance the following *behar>inf* constructions:

- (l) * (Ni-k) behar dut [(zu) etxe-ra eraman]
 I-E need HAVE.2sA.1sE you-A home-to take
 ‘I need/must take you home’
 (li) * Zuk behar duzu [(gu) etxera eraman.]
 You.E need HAVE.2sA.1sE us-A home-to take
 ‘You need/must take us home’
 (lii) ?? Lagun-ek behar dute [(guri) lagundu]
 Friends-E need HAVE.1pD.3pE (1pD) help
 ‘Our friends need to/must help us.’
 (liii) ?? (Ni-k) behar dut [zu-ri liburua eman]
 (1sE) need HAVE.2sD.1sE (you-D) book.A give
 ‘I need to/must give you the book.’

The sentences in (xlviii-li) fail to agree with 1st/2nd personal pronouns, and they are judged ungrammatical or manifestly degraded as compared to those where the auxiliary agrees with the 1st/2nd pronouns.

As argued by Etxepare and Uribe-Etxebarria (2010b), the asymmetries between 3rd person and 1st/2nd person agreement can be easily accounted for under the assumption that 3rd person agreement is number agreement rather than person agreement, and is thus subject to different licensing conditions (see also Etxepare 2006, 2009; Preminger 2009). I will go back to this question in Chapter 5, where I show that *behar>inf* constructions can in fact correlate with different underlying structures (vPs, TP_s or CP_s) and exhibit different (number/agreement) properties.

- b. Behar dut liburu horiek ahalik eta lasterren irakurri
 need HAVE.3pA.1sE book that-3pA as-soon-as-possible read
 ‘I must/need to read those books as soon as possible’
 (→ no agreement with 3rd pl. abs)

As shown in the above examples (15a-b), the matrix auxiliary can surface with or without 3rd person plural agreement and the sentence is grammatical in either case.

The same is true with regard to 3rd person dative agreement: the matrix auxiliary can, but need not agree with a 3rd person dative argument of the uninflected verb in the complement of *behar* ‘need’, as illustrated in the following examples by (Etxepare & Uribe-Etxebarria, 2010b)¹³³

(17) Agreement with the embedded 3rd person dative DP: optional

- a. (Ni-k) behar dizkiot (/dut) ama-ri opari politak erosi
 1sE need HAVE.3pA.3sD.1sE/HAVE.1sE mother-3sD gift nice-3pA buy
 ‘I must/need to buy mum nice gifts’
- b. (Zu-k) behar diezu (/duzu) gurasoei kasu egin
 2sE need HAVE.3pD.2sE /HAVE. 2sE parents.3pD attention do
 ‘You must/need to pay attention to your parents.’

That is, in (17a), the sentence is well formed even if the auxiliary does not show agreement with the 3rd person embedded dative argument *zure gurasoei* ‘your parents-dative’; thus, although agreement is possible, it is not obligatory.

Let us sum up the agreement possibilities exhibited by the auxiliary in the *inf>behar* and *behar>inf* constructions attested in the boarder region:

¹³³ As in the pointed out in fn. 16, 3rd person/number and 1st/2nd person agreement do not behave the same way in the *behar>inf* structures: when the auxiliary fails to agree the 1st/2nd person dative arguments the sentences are clearly degraded. Compare (li-lii) with (17a-b).

- (liv) (Zu-k) behar didazu (??duzu) (ni-ri) kasu egin.
 2sE need HAVE.1sD.2sE (*HAVE.2sE) 1sD attention do
 ‘You mus/need to pay me more attention.’
- (lv) (Guk) behar dizkizuegu (??dugu) (zuei) giltz-ak itzuli
 2pE need HAVE.3pA.2sD.2sE (*HAVE.2sE) 2pD key.3pA return
 ‘We must /need to give you back the keys.’

- When the non-finite complement precedes *behar* (*inf*>*behar*), the matrix auxiliary must necessarily agree with the absolutive and dative arguments of the non-finite complement (13-14).
- When the non-finite complement follows *behar* (*behar*>*inf*), agreement with the third person absolutive and dative arguments is optional (16-17)

4.3. UNDERLYING STRUCTURE OF THE INFINITIVAL CONSTRUCTION WITH *BEHAR*

Throughout this chapter, I have examined a series of asymmetries exhibited by the constructions involving the modal predicate *behar* and an infinitival complement in the varieties of Basque spoken in the regions closer to the French border. These asymmetries appear to be related with the word order in which the infinitival complement surfaces relative to the modal: in the position preceding the modal (*inf>behar*) or in an extraposed position to the right of the modal (*behar>inf*).

I have shown that, at least in some particular varieties of Central Basque in which the *behar>inf* word-order is naturally allowed, the two word orders exhibit a series of asymmetries with regards to case assignment, auxiliary selection and the possibility that the matrix auxiliary agrees with the arguments of the embedded uninflected verb. The following table summarizes these asymmetries:

Table 6 Asymmetries introduced by the inf>behar vs. behar>inf word alternation

Word-order	<i>inf>behar</i>	<i>behar>inf</i>
Auxiliary selection and Case properties of the matrix subject	Optional auxiliary switch with unaccusative predicates Auxiliary BE/HAVE ABS/ERG subject	No auxiliary switch with unaccusative predicates: Auxiliary BE /HAVE ERG subject
Agreement with embedded arguments	Obligatory agreement with absolutive and dative arguments	Optional number agreement with (3rd person) ¹³⁴ absolutive and dative arguments

¹³⁴ See previous footnote.

The proposal I will put forward in the following chapters is that the asymmetries exhibited by the two word orders summarized in *Table I* must not be taken to be mere instances of word order variation and/or optionality; rather, they are a reflection of the existence of a range of different underlying constructions, involving different types and degrees of restructuring (as argued in previous work by E&UE (2009, 2010) and Balza (2012)).

In particular, I propose the existence of three tentative constructions in which the necessity modal *behar* and its infinitival complement can occur in:

The first type of construction, let's name it **Type I**, correlates with **functional restructuring** (Cinque 2000, 2004, 2006; Cardinaletti & Shlonsky 2004; Wurmbrand 1998, 2001, 2004): these constructions are transparent to the case assignment and auxiliary selection properties of the embedded infinitive verb, which acts as the main lexical predicate of the construction (when the infinitive is unaccusative, the auxiliary of the modal construction will be *izan* 'BE' and the case assigned to the subject absolutive; in turn, when the infinitive is transitive or unergative, the auxiliary will be **edun* 'HAVE' and the case of the subject ergative). This construction also exhibits full transparency to agreement with the arguments of the infinitival complement. Regarding word order, the infinitival complement tends to precede modal *behar* (*inf*>*behar*). This construction is common to all varieties of Basque (see fn° 13)). The example below repeated from (10a) serves as an illustration.

(18) *Type I constructions:*

Type of construction: *Functional restructuring*
 Auxiliary: BE/HAVE
 Case assigned to subject: ABS/ERG
 Agreement with embedded arguments: YES
 Word order: *inf*>*behar* (*except in Eastern varieties*)

Jon etorri behar da.
 Jon-A come_{UNACC} behar BE-3sA
 'Jon must come'

In the second construction, **Type II**, predicate *behar* combines with an uninflected (infinitival) complement located either to the left or the right of the modal

(*inf>behar/behar>inf*). Unlike in Type I constructions, the auxiliary selected is invariably **edun* (HAVE), and the case assigned to the subject is always ergative (regardless of the presence of an unaccusative predicate within the embedded complement). I take this to indicate that, unlike in Type I constructions, the modal is a lexical predicate with the ability to project the relevant functional layer for licensing ergative case and the presence of auxiliary HAVE. Regarding the possibility that the matrix auxiliary agrees with the embedded arguments, these constructions behave on a par with Type I, allowing matrix agreement with the absolutive and dative arguments of the complement. In view of these properties, I will classify this as **lexical restructuring** constructions (Wurmbrand 1998 *et seq*). This is for instance the case of (15a-d), (14a-d), (15a) and (16a-b) above, given again in (18) ¹³⁵.

(19) *Type II constructions:*

Type of construction: Lexical restructuring
 Auxiliary: HAVE
 Case assigned to subject: ERG
 Agreement with embedded arguments: YES
 Word order: *inf>behar; behar>inf*

Inf>behar :

- a. (Ni-k) patata-k erosi behar ditut
 1s-E potato-3pA buy need HAVE-3pA.1sE
 ‘I must/need to/have/to buy potatoes.’
- b. (Zu-k) liburuak irakurri behar dituzu
 2s.E book.pA read need HAVE-3pA.2sE
 ‘You must/need to/have/to read the books’
- c. (Nik) (zu) ondo zaindu behar zaitut
 1sE 2sA well care for need HAVE-2sA.1sE
 ‘I must take good care of you’

¹³⁵ It must be noted that the sentences in (19a-h) are in fact ambiguous between Type I functional restructuring and Type II lexical restructuring constructions. As mentioned before, it is impossible to determine if the case and auxiliary pattern of the construction is determined by *behar* or by the infinitive transitive verbs the modal takes as complement, as in the two cases, the auxiliary would be HAVE.

- d. Gurasoek (ni) Gazteizeraino eraman behar naute.
Parents-E (1sA) Gasteiz-to take need HAVE.1sA.3pE
'My parents must take me to Gasteiz.'
- e. (Ni-k) Ama-ri opari politak erosi behar dizkiot
1sE mother-3sD gift nice-3pA buy need HAVE.3pA.1sE.3sD
'I should buy a nice gift to my mum.'
- f. (Zu-k) Gurasoei kasu egin behar diezu
2s-E parents.3pD attention do need HAVE.2sE.3pD
'You should pay attention to your parents.'
- g. (Gu-k) (zu-ri) bi kontu aipatu behar dizkizugu
1pE [3sD] two things mention need HAVE.[3pA.2sD]1pE
'I must/need to tell you a couple of things.'
- h. (Zuek) (ni-ri) giltz-ak itzuli behar dizkidazue
2pE 1s-D key.[3pA] return need HAVE.[3pA.1sD]2pE
'You must /need to give me back the keys.'

Behar>inf

- i. Behar dituzu lanak bukatu.
need HAVE.3pA.2sE work-3pA finish
'You must/need to finish your assignments.'
- j. Behar ditut liburu horiek ahalik eta lasterren irakurri
need HAVE.3pA1sE book that-3pA as-soon-as-possible read
'I must/need to read those books as soon as possible'
- k. (Ni-k) behar dizkiot ama-ri opari politak erosi
1sE need HAVE.3pA.3sD.1sE mother-3sD gift nice-3pA buy 'I
must/need to buy a nice gift to my mum.'
- l. (Zu-k) behar diezu gurasoei kasu egin
2sE need HAVE.3pD.2sE parents.3pD attention do
'You must/need to pay attention to your parents.'
- m. (Zu-k) behar didazu (ni-ri) kasu egin.
2sE need HAVE.[1sD]2sE 1sD attention do
'You mus/need to pay me more attention.'

- n. (Guk) behar dizkizuegu (zuei) giltz-ak itzuli
 2pE need HAVE.3pA.2sD.2sE 2pD key.3pA return
 ‘We must /need to give you back the keys.’

Finally, the third type of construction, **Type III**, acts like Type II for purposes of auxiliary selection and case assignment: the auxiliary is always HAVE and the case on the subject ergative. Hence, it also involves a lexical modal. However, these constructions are characterized for not licensing agreement with the the embedded absolutive and dative arguments, and because they necessarily occur in the *behar>inf* word order. Given their opacity, I will take these to correlate with **lexical non-restructuring constructions**. Examples of Type III constructions are (19a-b) below (repeated from (15b) and (16a-b)).

(20) *Type III constructions:*

Type of construction: *Lexical non-restructuring*
 Auxiliary: HAVE
 Case on subj.: ERG
 Agreement with embedded args.: NO
 Word order: *behar>inf*

- a. Behar dut lanak bukatu.
 need HAVE.3pA.2sE work-3pA finish
 ‘You must/need to finish your assignments.’
- b. Behar dut liburu horiek ahalik eta lasterren irakurri
 need HAVE.3pA.1sE book that-3pA as-soon-as-possible read
 ‘I must/need to read those books as soon as possible’
- c. (Zu-k) behar duzu gurasoei kasu egin
 2sE need HAVE.3pD.2sE parents.3pD attention do
 ‘You must/need to pay attention to your parents.’
- d. (Ni-k) behar dut ama-ri opari politak erosi
 1sE need HAVE.3pA.3sD mother-3sD gift nice-3pA buy
 ‘I must/need to buy a nice gift to my mum.’

The distinct properties of this tentative three-type classification are summarized in the *Table 2* below.

Table 7 (=Table 2, Ch.1) Syntactic properties of Type I-III constructions

	Type I Functional restructuring	Type II Lexical restructuring	Type III Lexical non- restructuring
<i>Word order</i>	<i>Inf>behar</i>	<i>Inf>behar/Behar>inf</i>	<i>Behar>inf</i>
<i>Auxiliary/Case determined by uninflected verb</i>	✓	X	X
<i>Matrix agreement with embedded absolutive and dative arguments</i>	✓	✓	X

In the next chapter, I will examine in detail the behaviour of the three constructions with respect to a series of additional syntactic properties. The analysis will allow me to confirm that the constructions involving the necessity modal *behar* and an infinitival complement correlate with different underlying structures (i.e. they differ with respect of the size of the infinitival they take as complement).

5. Cartography of the modal constructions involving *behar* and an infinitival complement

5.1. INTRODUCTION

In the previous chapter I have proposed, following Etxepare and Uribe-Etxebarria (henceforth E&UE) (2009, 2010a-b) and Balza (2012) that the asymmetries exhibited by the modal constructions involving *behar* and an infinitival complement (summarized in *Table 6*) must be taken to reflect the existence of three different syntactic constructions: Type I Functional restructuring, Type II Lexical restructuring and Type III Non-restructuring (cf. *Table 7*).

In this chapter, I will examine in more detail the underlying syntax of the three types proposed in this classification. I will show that the infinitival structures the modal takes as complement differ with respect to the amount of (functional) structure they project above VP: sometimes they can only project up to vP (Type I and Type II), while other times they correlate with TPs (Type II) or even clausal structures containing at least a left peripheral PolP (Type III). In order to determine the structural complexity of each type, I will examine their interaction with syntactic phenomena sensitive to the amount of structure involved.

First, I will apply a test to determine if the infinitival complements of Type I and Type II restructuring constructions project a vP. The test involves the possibility of licensing low absolutive subjects (Rezac, Albizu & Etxepare 2014). These tests will allow me to argue in favor of Wurmbrand (2013; also Wurmbrand & Shimamura 2015) hypothesis that restructuring can also involve vP complements, providing further arguments against Wurmbrand's (1998, 2001) claim that restructuring always involves bare VP complements (i.e. complements lacking the relevant functional layer (vP) to license a structural case position for the internal argument)¹³⁶.

I will then run an additional battery of tests in order to establish whether there are other functional layers above the vP domain (such as Aspect, Tense, Negation and Focus) that are licensed within the infinitival complement of *behar*. The analysis of

¹³⁶ As will be discussed below, an additional theoretical conclusion is that Basque lacks the case-deficient Voice head assumed for voice-restructuring languages (Takahasi 2012, Wurmbrand 2013, Wurmbrand and Shimamura 2015).

negation, and in particular, its interaction with agreement phenomena will turn out to be particularly revealing. More specifically, it will allow us to show that in Basque, negation is not circumscribed to a single structural position; there exist (at least) a clause-external and a clause-internal position for negation. The conclusion we will reach is that the infinitival complements of *behar* differ with respect to whether or not they can project two positions associated with negation in the clausal spine, only one of them or none of them. The results of the analysis will also lead me to propose a refinement of the classification of the modal constructions proposed in the previous chapters (more specifically, it will lead me to conclude that Type II constructions can take infinitival complements of different sizes and should therefore be further subdivided). Finally, I will analyse how the three types of infinitival complements –functional restructuring, lexical restructuring and non-restructuring behave in relation with focalization.

Before we proceed, an observation is in order with respect to Type I and Type II restructuring constructions.

As argued in Chapter 4, Type I Functional restructuring constructions are characterized by their transparency to the case and auxiliary selection properties of the infinitive predicate. When the infinitive verb is unaccusative, they show up with the auxiliary *izan* ‘BE’ and an absolutive case-marked subject, and when the infinitive verb is transitive (or unergative) they do so with the auxiliary **edun* ‘HAVE’ and an ergative case marked subject. In the latter case, Type I constructions are undistinguishable from the Type II constructions where *behar* selects for a transitive (or unergative) predicate placed to its left. This is so because the result of combining a transitive (or unergative) predicate with a functional modal (as in the case of Type I constructions) is indistinguishable from what we find with Type II *inf>behar* constructions where a transitive (or unergative) infinitive verb is embedded by a lexical modal: in both cases we end up with a transitive auxiliary which exhibits agreement with the arguments of the infinitive complement. In view of this, whenever possible, I will restrict the analysis to the unambiguous Type I and Type II (*inf>behar*) constructions where *behar* takes an unaccusative predicate as its complement.

5.2. LOW ABSOLUTIVE SUBJECTS

A test that will allow us to determine the size of the infinitival complement – more specifically, the presence of a vP layer¹³⁷ in the complements of *behar* – is related to the licensing of low absolute subjects.

It has been observed that when *behar* combines with some unaccusative predicates, the construction can exceptionally show up with an absolute 3rd person non-referential subject¹³⁸ even if the auxiliary selected is HAVE (Goenaga 2006; Rezac, Albizu & Etxepare 2014), as illustrated in (1a) below.

(1) Absolute subjects of *behar*+HAVE (adapted from Rezac et al. 2014 : 1301, 1303)

- a. Mahai gainean pintxo onak egon behar d-u-te
 table on-the pintxo good-3_pA be need/must HAVE-3_pE
 Existential reading : ‘There must be good pintxos¹³⁹ on the table.’
- b. Pintxo onek egon behar dute hemen
 pintxo many.pE be need HAVE-3_pE here
 Definite reading: ‘The (aforementioned) pintxos must be here’

Note that the presence of an absolute subject in this context is particularly striking, since the auxiliary HAVE is assumed to always correlate with ergative case on

¹³⁷ I will henceforth use the term vP as a cover term for the domain comprising Voice P and vP (and possible additional) projections the traditional vP is assumed to split into (Alexiadou, Anagnostopoulou and Schäfer 2006, Ramchand 2008, Borer 2005, among others).

¹³⁸ These constructions are impossible with 1st/2nd person and definite DPs, because, as will be argued in this section, the absolute stays in a low position within the domain of existential closure, which correlates with the existential reading they display (see section 5.2.2.). This explains why definite DPs as well as 1st and 2nd pronouns are incompatible in this type of structures (Diesing & Jelinek 1995: 130-131), as shown below:

(lvi) *Ni egon behar dut.
 1sA be need HAVE.3sE
 ‘I need to/must be’
 (lvii) *Jon egon behar du.
 John.A be need HAVE.3sE
 ‘John must be’

¹³⁹ *Pintxo* is a portion of food served as a snack which is sometimes pierced with a toothpick.

the subject (Section 4.3.1 in Chapter 4). From that point of view, it can be said that this phenomenon is exceptional. This is why I will address this type of structure with some detail in this section, as it offers us a very good opportunity to analyse both the syntactic size of the non-inflected complement of *behar* as well as the intricacies of the case and agreement system of Basque

An important feature of this modal construction where an absolutive subject and auxiliary HAVE surface together is that the subject receives an existential interpretation reminiscent of the one conveyed by the English *there*-expletive constructions (2a). If instead of absolutive case the subject receives ergative case (1b), then the interpretation changes, and the subject is interpreted as a presuppositional DP, on a par with English raised subject constructions (2b)¹⁴⁰.

(2) *English there-expletive vs. raised subject constructions*

- a. There must be firemen available. *Existential*
- b. Firemen must be available. *Presuppositional*

Recently, Rezac et al. (2014) argue that in the modal constructions in (1a-b), just like in the English constructions in (2a-b), the modal predicate *behar* is a raising verb that takes no external argument¹⁴¹. On the assumption that absolutive case is valued within vP¹⁴², these authors argue that the examples in (1a) differ from those in (1b) in

¹⁴⁰ The existential reading does not per se require that the absolutive stays inside the modal complement and Spec, T is filled with an expletive. In the cases where the absolutive raises to Spec, T, the existential reading is also available via scope reconstruction of the subject to the complement internal position. This is actually how the speakers that do not admit the ABS/ERG alternation get this reading (i.e. for these speakers, raising-to-ergative construction (1b) are ambiguous between a definite/presuppositional (2b) and an existential reading of the subject (2a). It is also what we find in Type I functional restructuring constructions, as I will show later in this section.

¹⁴¹ I will not dwell here on the question regarding the raising vs. control nature of *behar*. I postpone this to Chapter 6, where I will show that *behar* can occur in either raising or control configurations and I analyse the modal interpretation the modal can give rise to in each of the cases. Here, I will focus on the aim of this section, which is to determine whether the infinitival complements of *behar* can be as large as vPs.

¹⁴² As explained below in more detail, Rezac et al. (2014) assume that the source of absolutivity and accusativity lies in a low position in the vP; by contrast, the source of ergativity lies in the supra-vP functional system.

that the subject remains in its absolutive case position inside the modal complement (instead of raising to Spec, T, where it would be assigned ergative), while the Spec, T position is filled by a null expletive that triggers the presence of auxiliary HAVE.¹⁴³

I will follow Rezac et al. and assume that absolutive case is licensed within the vP. On this ground, in this section I will use the presence of absolutive subjects to determine the size of the non-inflected complement of the modal. It is only when the infinitival complement is as big as vP that absolutive case will be licensed within the infinitival complement.

The test will allow me to conclude that infinitivals of both the functional and the lexical restructuring constructions can be as large as vPs. This goes against the assumption made in Wurmbrand's early work (1998, 2001) whereby lexical restructuring infinitives necessarily correlate with bare VPs.¹⁴⁴

¹⁴³ Note that under Rezac et al.'s view, the presence of ergative case and auxiliary HAVE is not contingent on the presence of an external theta-role; it rather depends on the properties of T. If it is T_{ERG}, it will then value ergative case with the goal located in its specifier, regardless of whether this is assigned an external theta-role by the predicate or not. This allows them to explain not only the ABS/ERG alternation (1a-b) we will focus on here, but also the cases where an object undergoes raising-to-ergative attested in Souletin Basque (see Bedaxagar 2010 for a detailed account of these structures):

- (lviii) Souletin Basque: object raising to ergative
- a. Haritzak ez du hola murriztu behar.
Oak.sE neg HAVE.3sE thus prune need
'The oak should not be pruned that way.' (not: The oak does not need pruning that way.' (Duvoisin 1858, cited in Hualde & Ortiz de Urbina 1989)
 - b. Stop-ek errerspetatü behar dizie.
Stop.pE respect need HAVE.3pE.ALLOC
'Stop signs must be respected.' (Bedaxagar 2010)

The remaining question will be what triggers T_{ERG}; that is, why we have a transitive construction rather than an unaccusative one (ie. Type I). In my view, the difference is that in the cases where the constructions surfaces with HAVE, *behar* is a lexical verb which assigns a theta role (theme) to the infinitive complement, whereas in the functional cases, the modal is a mere functional head devoid of argument structure.

¹⁴⁴ It will also allow me to show that lexical restructuring complements do not involve voice-restructuring either, as argued posteriorly by Wurmbrand (2013) (Also Wurmbrand and Shimamura 2015). See fn. (148) in the conclusion of this section.

I will also show that Type III non-restructuring constructions do not admit existential low absolutive subjects, but as I will argue in more detail in Chapter 6, the impossibility of existential absolutive subjects in these constructions is rather due to the fact that these non-restructuring constructions correlate with control rather than with raising structures (i.e. the modal predicate takes an external argument), and therefore, they are incompatible with the type of existential constructions we are testing.

Before we proceed, let us examine in more detail the approach to the case system of Basque proposed by Rezac et al. (2014) that I will be assuming in this dissertation, and how it comes to explain the case and auxiliary properties of the existential modal constructions in (1a).

5.2.1. Case in Basque is structurally assigned

As explained in Chapter 3, in Basque, unaccusative constructions (e.g. (3b)) select the auxiliary *izan* ‘BE’, which crossreferences the absolutive argument in person and number¹⁴⁵. This is illustrated in (3):

(3) Case/agreement (unaccusative constructions)

- a. Lagun-ak- \emptyset etorri dira.
Friend.p.A come BE.3pA
‘The friends have come’
- b. Gu- \emptyset etorri gara.
1.p.A come BE.1pA
‘We have come’

In contrast, transitive constructions (4), select the auxiliary *edun* ‘HAVE’, which crossreferences all the arguments of the transitive predicate (ergative, absolutive as well as dative arguments, in the case of ditransitives) in person and number. Ergative case on the goal DP is marked as *-k*, and absolutive case is realized as \emptyset .

¹⁴⁵ The phonological expression of the morpheme that corresponds to absolutive case is \emptyset . In what follows, I will not represent this morpheme \emptyset in the examples, and will only be reflected in the glosses.

(4) Case/agreement (transitive constructions)

- a. Lagun-ek (ni) ekarri behar naute.
friend.pE (1sA) bring need HAVE.1sA.3pE
'My friends have brought me'
- b. Gu-k ogitartekoak egin behar ditugu.
1pE sandwich.pA make need HAVE.3pA.1pE
'We have to make the sandwiches'

Following earlier work (Levin & Massam 1985; Bobaljik 1993; Laka 1993a, 2000), the majority of authors who have discussed the case system of Basque claim that absolutivity and accusativity are related to the v-domain, whereas ergative case, like nominative case, comes from the T-domain (Rezac et al. 2014 :1274)¹⁴⁶.

More specifically, Rezac et al. (2014) argue that absolute is valued by Agree between v_{ABS}^{147} and its DP goal inside the VP, whereas ergative case is valued by Agree between T_{ERG} and its DP goal, located in the specifier of T_{ERG} ; thus, under this view, ergative case, unlike absolute case, further requires movement of the goal DP to Spec,T for it to be valued¹⁴⁸. The following structures provided in Rezac (2006) for

¹⁴⁶ For an alternative view of case, and in particular of ergative case as an inherent case see Laka (2007) and references therein. For a system where case is not a requirement on DPs, but rather a condition on heads, see Duguine (2013).

¹⁴⁷ "We take [the source of absolutivity for both transitive objects and unaccusative subjects] to be a single element and designate it v_{ABS} , as shorthand for other options such as v_{ABS} , $v+V_{ABS}$ (cf. Chomsky 2001, 2008 on accusative), or Asp_{ABS} (Laka 2000)". (Rezac et al. 2014: 1306)

¹⁴⁸ Rezac et al. (2014) explain that ergative is a marked case and, in addition to Agree, requires movement of the goal DP to the specifier of the Agree/Case locus (Bittner & Hale 1996). In contrast, absolute, nominative and accusative, are unmarked cases and only need the establishment of an Agree relation between a head and its goal. More specifically, these authors follow Bittner & Hale's (1996) and assume that "ergative DPs reflect an extra layer of structure, a KP, above the DP, that needs to be licensed by movement or the resulting configuration" (Rezac et al. 2014: 1313).

(lix) Structural Case on goal

- a. [μ Case] on $DP_{NOM/ACC/ABS}$ valued by Agree with T_{NOM} , v_{ACC} , v_{ABS}
b. Ergative case configuration: $[[K_{ERG} DP_i] [Spec, T_{ERG=i} \dots t_i \dots]]$

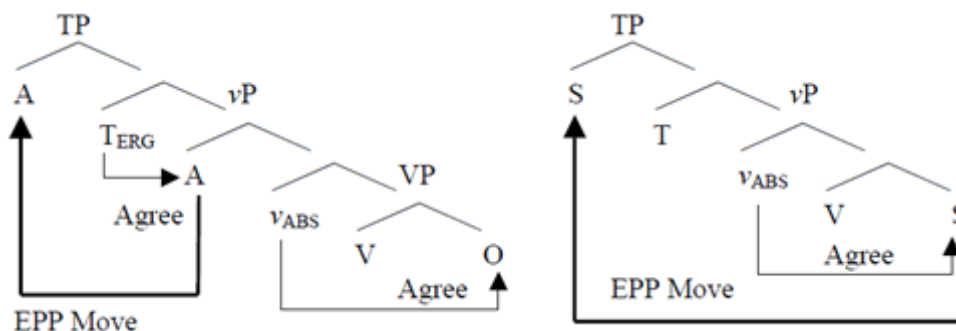
I refer the reader to Rezac et al. (Section 5.2.) and references therein for a detailed explanation of marked and unmarked cases.

simple transitive and unaccusative constructions illustrate how the two cases are licensed.

(5) Agree and EPP in Basque simple transitives and intransitives (Rezac 2006: 9)

a. Transitive

b. Unaccusative



Note that, as depicted in (5a-b), in simple (non-modal) constructions, the absolutive subject of an unaccusative predicate also rises from the position where it values absolutive case (VABS) to Spec, T. However, as argued by Rezac (2006), this movement is not triggered by case considerations, since in order for it to be licensed, absolutive case, unlike ergative, does not require movement to Spec T; movement of S to Spec T is rather triggered by the EPP feature of T.

With this in mind, let us now explain how they account for the existential modal constructions in (1a-b).

5.2.2. ERG/ABS alternation in existential modal constructions

As mentioned, one striking property of the existential modal constructions in (1a) is that, even if they show up with the auxiliary **edun* 'HAVE', their subject exhibits absolutive rather than ergative case. Let us examine in more detail the morphological properties exhibited by the auxiliary of these constructions and what they signal about their underlying structure.

The construction in (1a) (repeated below under (6a)) surfaces with the auxiliary **edun* ‘HAVE’, which, as shown in (4a-b) above, is the one that surfaces in transitive constructions with an ergative subject. However, unlike in (4a-b) above, the construction in (1a)=(6a)) lacks an overt ergative subject. What we have instead is a plural absolutive argument DP (*pintxo onak* ‘good pintxo.pA’) which is crossreferenced in number by the morpheme *-te*, usually associated with an ergative subject in the auxiliary **edun* ‘HAVE’.

(6) *Absolutive subjects of behar_{HAVE}* (adapted from Rezac et al. 2014 : 1301, 1303)

- a. Mahai gainean pintxo onak egon behar d-u-te
 table on-the pintxo good-3_pA be need/must HAVE-3_pE
 Existential reading : ‘There must be good pintxos on the table.’
- b. Pintxo onek egon behar dute hemen
 pintxo many.pE be need HAVE-3_pE here
 Definite reading: ‘The (aforementioned) pintxos must be here’

In order to account for the unexpected agreement properties exhibited by the auxiliary (where an absolutive subject seems to trigger ergative agreement), Rezac et al. propose that, what justifies that the plural absolutive argument *pintxo onak* ‘good pintxo.pA’ surfaces with absolutive case is that this DP remains within the modal complement (in the position where it values absolutive case¹⁴⁹ and checks agreement with v_{ABS}), without moving to Spec/TP. However, this specifier does not remain empty, rather it is filled by a null expletive subject¹⁵⁰ which satisfies the EPP features of T and

¹⁴⁹ Recall that absolutive case licensing does not require that the goal DP moves to Spec, TP. When it moves (i.e. in the examples in (1b), analysed as in (5), and in the functional restructuring constructions I analyse later), it is to satisfy the EPP feature of T, not to value absolutive case, which gets valued in v_{abs} .

¹⁵⁰ This ergative expletive is not visible, since Basque is a pro-drop language; however, Rezac et al. (2014) argue that its presence is further motivated by the case-agreement pattern found in negation contexts where the internal subject must bear the partitive suffix *-rik*. Their line of reasoning is the following:

As show next in (lviii), when the subject of an unaccusative is partitive, agreement is always 3rd singular absolutive (da ‘BE.3sA’). This is so because partitives do not control agreement (they trigger default 3sA; see also Vicente 2005).

triggers the presence of auxiliary HAVE. This is shown in the structure in (6), adapted from Rezac et al. (2014:1306).

(7) null expletive $[[_{\text{INF}} \mathbf{vP} \mathbf{V}_{\text{ABS}} \dots \mathbf{3s/p.ABS} \dots] \text{ behar}_{\text{NEED}}] \text{ T}_{\text{ERG}}=\text{HAVE.3s/pE}$

In (7), absolutive case on the subject of the unaccusative predicate is valued via Agree with v_{ABS} , right inside the infinitive, in the v_{ABS} position provided there. That is to say, the absolutive DP does not need to move outside the infinitival complement to value its case. In this context, the EPP feature of T is satisfied by the presence of an expletive in Spec, T_{ERG} . The auxiliary enters into an agreement relation with this ergative expletive and therefore shows up as HAVE.

Let us now analyse the properties of the counterpart constructions where the subject shows up with ergative case.

In contrast with (1a=6a), in (1b=6b) the subject surfaces with ergative rather than with absolutive case. This is because unlike in (1a=6a), in (1b=6b) the subject of the

(lx) Ez da oztopo-rik izango
 not BE.3sA obstacle-PAR be-FUT
 ‘There will be no obstacle’

However, when the unaccusative is embedded by *behar* in (lix), agreement is 3rd singular ergative (*luke* ‘HAVE.HYP.3sE’).

(lix) Ez luke oztopo-rik izan behar.
 not HAVE.HYP.3sE obstacle-PAR be must
 ‘There must/should be no obstacle.’

Therefore, 3sE must come from an expletive whose case matches or is assigned by v_{abs} and T_{ERG} respectively (Rezac et al. 2014: 1307).

Note also that the reading of negative partitives is always existential, as compared to that of ergative subjects (e.g. (1b) above); given the hypothesis adopted here for the interpretation of nominals (Diesing 1992, Diesing & Jelinek 1995, among others), I take this to further indicate that they must always remain in the vP , since this is the domain where the variable introduced by these nominals is bound by the existential closure and where these receive an existential interpretation (see section 5.2.2.). The assumption that partitives are only existentially interpreted is also confirmed in other languages (Harves 2002, Borschev and Partee 2002, among others, for the Russian genitive partitive; and Rouveret 1996 for Welsh). In addition, we find independent evidence that partitives do not move out of vP/VP in Basque in Vicente (2005), who observes that they must always follow manner adverbs; therefore they remain in the vP and check case via Agree (Vicente 2005: 368):

(lxii) Jonek ez du astiro libururik irakurri.
 Jon.sE neg HAVE.3sA.3sE slowly book.PART read
 ‘John hasn’t read any books slowly.’

unaccusative verb has moved out of the infinitival up to the specifier of T_{ERG} , where it checks the EPP and the case features of T_{ERG} . Ergative case is thus valued both via Agree with T_{ERG} as well as Move of the goal DP to the Spec, T_{ERG} position, as illustrated in (8)), adapted from Rezac et al. (2014:1306).

(8) **3s/p.ERG_i** [[_{INF} **vP** **V_{ABS}** ... **t_i** ...] behar] T_{ERG} =AUX.**3s/pE**¹⁵¹

¹⁵¹ If, as assumed by Rezac et al., in this type of structures the subject can value absolutive case within the modal complement, then these raising-to-ergative constructions pose a problem for the case uniqueness constraint (Chomsky 1981, 1986). This is so because raising to Spec/TP and valuing of ergative case does not correlate with the impossibility of valuing case within the infinitival complement. However, the modal structures under analysis here are not the only configurations where we find this situation; it is thus not an isolated case of movement from a case position to another case position. Another well-known case where a similar situation arises is that of *seem*-type predicates in Basque (iv) studied by Artiagoitia (2001). Artiagoitia argues that in the sentence in (ix) the ergative DP has raised from inside the clausal complement to matrix Spec/TP. This possibility alternates with (viii), where the absolutive remains in-situ. Note that, as in the modal structures under discussion, this type of movement too involves a violating of the case-uniqueness requirement (the DP first values absolutive case inside the embedded clause, and ergative case in the matrix). Crucially, the two constructions (viii-ix) exhibit the same interpretative contrast as the modal constructions at stake (compare the interpretation of the indefinite subject in (lxiii) with that of (lxiv)).

(lxiii) Expletive_i [Jokalariren bat_i Rojorekin minduta dagoela] ematen du.
 player.Gen one Rojo-with hurt is-that seem HAVE.3sE
 ‘It seems that some player or other is upset with Rojo.’
 (Existential/indefinite reading of the subject)

(lxiv) Jokalariren batek_i [_{CP} t_i Rojorekin minduta dagoela] ematen du.
 player some-E Rojo-with hurt is-that seem HAVE.3sE
 ‘There exists, indeed, a specific player who is apparently in bad terms with Rojo.’
 (Definite/presuppositional reading of the subject).
 (Adapted from Artiagoitia 2001)

In order to account for this apparent case-uniqueness violation, Artiagoitia assumes Ura’s (1998) copy-raising account for counterpart *seem* constructions in Igbo, whereby “an intermediate position of an A-chain is supplied with a pronominal copy of the head of the chain” (Ura 1998:74). That is to say, on this view, the chain formed when raising the DP *jokalar batek* ‘some player.E’ to matrix Spec, TP contains a pronominal copy in the embedded absolutive case position; thus, whereas the DP values ergative on the matrix position, the pronominal would value absolutive inside the embedded clause (see Ura 1998 for the details).

Alternatively, we could propose a case-stacking account for both Artiagoitia’s and Ura’s structures and the existential modal constructions in (1b=6b), whereby it is assumed that nominals can indeed value case more than once. This is a phenomenon well attested in unrelated languages such as Korean (Yoon 1996), Niuean (Bejar and Massam 1999), Lardil (Richards 2007), Kayardild (Evans 2005), or Greek (Hornstein & Polinski 2010), among others. Consider for instance the following examples from Niuean (Bejar and Massam 1999):

Moreover, as argued by Rezac et al., the two underlying constructions in (7) and (8) do not only successfully account for the distinct case and agreement patterns of the constructions in (Xa-b); in addition, these underlying structures account for the different interpretations of the DPs involved. To be more precise, whereas in the construction in (7) where the subject is raised to the ergative position, this gets a specific or presuppositional reading, in those where the absolutive remains in-situ (and Spec, T_{ERG} is filled by an expletive) (6) the absolutive argument correlates with an existential reading (as in the English correlates in (2a-b)).

This position-interpretation correlation, which, as mentioned, matches the one found in English between low (expletive associate) subjects vs. high (raised) subjects constructions (2a) vs (2b), is correctly explained if we adopt Diesing's (1992) Mapping Hypothesis (also Diesing and Jelinek 1995, Kratzer 1994). Roughly speaking, this hypothesis states that the free variable introduced by a DP will be interpreted according to its position: inside the vP it will receive an existential reading, as it is bound by the existential closure; outside the vP it will be bound by a generic operator (*Gen*) which gives the presuppositional reading¹⁵².

With this analysis in mind, let us now turn to the modal constructions identified in Chapter 4. Recall that I have distinguished three types: Type I functional restructuring

-
- (lxv) Manako a ia ke momohe [e na tama
 want ABS he SUBJ sleep ABS pair child
 'He wants the two children to sleep'
- (lxvi) Manako a ia [ke he na tama]_i ke momohe t_i
 want ABS he MIDDLE pair child SUBJ sleep
 'He wants the two children to sleep'

In (lxv) the DP *na tama* moves from the subject position in the embedded clause, where it values absolutive (as in (lxvi)), to a higher position where it values middle structural case, so the chain bears two structural cases, a low absolutive and a high middle.

In conclusion, in view of the commonness of case-stacking constructions and other apparent violations of the case-uniqueness (the *seem* constructions analysed by Ura 1996 and Artigotia 2001) I will assume that it is possible for a DP to value case more than once. I will postpone a more in depth analysis of this type of configuration for future research.

¹⁵² I will go back to the question regarding scope and interpretation in the next chapter, where I analyse the thematic and scopal properties of the subjects of *behar* constructions.

constructions, Type II Lexical restructuring constructions and Type II non-restructuring constructions. I will first focus on Type II constructions (Type I constructions present problems for the application of this test, since when *behar* takes an unaccusative predicate, they never exhibit the ERG/ABS alternation described in (1a-b=6a-b); recall that these constructions are transparent to the case and auxiliary selection properties of the infinitive predicate, and therefore, in this context they will invariably show up with an absolutive subject and auxiliary BE). I will go back to these constructions at the end of the subsection.

5.2.3. Type II Lexical restructuring constructions

Recall that Type II constructions come in two word order variants: the infinitive can surface either to the left of the modal (*inf>behar*) or to its right (*behar>inf*). The examples in (9a-b) (provided by Rezac al.) correlate with Type II *inf>behar* constructions, and as evidenced, they admit the presence of low or in-situ absolutive subjects with an existential reading,

(9) *Type II (inf>behar):* *√low absolutive*

- a. Pintxo onak egon behar d-u-te mahai gainean.

Pintxo good-3plA be need HAVE.3sE table on-the

Existential reading : ‘There must be good pintxos on the table.’

(Rezac et al. 2014 : 1301)

- b. Lehenik eta behin, baldintza demokratikoak

first of all, condition democratic.pA

egon behar d-u-te, prozesu hori egiteko.

be need HAVE.3sE process this.sA to-do

Existential reading: ‘To start with, there must be democratic conditions to carry out that process.’

(Rezac et al. 2014 : 1301; retrieved from
http://www.berria.eus/m1/testua_ikusi.php?id=4891&mota=berria)

Next, I will show that when infinitive surfaces to the right, that is to say, in Type II *behar>inf* constructions low absolutive subjects are also licensed. Consider (10a-b).

(10) *Type II (behar>inf+ number agreement): √low absolutive*

- a. Behar dute pintxo onak egon mahai gainean.
 need HAVE.3sE pintxo good-3pA be table on-the
Existential reading: ‘There must be good pintxos on the table.’

- b. Lehenik eta behin, behar dute baldintza demokratikoak
 first of all, need HAVE.3sE condition democratic.pA
 egon prozesu hori egiteko.
 be process this.sA to-do
Existential reading: ‘To start with, there must be democratic conditions to carry out that process.’

Following Rezac et al., the fact that Type II lexical restructuring constructions (whether they come in the *inf>behar* or in the *behar>inf* word order) admit the presence of such absolutive subjects can thus be taken as evidence that, in this type of constructions, the infinitival complement contains a v_{ABS} position (one in which absolutive case is licensed), where the internal subject remains; hence, they are as large as vPs .

Now let us examine the constructions exhibiting no transparency to agreement with the infinitival arguments: Type III/non-restructuring constructions.

5.2.4. Type III non-restructuring constructions

Unlike the counterpart constructions in (8), in which plural number is valued via Agree with v^o , in the sentences in (11) number agreement is missing. Hence, the construction in (11), unlike the one in (10), corresponds to a Type III non-restructuring construction, which, as the reader will recall from chapter 4, is opaque to agreement with the arguments in the infinitival complement.

(11) *Type III constructions (behar>inf; - agreement): *low absolutive*

- a. *Behar du pintxo onak egon mahai gainean.
 need HAVE.3sE pintxo good-3pA be table on-the

Existential reading: ‘There must be good pintxos on the table.’

- b. *Lehenik eta behin, behar du baldintza demokratikoak
 first of all, need HAVE.3sE condition democratic.pA
 egon prozesu hori egiteko.
 be process this.sA to-do

Existential reading: ‘To start with, there must be democratic conditions to carry out that process.’

The sentence in (11) evidences that existentially interpreted low absolutive subjects are ungrammatical in Type III non-restructuring constructions. Note however that, even if we are taking the impossibility of in-situ absolutive constructions to signal the absence of a vP and its v_{ABS} position, the ungrammaticality of (11) cannot be related to the absence of this projection. Consider for instances the following Type III constructions repeated from Chapter 4:

(12) Type III constructions with complement internal absolutive arguments

- a. Behar dut lanak bukatu.
 need HAVE.3pA.2sE work-3pA finish
 ‘You must/need to finish your assignments.’
- b. Behar dut liburu horiek ahalik eta lasterren irakurri
 need HAVE.3pA.1sE book that-3pA as-soon-as-possible read
 ‘I must/need to read those books as soon as possible’

In the grammatical sentences in (12a-b) there is no matrix agreement with the absolutive arguments of the infinitive verb, indicating that the infinitive has its own locus for absolutive Case/agreement.

As I will show in Chapter 6, the source of the ungrammaticality of (12) follows not from the absence of an absolutive case/agreement position within the infinitival complement, but rather from the fact that in Type III/non-restructuring *behar* is not a raising predicate but a control one. In Type III modal constructions, the predicate *behar*

assigns an external theta-role, onto which it imposes selectional restrictions. This makes Type III constructions incompatible with the non-thematic expletive subjects of the existential structure illustrated in (6), since these fail to meet the thematic and selectional requirements of the control predicate *behar*.

5.2.5. Type I functional restructuring constructions

As argued so far, Type I functional constructions are transparent to the case and auxiliary selection properties of the embedded infinitive verb, so when they involve the presence of an unaccusative existential verb like *egon* ‘be, stand’, they invariably show up with the auxiliary BE and an absolutive subject. That is to say, unlike in Type II existential modal constructions, in Type I constructions the morphology of the auxiliary does not help us infer if the absolutive argument remains inside the complement while an expletive is inserted in Spec, T (e.g. 12a); or if it itself raises to Spec, T to check EPP (as shown in the structure provided in (3b) for single verb unaccusative constructions) (e.g. 12b). Note however that, the expectation is that in Type I constructions, absolutive case is also licensed inside the infinitival structure embedded by *behar*, since these are actually monoclausal constructions consisting of a single verb (the infinitive) and a modal head merged in the supra-vP functional domain¹⁵³.

(13) Underlying structure Type I Functional restructuring

- a. **3s/pA_i** [_{ModP} [_{INF} **vP V_{ABS} ... t_i...**] *behar*] T_{(-ERG)=BE.3s/pA}
- b. Expletive_i [_{ModP} [_{INF} **vP V_{ABS} ... 3s/pA_i ...**] *behar*] T_{(-ERG)=BE.3s/pA}

This leads to the following expectation: the subject of Type I constructions should also be able to receive an existential interpretation, either because it remains inside the complement while an expletive checks the EPP feature of T, or because it can undergo scope-reconstruction to the complement internal position where it has started out¹⁵⁴. As

¹⁵³ Note that it cannot be the case that the modal is merged lower than the vP layer, otherwise it would act like a lexical or a quasi-functional(/semi-lexical) modal and would determine the presence of auxiliary HAVE (cf. Cardinaletti & Shlonski 2004).

¹⁵⁴ Recall from Chapter 2 that the subjects of raising modal constructions can undergo scope-reconstruction to a complement internal position (Wurmbrand 1999, Wurmbrand and Bobaljik 1999). This is in fact the case also with Type II constructions where the subject raises to ergative, for the

shown in (13) this expectation is borne out: the absolutive subject can be interpreted below the modal *behar*, and receive an existential interpretation.¹⁵⁵

(14) Mahai gainean pintxo onak egon behar dira

table on-the-top pintxo good.pA be need BE.3pA

(jendea etorriko bada) .

(people.sA come-FUT BE.3sA-COND

Existential reading: ‘There must be (good) pintxos on the table (if people are to come).’

5.2.6. Conclusion: restructuring constructions involve a vP layer

In this section I have argued that embedded infinitival of both the lexical and functional restructuring constructions license absolutive case complement internally. The analysis is based on the assumption that absolutive case in Basque is valued in the functional domain of the vP, via Agree of the goal DP with the v_{ABS} head, whereas ergative case is valued in the T-domain (Rezac et al. 2014).

varieties/speakers that do not admit the ABS/ERG alternation (hence, for those whose grammar lacks an ergative expletive; see Rezac et al. 2014)

¹⁵⁵ As pointed out to me by Ricardo Etxepare (p.c.), the absolutive DP in (14) is actually ambiguous between an existential and a partitive/proportional interpretation (i.e. ‘From the set of pintxos, only the good ones must stand on the table’). In the framework adopted here for the distribution and interpretation of arguments (Diesing 1992, Diesing and Jelinek 1995, Kratzer 1995), the latter type of reading corresponds to a scope position outside the vP (in the restriction of an operator). In other words, this ambiguity of readings can only be taken to mean that the absolutive DP lies in a high position, and that it can be interpreted either in this surface position (as a partitive/proportional DP) or optionally reconstruct to be interpreted in a vP-internal position (as an existential DP). Since in Basque, scope reconstruction is constrained to focus DPs (see Chapter 6 for more details), it then follows that the absolutive has moved to a focus position and therefore exhibits the scope/interpretive properties that would correspond to this movement. Note also that the absolutive surfaces in the preverbal position, and, as will be explained later in Section 5.5., focus elements must necessarily surface in the preverbal position in Basque (see Etxepare & Ortiz de Urbina 2003a, Irurtzun 2007, among others). In this, the construction in (14) contrast with the lexical restructuring constructions in (9-10), where the absolutive remains inside the complement and can only have the vP-internal existential reading.

In the lexical constructions (whether they occur in the *inf>behar* or in the *behar>inf* word order), this is evidenced by the fact that, in some varieties, the internal argument of an embedded unaccusative predicate can remain inside the embedded modal complement – where it surfaces with absolutive case and receives an existential reading –, instead of raising to the Spec, T position – where it would receive ergative case and a definite reading. When this occurs, it is argued that an expletive fills the Spec, TP position in order to satisfy the strong EPP and ergative case features in T.

In the functional restructuring constructions, I assume that absolutive case is also licensed complement internally in Spec, vP, as these have the underlying structure of single verb unaccusative constructions (see (3b) above).

The assumption that lexical restructuring constructions take a vP complement contradicts Wurmbrand (1998, 2001), where it was argued that lexical restructuring verbs take bare VP infinitival complements lacking a structural case position for the internal argument¹⁵⁶.

¹⁵⁶ In addition, these data also allow us to conclude that these lexical restructuring constructions do not involve a case-defective Voice head. In this, the Basque lexical restructuring constructions contrasts with those of German, Japanese, European Portuguese and some other languages (Wurmbrand 2013, Wurmbrand and Shimamura 2015), in which the presence of this case-deficient voice head provokes that the internal arguments be promoted to a complement external position to be case-licensed. The following examples where the object surfaces with nominative case (valued by T°) instead of accusative case (valued by Voice°) are taken to illustrate this. This phenomenon is defined by Wurmbrand as Voice restructuring, and, following her, it seems to be language specific.

(lxvii)	Sono-shisutemu-ga tsukai hajime-rare-ta	Japanese
	the-system-NOM use begin-PASS-PAST	
	‘The system began to be recognized.’	
	(Fukuda 2007: 175, (32b), cited in Wurmbrand and Shimamura 2015)	

5.3. NON-FINITE ASPECT

In what follows I will examine whether Aspect is or not projected within the infinitival complement of the modal predicate *behar*. I will take the presence of non-finite aspectual morphology together with the temporal-aspectual interpretation of the construction to evidence the presence of complement internal AspP. But before I proceed with the analysis, let me first briefly introduce some general assumptions regarding the morphology associated with non-finite Aspect in Basque.

5.3.1. -TU complements and aspect

Recall from Chapter 4, that the suffix *-TU* heading the non-finite complements of *behar* and other modals has been traditionally considered a perfective participial suffix (Ortiz de Urbina 1989, Laka 1990, Zabala and Odriozola 1996). However, *-TU* complements do not convey a perfective reading in combination with modals, including the necessity modal *behar* (see also Artiagoitia 1995, Alcázar 2002, Haddican 2007 and Haddican and Tsoulas 2012).

(15) Non-perfective interpretations of the complements of modals and *behar*¹⁵⁷

- a. Erosi/abestu behar (/nahi) dute. *Future orientation*
buy/sing-TU need(/want) HAVE.3sE
'They need to/want to go/buy/sing.'
- b. Ezin du erosi/abestu.
cannot BE.3sA buy/sing-TU
'(S)he cannot sing.'

¹⁵⁷ In recent works dedicated to the temporal interpretation of modals (Condoravdi 2002, D&UE 2008 et seq.), the temporal readings of sentences like (15a-f) are derived from the interaction of the temporal heads (Tense and Aspect) with the time interval contributed by the modal (ModT), which indefinitely expands the modal evaluation time into the future (see the above references for a detailed account). The aspectual properties of the lexical predicate the modal takes as its complement too play an important role in the aspectual and temporal interpretation the construction will give rise to; hence the aspectual difference between the examples in (15a-c), involving dynamic predicates, and (15c), involving an stative predicate.

- c. Erosi/abestu ahal dute
Buy/sing-TU can BE.3pA
'They can come.'
- d. Hemen egon behar(/nahi) dute (orain/bihar). *Ongoing/future*
here be-TU need(/want) HAVE.3pE now/tomorrow
'They need to/want to be.'
- e. Ezin da hemen egon (orain/bihar).
cannot BE.3sA here be-TU now/tomorrow
'(S)he cannot be.'
- f. Hemen egon ahal dira (orain/bihar).
here beTU can BE.3pA now/tomorrow
'They can be there (now/tomorrow)'

The absence of a perfective interpretation of *-TU* in modal contexts and in other environments discussed in Haddican (2007) and Haddican & Tsoulas (2012) has led these authors to the conclusion that this suffix is not an aspectual head but rather an infinitival. This is confirmed by the fact that this form is the citation form used in dictionaries¹⁵⁸. As argued by Haddican & Tsoulas, the perfective reading conveyed by *-TU* forms when combined with present or past auxiliaries (e.g. (15a) below) follows from the fact that these infinitival forms may raise to adjoin to a null perfective head responsible for this aspectual interpretation. The same idea is pursued by Etxepare (2011) who claims that the two alternating non-finite forms in Basque, namely *-TU* and *-TZE* can be selected by aspectual heads of different value (Etxepare 2011): a null perfective head ($-\emptyset$) in the case of *-TU* and a non-perfective head realized by the case endings *-n* 'in' (inessive) or *-ra* 'onto' (allative), in the case of *-TZE*.

(16) Non finite aspect: *-TU* vs. *-TZE*

- a. Abes-tu dute.
Sing-TU- \emptyset_{perf} HAVE.3pE
'They have sung' Perfective

¹⁵⁸ See Berro (2015) for arguments that this form is presumably of nominal nature.

- | | |
|-------------|----------|
| ‘They sing’ | Habitual |
|-------------|----------|

b. [ImpAsp [XP [VP V°] **-TZE**] **-n/-ra**]

5.3.2. Aspect in the $-TU$ complements of *behar*

As illustrated in (18), for some speakers, the infinitive complements of Type III non-restructuring constructions can occur with the auxiliary *izan* and yield a perfective temporal reading,

- ‘I would need to have bought that!’

198

which the event denoted by the non-finite verb (*erosi* ‘buy’) is located at some time in the past relative to the speech time or the time of the utterance (‘I would need *now* to have bought that *in the past*’); hence, an anteriority interpretation. The possibility that the construction occurs with temporal adjunct phrases such as *lehenago* ‘before’ and *orain dela bi aste* ‘two weeks ago, as shown in (19), further evidences that the temporal relation that holds between the matrix clause and the embedded complement is one of anteriority.

(19) Behar zenuke [*lehenago/orain dela bi aste amaitu izan*].

need HAVE.2sE before/two weeks ago finish AUX_{perf}
 ‘I would need to have finished it before/two weeks ago.’

I take this anteriority reading to be contributed by a null perfect aspectual head which is realized on the auxiliary *izan* (see Hualde & Ortiz de Urbina 1989, Haddican 2005, Etxepare 2006 for an account of this perfective *izan*¹⁵⁹). I therefore conclude that these non-restructuring infinitival complements project a vP-external projection for perfective aspect¹⁶⁰.

The presence of perfective *izan* has a limited distribution when it occurs with the infinitival complements of *behar* ‘need’, as it cannot occur inside the complements of Type I-II restructuring constructions.

(20) Type I-II restructuring constructions: *non-finite *izan*

- a. [*Lehenago heldu (*izan)*] behar zinateke
 before arrive AUX_{perf} need BE.2sA(conditional)
 ‘You would need to have arrived before.’
- b. [*Lehenago heldu (*izan)*] behar zenuke
 before arrive AUX_{perf} need HAVE.2sE(conditional)

¹⁵⁹ The auxiliary *izan* ‘BE’ is thought to be inserted under the aspectual head to pick up aspectual morphology (in the case of (18-19) above, the null perfective suffix -Ø (Haddican 2005).

¹⁶⁰ Following Demirdache & Uribe-Etxebarria’s (1997 et seq.) model of temporal syntax, I propose that *izan* (or probably *izan*+a null perfect head) is located in the head of AspP below TenseP, within the inflectional domain.

‘You would need to have arrived before.’

- c. Behar zenituzke [betaurreko berriak erosi (*izan)]
 need HAVE.3pA2sE(conditional) glasses new.3pA buy AUX_{perf}
 ‘You would need to have bought new glasses.’

The sentence in (20a) clearly corresponds to a Type I functional restructuring constructions (it is transparent to the selection of auxiliary BE, determined by the embedded unaccusative verb), while those in (20b-c) rather correspond to Type II lexical restructuring constructions (note that in (20b), unlike in the counterpart example (20a), *behar* acts like a lexical predicate determining the presence of auxiliary HAVE instead of BE). Crucially, none of these constructions admit the presence of perfective *izan* within the complement, what suggests that these are smaller than those of Type III non-restructuring constructions lacking the relevant functional projection for non-finite aspect (AspP)¹⁶¹.

¹⁶¹ As shown by the contrast between (15a-c) and (15b) above, Type I and Type II complements can yield different aspectual interpretations, but only when aspect is conveyed by the lexical predicate (commonly referred to *aktionsart*, Vendler 1976), not when it is conveyed by a functional aspectual head.

5.4. INDEPENDENT TENSE PROJECTION

One classical test often employed to determine the presence of two distinct temporal domains, hence two Tense projections, concerns the presence of conflicting temporal modifiers; that is, temporal modifiers that locate the time of the event in the infinitive complement at a point distinct from that of the matrix predicate, as is the case of *yesterday* and *tomorrow* in (21a-c) below (the term “conflicting temporal adverbials” and the examples in (21a-b) from Wurmbrand 2011):

(21) Conflicting temporal adverbials

- a. Yesterday, John decided/ planned to leave tomorrow.
- b. Yesterday, John tried/began/managed to leave (*tomorrow).

Wurmbrand (1998, 2001) argues that the contrast in (21a-b) shows that the infinitives involved differ with respect to their ability to host syntactic tense (see also Stowell 1982; Martin 1996, 2001; Landau 1999, 2000 et seq.). Thus, while verbs like *decide* or *plan* (21a) take non-restructuring tensed infinitives¹⁶² and therefore license the conflicting indexical adverb *tomorrow*, verbs like *try* (21b) can function like lexical restructuring infinitives and combine with small sized tenseless infinitives, in which case they would not admit the presence of a conflicting adverb. Her claim is further motivated by the fact that, in languages like German, restructuring or monoclausal effects such a long passive cannot be expected in the presence of a conflicting, non-agreeing temporal adverbial. This is illustrated by the contrast exhibited by (22ab) and (22a-c):

¹⁶² However, as we will see in the remainder of this section, Wurmbrand (2011) does not relate the contrast in (21a-b) to the presence/absence of tense; she rather sustains that the two types of infinitives are tenseless, but the infinitives selected by future irrealis verbs like *plan/decide* (which require that the complement is ‘unrealized’ at the time of the matrix event), unlike those of (21b), involve a future modal head (*woll*) that confers them their future interpretation

(22) Long passive conflicting temporal adverbials (Wurmbrand, 2003: 84)

- a. dass die Diebe versuchten den Wagen
that the thieves tried the car-ACC
(%morgen) über die Grenze zu schmuggeln
(%tomorrow) across the border to smuggle
'that the thieves tried to smuggle the car across the border
(%tomorrow)'
- b. dass versucht wurde den Wagen
that tried was the car-ACC
(%morgen) über die Grenze zu schmuggeln
(%tomorrow) across the border to smuggle
'that they tried to smuggle the car across the border
- c. (%tomorrow)'dass der Wagen (*morgen)
that the car-NOM (*tomorrow)
über die Grenze zu schmuggeln versucht wurde
across the border to smuggle tried was
'that they tried to smuggle the car across the border
(%tomorrow)'
- d. dass die Autos (*morgen)
that the cars (*tomorrow)
über die Grenze zu schmuggeln versucht wurden
across the border to smuggle tried were
'that they tried to smuggle the cars .. .(%tomorrow)'

Some speakers allow a (marked) reading of *try* constructions in which the infinitive can be modified by a conflicting temporal adverb (e.g. *morgen* 'tomorrow' in 22a-b) which locates the embedded event (*schmuggeln* 'smuggle') at a future relative to the past matrix event (*versucht* 'try'). The sentence is then interpreted as '*the thieves tried to make arrangements so that they would be able to smuggle the car across the border the next day*'. Crucially, in this context, *try* behaves as a non-restructuring verb (i.e. takes a complement involving future tense), as evidenced by the impossibility of these constructions to co-occur with restructuring phenomena like long passive (22c-d). Note

that whereas in (22a-b) object of the embedded infinitive is marked with accusative case (*den Wagen* ‘the car-ACC’), in (22c-d) it is instead marked with nominative (*der Wagen* ‘the car-NOM’). This is taken by Wurmbrand (1998, 2001, 2011) to signal that in (22c-d) the object has moved out of the infinitive in order to be case-licensed, because the infinitive fails to license structural case on the object; hence, it is a small size restructuring infinitive which lacks a structural case position for the internal arguments, as well as a tense head.

5.4.1. Conflicting adverbs in the contexts of modals and the case of *behar*

We must first note that, although the presence of conflicting adverbs is frequently employed to determine the presence of two distinct temporal domains in complex verb construction, its reliability is somewhat controversial when tested over the infinitives selected by modals¹⁶³.

As pointed out by Wurmbrand (1998, 2001), the presence of future adverbs in the complements of modals, as in (23), could be taken to be due to the semantics of modals per se, rather than to the presence of structural tense. The reason she provides is that modals contribute to the temporal interpretation of the clause by forward-shifting the event runtime of the event denoted by the complement (Wurmbrand 1998).

(23) Future complements of modals (Wurmbrand 1998: 266)

- a. Besuchen sollen hat nur der Josef den Peter morgen.
 visit shall has only Josef the Peter tomorrow
 ‘Only Joseph had to visit Peter tomorrow.’
- b. Besuchen müssen hat nur der Josef den Peter morgen.
 visit must has only Josef the Peter tomorrow
 ‘Only Joseph had to/was allowed to visit Peter tomorrow.’

¹⁶³ In fact, as shown by Wurmbrand (2011), the test is also unreliable in the case of predicates selecting for future irrealis infinitives such as *decide* or *plan* in (21a-b); that is, in constructions in which the embedding predicate requires that the complement is ‘unrealized’ at the time of the matrix event, as will be made clear below.

- c. Besuchen dürfen hat nur der Josef den Peter morgen.
 visit may has only Josef the Peter tomorrow
 ‘Only Joseph was allowed to visit Peter tomorrow.’

Along this line, in later work on tense and infinitives, Wurmbrand (2011) further argues that the presence of future adverbials like *tomorrow* in the constructions involving future irrealis infinitives like *decide*, *plan* (21a-c) or modals like *want* in (24) (or those in (23a-c)) can be explained by the presence of a syntactic future modal (*woll*; see also Thomason 1970, Condoravdi 2002, Copley 2003, Kaufmann 2005), rather than by the presence of a tense projection. Note that the assumption that future irrealis infinitives are tenseless contradicts her earlier work (1998, 2001). This is illustrated in the structure in (24)¹⁶⁴.

(24) Yesterday, John wanted(/decided/planned) [_{wollP} to *woll* leave tomorrow].
 (Wurmbrand 2011)

Summarizing, the fact that the modals (23-24) and future irrealis predicates (22a-b; 21) allow for the presence of non-agreeing or conflicting future adverbs need not be diagnostic of the presence of an independent tense projection located in the infinitival.

By parity of reasoning, given the future orientation of *behar* (and, in general, of *need*-type predicates), one could consider that the presence of non-agreeing temporal adverbs within the complements of the constructions under analysis is not per se reliable evidence for the existence of embedded syntactic tense (as it may well be attributed to

¹⁶⁴ That is to say, the presence of a future-shifting temporal adverb is not unexpected under the assumption that modals (and possibly other future irrealis predicates) introduce a forward-shifting time into the temporal interpretation. For Wurmbrand, this is mapped into the syntax with the projection of a complement internal syntactic modal head (*WollP*). In Condoravdi’s (2002) and also Demirdache & Uribe-Etxebarria’s (2008 et seq.) extensively developed accounts of the temporal syntax of modals, the forward shifting interpretation is brought by what they refer to as the modal time (MOD-T), an open ended time interval starting at an initial bound (*t*) and extending without limit into the future ($[t, \infty)$). To put it simply, on Condoravdi’s and Demirdache & Uribe-Etxebarria’s view, the presence of a future adverbial would be possible even if the initial bound of the MOD-T is anchored to the past reference time provided by the matrix, since this time interval expands indefinitely into the future.

the forward shifting force of predicate *behar* (hence, to the presence of a future-shifting modal head).

It is however somewhat striking that the presence of conflicting adverbs in *behar* constructions still happens to be sensitive to restructuring phenomena like auxiliary switch (found in Type I constructions), and to the presence/absence of matrix agreement with the embedded arguments (found in Type I-II constructions), as shown in the next section.

5.4.1.1. Restructuring vs non-restructuring constructions involving *behar*

As argued by Etxepare & Uribe-Etxebarria (2009, 2010), the constructions in which the infinitival complement surfaces to the left of *behar* contrast with those where the infinitival appears to its right in that the latter admit the presence of conflicting temporal modifiers:

(25) Temporal adverbs in *inf>behar* vs *behar>inf* constructions (E&UE 2010)

- a. * Jon-ek atzo [gaur etxean egon] behar zuen
 Jon-E yesterday today home-in-the be need HAVE.3sE
 ‘Jon needed yesterday to be at home yesterday’
- b. Jon-ek atzo behar zuen [gaur etxean egon]
 Jon-E yesterday need HAVE.3sE today home-in-the be
 ‘Jon needed yesterday to be at home today’

As I show next, the contrast is not actually between *inf>behar* and *behar>inf*, but between the restructuring constructions exhibiting transparency phenomena (i.e. auxiliary switch (Type I) and agreement with the embedded arguments (Type I-II)) and the non-restructuring constructions (Type III) which, recall, are opaque to these type of phenomena. This is illustrated by the examples in (26-27)

(26) Type I constructions: ?? tomorrow

- ??Jon atzo [bihar etorri] behar zen
- Jon.A yesterday [tomorrow come] need BE.3sA

‘Yesterday John had to/needed to come tomorrow’ [*baina gaur jakin du aurreratu diotela hitzordua, beraz gaur etorri behar da* ‘but today he has found out that the appointment has been moved forward, so he needs to come today’]

(27) Type II: ?? tomorrow

Inf + *behar* word order:

- a. ??Jonek *atzo* [(*bihar*) etorri]

Jon.E *yesterday* (tomorrow) come

behar *zuen* .

need HAVE.3sE(past)

‘Yesterday John had to/needed to come tomorrow’ [*baina gaur jakin du aurreratu diotela hitzordua, beraz gaur etorri behar da* ‘but today he has found out that the appointment has been moved forward, so he needs to come today’]

Behar + *inf* word order:

- b. Jonek *atzo* behar *zituen*

JonE *yesterday* need HAVE.3pA.3sE(past)

[(?*bihar*) *liburuak* (?*bihar*) *itzuli*].

(tomorrow) book.pA (tomorrow) return

‘Yesterday John had to/needed to read the books tomorrow [*baina gaur jakin du beste egun batez luzatu diotela mailegua, beraz azkenean ez ditu bihar itzuli beharko*/but he has known today that he has been granted a renewal, so finally, he will not have to return them tomorrow’

The examples in (26) and (27) involve different type of restructuring phenomena: (26) is a Type I functional restructuring exhibiting auxiliary switch, whereas (27b) is a Type II (*inf*>*behar*) construction involving agreement with the arguments of the embedded

infinitival. When questioned, most speakers judge the presence of the conflicting adverb *tomorrow* as deviant¹⁶⁵.

In contrast, as shown in (28a-b), for the speakers who admit non-restructuring infinitives with *behar*, the presence of the conflicting adverb *tomorrow* is more naturally accepted when the restructuring properties are absent (i.e., when there is no agreement with the embedded arguments; (28a)), than when they are present (Type II, (27b)).

(28) Type III Non-restructuring constructions:

- a. Jonek atzo behar zuen (*/?zituen)

JonE yesterday need HAVE.3sE(past) (* HAVE.3pA.3sE(past))

[(*bihar*) etorri (*bihar*) itzuli (*bihar*)].

(*tomorrow*) book.pA (*tomorrow*) return (*tomorrow*).

‘Yesterday John had to/needed to return the books tomorrow [*baina gaur jakin du beste egun batez luzatu diotela mailegua, beraz azkenean ez ditu bihar itzuli beharko*]/but he has known today that he has been granted a renewal, so finally, he will not have to return them tomorrow’

- b. Atzo behar nuen bihar zurekin ezkondu

Yesterday need HAVE.1sE(past) tomorrow you-with marry

nazionalitatea lortzeko

citizenship obtain-to

‘Yesterday I had to /needed to marry you [*baina gaur goizean jakin dut berdin-berdin deportatuko nautela, beraz ez naiz zurekin ezkonduko*]/but this morning I have known that I am going to be deported anyway, so I will not).

¹⁶⁵ The sentences seem to be somewhat better if the context is carefully built (see the content provided in brackets in the glosses) and the word order changes; but even then, most speakers do not like the sentences and provide with alternative ways of expressing the same temporal relation. One speaker said that she would marginally accept (lxviii):

(lxviii) Jonek pasa den aste-ko ostegunean etorri behar izan zuen,

Jon-E go be.REL week.of Thursday come need have.perf HAVE.3sE(past),

orain, berriz, bihar etorri behar(ko) du.

now however tomorrow come need(fut) HAVE3sE

‘Jon had to come the Thursday of the previous week, but now, however, he has to come tomorrow.’

More research would be needed to determine the precise reason why, in spite of the alleged forward-shifting force attributed to modals, the presence of the future adverbial is dispreferred in the restructuring (Type I-II) constructions involving *behar*, but is more natural in the non-restructuring ones. E&UE (2010) suggest that “the temporal adverb is itself associated to a structure that is opaque and that contains Tense”¹⁶⁶.

In what follows I will provide independent evidence in relation with Sequence of Tense (SOT) that non-restructuring (Type III) constructions do indeed involve syntactic Tense, whereas restructuring (Type I and II) do not.

5.4.2. Sequence of Tense (SOT) intervention effects

In this section, I will bring evidence coming from Sequence of Tense (SOT) intervention effects that the infinitives dependent of *behar* ‘need’ differ with respect to their ability to host a tense projection. But before doing so, I will review the basic assumptions underlying the SOT phenomenon.

¹⁶⁶ For E&UE (2010) one possibility is that independent Tense, forced in this case by the temporal mismatch of the matrix and the embedded adverbs, requires a CP (see Chomsky, 2004). If this is correct, the the presence of the CP will block all type of restructuring phenomena.

Similarly, Grano (2012) observes the following contrast regarding the acceptability of the conflicting future adverbial *tomorrow* with the modal predicate *have to*, but he does not arrive to any firm conclusion for why this should be so (see Grano op. cit).

(lxix) *Yesterday, John had to solve the problem tomorrow. (Landau 2000:57)

(lxx) (When I asked to see the manager,) they told me I had to come back tomorrow.

He suggests that “perhaps under some conditions there is a constraint against the use of (certain) time adverbials in reference to a modal’s temporal perspective”. He adds that “there is something odd about explicitly referring to a modal’s evaluation time via an adverbial”: [lxxi] is odd on a reading where *right then* is meant to pick out the time of the obligation, divorced from the time of taking the train, just as [lxxii] is odd on a reading where *right now* is meant to pick out the time of the speaker’s epistemic state. On this hypothesis, the remaining task is to explain why the explicit use of time adverbials improves in special contexts].”

(lxxi) ??Right then, Mary had to take the train.

(lxxii) ??Right now, Mary had to be at home.

5.4.3. Sequence of Tense (SOT)

Sequence of Tense (SOT) refers to a phenomenon found in contexts in which a morphologically realized tense is semantically vacuous. For instance, in (29a) even if the embedded verb is inflected for the past, the embedded clause can receive a ‘non-past’ interpretation; that is to say, an interpretation where the pregnancy time is not in the past relative to the finding out time, but is rather simultaneous with it.

(29) Leo found out [that Mary was pregnant]. (Wurmbrand 2011)

- a. Non-SOT reading: the time of Mary’s ‘being pregnant’ precedes the time of the finding out.
- b. SOT reading: the time of Mary’s being pregnant is simultaneous with the time of John’s ‘finding out’.

A plausible account for the SOT phenomenon is the one put forward by Ogiwara (1995a-b, 1996, 2007), who proposes a tense deletion rule by which a tense may delete at LF if it is in the scope of another tense with the same value.

Thus, in the examples above, the past tense of the complement verb (*was pregnant*) is in the scope of the past time of the matrix verb (*found out*), and accordingly, the tense deletion rule may apply at LF, causing the time of the complement to be interpreted simultaneously with that of the matrix clause¹⁶⁷.

(30) Leo found out that Mary was pregnant

- a. [Leo PAST find out [that Mary ~~PAST~~ be pregnant]]
- b. [Leo PAST find out $\lambda 0$ [Mary 0-be pregnant]]

SOT effects are also found in contexts where the matrix verb and the embedded verb are in the future and the present respectively.

¹⁶⁷ As explained by Wurmbrand (2011: 8), the semantic interpretation of the representation in (29b) is the following: the deleted tense variable then gets bound by a λ -operator and the bound tense variable is then interpreted as a relative ‘now’ with respect to the matrix predicate: [Leo PAST find out $\lambda 0$ [Mary 0-be pregnant]].

(31) John will see the unicorn that is walking. (Ogihara 1996:82)

- a. Non-SOT reading: the time of ‘walking’ precedes the time of ‘seeing’.
- b. SOT reading: the time of ‘walking’ is simultaneous with the time of John’s ‘seeing’.

The example in (31) is thought to optionally give rise to a SOT effect, although apparently, the present (*is walking*) is not in the scope of a tense with the same value; it is in the scope of a future tense (*will see*). This fact receives a simple explanation if we consider, following Ogihara, that the future is not a simple tense but a complex tense composed of two elements: a true tense [PRES/PAST] plus the abstract future modal *woll* I have referred to before in this section, which contributes a forward-shifting force¹⁶⁸.

Thus, the tense deletion rule optionally applies in contexts like (23) involving future tense, as illustrated in (32a-b):

(32) John will see the unicorn that is walking. [Ogihara 1996:82]

- a. PRES *woll* see [NP PRES walk] Non-SOT reading in (31a) above
- b. PRES *woll* see [NP ~~PRES~~ walk] SOT reading in (31b) above.

As shown in (32a), the present tense in the embedded complement is within the scope of the present tense component of *will* (*PRES* + *woll*), and as a result of tense deletion (32b), the sentence can receive a temporal interpretation in which the time of ‘walking’ is simultaneous with the time of ‘seeing’.

There is still a third condition to the rule. As noted by Ogihara (1995a:677, 1996:93, 2007:415), the SOT rule cannot apply in contexts like (33).

(33) John promised me yesterday [that he will tell his mother tomorrow

[that they were having their last meal together (when...)]].

[PAST promise [PRES *woll* tell [PAST meal *SOT

¹⁶⁸ It has long been assumed that there only exist two true tenses: the present tense [PRES] and the past tense [PAST] (for more detail see also Abusch 1997, Kratzer 1998, Matthewson 2006).

In (33) the past of the most deeply embedded clause (*that they were having their last meal together*) cannot undergo deletion triggered by the presence of past tense in the matrix (*John promised me yesterday*), and it must necessarily be interpreted to occur at a past time relative to the time of ‘*John’s telling*’. Ogiwara concludes that the cause of this must be the presence of an intervening future tense (*that he will tell his mother*). In other words, the SOT rule is subject to locality.

Thus, the complete formulation of the SOT proceeds as follows:

(34) *The SOT rule* (Ogiwara 1996:134)

If a tense feature B is the local tense feature of a tense feature A at LF, and A and B are occurrences of the same feature (i.e., either [+past] or [+pres]), A and the tense associated with A (if any) are optionally deleted. N.B.:

- a. The tense features include [+past] and [+pres] and nothing else.
- b. A tense feature A is “in the scope” of a tense feature B iff B is associated with a common noun and asymmetrically c-commands A, or B is associated with a tense or a perfect and asymmetrically commands A.
- c. A tense feature B is the local tense feature of a tense feature A iff A is “in the scope” of B and there is no tense feature C “in the scope” of B such that A is “in the scope” of C.

In conclusion, the presence of an intervening tense (a tense with a different value (PRES/PAST) than that of the matrix tense and the most embedded tense – as it happens in the case in the example in (34) (*John promised me yesterday [that he will tell his mother tomorrow [that they were having their last meal together (when...)]]*) with the presence of the PRES component of the future (PRES+*will*) – blocks the possibility of a SOT reading of the most embedded predicate, which cannot be interpreted as simultaneous with the intervening tense (i.e., the time of *having the meal* cannot be simultaneous with the time of *John’s telling*), but must rather be interpreted as a past relative to it.

5.4.3.1. Sequence of Tense (SOT) with infinitive complements

Wurmbrand (2011) uses the SOT phenomenon to show that future irrealis infinitives lack true syntactic tense.

She points at the contrast between the context in (34) above, where the tense component of the future (*PRES+will*) blocks deletion of the most embedded past tense and the possibility of a SOT reading, and contexts like (35) below, involving a future irrealis infinitive, where the SOT reading obtains.

(35) Future infinitives: $\sqrt{\text{SOT}}$

- a. John promised me yesterday to tell his mother tomorrow that they were having their last meal together.
- b. SOT reading: the time of having dinner might be interpreted to be ongoing with the time of John's telling (John promised me to say to his mother tomorrow: "We are (now) having our last meal together.")
- c. [PAST promise [Infinitive \emptyset will tell [PAST meal ...] $\sqrt{\text{SOT}}$

As shown in (35), the presence of an intervening future infinitive is not enough to cancel a possible SOT reading of the most embedded past tense, and this leads Wurmbrand to conclude that future infinitives are tenseless (see Grano 2012 for criticism).

5.4.3.2. Sequence of Tense (SOT) in the complements of *behar*

In this section, the presence of SOT intervention would allow me to confirm that the infinitival complements of Type III non-restructuring constructions, unlike those of Type I-II restructuring ones, do indeed involve a Tense head.

Let us first consider a case of SOT intervention involving an intervening finite future tense, similar to the one provided in (24) for English.

(36) SOT intervention with a finite verb bearing the future morpheme *-ko*:

- a. Jonek atzo agindu zuen [bihar amari esan-go
Jon.E yesterday promise HAVE.3sE(past) tomorrow mother.D say-fut
diola [azkenengo aldiz ari zirela elkarrekin afaltzen]].
HAVE.3sD3sE(pres) for-the-last-time prog. BE.3pA(past) together dining
'Yesterday John promised that tomorrow he will tell his mother that they
were/had been having dinner for the last time.'
- b. [PAST esan [PRES esan [PAST afaldu *SOT
The time of having dinner (ari zirela ... afaltzen 'were having dinner')
cannot be simultaneous with the time of telling (esango diola 'will tell her').
The finite future intervenes between the matrix past tense (esan zidan 'told
me') and the embedded one.

As shown in (36), in Basque, like in English, when a complement involving a past tense (e.g. *ari zirela ... afaltzen* 'were having dinner') is embedded by a finite verb exhibiting the future marker *-ko* (*esango diola* 'will tell her'), which is itself embedded by another past tense (*agindu zuen* 'promised'), the finite tense acts as an intervening blocking a possible SOT reading of the most embedded complement, in such a way that 'the time of having dinner' cannot be interpreted as simultaneous with 'the time of the telling' (as would be expected if the SOT rule had applied and the PAST tense had been erased at LF); rather, 'the time of having dinner' must be necessarily interpreted as prior (past) relative to 'the time of telling'; hence, as a true past.

Now, let us consider Type III constructions. The sentence in (37) illustrates Type III constructions: the infinitival complement follows predicate *behar* 'need' (*behar+inf*) and there is no matrix agreement with the dative argument (the indirect object *amari* 'to his mother') of the infinitival ditransitive verb (*esan* 'tell')¹⁶⁹.

¹⁶⁹ Note that a similar context is not possible in Type I-II constructions, since, as discussed in the previous section, these types of complements do not naturally admit the presence of conflicting temporal adverbs like *atzo* 'yesterday' and *bihar* 'tomorrow' (see lxxiii-lxxiv).

(lxxiii) *Atzo Jonek [bihar amari esan] behar zion Type II
yesterday Jon.E tomorrow mother.D tell need HAVE.3sD3sE(past)

(37) Jonek atzo behar zuen [bihar amari esan
 Jon.E yesterday need HAVE.3sE(past) tomorrow mother.D say
 [azkenengo aldiz ari zirela elkarrekin afaltzen]]
 last-time-for-the prog. BE.3pA(past) together have-dinner
 ‘Jon yesterday had to/needed to tell his mother tomorrow that they were
 having dinner together for the last time.

In the example in (37), as in the English counterpart in (35) above, the matrix past tense predicate (*atzo behar zuen* ‘yesterday (John) needed’) embeds a future infinitival complement (*bihar amari esan* ‘to tell his mother tomorrow’) which itself embeds a past tense finite complement (*azkenengo aldiz ari zirela elkarrekin afaltzen* ‘that they were having dinner for the last time’). However, crucially, in contrast with (35), the only possible temporal interpretation of (37) is one in which the time of having dinner precedes the time of telling. In other words, the sentence cannot have a SOT interpretation where the event of having dinner is ongoing with the event of telling (which is the one that would be expected if the infinitive was tenseless and the SOT rule applied).

I take the absence of the SOT reading in (37) to be due to the fact that the infinitival complement does indeed involve a tense with a different semantic value than the past tense of the modal. Given the parallelism with (36) and (33) above, this tense must be also be *PRES+will*, which acts as an intervener preventing the simultaneity of the most embedded past tense (*azkenengo aldiz ari zirela elkarrekin afaltzen* ‘that they were having dinner for the last time’) with the time of telling (*bihar amari esan* ‘to tell his mother tomorrow’) in the modal complement, as shown in (38b).

	[azkenengo aldiz ari zirela elkarrekin afaltzen]
	last-time-for-the prog. BE.3pA(past) together have-dinner
(lxxiv) *Atzo	Jonek behar zion [bihar amari esan
Type II	
yesterday	Jon.E need HAVE.3sD3sE(past) tomorrow mother.D tell
	[azkenengo aldiz ari zirela elkarrekin afaltzen]]
	last-time-for-the prog. BE.3pA(past) together have-dinner

Type I requires an unaccusative predicate and the type of embedding found in (lxxi-ii) is thus not possible.

(38) SOT intervention of *Type III* infinitival complement:

- a. Jonek atzo behar zuen (*zion) [bihar
 Jon.E yesterday need HAVE.3sE(past) (*HAVE.3sD3sE(past)) tomorrow
 amari esan [azkenengo aldiz ari zirela
 mother.D say last-time-for-the prog. BE.3pA(past)
 elkarrekin afaltzen]]
 together have-dinner
- b. [PAST need [Infinitive PRES+*woll* esan [PAST afaldu *SOT
*SOT intervention: the time of having dinner cannot be simultaneous with
 John's telling his mother. It must be past relative to the act of telling.*

To recap, in this section I have provided evidence coming from Sequence of Tense phenomena that the infinitival complements of Type III constructions involve independent tense. Using the same criteria as Wurmbrand (2011), I show that the infinitival complements of Type III non-restructuring constructions exhibit SOT intervention effects that can only be explained by the presence of an intervening tense head inside the complement. In this, the infinitivals of Type III constructions differ from the infinitival complements selected by future irrealis predicates in English (e.g. *promise*; example (35)), which involve a *wollP* but not a true tense head, and admit the SOT reading. In other words, the non-restructuring complements of Type III constructions pattern like the finite tensed complements (33) and (36), rather than like the future irrealis infinitival complements in (35), blocking the possibility of a SOT interpretation. This finding goes against the claim that the infinitives of modals are tenseless (Wurmbrand 1998, 2001), and provides strong evidence that Type III infinitival complements of *behar* involve an independent tense head.

5.5. NEGATION PROJECTIONS

This section is devoted to determine whether the different types of infinitival complements selected by *behar* contain a functional head associated with clausal negation. But before we proceed, let us summarize some of the main assumptions made in the literature with respect to negation in the context of restructuring.

It has often been argued that restructuring and non-restructuring infinitives contrast in their ability to license clausal negation. Along this line, Cardinaletti & Shlonski (2004: 527) argue that “the presence of clausal negation implies the projection of a full CP, which is incompatible with the phenomenology of restructuring” in Italian. This is illustrated in (39-40), where clitic climbing and auxiliary switch are blocked across the negative marker *non* ‘not’ in Italian.

(39) Incompatibility of clitic climbing in the presence of negation in Italian

(Cardinaletti & Shlonsky 2004)

- a. Vorrei [non dover mai farlo]
(I) would-want not (to) have ever (to) do.it
'I would want to not to have to ever do.it
- b. Vorrei [non doverlo mai fare]
(I) would-want not (to) have.it ever (to) do
- c. *[Lo vorrei non dover mai fare]
(I) would-want not (to) have ever (to) do

(40) Interaction of Negation and auxiliary switch in Italian

(Cardinaletti & Shlonsky 2004)

- a. Avrei volute [non andare da nessuna parte]
(I) would-have wanted not (to) go to any where
'I would have wanted not to go anywhere.'
- b. *[Sarei volute non andare da nessuna parte]
(I) would be wanted not (to) go to any where

However, some scholars report that, restructuring phenomena (e.g. clitic climbing and scrambling) are possible across infinitives that project clausal negation.

Thus, in contrast with the examples in (41-42), Cinque (2000, 2006a) observes that in some contexts (such as in certain modal constructions), clitic climbing appears to cross over negation in Italian:

(41) Clitic climbing across negation (Cinque 2000:)

- a. Per stare meglio, la dovresti non rivedere più
To feel better, her (you) should not see any longer
- b. La potrebbe anche non rivedere mai più
(He) her could even not see ever again
- c. Non ci si può non pensare
One cannot not think about it

Wurmbrand (2014) too provides evidence that restructuring phenomena are also possible across embedded sentential negation in languages such as Polish (34a-b) and German (34c-d)¹⁷⁰, where an embedded argument can undergo scrambling (a typical restructuring effect) to a position across the negative markers *nie* and *nicht* ('not').

(42) Scrambling across embedded negation in Polish and German

- a. Ktoś [tej sukienki]SCR nakazał [nie ubierać tSCR] Markowi
someone.NOM this dress.GEN ordered not put.on Mark.DAT
'Someone ordered Mark not to put on this dress.'
(Sabel 2001: 168, (54))
- b. Ojciec [żadnej sukienki]SCR kazał [nie ubierać tSCR] Markowi
father no.GEN dress.GEN told not wear Mark.DAT
'The father told Mark to not put on any dress.'
(Wurmbrand 2014)

¹⁷⁰ The German data was already treated in her Wurmbrand's early work (1998, 2003) where it was assumed that some infinitives could Project a TP but not a CP. The difference with respect to recent work is that in her early work she referred to these infinitives as reduced *non-restructuring* infinitives.

- c. weil die Maria ihrem Sohn nicht zu helfen
 since the Mary her son-D not to help
 'since Mary decided not to help her son'
 - d. weil ihm die Maria den Kuchen nicht zu essen vorschlagen hat
 since him-D the Mary the cake-ACC not to eat proposed has
 'since Mary proposed to him not to eat the cake'
- (adapted from Wurmbrand 2001: 282)

Wurmbrand takes these to be instances of focus scrambling, a phenomenon which takes place when the embedded argument moves out of the complement to the matrix focus position due to absence of complement internal C-projections. In her view, what this phenomenon indicates is that negation must be located in a domain lower than the CP domain; namely, in the inflectional (TP) domain (Grohmann 2003). In other words, in contrast with what is assumed by C&S's (that negation, which is located in the CP, blocks all restructuring), Wurmbrand (2014) argues that in the German examples in (42a-d), negation is in a position in the inflectional (TP) domain (not in the operator domain (CP)) domain; that is why restructuring phenomena like focus scrambling is licensed across negation.

It has long been argued that negation can not only surface/take scope in a single syntactic position in the clause (Zanuttinni 1997; Butler 2003; Haddican 2004, 2007; De Clerq 2013; among others). Cinque (2000) himself suggests, in relation with the Italian examples in (33), that sentential negation can take different scope positions in Italian¹⁷¹. Let us briefly consider some main assumptions made in the literature about the syntactic positions where negation can appear.

Many scholars have argued for the existence of a Polarity Phrase (or Sigma Phrase) located higher than TP, in the left periphery of the clause, where negation can scope (Laka 1990, 1994; Haegeman 1995; Cormack and Smith 2002; Haddican 2004,

¹⁷¹ Cinque (2000: 25-26) states that the contrast 'could have to do [...] with the (canonical, or unmarked) locus of sentential negation, which "can occupy more than one position in the presence of scope bearing elements" (e.g. modals).

2007; Poletto and Zanuttini 2013, De Clercq 2013, among others). Thus, when negation is interpreted in this position it takes scope over the TP/proposition.

In addition, some scholars affirm that there is a lower position associated with negation located below Tense (see Zanuttini 1997, Butler, 2003, Poletto 2008, De Clercq 2013 and Holmberg 2016, among others). For Butler (2003) and De Clercq (2013), this position corresponds to the lower FocP in the extended functional domain above the vP/VP¹⁷² (Belletti 2004a-b; Jayaseelan 2008). This position is comparable, as argued by De Clercq (henceforth DC) (2013), to what Zanuttini (1997) refers to as NegP2¹⁷³, and Poletto (2008) calls MinimizerP ((in Holmberg's 2016 account it is referred to as *middle* negation). In DC's view, the negative markers scoping in this position do not take scope over the tensed predicate, rather, their scope is restricted to the untensed predicate (i.e. the extended vP).¹⁷⁴

In what follows I will present evidence in support of the claim that there exist two positions for negation in Basque, one in the higher CP periphery and another one in the lower vP/VP periphery. Concretely, I will be assuming, following Etxepare & Uribe-Etxebarria (2010a-b), that although some restructuring phenomena are allowed

¹⁷² Butler (2003) and DeClercq (2013) take it to correspond to the FocP in the extended vP domain (Belletti 2004, 2005).

¹⁷³ For Zanuttini (1997) this is the position of “negative markers that cannot deny the clause by themselves”. In her view, these negative markers originate in a lower structural position (as specifiers who left-adjoin to an existing functional head) and head-move to a pre-verbal position below AgrP. Poletto (2008) is not clear on the precise location of *minimizer* negation. Like De Clercq (2013), Poletto assumes that the four different types of negative markers that exist are generated in a SplitNegP. These markers must then move/agree with their corresponding projections located higher in the clausal spine. However, she does not specifically give the precise location of these higher projections. We find a reference to the location of *minimizer* negative markers in Garzonio & Poletto (2013), who situate it in the vP; however, De Clercq refers to Breitbarth (to appear), who reports that Poletto (p.c) confirmed it is on top of the vP.

¹⁷⁴ De Clercq (2013) distinguishes other functional projections below the aforementioned ones that have been also related with negation: Degree Phrases (DegP) and Quantifier Phrases; however, both scope below tensed and untensed predicates. However, DegNeg markers and QNeg rather express predicate term negation.

(lxxv) She is very nonprofessional (*non* scopes only above *professional*, not *very*) *DegNeg*
 (lxxvi) She is very unhappy *QNeg*

across negation when the latter occupies a position in the lower periphery of the infinitival vP/VP, the same restructuring phenomena is impossible when the higher left periphery is projected and negation takes scope in the higher PolP.

In relation to this, I will show that the different types of modal constructions under analysis can be divided in three different groups according to their interaction with negation. The first group is formed by those constructions that disallow the presence of a negative marker inside their infinitival complement, which are those restructuring constructions in which the complement surfaces to the left of the necessity modal *behar* (*inf>behar*) (that is, functional restructuring (Type I) and lexical restructuring (Type II). The second group is formed by the lexical restructuring constructions where the complement appears to the right of *behar* (*behar>inf*); these admit the lower (vP/VP-level) negation, but not the higher (CP-level) negation, akin to the Polish and German lexical restructuring constructions discussed by Wurmbrand (2014). The third group corresponds to the non-restructuring constructions, which admit the higher (CP-level) negation, unlike the previous two.

5.5.1. The contrast between *inf>behar* and *behar>inf* constructions

Etxepare & Uribe-Etxebarria (2010a-b) show that when the infinitival complement precedes modal *behar* (*inf>behar*), negation is blocked in any position within the infinitival complement. In their analysis, they only consider the constructions where *behar* occurs with auxiliary **edun* ‘HAVE’, and the subject surfaces with ergative case (43a-c), that is to say, Type II (*inf>behar*) constructions of the classification in Chapter 4; however, as I show in (43c-d), the same conclusion holds for the constructions where the auxiliary chosen is *izan* ‘BE’ and the subject is absolutive (Type I construction).

(43) Type I and II (*inf>behar*) constructions: **embedded negation*

a. **Zu-k etxea-n ez geratu behar duzu.*

You-E home-loc neg stay need HAVE.2sE

- b. *Zuk ez etxea-n geratu behar duzu.
 You-E neg home-loc stay need HAVE.2sE
- c. *Zuk etxea-n geratu ez behar duzu.
 You-E home-loc stay neg need HAVE.2sE
 (E&UE 2010b, examples (16a-c))
- d. *Zu etxea-n ez geratu behar zara.
 You-A home-loc neg stay need HAVE.2sA
- e. *Zu ez etxea-n geratu behar zara.
 You-A neg home-loc stay need HAVE.2sA
- f. *Zu etxea-n geratu ez behar zara.
 You-A home-loc stay neg need HAVE.2sA
 ‘You need/must not stay at home.’

Consider now the constructions where the infinitival complement follows modal *behar* (*behar*>*inf*) and there is no matrix agreement with the embedded arguments; hence, Type III constructions of our classification. The speakers of the varieties which naturally allow these types of constructions admit the presence of complement internal negation. Actually, for some of these speakers¹⁷⁵ the negative marker *ez* can occur in different surface positions: following the absolutive argument (44a) or preceding it (44b); in either case, the construction is judged grammatical.

(44) Type III constructions: *√embedded negation*

- a. Behar dut liburu hauek ez galdu/ahaztu.
 need HAVE.1sE book these.A neg lose/forget
 (E&UE 2010b, examples (58b))
- b. Behar dut ez liburu hauek galdu/ahaztu.
 need HAVE.1sE neg book these.A lose/forget
 (E&UE 2010b, example (37))

¹⁷⁵ It must be noted that there is considerable variation among the speakers questioned (all original from the Low Bidasoa region and Oarsoaldea), as to the positions where negation is allowed. Whereas, for some, negation is allowed both before and after the absolutive argument, others do not seem to like the constructions where negation precedes the absolutive (i.e. 44b).

In view of the contrast between the data in (43) and (44), one would be tempted to conclude that, in these modal constructions, restructuring phenomena (e.g. agreement with the embedded arguments) is blocked in the presence of embedded negation, as it was the case in the Italian modal examples presented by C&S (cf. 33). However, as E&UE show, this is not correct: some speakers do admit agreement with the embedded arguments across negation (that is to say, they admit negation in the constructions we have classified as Type II (*behar>inf*)), but it is subject to one condition: negation must not precede the absolutive argument, as shown by the contrast between (45a) and (45b).

(45) Agreement with 3rd person absolutive arguments

- a. Behar dut ez liburu hauek ahaztu.
 need HAVE.1sE neg book these.A forget
- b. ??Behar ditut ez liburu hauek ahaztu.
 need HAVE.3pA.1sE neg book these.A forget
 (E&UE 2010b, examples (36) & (37))
 →NEG>ABS: *agreement with 3rd p. abs blocked*
- c. Behar dut liburu hauek ez ahaztu.
 need HAVE.1sE book these.A neg forget
- d. Behar ditut liburu hauek ez ahaztu.
 need HAVE.3pA.1sE book these.A neg forget
 ‘I need to/must not forget these books.’
 (E&UE 2010b, examples (58a-b))
 →ABS>NEG: *agreement with 3rd p. abs optional*

As illustrated in (45b), when the negative marker *ez* surfaces after the absolutive argument (*liburu hauek* ‘these books’), the auxiliary of the construction can optionally agree with the absolutive argument (*dut* ‘HAVE.1sE’ / *d-it-ut* ‘HAVE.3pA.1sE’). If, on the contrary, *ez* precedes the absolutive argument, as in (45a), the same speakers avoid agreement with the absolutive argument.

Let us sum up the data presented so far and reflect on what this might point to:

- (i) The infinitives that surface to the right of *behar*, unlike those that surface to the left of this modal, can host negation (44-45).
- (ii) There are two positions in which negation can surface within these infinitives: before or after the absolutive argument (for simplicity, let us refer to them as NEG>ABS and ABS>NEG)
- (iii) Some restructuring phenomena (e.g. agreement with the 3rd person absolutive argument) are possible, although not obligatory, when negation surfaces in the lower ABS>NEG position.

The fact that a change in the word order between the negative marker *ez* and the absolutive argument affects the availability of matrix agreement with the embedded 3rd person argument suggests the existence of two different structural positions associated with negation, which interact differently with the licensing of agreement with the 3rd person absolutive argument: a higher position which blocks this sort of restructuring phenomena, and a lower one which does not. In short I will elaborate on the details regarding the syntactic difference underlying the two word order configurations (NEG>ABS and ABS>NEG) and I will also provide independent evidence for the existence of the two positions for negation in Basque. But before, let us for a moment turn to another intriguing question raised by *behar>inf* structures: the one concerning the asymmetries between 3rd person and 1st/2nd person agreement.

5.5.2. Asymmetries between 3rd person and 1st/2nd person agreement

Recall that in Chapter 4 we referred to some asymmetries exhibited by 3rd person and 1st/2nd person agreement in the constructions in which the infinitival complement follows the Basque necessity modal *behar*: while 3rd person agreement appears to be optional, agreement with 1st/2nd person pronoun is obligatory. The examples are repeated for convenience:

- (46) 1st/2nd person agreement (obligatory) vs. 3rd person agreement (optional)
- a. (Ni-k) behar zaitut (*dut) [(zu) etxe-ra eramán]
 - I-E need HAVE.2sA.1sE HAVE.2sA.1sE you-A home-to take
 - ‘I need/must take you home’

- b. Zuk behar nauzu (*duzu) [(gu) etxera eraman]
 You.E need HAVE.2sA.1sE HAVE.2sA.1sE us-A home-to take
 ‘You need/must take us home’
- c. Lagun-ek behar digute (??dute) [(guri) lagundu]
 Friends-E need HAVE.1pD.3pE HAVE.1pD.3pE (1pD) help
 ‘Our friends need to/must help us.’
- d. (Ni-k) behar dizut (??dut) [zu-ri liburua eman]
 (1sE) need HAVE.2sD.1sE HAVE.2sD.1sE (you-D) book.A give
 ‘I need to/must give you the book.’

Interestingly, the same asymmetries can be observed when the infinitival complement contains lower, post absolute negation (ABS>NEG): whereas agreement with the 3rd person is optional (as shown in (47a)), speakers find the example degraded when the auxiliary does not agree with the embedded absolute pronoun (47b).

(47) *Obligatory 1st/2nd person agreement in Abs > Neg*

- a. (Ni-k) behar zaitut zu ez eraman.
 I need HAVE.2sA.1sE you-A neg take
- b. ??(Ni-k) behar dut zu ez eraman.
 I need HAVE.1sE you-A neg take
 ‘I need to/must not take you.’
 (E&UE 2010b, examples (57a-b))

It must be however noted that, even if 1st/2nd person agreement differs with respect to 3rd person agreement in that it is obligatory both in the absence or presence of low negation (ABS>NEG), the two types of agreement are prohibited when negation surfaces in the higher position before the absolute argument (NEG>ABS).

(48) *Neg > ABS: 1st/2nd p.agreement blocked*

Behar dute (*naute) ez ni gonbidatu,
 need HAVE.3sE(/*HAVE.1sA.3sE) neg 1sA invite
 ez ba-dute eskandalu-rik nahi.
 neg COND-HAVE.3sA.3sE scandal-PART want
 ‘I need to/must not forget you’

As advanced in the previous chapter, E&UE take these 3rd vs. 1st/2nd person agreement asymmetries to be related to the fact that 3rd person agreement and 1st/2nd person agreement obey different licensing conditions: 3rd person agreement is number agreement and is established via an Agree relation. By contrast, 1st/2nd person agreement is the product of clitic climbing (Etxepare 2006, Etxepare & Uribe-Etxebarria 2010b). As argued by these authors, that number and person agreement are different mechanisms is further supported by the different behaviour of 3rd person/number agreement and 1st/2nd person agreement in other contexts too, as for instance, in the phenomenon known as Long Distance Agreement (LDA) in substandard Basque. Let us briefly summarize these differences.

5.5.2.1. Licensing conditions of 3rd person vs. 1st/2nd person agreement: LDA in substandard Basque

As shown next, LDA with the 1st person plural person is possible across restructuring infinitives headed by *-tzen* (see Arteatz 2012 for the restructuring nature of *-tzen* complements), and can occur across more than one restructuring complement (49a-c). However, it is prohibited across non-restructuring *-TZE*A complements of verbs like *baztertu* ‘decline’ (49c). The examples are from Etxepare (2011).

(49) LDA person agreement in restructuring contexts (Etxepare 2011)

- | | | |
|----|---|---|
| a. | Munipak [Non-finite gu botatzen] saiatu dira
Policemen-abs us-abs ousting try Aux[3pplA]
“The policemen tried to oust us” | |
| b. | Munipek [Non-finite botatzen] saiatu gaituzte
policemen-erg ousting try Aux[3pplE-1psgA] | <i>Restructuring</i>
√Person LDA |
| c. | *[zu ekartzea] baztertu zaitugu
you-abs recruiting decline Aux[1pplE-2p.sg.A] | <i>Non-restructuring</i>
*Person LDA |
| | “We declined recruiting you” | |

Number agreement, however, can occur across propositional non-restructuring complements (50b), but cannot cross more than one clausal domain (50c), as it is

subject to locality conditions that prevent it from operating across the boundaries of a tensed clause (e.g., Chomsky’s 2000, 2001; Phase Impenetrability Condition).

(50) Number/3rd person agreement in non-restructuring contexts (Etxepare 2011)

- a. [Atzerritarrak ekartzea] baztertu dute
foreigners-abs recruiting decline HAVE. 3sA.3pE
“They declined recruiting foreigners”
- b. [Atzerritarrak ekartzea] baztertu dituzte
foreigners-abs recruiting decline HAVE.3pA.3pE
“They declined recruiting foreigners”
- c. *[Non-finite[Non-finite gutunak bidaltzen] segitzea] pentsatu ditugu
You-D letters-A send continue plan HAVE.1pE. 3pA
‘We decided to continue sending you letters’

Etxepare (2011) further argues that, since number agreement is the product of Agree, it is as expected subject to defective intervention; that is to say, the matrix auxiliary cannot enter into an Agree relation with a given noun phrase if there is another noun phrase structurally closer to it (e.g., Chomsky 2001, McGinnis 1998). This is reflected by the contrast in (51a vs. 51b), where the dative DP intervenes between the auxiliary and the embedded object blocking number LDA with the latter.

(51) LDA intervention

- a. Jonek_i [e_i liburu batzuk eros-tea] erabaki ditu.
Jon-E book some-pA buy-tzea-D decided HAVE.3pA.3sE
‘Jon decided to buy some books.’
- b. *Joneki [ei Mireni liburu batzuk eroste] erabaki ditu
Jon-E Miren-D book some-pA buy-tzea-D decided HAVE.3pA3sE
‘Jon decided to buy Miren some books’

Once clarified that 3rd and 1st/2nd person agreement obey different licensing conditions, let us now consider what the asymmetric behaviour of these distinct phenomena indicates about the underlying structure of *behar>inf* constructions.

5.5.3. Number vs person agreement and the underlying structure of *behar+inf*

Let us first consider the cases where the negative marker (*ez*) is either not involved or surfaces in the low post absolute position (ABS>NEG). Why should 3rd person number agreement be optional but person agreement/clitic climbing obligatory in these two contexts?

5.5.3.1. Two potential constructions for ABS>NEG configurations

E&UE argue that the constructions where negation surfaces after the absolute argument correspond potentially to two different underlying structures, one involving a tenseless infinitive and low negation (I will refer to low negation projection as Foc/NegP), and the other one involving a tensed infinitive and low negation, as illustrated in (52a-b):

(52) Constructions underlying the word order ABS>NEG:

- a. Aux [_{XP=UNINFLECTED COMPLEMENT} DP X⁰ [_{NegP}¹⁷⁶ Neg⁰ [_{VP}...]]]
- b. Aux [_{TP=UNINFLECTED COMPLEMENT} T⁰ [_{XP} DP X⁰ [_{NegP} Neg⁰ [_{VP}...]]]]

In (52) X⁰ is meant to represent an agreement head located in a position above Foc/NegP, the syntactic position licensing low post absolute negation.

Below, I provide independent evidence in support of E&UE's assumption that the ABS>NEG word order correlates with low (NegP) rather than high negation (which I will refer to as PolP). The evidence has to do with the surface position of arguments that bear the partitive suffix *-rik*.

In negative contexts, indefinite objects surface with partitive rather than with absolute case (53).

¹⁷⁶ Following Uriagereka (1992) and Vicente (2004), E&UE take the agreement head X⁰ to be external to the projection headed by the position licensing low (post absolute) negation, which they refer to as PolP. I will be instead using NegP for low negation and PolP for the higher left peripheral negation (also known as SigmaP).

(53) Jon-ek ez du diru-rik ekarri.
Jon.E neg HAVE.3sE money.PART bring
'John hasn't brought (any) money.'

Following what we have said above in section 5.2., there are reasons to think that partitive indefinites must remain in a vP internal position. First, they can only receive an existential reading, what indicates that they do not leave the vP and their variable is bound by the existential closure (Diesing 1992). This is not only the case of Basque, in Slavic languages too objects bearing partitive morphology must remain within the existential closure: as observed by Fischer (2003), they are never allowed in initial position (unlike when they bear other cases), as shown in (54a-c) and (54e); they are much better following the verb, as shown in (54d) and (54f):

(54) Position of partitive in Slavic (Fischer 2003)

- a. *Saxaru bylo dobavleno v čaj Russian
sugar.PART was added in tea
- b. ???saxaru ne bylo dobavleno v caj
sugar. PART not was added in tea
- c. *saxaru vse-takie bylo dobavleno v čaj
sugar. PART however was added in tea
- d. V caj bylo dobavleno saxaru
In tea was added sugar. PART
- e. */???/ Cukru był dodane do herbaty Polish
Sugar. GEN-PART was added to tea
- f. Do herbaty był dodane cukru
in tea was added sugar.GEN-PART

Second, as argued by Vicente (2005), in Basque partitive objects tend to follow manner adverbs, what he also interprets to mean that they do not move out of the vP .

(55) Jon-ek ez du astiro libururik irakurri
Jon.E neg HAVE.3sA.3sE slowly book.PART read
'Jon hasn't read any books slowly'

If this is on the right track and partitives must remain inside the vP, the fact that they can precede the negative marker *ez* in the *behar>inf* modal configuration, as shown in (56), must be taken to indicate that the negative marker is here occupying a lower position than the left peripheral PolP¹⁷⁷.

Summing up, the data in (56) provides evidence that low (vP-related) negation is possible in *behar>inf* configurations, and assumption that will also allow us to successfully account for the agreement asymmetries exhibited between the ABS>NEG and the NEG>ABS word order alternation in the infinitival complement of *behar>inf* configurations.

(57) $\text{Aux}_{[\text{uNumber}]} [\text{XP DP}_{[\text{Number}]} \text{X}^0 [\text{NegP } e_z \text{ Neg}^0 [\text{VP} \dots]]]$

¹⁷⁷ Note that this position must be a vP-internal position, so it is in fact quite low (even lower than the FocP position located in Belletti's extended vP periphery). Crucially, the idea that the negative markers that co-occur with partitives originate in a vP internal position is also pursued in Garzonio and Poletto (2013) (the reader is referred to the cited work and references therein for the details).

the 1st and 2nd person clitics will still be able to climb into the matrix auxiliary across the infinitival TP¹⁷⁸ (50b).

- (58) a. $\text{Aux}_{[\text{uNumber}]} [\text{TP } T^0 [\text{XP } \text{DP}_{[\text{Number}]} X^0 [\text{NegP } e_z \text{Neg}^0 [\text{VP} \dots]]]]$
 $\underbrace{\hspace{1.5cm}}^* \underbrace{\hspace{1.5cm}}/$
 b. $\text{Aux}_{[\text{TP } \text{CL}_{1/2} T^0 [\text{XP } \text{CL}_{1/2} X^0 [\text{NegP } e_z \text{Neg}^0 [\text{VP} \dots]]]]}$
 $\underbrace{\hspace{1.5cm}}/$

The agreement asymmetries exhibited by ABS>NEG constructions thus receive a principled explanation under E&UE's proposal: the two types of agreement behave as expected in the two potential constructions in (57) and (58a-b), assumed to underlie ABS>NEG configurations.

On the one hand, as shown by these authors, the apparent optionality exhibited by number agreement (45c-d) is just an illusion. That is to say, it is not the case that number agreement is optional; rather, it is the fact that there exist two different structures underlying the ABS>NEG constructions – one where number agreement is licensed (57) and the other one where it is not (58a) – that makes it look like number agreement is optional.

On the other hand, the contrasting obligatoriness of 1st/2nd person agreement (47a-b) & (46a-b) simply reflects that, unlike number agreement, person clitics are able to climb into the auxiliary across both tenseless and tensed complements.

5.5.3.2. Tense in the absence of negation in *behar* + *inf*: SOT intervention

Let us now turn to the *behar*>*inf* constructions in which negation is absent (e.g. 46a-d). By parity of reasoning, the asymmetrical behaviour exhibited by number and person agreement in these configurations must be once again attributed to the existence of two underlying constructions: one involving a tenseless infinitive (59a) and the other one a tensed one (59b).

¹⁷⁸ In E&UE's account, clitic climbing is allowed because the clitics can circumvent the addition of an embedded Tense head by moving to a head that c-commands it (Kayne 1994).

(59) Two potential constructions underlying *behar>inf* (ABS>NEG)

- a. Aux [XP=UNINFLECTED COMPLEMENT DP X⁰ [_{NegP} *ez* Neg⁰ [VP...]]]
- b. Aux [TP=UNINFLECTED COMPLEMENT T⁰ [XP DP X⁰ [_{NegP} *ez* Neg⁰ [VP...]]]]¹⁷⁹

In (59a-b) number and person agreement operate as described above (57-58): number agreement is licensed via Agree in (59a), but is blocked in (59b) by the projection of the complement internal TP; by contrast, clitic climbing is always available both across the tenseless (59a) and the tensed (59b) infinitival complements.

Now, the alleged presence of complement internal tense in this type of complements in which person agreement is obligatory allows us to make another prediction: these infinitivals should also be able to license conflicting time adverbs (i.e. adverbs that refer to distinct points in time) and trigger a SOT intervention effect (as described in Section 5.4.2.). As reported by my informants, this prediction is borne out. Consider the sentence in (60):

(60) Interaction of person agreement with SOT:

- a. Jonek aspaldi behar zidan gaur esan azkenengo aldiz
 Jon.E long-ago need HAVE.1sD.3sE today say last-time-for-the
 ari ginela elkarrekin bazkaltzen
 prog. BE.1pA(past) together have-dinner
 ‘Long ago John needed to tell me today that we were having dinner for the
 last time.’
- b. [PAST need [Infinitive PRES esan [PAST afaldu *SOT
 *SOT intervention: the time of having dinner cannot be simultaneous with
 John’s telling. It must be past relative to the act of telling.*

¹⁷⁹ Recall from the introduction to this subsection (3.3.) that it has been assumed that the lower position for Negation under discussion corresponds to the low FocP in the periphery of vP (Belletti 2003, 2004). De Clercq (2013) assumes that the low Foc^{NegP} is only activated when needed, just like the FocP and TopicP projections in Rizzi’s left periphery (1997), hence the reason why it appears faded in (59b).

The sentence in (60) cannot have an interpretation in which the time of ‘having dinner’ is simultaneous with ‘John’s telling’ (the time of ‘having dinner’ must necessarily be interpreted as past relative to the time of ‘telling’, as shown in (60b)), so there is no Sequence of Tense reading. Under the assumption that the absence of a SOT reading is due to the presence of an intervening tense (Ogihara 1996), it follows that the infinitival complement of (60) is in fact a tensed complement.

Actually, if the assumption that person agreement, unlike number agreement, can be licensed across a TP sized infinitive is correct, we should also expect complement internal aspect to be licensed in this context. As shown in (61), the same speakers perceive a contrast between the infinitives exhibiting number and person agreement with respect to their ability to co-occur with the perfective auxiliary *izan* (Section 5.3.2.), so this expectation is also borne out.

(61) Person vs number agreeing *behar>inf* infinitives and Aspect

- a. *Behar zenituzke betaurreko berriak erosi izan.
 need HAVE.3pA.2sE glasses new.pA buy AUX_{perf}
 ‘You should have bought new glasses.’
- b. Behar zeniguke gezurrak aitortu izan
 need HAVE.1pD.2sE lies.pA confess AUX_{perf}
 ‘You should have confess the lies to us’

Summing up, the fact that the *behar>inf* constructions exhibiting person agreement admit the presence of the perfective auxiliary *izan* and trigger SOT intervention effects provides independent evidence for the fact that person agreement/clitic climbing, unlike number agreement, can be licensed across infinitivals of a larger size (AspP and TP).

5.5.3.3. The blocking effect of higher (NEG>ABS) negation

Let us now consider the *behar>inf* cases where both number and person agreement are not licensed (40).

Recall that, unlike in the afore-described cases, in these configurations negative markers surface in a position preceding the absolutive argument: NEG>ABS. As mentioned before, this word order might be taken to signal that negation occupies a structural position different from that in ABS>NEG constructions. Following Haddican (2004, 2007), E&UE (2010a-b) assume that this position is the higher PolP position in the left periphery of the clause. Below I briefly introduce the evidence provided by Haddican (2004, 2007) in support for PolP in Basque.

Haddican (2004, 2007) argues that, in Basque, the negative marker (*ez*) raises from a low, base generated position to a Polarity Phrase located quite high up in the left periphery of the clause. An argument to place the Polarity Phrase so high up in the structure is the order in which the evidential particle *omen* surfaces relative to *ez* ‘not’, as shown in the next examples:

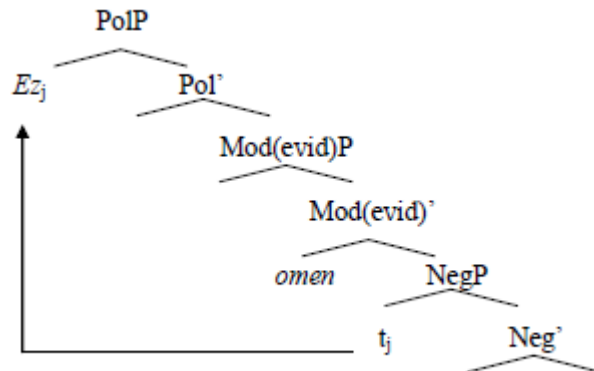
(62) Scope of *omen* relative to negation

- a. Ez omen zen Oiartzunen jaio, # baina ez omen zen
 No Mod_{evd} BE.3sA Oiartzun-in born but not Mod_{evd} BE.3sA
 kanpoan jaio ere.
 outside born also
 ‘They say he wasn’t born in Oiartzun, # but they say he wasn’t born outside
 (Oiartzun) either.’
- b. Ez omen zen Oiartzunen jaio, baina ez zen
 No Mod_{evd} BE.3sA Oiartzun-in born but not BE.3sA
 kanpoan jaio ere.
 outside born also
 ‘They say he wasn’t born in Oiartzun, but he wasn’t born outside (Oiartzun)
 either.’

As shown in (62), the evidential particle *omen* follows the negative marker *ez* ‘not’; however, *omen* is interpreted in a scope position above negation, as evidenced by the infelicity of the continuation. (Note that if *omen* is removed from the continuation (62b) the sentence is grammatical. This can only mean that the infelicity comes from the presence of *omen*, which must be interpreted out of the scope of negation, as in the case

of the felicitous (62b)). In Haddican's view, what this suggests is that, at the level of interpretation, *ez* undergoes reconstruction from its surface position above the evidential particle to a lower position. Haddican argues that the surface position must correspond to the Polarity Projection in the left periphery. By contrast, the merging position of negation is a NegP located below evidential and speech act particles (Cf. Cinque 1999) and Tense. The reconstruction operation is illustrated in (63).

(63) Clause structure of negated sentences in Basque (Haddican 2007: 16)



Haddican further affirms that, when the lower polarity projection has no overt specifier (negation or affirmation), the whole polarity phrase, including the VP, raises to the specifier of PolP. This produces the order *VP Aux* in Basque (see Haddican 2007 for the details).

Back to the underlying structure of NEG>ABS constructions, what E&UE propose is the structure in (64), with two positions available for negation: the left peripheral PolP and the lower VP-peripheral position.

(64) Aux [_{PolP1=UNINFLECTED COMPLEMENT} *ez* Pol⁰ [_{TP} T⁰ [[_{XP} DP X⁰ [_{NegP2} Neg⁰ [VP...
(adapted from E&UE 2010b)

In (64), unlike in the *behar>inf* (ABS>NEG) constructions described above, the infinitival complement projects a polarity phrase (PolP), to the specifier of which the negative marker *ez* is attracted to (Haddican 2007, E&UE 2010b). This PolP is located in the external periphery of the clause; hence, these infinitival complements are full, non-reduced clauses.

It is widely assumed that the projection of functional projections in the left periphery blocks the presence of restructuring phenomena. This is particularly evident in languages which possess overt infinitival complementizers and thus unambiguously reveal the presence of a CP, as in Polish (Wurmbrand 2014: 3).

(65) No CC across infinitival complementizer (Polish)

- a. Jan { *pieniądze / *je } nalegał *(żeby) {pieniądze / je } zostawić
 Jan { *money / *them } insisted *(so.that) { money / them } leave.INF
 ‘Jan insisted on leaving the money/them.’
 - b. Jan książkę / ja postanowił (*żeby) przeczytać
 Jan book / it decided (*so.that) read.INF
 ‘Jan decided to read a/the book/it.’
- (M. Dadan, p.c. cited in Wurmbrand 2014)

Thus, the fact that in (65) clitic climbing is blocked in the presence of the overt infinitival complementizer *żeby* ‘so that’ is taken to evidence that the CP is an opaque domain for this type of phenomena.

Therefore, under the assumption that when *ez* surfaces preceding the absolutive, this is occupying the CP-peripheral PolP, rather than the lower position in the periphery of vP, as illustrated in (64), the incompatibility of number and person agreement with the arguments of the embedded infinitival is correctly accounted for.¹⁸⁰ This is true only if you have DPs that have to be interpreted as definite and must therefore move out of VP. Otherwise, you could have the order neg abs both with low and high neg.

¹⁸⁰ Note that in some contexts it is possible not to have 1st/2nd person agreement with the embedded infinitival arguments in affirmative contexts where the infinitival higher PolP is not filled by a negative marker. Consider for instance the following sentences:

- (lxxvii) Kontuz! Horrek behar du(/gaitu) zu ta biok elkarren kontra jarri.
 Beware! That.E need HAVE3sE/HAVE.1pA.3sE you and me reciprocal against position
 ‘Beware! That one must separate us both.’
- (lxxviii) Mikelek behar du(/gaitu) whatsapp-a dugun guztiok talde batean bildu.
 Mikel.E must HAVE3sE/HAVE.1pA.3sE whatsapp.A HAVE1E.rel all group one-in join
 ‘Mikel must join all of us who have whatsapp in a group.’

This is correctly predicted under the assumption that these examples in fact correspond to Type III non-restructuring constructions projecting an opaque clausal structure.

5.5.4. Conclusions on the interaction of negation and restructuring phenomena

I have opened Section 5.5. with a discussion around the controversy regarding, on the one hand, the alleged incompatibility of embedded negation with the phenomenology of restructuring and, on the other hand, the locus of negation in the clausal hierarchy.

The analysis of the Basque modal constructions offered here has contributed to shed light on these two questions. On the one hand, it is attested that negation is not circumscribed to a single position in the clause in Basque, along the line proposed by (Zanuttini 1997, Poletto 2008, Haddican 2004, Etxepare & Uribe-Etxebarria 2010b, De Clercq 2013, among others). Negative markers in Basque can either scope in a lower position in the periphery of the vP/VP, below Tense, or in a higher position associated to polarity in the higher periphery of the clause, above Tense.

On the other hand, it is shown that the infinitival complements of *behar* vary with respect to their syntactic complexity, sometimes despite a uniform appearance on the surface. Whereas some of these infinitivals can license the two positions associated to negation, some others only project the lower one, and others none of them at all.

Below I provide a (re-)classification of the different types of infinitivals selected *behar*, attending to their interaction with negation and agreement phenomena¹⁸¹:

- i. Reduced ([vP[VP]]) size infinitival complements which do not license any type of negation and surface to the left of modal *behar* (*inf*>*behar*). These complements do not contain either high or low negation¹⁸²; and obligatorily exhibit number and person agreement.

¹⁸¹ Recall that this variety of structures have been particularly attested by some of the speakers of the varieties of Central Basque spoken in the region surrounding the French border, in which this word order occurs more naturally.

¹⁸² I will go back to this in Chapter 6, where I show that it is not actually the case that the infinitives which surface to the left of the modal, unlike those which surface to the right of it, do not contain low negation, but rather, the presence of the negative marker *ez* in a position inside the infinitival complement preceding *behar* is prohibited for independent reasons that have to do with the constraints on the linearization (more specifically, with the so-called Final Over Final Constraint (Hawkins, 1983, 1995; Holmberg, 2000; Biberauer et al., 2008, to appear; Sheehan, 2013, 2012a,b; Biberauer et al., 2009,2010;

As shown in examples (45a-f), the complements of Type I functional restructuring constructions (auxiliary *izan* ‘BE’) and Type II (*inf*>*behar*) restructuring constructions (auxiliary **edun* ‘HAVE’) of the classification in Chapter 4 correlate with this type.

- ii. Reduced infinitival complements which project low NegP (ABS>NEG) negation, but lack a TP ([NegP[vP[VP]]]). They also exhibit both number and person agreement.

The infinitival complement of the type illustrated in example in (47d) & (48a) correlate with this type of structure (previously grouped under Type II (*behar*>*inf*) restructuring constructions too (Table X , Ch.4).

- iii. Reduced infinitival complements projecting a TP, but lacking a higher CP periphery ([TP[vP[VP]]]). Like the previous type, these complements can also locate lower (ABS>NEG) negation; however, only person agreement/clitic climbing is allowed (number agreement is blocked).

They are also characterized by exhibiting SOT intervention.

The infinitival complements of the examples in (48c), (49a) & (58) correlate with this type of structure (previously unnoticed in our classification (Table X , Ch.4).

- iv. Non-reduced infinitival complements projecting a full clausal structure ([PolP..[TP[[vP[VP]]]]).

In addition to the clause internal low Foc/NegP (ABS>NEG) negation, these complements can also host left peripheral PolP, and are opaque to both number and person agreement.

The infinitival complements of the examples in (47a) & (50) correlate with this type of structure (corresponding to Type III constructions (Table X , Ch.4).

The different properties of each construction are summarized in the next table:

Haddican & Etxepare 2013). Under this assumption, the infinitives corresponding to Types I and II would not differ with respect to the possibility of licensing low NegP.

Table 8 Embedded negation, agreement phenomena and the underlying structure of the infinitival complements of behar

	Functional Restructuring	Lexical Restructuring			Lexical Non-restructuring
		I.	II.	III.	
Minimum infinitival structure	[vp[vp]]	[vp[vp]]	[NegP... [vp]] ¹⁸³	[TP... [vp]]]	[PolP...[vp]]]
Correlation with previous classification	Type I	Type II (inf>behar)	Type II (behar>inf)	Type III (√person vs. *number agr.)	Type III (*person;*number agr.)
Type of embedded negation allowed	None		Low negation (ABS>NEG)		Low (ABS>NEG) High (NEG>ABS)
3rd Person/Number agreement	YES		YES	NO	NO
1st/2nd person/ Clitic climbing to the matrix auxiliary	YES		YES	YES	NO

¹⁸³Even if I have placed negation in the extended periphery of the vP (following Butler 2003 and De Clercq 2013), it may well be the case that *ez* is in a vP/VP internal position (see fn. 176). That is to say, it may well be the case that in the cases where the DP *abs/part* precedes the negative marker *ez*, the negative marker remains in its original vP internal position (Poletto 2008, De Clercq 2013) and checks polarity with Neg/FocP/minimizerP via Agree. I leave the investigation regarding the precise position of low negation for future research.

5.6. FOCUS PROJECTIONS

As just mentioned, it is widely assumed that restructuring infinitives, unlike non-restructuring ones, lack a left periphery. This is illustrated by the incompatibility of restructuring phenomena in the presence of material related to the CP domain within the infinitival complement – as we previously saw happened with overt infinitival complementizers in the Polish example in (65)) and in impossibility of licensing a Polarity Phrase in (64)). Under this assumption, restructuring infinitives are also expected to differ from non-restructuring ones with respect to the availability of a left-peripheral Focus projection.

The problem with Focus is that it is not easy to determine when a focalized element targets left peripheral Focus or a lower focus-related projection. Recall from the previous section that some of the infinitives selected by *behar* (restructuring infinitives II-III in Table 8) can project a clause internal periphery, but lack a clause-external periphery; and, since it is assumed that this clause-internal (/vP) periphery contains projections related with information structure too (Belletti 2004a-b), the fact that focalized elements get licensed inside an infinitival complement is not necessarily indicative of the presence of a left periphery above TP.

In this section, I will propose a test that will allow us to determine when a focalized element targets left peripheral Focus; I will show that non-restructuring/opaque infinitives do contain a left peripheral Focus. In addition, I will also show that restructuring (I-II) (*behar*>*inf*) constructions which are transparent to agreement can project clause-internal Focus.

But before we proceed with the analysis, let me first introduce a few basic notions about the licensing of focalized elements in non-finite contexts in Basque.

5.6.1. Focus in non-finite contexts in Basque (Irurtzun 2007)

In Basque finite clauses, focus phrases appear in the immediately preverbal position of the clause (66a); an element which does not appear in this verb-adjacent position cannot receive a focus reading (66b). In non-finite domains focus is also licensed, but in this case, and unlike what happens in finite clauses, focus is not subject to the same adjacency requirement (Irurtzun, 2007:163). This is illustrated by the contrast between (66a-b) and (66c).

(66) Focus in non-finite clauses in Basque

- a. GAZTA jan du Urtzi-k.
[cheese]_F eat HAVE.3sAE Urtzi-E
- b. *GAZTA Urtzik jan du.
[cheese]_F Urtzi.E eat HAVE.3sAE
'Urtzi ate [cheese]_F'
(Irurtzun 2007)
- c. A: [Kepak ardoa eda -tea] arraroa da
Kepa-E wine drink-Nom strange is
'It is a strange thing for Kepa to drink wine'
- B: Ez, [JULEN-EK ardoa eda -tea] da gauza arraroa
No, [Julen-E]_F wine drink-Nom is thing strange
'No, it is a strange thing for JULEN to drink wine'
(Irurtzun 2007, cited in EU&E 2010b)

Thus, while the sentence in (66a) – where the focus phrase GAZTA '[cheese]_F' surfaces in the position immediately preceding the verb *jan* 'eat' – is grammatical; the one in (66b) is not. This is due to the fact that, unlike in (66a), in (66b) the the focus phrase GAZTA '[cheese]_F' is not adjacent to *jan* 'eat'. In contrast with the ungrammatical (66b), the non-finite sentence in (66c-B) is however grammatical, in spite of the fact that the focalized element JULEN-EK 'Julen-E' is not verb-adjacent too. This indicates that the licensing of focus is different in finite and non-finite clauses; more specifically,

in non-finite clauses, focus is not subject to the adjacency-requirement it is subject in finite clauses.

With this sketchy introduction about focus in non-finite domains in mind, let us proceed to examine how the modal construction under discussion behave with respect to the possible presence of focus.

5.6.2. The contrast between *inf+behar* and *behar+inf* constructions

As it was the case with negation, focalization is not licensed within the complement of *behar* when this precedes the necessity modal (67-68). This is so both when the construction surfaces with the auxiliary HAVE (57), and when it does so with the auxiliary BE (determined by an unaccusative infinitive verb; i.e. in functional restructuring constructions) (68).

(67) *Inf*>*behar* plus aux HAVE (Type I/II): *complement internal focalization

- a. Ni-k [Elena-ri liburuak-Ø eman] behar dizkiot
I-E Elena-3sD books-A give need HAVE.pA.3sD.1sE
- b. *Ni-k [ELENA-RI liburuak-Ø eman] behar dizkiot
I-E Elena-3sD_{FOC} books-pA give need HAVE.pA.3sD.1sE
- c. *Ni-k [ELENA-RI eman liburuak-Ø] behar dizkiot
I-E Elena-3sD_{FOC} give books-pA need HAVE.pA.3sD.1sE
(E&UE 2010a (examples (17)&(18a-b))

(68) *Inf*>*behar* plus aux BE (Type I): *complement internal focalization

- a. [Maisua-ri beti begirune-z mintzatu] behar zaio.
teacher-D always respect-with talk need BE.sA.3sD
'You must always talk to the teacher with respect.'
- b. * [MAISUA-RI begirune-z beti mintzatu] behar zaio.
[teacher-D]_F respect-with always talk need BE.sA.3sD
- c. * [Beti MAISUA-RI begirune-z mintzatu] behar zaio.
Always [teacher-D]_F respect-with talk need BE.sA.3sD

- d. * [Beti begirune-z MAISUA-RI mintzatu] behar zaio.
 always respect-with [teacher-D]_F talk need BE.sA.3sD
 ‘You must always talk with respect [to the teacher]_F.’

Note that the ill-formedness of the examples bears no relation with the requirement that the focalized element fails to occupy the verb-adjacent position, since the configuration is still grammatical even when the focalized element surfaces immediately before the infinitive verb, as shown in (67c) and (68d).

By contrast, as observed by E&UE (2010a-b), when the modal precedes the non-finite complement and there is no agreement with the infinitival arguments, that is, in non-restructuring *behar*>*inf* configurations, complement internal focalization is perfectly allowed, regardless of whether the focalized element surfaces in a verb-adjacent position (69b) or not (69a).

(69) *behar*+*inf*: √complement internal focalization (E&UE 2010b)

- a. Behar duzu [ZURE ALABARI musu bat-Ø eman]
 need HAVE.2sE your daughter_{FOC} kiss one-A give
 b. Behar duzu [ZURE ALABARI eman musu bat-Ø]
 need HAVE.2sE [your daughter]_F give kiss one-A
 ‘‘You must give a kiss [TO YOUR DAUGHTER]_F’’
 (E&UE 2010b, examples (31a-b))

Under the assumption that the interpretive structure is read off the syntax, the availability the focalized reading in (61a-b) vs (59c-d) and (60c-d) should be taken to indicate that, unlike *inf*>*behar* constructions, non-restructuring *behar*>*inf* constructions project a focus-related position internal to the infinitival complement.

However, as argued in the introduction, this projection is not necessarily located in the left periphery of the clause; since it is widely accepted that, across languages, there exists a lower clause internal focus position too (cf. Belletti 2004a-b, Jayaseelan 2001, Costa 2004, E&UE 2008, among others).

E&UE (2008) argue that, in the particular case of Basque, the existence of two foci is evidenced by their relative position and their scope interpretation with respect to negation. Consider for instance the contrast between (70a-b):

(70) *Free and bound foci in Basque*

- a. ANDONIRI ez diot ardoa ekarri (,eta ez Mikeli/*baizik eta Mikeli)
- b. Ez diot ardoa Andoniri ekarri (, Mikeli baizik/*erta ez Mikeli)

It is not to Andoni, but to Mikel that I brought the wine.

As observed by these authors, when the focalized element ANDONIRI ‘to Andoni’ surfaces in a position preceding negation (62a), this gets interpreted out of the scope of negation, as evidenced by the bracketed continuation; by contrast, when negation precedes the focalized element (62b), the latter is interpreted in the scope of negation. E&UE refer to these two types of foci as *free* and bound *focus*, respectively (terms coined by Herburger 2000). The underlying assumption is that the *free* focus reading is obtained when the focalized element sits in the left-peripheral focus position and c-commands negation, while *bound* focus takes place when the focalized element is in turn located in the low periphery, and gets c-commanded by negation¹⁸⁴.

With this in mind, E&UE (2010b) argue that non-restructuring infinitival complements can license both free (63b) and bound foci (63a) within the infinitival

¹⁸⁴ As noted by E&UE, linear precedence need not always transparently reflect these c-command relations. As shown by Ortiz de Urbina (2002), constructions where the focalized element surfaces in the rightmost position (following negation) are crucially interpreted in the same way as (67a), with the focalized element outscoping negation.

(lxxix) Ez diot ardoa ekarri ANDONIRI (,eta ez Mikeli /*baizik eta Mikeli)
 Neg HAVE.3sA.3sD.1sE wine bring TO ANDONI (, and neg to Mikel/*but to Mikel)
 ‘It is to Andoni that I didn’t bring the wine, and not to Mike/*but to Mikel’

This is so because, after ANDONIRI ‘Andoni.D’ moves to the focus position in the left periphery, the remnant moves to the higher Topic position dominating it (Rizzi 1997).

(lxxx) [FocP ANDONIRI F° [IP t_i ardoa ekarri diote]] (focus movement) →
 (lxxxi) [TopP [t_i ardoa ekarri diote]_j Top° [ANDONIRI Foc° t_j]] (remnant movement)

complement, what they interpret to mean that these infinitivals do project a left periphery.

(71) Free and bound foci in non-restructuring *behar+inf* constructions

- a. Behar duzu ez AINHOARI eman, baizik eta Peruri
Need HAVE.2sE neg Ainhua-sD give but Peru.sD

‘You must not give it to Ainhua, but to Peru’

Bound focus: The focalized element is in the scope of negation

- b. Behar duzu AINHOARI ez eman, eta ez Peruri
need HAVE.2sE Ainhua-sD neg give and neg Peru.sD

‘It is to Ainhua, that you must not give (something), and not to Peru’

Free focus: The focalized element is out of the scope of negation

(E&UE 2010b, examples (32a-b))

Notice, however, that it is impossible to tell if in the previous sentences the negative marker *ez* instantiates the higher negation in the left periphery (PolP) or the lower negation in the vicinity of v/VP. So, in view of this, the fact that the focalized element outscopes negation is not sufficient to unambiguously assert that the infinitival correlates with a full clausal structure (up to CP/Higher FocP), as both negation and focus may well be located in the extended periphery of the vP.

Recall that there is nonetheless a way of disambiguating whether *ez* occupies the left periphery or the clausal internal periphery, as argued in the previous section: by its position relative to an absolutive argument. Consider, for instance, the sentence in (72):

(72) Behar duzu AINHOARI ez liburu horiek utzi (eta ez Peruri).

need HAVE.2sE Ainhua-sD neg book those give and neg Peru.sD

‘It is to Ainhua that you must not give those books, and not to Peru.’

In (72), negation surfaces in a position preceding the absolutive argument (NEG>ABS). Recall that in this word order configuration both number and dative agreement is

blocked¹⁸⁵, what we have taken to indicate that negation sits in the left peripheral PolP (cf. 3.3.). Now, since the focalized element that precedes negation in (72) outscopes negation (it has a free focus reading), it must be concluded that this has targetted the Focus projection of the left periphery of the clause, rather than the low focus position in the vicinity of the vP.

In sum, the interaction of focus with a negative marker located in a position above the absolutive argument allows us to conclude that non-restructuring *behar>inf* constructions do indeed project left peripheral FocP.

5.6.3. Low focus and agreement

Before, I have argued that the infinitival complement of *behar* constructions can correlate with different different syntactic sizes (*Table 8*): it can be a reduced infinitival no bigger than small vP, in which case it exhibits both person and number agreement, it can be a non-reduced full clausal complement, in which case it blocks number and person agreement, or it can be of an intermediate size, locating more or less functional material above the vP (some project up to TP), but not a CP.

This allows us to make the following prediction. The speakers who admit this intermediate type of complements (larger than vPs but smaller than CPs) should also be able to admit vP-peripheral focus. That is, they should be able to admit constructions which are transparent to person or either number agreement and at the same time contain low Focus. The prediction is confirmed; these speakers admit constructions like (73).

¹⁸⁵ Strikingly, some of the speakers questioned do seem to also admit agreement with the dative argument when negation precedes the absolutive, but agreement with the absolutive argument is degraded, as shown next.

(1xxxii) Behar dizut (??dizkizut) ZURI ez liburuak eskatu.
 Need HAVE.2sD.1sE (??HAVE.3pA.2sD.1sE) 2sD neg book.pA ask
 ‘I need to not ask the books TO YOU’.

I leave this question open for future research.

(73) *Ikasleek behar dizkizute BERAIEK lan-ak entregatu.*

Students need HAVE.3pA.2sD.3pE 3pE essay.pA hand

‘The students must hand you the essays themselves/personally.’

In (73), the auxiliary exhibits person agreement with the dropped 2nd person singular argument of the infinitive verb and number agreement with the embedded absolutive argument (*lan-ak* ‘essay.pA’), yet the 3rd person plural pronoun *beraiek* is meant to receive a focus reading. The interpretation is reminiscent of that of the strong pronouns of doubling structures in Italian examined by, which Belletti (2004a-b) take to fill the clause internal Focus phrase in the VP periphery¹⁸⁶. I interpret this piece of data to show that the infinitival complement of these modal constructions is as complex as to locate supra-vP functional material (i.e. a low FocP), but not TP or a whole left periphery (i.e. high FocP), otherwise agreement will be impossible.

Summing up, the data concerning the availability of focus shows that the constructions where the infinitival complements surfaces to the right of modal *behar*, hence *behar>inf* constructions, can project a clause-internal (vP-peripheral) Focus projection. In addition, among these *behar>inf* infinitivals, those that exhibit a non-restructuring structure (hence, are opaque to both number and person agreement) can also license a left peripheral Focus projection.

¹⁸⁶ For Belletti (2005) these pronouns are adding some new element of information about the subject, which is interpreted as a known topic. They are close to that of expressions like ‘personally’, as illustrated in the translation of the following examples.

(lxxxiii) *Gli student risponderanno loro; non cercheranno che*

the students will answer they not try.3pl that

lo faccia qualcun altro al loro posto.

it does somebody else in their place

‘The student will personally answer; they will not try that somebody else does it in their place.’

(lxxxiv) *Maria manderá suo fratello, invece Gianni verrà lui.*

Maria will send her brother but Gianni will come he

‘Maria will sen her brother but Gianni will come in person.’

5.7. FINAL CONCLUSIONS

In this chapter, I have given the reader empirical evidence that the underlying structure of the modal constructions involving *behar* and an infinitival complement is more complex than it looks on the surface.

I have established that the minimum structure of functional and lexical restructuring infinitives is the vP, againsts Wurmbrand's (1998, 2001) earlier assumption that lexical restructuring infinitives are bare VPs. This conclusion is based on the assumption that both functional and lexical restructuring constructions license absolutive case within their complements; hence, they contain a vP layer with a v_{ABS} position (Rezac et al. 2014). In the case of lexical restructuring constructions (Type II) involving the auxiliary **edun* (HAVE), this is evidenced by the fact that, in the context of certain unaccusative verbs, these constructions can unexpectedly show up with an in-situ absolutive case-marked subject, instead of a raised ergative subject; this vP-internal absolutive subject necessarily receives an existential interpretation. In the case of functional restructuring constructions (Type I), the assumption that absolutive case in licensed complement internally directly follows from the hypothesis that these are single verb constructions involving a functional modal, merged in the functional domain above the vP. The absolutive subject of Type I constructions is thus case-licensed inside the complement, where it starts out, and even if it raises to a higher position, it will always be able to receive an existential interpretation via A-reconstruction.

I have then concluded that the different types of (non-)restructuring infinitives *behar* can combine with differ with respect to the amount of structure they can project above the vP:

The infinitival complements of Functional (Type I) and Lexical (Type II) restructuring constructions that surface to the left of the modal (*inf < behar*) seem to correlate with the smaller amount of structure, since they do not license properties associated to the projection of Aspect, Negation, Tense and Focus. That is to say, these infinitivals do not allow the presence of perfective aspect (encoded in the dummy auxiliary *izan* 'have'), they do not admit the negative marker *ez*, they necessarily yield

a sequence of tense reading when embedded by a past tense, and never co-occur with focalized elements (Sections 5.3. to 5.6.).

By contrast, the infinitival complements of Lexical (Type II) restructuring constructions that surface to the right of the modal (*behar*>*inf*) can combine with complements of a larger size. Sometimes they combine with complements smaller than TP, but yet allowing the presence of low (ABS>NEG) negation. When this is so, the construction is transparent to both person and number agreement (Section 5.5.). Other times, they combine with TP sized complements and only admit person agreement (number agreement is not allowed across TP). This is further confirmed by the fact that in this case, these infinitivals trigger SOT intervention effects when embedded under a past tense.

Finally, the largest types of complements are the non-restructuring infinitivals of Type III constructions. These project not only Aspect and Tense, but also the left peripheral Polarity and Focus projections. That is to say, the infinitival complements of Type III constructions admit the presence of the perfective auxiliary *izan* 'BE'; they also trigger Sequence of Tense (SOT) intervention effects; and , in addition, they admit both higher (NEG>ABS) negation and further license a free focus reading of elements that outscope PolP (NEG>ABS) negation.

Table 9 summarizes the syntactic properties and underlying structure of the different types of modal constructions identified in this chapter.

Table 9. Summary of properties and underlying structure of *behar* constructions

	Functional Restructuring/ Type I (FR)	Lexical Restructuring/Type II (LR)			Lexical Non-restructuring/ Type III (LNR)
		I.	II.	III.	
Infinitival structure	[vP[VP]]	[vP[VP]]	[NegP...[VP]]	[TP...[vP[VP]]]	[PolP...[vP[VP]]]
Correlation with previous classification (Chapter 4)	Type I (Functional)	Type II (<i>inf>behar</i>) (Lexical)	Type II (<i>behar>inf</i>) (Lexical)	Type II (<i>behar>inf</i>) ($\sqrt{\text{person}}$ vs. *number agr.) (Lexical)	Type III (*person; *number agr.) (Lexical)
Subject Case/aux.	ABS 'BE/HAVE'	ERG 'HAVE'	ERG 'HAVE'	ERG 'HAVE'	ERG 'HAVE'
Low absolutive subjects (v_{abs} position)	YES	YES	YES	YES	¹⁸⁷
Non-finite Aspect (<i>izan_{perf}</i>)	NO	NO	NO	YES	YES
Non-finite Tense	NO	NO	NO	YES	YES
3rd Pers./Num. agreement	YES	YES	YES	NO	NO
1 st /2 nd person/ Clitic climbing to the matrix auxiliary	YES	YES	YES	YES	NO
Low (Foc/NegP) negation (ABS>Neg)	NO	NO	YES	YES	YES
Low FocP	NO	NO	YES	YES	YES
High (PolP) negation (Neg>ABS)	NO	NO	NO	NO	YES
High FocP	NO	NO	NO	NO	YES

¹⁸⁷ As explained before, non-restructuring constructions lack this type of low subjects with an existential reading; however, the unavailability of such subjects has nothing to do with the absence of a vP domain; it is rather related with the control properties of the construction. This will become clear in Chapter 6, devoted to analyse the raising vs. control properties of *behar* constructions.

6. Revisiting the syntax-to-semantics mapping of modal constructions

6.1. INTRODUCTION

In Chapter 2 I have discussed the major different approaches that have been advanced to account for the syntax-to-semantics mapping of modal constructions: i) the thematic approach, ii) the subject-scope-based approach and iii) the hierarchical approach. In the present chapter I will test the adequacy of these approaches by examining the behavior of the Basque necessity modal *behar* with respect to some of the major arguments claimed to support each of them.

The chapter is divided in four sections:

The aim of Section 6.2. is twofold: On the one hand, I seek to determine whether the different types of (non-) restructuring modal constructions involving *behar* and an infinitival complement – (i) functional restructuring constructions, (ii) lexical restructuring constructions and (iii) lexical non-restructuring constructions – correlate with raising or control structures. On the other hand, I want to see if the type of structure they correlate with constraints the modal interpretation of the sentence (see the different views about this question in Chapter 2, Section 2.2.1.). In order to achieve these aims I will apply to Type I-III modal constructions some tests previously used in the literature to diagnose the underlying structure of infinitival constructions. To begin with, I will test whether these constructions can co-occur with weather-*it* (Section 6.2.1), with expletive subjects (Section 6.2.3), and with inanimate subjects that do not conform to the selectional requirements of the modal predicate (Section 6.2.2.), and explore what type of modal reading they can give rise to in these contexts. Then, in Section 6.2.4, I will examine whether when these constructions occur with idiom chunk subjects, these can receive an idiomatic reading (that is, idiom chunk subjects can undergo idiomatic reconstruction to the complement internal position). This will help me determine if the subject has originated inside the complement and has undergone subsequent raising), and if there is any restriction as to the type of modal reading the construction can convey. In Section 6.2.5., I will examine whether indefinite subjects can reconstruct for scope interpretation to the complement internal position. As in the previous test, this will also allow me to confirm if the subject has started out as the subject of the infinitival predicate. This test will not only help me determine whether there is a correlation between the underlying (raising or control) structure of the

construction and a given type of modal interpretation, but it will also allow me to conclude if a subject-scope based account along the lines proposed by Lee (2006) for modal *have to* can be extended to the modal constructions involving the Basque necessity modal *behar*. Finally, I will provide more relevant data coming from the scope interaction of the embedded focus particle *bakarrik* ‘only’ with modal *behar* in the restructuring and non-restructuring constructions (Section 6.2.6), and their case and agreement properties in contexts in which the embedded infinitive takes dative experiencer arguments (Section 6.2.7). More specifically, I will analyse whether or not the presence of dative experiencer arguments blocks the presence of an ergative subject and an auxiliary exhibiting ergative agreement. The results of the analysis in Section 6.2 will show that neither the thematic account nor the scope-based account can account for the syntax-to-semantic mapping of the Basque modal constructions at stake.

In the following sections, I look at the scope interaction of the necessity modal *behar* with quantificational subjects (Section 6.3.1.) and negation (Section 6.3.2.) under the different modal interpretations. Recall that some scholars assume that epistemically interpreted modals contrast with modals that convey a root meaning with respect to their scope interaction with quantificational subjects and negation; these alleged scopal differences are taken to support the hypothesis that modal interpretation correlates with different merging positions of the modal in the clausal hierarchy (see Chapter 2). The evidence provided in this section will show that this hypothesis is not supported for the Basque modal *behar*.

In Section 6.3.4. I gather the main conclusions drawn from the analysis carried out in the chapter and my own point of view about the syntax-semantics mapping of the modal constructions involving the Basque necessity modal *behar*. I will argue that rather than one single linguistic factor (i.e. modal height, subject-modal scope, presence/absence of a thematic relation with the subject), it is a combination of different syntactic factors that filters out the type of modality expressed by modal *behar*. These syntactic factors are: (i) the presence/absence of a thematic relation with the subject; (ii) whether the subject is animate or not; (iii) whether or not the subject has undergone reconstruction to the complement internal position; and (iv) whether the modal takes wide or narrow scope relative to negation. In other words, the way the modal

construction behaves with respect to these four properties will determine which of the four modal readings – (i) epistemic, (ii) non-directed and (iii) directed deontic or (iv) dispositional/dynamic – is expressed by the necessity modal *behar*.

CONSTRAINING FACTORS	MODAL MEANING OF <i>BEHAR</i> ALLOWED			
	Dispositional	Directed Deontic	Epistemic	Non-directed deontic
Presence of a thematic relation with the subject	+	+	- ¹⁸⁸	+
Presence of inanimate subjects	-	-	+	+
Scope reconstruction of indefinite/Q subjects to a complement internal position below the modal	-	-	+	+
Wide scope relative to Negation	-	+	-	+

¹⁸⁸ The symbols ‘+/-’ indicate whether or not the reading in question admits that property.

6.2. THE RAISING/CONTROL PROPERTIES OF *BEHAR*: REVISION OF THE THEMATIC AND SCOPE-BASED ACCOUNTS

Since Bhatt's (1998) and Wurmbrand's (1999) work, the assumption that English modals uniformly pattern like raising verbs, irrespective of their modal interpretation (epistemic vs. root) has gained strong support. The main arguments come from the ability epistemic and root modals display to co-occur with non-thematic subjects and subjects which do not meet the animacy selectional restrictions traditionally attributed to root modal verbs. In view of these arguments, the traditional Control vs. Raising Hypothesis to account for the differences between root and epistemic modals that had been originally proposed by Ross (1969) (see also Perlmutter, 1971, Jackendoff, 1972, Huddleston 1984, among others) has been shown to be untenable for the Basque necessity modal *behar* (see Chapter 2 Section 2.2.1. for a detailed discussion).

It is however unclear whether all root modals behave the same way across languages and even within the same language. For instance, in various unrelated languages, modals that receive a dynamic/dispositional interpretation (related to notions of physical necessity or possibility, ability, volition or disposition of a subject (von Wright 1951) (see also fn. 189 below) appear to act quite systematically with regard to the tests typically used to determine whether a thematic relation holds between the modal and the subject. This is for instance the case of Catalan *voler* 'want' and *poder* 'can/be able to' under their volitional and ability readings respectively, as shown long ago by Picallo (1990), or Scandinavian *ville* 'will/want' and *kunne/kunna* 'can/be able to', as observed by Thrainsson & Vikner (1995) and later on Eide (2002 (Chapter 2). Recently, it has been shown that, in addition to dynamic/dispositional modals, in languages like Norwegian (Eide 2002) and Tagalog (Asiarna & Holt 2005), other subtypes of root modality too, namely non-directed deontics, pattern with control predicates (Chapter 2)¹⁸⁹.

¹⁸⁹ Recall from Chapter 2, Section 2.3., that Barbiers (1995) too assumes that dispositional and directed-deontic modals differ from other root modals and from epistemic (/probability) modals in that the former, unlike the latter, are subject-oriented; however, he does not relate subject-orientation with the modal's ability to assign an external theta-role to the subject.

In what follows I will examine the behaviour of the modal constructions under analysis with respect to some typical properties taken to signal the underlying raising/control status of modal configurations, and I will examine whether the presence of these raising/control properties constrains the modal interpretation of the construction. The properties that will be analysed are the following: a) the (im-)possibility of licensing weather-*it* subjects, b) the ability to take inanimate and expletive subjects, and c) the capability to license idiom-chunk subjects. In addition, I am going to examine d) whether or not the subject can reconstruct for scope to a position inside the infinitival complement (below the modal and universal quantificational embedded objects), and e) whether or not embedded focus sensitive particles (e.g. *bakarrik* ‘only’) can take wide scope relative to the modal *behar*. Finally, f) I will look at the behavior of the modal constructions in contexts in which the infinitival verb takes dative experiencer arguments. More specifically, I will present a number of arguments related to the presence vs. absence of intervention effects and to the status of the controlled subject complement (PRO) in modal constructions involving dative experiencer arguments that will show that whereas restructuring (Type I-II) constructions pattern like raising, non-restructuring (Type III) constructions do so with control structures.

With respect to modal interpretation, the classification I will bear in mind for the analysis departs from the traditional two-fold epistemic vs. root classification. As mentioned in Chapter 2, I will rather adopt a classification that distinguishes three subtypes of root modal readings (Barbiers 1995, 2002; also Eide 2002 and Asarina & Holt 2005): i) non-directed deontic, ii) directed-deontic and iii) dispositional or dynamic readings¹⁹⁰. The reasons for not using the traditional epistemic/root distinction will become clear below.

¹⁹⁰ Recall that the main difference between the directed and non-directed deontic readings is that in the former, the requirement/obligation expressed by the modal is directed to the subject of the sentence, whereas, in the non-directed deontic reading, it is not; in the latter case, it is the situation expressed by the entire proposition which is required. With regards to the dispositional readings, they differ from the deontic readings in that the necessity expressed by the modal is internal to the subject; whereas in the deontic cases it has an external source (Barbiers 1995: 142-145). I illustrate once more the different modal readings with examples from Basque in the examples below (repeated from Chapter 2, Section 4):

6.2.1. Weather predicates

As shown in Chapter 2, a test typically used to determine the absence of thematic subjects in modal constructions in various languages concerns the presence of so-called weather-*it* subjects; that is, thematically vacuous subjects of weather predicates (Picallo 1990 for Catalan epistemic vs. root modals, Thraisson and Vikner 1995 for Scandinavian languages, Hackl 1998 and Wurmbrand & Bobaljik 1999 for English modals, Eide 2002 for Norwegian modals, among others).

Here I will examine whether the different types of *behar* constructions that we have identified in the previous chapters – (i) functional restructuring constructions, (ii) lexical restructuring constructions and (iii) lexical non-restructuring constructions – are compatible with the non-thematic subject of weather predicates. But firstly, let us introduce weather expressions in Basque.

6.2.1.1. Weather predicates in Basque

In Basque, weather expressions can be either transitive or intransitive, as illustrated in (1) and (2).

- (1) hoztu/atertu du Transitive
 cold-get/clear-up HAVE.3sE
 ‘It has turned cold/cleared up.’
- (2) hotz/ateri da Intransitive
 cold/cleared-up BE.3sA
 ‘It is cold/clear weather.’

(lxxxv) Diruak hor egon behar du, nonbait. money.sE there be need HAVE.3sE apparently ‘The money must be there, apparently.’	Epistemic
(lxxxvi) Biharko diruak nire mahai gainean egon behar du. Tomorrow-by money.sE table on-the be need HAVE.3sE ‘It is necessary that the money be on my table by tomorrow.’	Non-directed deontic
(lxxxvii) Jonek berandu arte lan egin behar du. John.sE late until work do need HAVE.3sE ‘John is required to work until late.’	Directed-deontic
(lxxxviii) Non dago komuna? Txiza egin behar dut. Where is toilet.3sA pee do need HAVE.1sE ‘Where is the toilet? I need to pee.’	Dispositional/dynamic

One may wonder whether the weather sentences in (1) and (2) may involve a pro-dropped subject, given that Basque is a pro-drop language on the basic arguments of the verb (subject, object and indirect). Yet, Etxepare (2003) reminds us that the subject of the former should by no means be interpreted as derived from constructions like (3a-b), by pro drop on the argument standing for either the object (3a) or the agent, cause or change (3b).

- Note that whereas the subject of the constructions in (3), pro-dropped or not, is referential, the subject of the weather predicates in (1a-b) and (2) cannot be referred to (cf. the contrast in (4a-b)), just like the non-referential *it* subject of weather constructions in Germanic languages.

- 258

- b. Haizeak_i giroa hoztu du, baina []_i ez zen
 wind-E_i atmosphere cold-turn HAVE.3sE but not was
 berez hain haize hotza.
 by-itself such warm wind
 ‘The wind_i chilled the atmosphere, but it_i wasn’t such a cold air.

That is to say, whereas the dropped subject of the sentence introduced by *baina* ‘but’ in the example in (4b) is understood to be coreferential with the overt subject *haizeak* ‘wind-E’ of the predicate *hoztu* ‘chill, cool’, no coreference can be established between the same dropped subject and the gap preceding *hoztu* ‘turn cold’ in (4a), since it is not referential.

In virtue of this parallelism, I will henceforth refer to these subjects with the term *weather-it* subjects.

I follow previous work in assuming that *weather-it* subjects in Basque are, as in English, quasi-thematic subjects (see Artiagoitia 2001, and Hualde & Ortiz de Urbina 2003 in consistence with Chomsky (1981:323-325)); that is to say, they do not bear a theta-role. Under this assumption, the compatibility or incompatibility of an embedding predicate – in this particular case, predicate *behar* – with Basque *weather-it* subjects serves as a diagnostic test for determining the raising properties of the embedding predicate in question: if the modal can occur with a subject that does not have a theta-role, we will conclude it is raising; but if it cannot, we will conclude that the modal is a control predicate requiring a thematic external subject. I will hereafter carry out this test with the different underlying constructions proposed in the classification, involving *behar* ‘need’ and an infinitival complement.

6.2.1.2. Weather-*it* subjects with *behar*

In (5a) and (5b) I present a couple of examples correlating with the functional restructuring type of constructions of our classification (Type I). Recall that these constructions are characterized by exhibiting the transparency regarding the selection of the auxiliary (BE vs. HAVE) which is determined by the embedded predicate. Thus, when combined with a Type I modal structure we expect unaccusative weather

predicates of the type described in (1b) (e.g. *hotz izan* ‘be cold’ (5a) and *ateri izan* ‘be cleared up’ (5b)) to select an intransitive auxiliary (BE). The combination of Type I modals with weather structures like those illustrated in (2) (which select a transitive auxiliary) is given in (5b). Note that, as in (1-2) above, none of the structures in (5a-b) license an overt subject.

- (5) Type I Functional restructuring constructions: √weather-*it* subjects
- a. (*Hura) Kanpoan hotz izan behar da; jendeak guanteak daramatza
 (*It) outside cold be need BE.3sA people.sE glove.pA wear.3pA.3pE
Epistemic: ‘It must be cold outside, people are wearing gloves’
- b. Euritakorik gabe irteteko, lehenengo (*hark) atertu behar du.
 Umbrella without go-out-for first (*it) clear-up need BE.3sA
Root (non-directed deontic): ‘In order to be able to go out without an umbrella, first it must clear up/it is necessary that it first clears up.’

As shown above, the combination of Type I *behar* with such weather predicates yields a perfectly grammatical construction. Thus, the examples in (5a-b) show that in these constructions *behar* does not assign a theta-role to the subject, which is expected under the hypothesis defended here that *behar* is a functional modal.

Consider also that in these constructions with non-overt weather-*it* subjects, *behar* ‘need’ can express both an epistemic meaning¹⁹¹ (5a) and a root meaning in which the

¹⁹¹ It must be noted that the availability of an epistemic reading is also partly contingent on the presence of a stative verb in the modal complement. Note that in the examples in (6a-7a) the embedded infinitive verb is stative (*hotz izan* ‘be cold’) and the modal sentences correlate with an epistemic interpretation, whereas in the examples in (6b-7d) the embedded infinitive verb is eventive (*atertu* ‘to clear up’) and the modal interpretation conveyed is a root (deontic) one. It has been argued that the interpretation of modal sentences is severely restricted by their temporal configuration; more specifically, epistemic readings are associated with an ongoing or past temporal orientation; that is to say, they require that the event described by the modal complement gets interpreted at a time preceding or simultaneous with the modal evaluation time (the time of the epistemic inference); by contrast, deontic interpretations are associated with a future orientation (Condoravdi 2002; Werner 2003; among many others). In the absence of explicit temporal-aspectual morphology, it is the aspectual class of the complement that determines the temporal orientation of the modal sentence: eventive predicates correlate with a root/deontic interpretation and stative predicates with an epistemic one. It falls out of the scope of this work to investigate the temporal syntax of epistemic and root modal construction (the reader is referred to Enç 1996; Werner 2003, 2006;

necessity or obligation is not directed to the subject (i.e. non-directed deontic readings) (5b). These data thus contradicts the traditional view that, unlike epistemic modals, root modals uniformly pattern with two place predicates which take both an internal and an external argument (Ross 1969; Perlmutter, 1971; Jackendoff, 1972; Huddleston 1976, 1984; Zubizarreta 1982; Roberts 1985), and justify the four-typed classification of modalities I have assumed above.

Let us now examine the lexical restructuring type of constructions. Recall that, unlike the Functional Restructuring constructions provided above, lexical restructuring constructions invariable occur with the auxiliary HAVE, selected by the modal predicate *behar*. Yet, they pattern like Type I functional constructions and unlike the non-restructuring ones in that they exhibit number and/or person agreement with the arguments of the embedded infinitive verb.

(6) Type II Lexical restructuring constructions: $\sqrt{\text{weather-}it}$ subjects

Inf + behar word order:

- a. Gauean hotz izan behar du han goian.

Night-at cold be need HAVE.3sE there up

Epistemic: ‘It must be cold up there at night’

- b. Tontorreraino igo ahal izateko, atertu behar du.

Peak-to-the climb can be-for clear-up need HAVE.3sE

Root (non-directed deontic): ‘To climb to the top, it is necessary that it first clears up.’

Behar + inf word order:

- c. Horrek pintatze lanak egin ez izateko, behar izan

that-one.E painting work.pA do neg perf-for need perf

ditu sekulako zaparradak bota.

HAVE.3pA3pE huge shower.pA throw

Condoravdi 2002; Stowell 2004; Demirdache & Uribe-Etxebarria 2006 *et seq.*, Copley 2003; among many others).

d. Uzta ona izateko, behar ditu tarteka
harvest good have-for, need AUX-TR.3pA.3sE from-time-to-time
zaparradak bota.
Shower.pA throw
Root (non-directed deontic): ‘To get good crops, it is necessary that it rains
hard from time to time.’

¹⁹² Note that in (6c) and (6d) the availability of one or another modal reading also depends on the associated temporal interpretation of the modal sentence; in this particular case, on the presence/absence of the perfect head *izan* 'be/have'. The presence of the perfect head *izan* 'be/have' contributes a past oriented temporal interpretation, and therefore favours an epistemic interpretation; by contrast, the absence of perfect aspect or stativity in the modal complement in (6d) enables a root (deontic) interpretation. I will often use the presence/absence of the perfect head *izan* 'be/have' to enable a temporal interpretation compatible with the intended modal reading.

(lxxxix) *Hark behar ditu zaparradak bota.
 3sE need HAVE.3pA.3sE showers throw
 (xc) *[]_i zaparradak bota ditu, baino []_i ez da berez hain egun euritsua izan.
 showers throw HAVE.3pA.3sE but not BE.3sA really such-s day rainy be

262

Let us apply the test to the Type III non-restructuring constructions:

- (7) Type-III non-restructuring constructions: *weather-*it* subjects
- a. *Horrek pintatze lanak egin ez izateko, behar izan
that-one.E painting work do neg perf-for need perf
du sekulako zaparradak bota
HAVE.3pE huge shower.pA throw
Epistemic: ‘If that one has not been painting, it must be the case that it has been windy’
- b. *Uzta ona izateko, behar du tarteka
harvest good have-for, need HAVE.3pE from-time-to-time
zaparradak bota.
Shower.pA throw
Root (non-directed deontic): ‘To get good crops, it must rain from time to time.’

In (7a-b), unlike in the counterpart examples (6c-d), the auxiliary fails to agree with the absolutive nominal (there is no plural agreement morpheme *-it-*) and the constructions shows no sign of restructuring phenomena; hence, they pattern with the non-restructuring type of constructions identified in our classification (cf. Table 7 in Chapter 5). Interestingly, as illustrated in the examples, this type of constructions cannot occur with weather-*it* subject regardless of the intended modal meaning¹⁹⁵. I will assume that the illformedness of the examples is due to the fact that in (7a-b) *behar* imposes thematic restrictions that cannot be satisfied by weather-*it* subjects.

Summarising, as a result of the application of the weather-*it* subject test, we can draw the following conclusions regarding the underlying raising vs control structure of the constructions under discussion and the correlation with modal interpretation:

First, the contrast found between the functional (Type I *behar*) and lexical restructuring constructions (Type II *behar*) vs. the lexical non-restructuring constructions (Type III *behar*) with respect to their compatibility with non-argumental

¹⁹⁵ Later I will show that non-restructuring constructions do in fact not give rise to epistemic meanings.

weather-*it* subjects leads us to conclude that, whereas the former correlate with raising structures, the latter do so with control ones.

Second, as to the correlation between syntactic structure and modal interpretation, the weather-*it* test shows that the constructions that pattern with raising structures (Type I and II *behar*) can convey either an epistemic or a non-directed deontic (root) reading, but they cannot convey directed deontic or dynamic/dispositional readings. On the one hand, this calls into question the thematic account whereby epistemic and root modals are correlated one-to-one with raising and control structures respectively (Perlmutter 1971; Jackendoff 1972; Huddleston 1976, 1984; Zubizarreta 1982; Roberts 1985); since there are at least some types of root interpretation (the non-directed deontic ones) that are available when the construction patterns like raising. On the other hand, it suggests that a finer grained classification that distinguishes different subtypes of root modality is necessary to account for the syntax-to-semantics mapping of modal construction (along the line proposed by Barbiers 1995; see Chapter 2 Section 2.4).

6.2.2. Animacy restrictions

As shown in Chapter 2, the ability to impose selectional restrictions like animacy or agentivity onto the matrix subject is a property that has been argued to help us tease apart raising structures from those involving control. As stated there, the impossibility of modal predicates to occur with inanimate subjects in root readings has led several scholars to conclude that, unlike epistemic modals, root modals impose animacy restrictions on their subject (Picallo 1990, Lødrup 1996). The underlying assumption is that these root predicates denote properties of sentient beings (permission, ability, obligation ...) and these properties must be predicated of a subject. This conclusion has been later questioned by authors like Wurmbrand (1999), among others, who have provided with many examples where root modals co-occur with inanimate subjects.

In this section, I will test the availability of inanimate subjects in the different constructions under analysis, in order to see if in these too, there is any contrast exhibited between the different types of restructuring and non-restructuring

constructions; in addition, I will also examine if there is any correlation between the (im-)possibility of licensing inanimate subjects and the modal reading licensed by the constructions.

Let us start with the functional restructuring constructions:

(8) Type I Functional restructuring construction: $\sqrt{\text{ }}$ inanimate subjects

- a. Paperak gure begien aurean egon behar dira; ezin izan dira desagertu

Paper.pA our eyes-in-front-of be need BE.3pA cannot perf BE.3pA disappear

Epistemic: ‘The papers must be in front of our eyes; they cannot have disappeared.’

- b. Paperak gaur heldu behar dira. Bestela jai dugu.

Paper.pA today arrive need BE.3pA otherwise fest HAVE.1pE

Root (non-directed deontic): The papers must be here right today. Otherwise we’ll be lost.

As can be observed in (8a-b), the functional restructuring constructions where *behar* occurs with auxiliary BE selected by an embedded unaccusative verb are perfectly compatible with an inanimate subject like *paperak* ‘papers’. This suggests that, in this type of construction, *behar* ‘need’ imposes no selectional restrictions on the subject it occurs with.

The examples above also show that, when *behar* ‘need’ occurs with inanimate subjects, the construction can either correlate with an epistemic interpretation (8a), or with a non-directed deontic (root) reading (8b); as it was the case with the constructions licensing weather-*it* subjects.

Let us now turn to analyse the lexical restructuring constructions:

(9) Type II *behar* Lexical restructuring: $\sqrt{\text{ }}$ inanimate subjects

Inf>behar word order:

- a. Paperek gure begien aurean egon behar dute. Ezin izan

paper.pA our eyes-of from-in be need HAVE.3plE cannot have

dira desagertu.

BE.3pA disappear

Epistemic: ‘The papers must be in front of our eyes; they cannot have disappeared.’

- b. Paperek gaur bertan heldu behar dute. Bestela jai dugu.

Paper.plE right-today arrive need HAVE.3pE otherwise fest HAVE.3sA1pE

Root (non-directed deontic): It is necessary that the papers be here right today. Otherwise we’ll be lost.

Behar>*inf* word order:

- c. Euriteak behar izan ditu mahatsondo guztiak¹⁹⁶ hondatu.

Flood.sE need perf HAVE.3plA.3sE vine all.pA destroy

Epistemic: The flood must have destroyed all the vines.

- d. Kartelak behar ditu manifestarien animoak piztu.

Poster.sE need HAVE.3plA.3sE marchers.gen spirit.pA turn-on

Root (non-directed deontic): It is necessary that the poster encourage the marchers.

As shown in (9a-d), there is no contrast between the functional and the lexical restructuring construction regarding the ability of *behar* ‘need’ to occur with inanimate subjects. We can thus conclude that in the lexical restructuring cases too, *behar* ‘need’ does not impose animacy restrictions on the subject it occurs with, neither when the construction is interpreted epistemically (9a, 9c) nor when it receives a non-directed deontic (root) reading (9b, 9d).

Consider now the non-restructuring type exhibiting opacity to agreement with the embedded arguments:

¹⁹⁶ In (10c-d) an embedded plural object is again introduced to illustrate the possibility that the matrix auxiliary agrees with the complement internal object, and to establish a contrast with the non-restructuring constructions that will be analyzed next.

- (10) Type III non-restructuring constructions: *inanimate subject
- a. *Euriteak behar izan du mahatsondo guztiak hondatu.
 Flood.sE need perf HAVE.3sE vine all.pA destroy
Epistemic: The flood must have destroyed all the vines.
- b. *Kartelak behar du manifestarien animoak piztu.
 Poster.sE need HAVE.3sE marchers.gen spirit.pA turn-on
Root (non-directed deontic): It is necessary that the poster encourage the marchers.

In the sentences in (10a-b), unlike in the counterpart examples (9c-d), the matrix auxiliary *du* ‘HAVE.3sA.3sE’ fails to agree in number with the absolutive arguments of the infinitival verb (*mahatsondo guzti-ak* ‘vine all-pA’); they are therefore non-restructuring constructions. Crucially, non-restructuring constructions differ from the restructuring constructions analysed above precisely in that they do not allow the presence of inanimate subjects (e.g. *euriteak* ‘flood’, *kartelak* ‘posters’). In fact, if we substitute the inanimate subjects for animate subjects, the ungrammaticality disappears, as illustrated by the contrast between (11a-b) and (10a-b)¹⁹⁷.

¹⁹⁷ Rezac et al. (2014) make a similar observation with respect to the contrast found between *inf>behar* and *behar>inf* word orders.

(xci) Inanimate vs. animate subjects (adapted from AE&R 2014)

- a. Irakasleak/Kartelak ez du [inor engainatu] behar.
 Teacher.sE/Poster.sE neg HAVE.3sE anyone deceive need
- b. *Irakasleak/Kartelak [inor **ez** engainatu] behar du.
 Teacher.sE/Poster.sE anyone neg deceive need HAVE.3sE
 The poster must not deceive anyone.
- c. Irakasleak/*Kartelak behar du [inor **ez** engainatu].
 Teacher.sE/Poster.sE need HAVE.3sE anyone neg deceive
 The poster has to not deceive anyone.

When *behar* follows the infinitival complement (*Inf>behar*), the constructions can occur with animate as well as inanimate subjects (ia-b), however, embedded negation is not allowed (ib). By contrast, when *behar* precedes the infinitival complement (*behar+inf*) infinitival negation is allowed, but the presence of the inanimate subject renders the sentence ungrammatical (ia vs. ib). However, as I have shown in (11), when *behar* precedes the infinitival complement (*behar+inf*) but there are signals of restructuring (ie. matrix agreement with the arguments of the infinitival complement) inanimate subjects are licensed. Therefore, the relevant contrast is not between *Inf>behar* and *behar+inf* word orders, but between restructuring (functional/lexical) and non-restructuring constructions.

- (11) Type III non-restructuring *behar* constructions: √ animate subject
- a. Mahastizainak behar izan du mahats guztiak precio merkean saldu
 Vinegrower.sE need perf HAVE.3sE vine all.pA price cheap-at sell
 ‘The vine-grower has had to sell all the vines at a low price.’
- b. Sindikatuaren liderrak behar du manifestarien animoak piztu.
 Syndicate.of leader.sE need HAVE.3sE marchers.of spirit.pA turn-on
 ‘The leader of the union must encourage the marchers.’

An interesting thing about these grammatical non-restructuring constructions in which *behar* occurs with animate subjects is that, even in contexts where the perfect aspect warrants a temporal interpretation compatible with an epistemic reading (see fn° 191), they do not seem to be able to convey an epistemic reading. That is to say, (11a) cannot be used to express an epistemic inference by the speaker with respect to some past situation (e.g. ‘it must be the case that the vine-grower has sold all the vines at a low price’). The most natural modal interpretation of the sentences in (11a-b) is either a directed deontic reading (e.g. ‘The vine-grower has been required to sell all the vines at a low price’/‘The leader of the union is required to encourage the marchers’) or a dispositional/dynamic reading (e.g. ‘The vine-grower has had the urge(/has really wanted to) sell all the vines at a low price’/‘The leader of the union has the urge to(/really wants to) encourage the marchers’). A non-directed reading (e.g. ‘It has been necessary that the vine-grower sell all the vines at a low price’/‘It is necessary that(/we need that) the leader of the union encourage all the marcher’) is also possible, although less natural (or more difficult to access) according to the speakers questioned.

To recap, the analysis carried out in this section further supports that restructuring and non-restructuring constructions correlate with raising and control structures respectively: in non-restructuring constructions the subject is an argument of the necessity predicate, as it must conform to the animacy requirement imposed by the modal. On the contrary, restructuring constructions do not impose any type of semantic restriction on its surface subject, and are perfectly compatible with inanimate subjects; this must be taken to show that in this context the modal *behar* does not take a subject argument.

Additionally, the data provided in this section points to various conclusions regarding the correlation between the underlying raising vs. control status of the modal constructions under analysis and their modal interpretation. The fact that the constructions that pattern with raising and license inanimate subjects are compatible with either epistemic and non-directed deontic readings once again suggests that, contrary to what has often been claimed, (i) there is no one-to-one correlation between raising and control configurations and epistemic and root modal readings respectively. It also points to (ii) the need to distinguish between different subtypes of root modality (i.e. non-directed deontic modality is licensed in the presence of inanimate subjects where directed deontic and dispositional modals are not). On the other hand, the fact that the non-restructuring constructions that pattern like control in requiring animate subjects cannot convey an epistemic reading suggests that (iii) control constructions must necessarily correlate with a non-epistemic, root interpretation.

6.2.3. Expletive subjects

In the previous chapter (Section 5.2.) it has been shown that Basque possesses a type of expletive-existential construction involving modal *behar* and certain unaccusative predicates, akin to the *there*-expletive construction of English. These expletive constructions are characterized by the presence of a null expletive subject in the subject position (Spec, TP) of the matrix clause, which triggers ergative agreement on the auxiliary, and an associate low absolutive subject which remains inside the infinitival complement and agrees in number with the auxiliary, as shown in the structure below (Rezac et al. 2014).

- (12) **(expletive)** [[(INF ... **3s/p.ABS** ...) *behar*] TERG=AUX.3s/pE
 (Adapted from Rezac et al. 2014: 1298).

Since the presence/absence of expletive subjects is a typical property showing whether a given constructions patterns with raising or control (see Chapter 2, Section 5.2.), the behaviour of the different modal constructions with respect to the availability

of this structure constitutes an additional testing ground for determining their underlying structure.

Let us therefore recall the conclusions reached in the previous chapter in this respect.

The data analyzed in Chapter 5 (repeated in (14-15) below) indicate that only restructuring constructions, whether functional (Type I), or lexical (Type II), license the presence of null expletive subjects (13a-b). Non-restructuring constructions (Type III), which, as the reader will recall, fail to exhibit agreement with the internal absolutive argument, are not compatible with this type of expletive construction (14a-b).

(13) (= (72-73), Ch.5) Type I restructuring constructions: $\sqrt{\text{expletive subjects}}$

- a. Pintxo onak egon behar d-u-te mahai gainean.
Pintxo good-3pA be need HAVE.3sE table on-the
- b. Behar dute pintxo onak egon mahai gainean.
Need HAVE.3sE pintxo good-3pA be table on-the
'There must be good pintxos on the table.'

(Adapted from Rezac et al. 2014: 1301)

(14) (= (74), Ch.5) Type III non-restructuring constructions: *expletive subjects

- a. *Behar du pintxo onak egon mahai gainean.
Need HAVE.3sE pintxo good-3pA be table on-the
Existential reading: 'There must be good pintxos on the table.'
- b. *Lehenik eta behin, behar du baldintza demokratikoak
first of all, need HAVE.3sE condition democratic.pA
egon prozesu hori egiteko.
Be process this.sA to-do
Existential reading: 'To start with, there must be democratic conditions to carry out that process.'

This can only be taken to indicate once again that, unlike restructuring constructions (Type I and II), non-restructuring constructions (Type III) correlate with control, rather than raising structures.

Below I present more examples involving this type of null expletive *behar* constructions gathered from different corpora¹⁹⁸. They all correspond to Type II constructions:

(15) Null expletive constructions (corpora examples)

- a. Loturaren bat egon behar du nonbait.

Link-Gen one.sA be need HAVE.3sE apparently

‘There must be a connection.’

Retrieved from Sarasola, Salaburu, Landa & Zabaleta (2011)¹⁹⁹

- b. ...grua baten gainean botila batzuk egon behar zuten eta,

crane one-gen on-top-of bottle some.pA be need HAVE.3pE(past) and

kontroletik Pepe bidali zuten haiek kentzeko baina,

control-from Pepe send HAVE.3pE those.pA remove-for but

beste bat ere konturatuko zen eta grua mugitu omen zuen

another one.sA too realize BE.3sA and crane move reportedly HAVE.3sE

‘There had to be some bottles on top of a crane and they sent Pepe to remove them but some other apparently also realized and he moved the crane’

Retrieved from <http://susa-literatura.eus/liburuak/narr08>

Let us now consider the modal interpretations available for this type of constructions.

If we take a look at the corpora examples provided in (15a-b), we see that they correlate with an epistemic reading: (15a) conveys the speaker’s belief that ‘there is a connection’, and (15b) must be interpreted as ‘it must be the case that there were some bottles on top of a crane’. However, as I will next show, the epistemic is not the only available interpretation for these types of expletive constructions; the next sentences

¹⁹⁸ The corpora used mainly comprises the *Contemporary Reference Prose* corpus (Sarasola et al. 2011) and digital editions of official newsletters, journals and press found through the Google browser.

¹⁹⁹ Auster, P. (2006) *Brooklyn follies* (Oskar Arana, Trans.). Irun: Alberdania.

also gathered from the corpora evidence that the modal constructions involving null expletive subjects are also compatible with non-directed deontic root interpretations.

(16) Root interpretations of null expletive constructions²⁰⁰

- a. Moral bat egoteko gizarte bat egon behar du.

Moral one-A be-for society one be need HAVE.3sE

Retrieved from Sarasola et al. (2011)²⁰¹

Root (non-directed deontic) (Type II): ‘It is necessary that there be a society for morals to exist.’

- b. Bidea elkarrekin egiteko oinarri batzuk egon behar dute.

Journey together do-to basis some.plA be must HAVE.3plE

Root (non-directed deontic) (Type II): ‘To walk along the same path, it is necessary that it is necessary that there be some common grounds.’

Retrieved from:

http://paperekoa.berria.eus/papera_inprimatu.php?html=BERRIA&urtea=y2004&hilabetea=m02&eguna=d20040228&orria=p00012018

- c. Beraz, pentsamenduak bere arauak eta legeak baditu ere

Thus thought-sE its rule-pA and law-pA if- HAVE.3plA.3sE even
biologiaren legeen barruan behar dute egon adierazpen
biology.gen law-p.gen inside.gen need HAVE.3plE be expression
kognitibo guztiak.

cognitive all-pA

Root (non-directed deontic): ‘Thus, even if the mind has its own principles and laws, it is necessary that all the cognitive expressions be inside the laws of biology.’

Retrieved from <http://eukeniacebal.net/psikologia/2012/09/22/zer-da-psikologia>

²⁰⁰ In this occasion too the examples have been recovered from different corpora and adapted to provide the two word order pairs.

²⁰¹ Azurmendi, J. (1999). *Euskal Herria Krisian*. Donostia-San Sebastián: Elkar.

Summarising, as it was the case with the previous tests, the availability of non-directed deontic readings in the constructions in which modal *behar* occurs with a null expletive subject indicates that (i) there is no one-to-one correlation between raising modal constructions and epistemic readings and that (ii) we need to distinguish between different subtypes of root readings²⁰².

6.2.4. Reconstruction of idiom-chunk subjects

Another test frequently used to determine if a particular construction patterns with a raising or a control structure concerns the interpretation of idiom-chunk subjects.

It has been shown that idiom-chunk subjects do not preserve their idiomatic meaning when they occur in a control construction in which they receive a theta-role from the control verb; by contrast, they do preserve it when they occur as the subjects of a raising configuration. That is to say, idiom-chunk subjects can reconstruct²⁰³ for an idiom interpretation in raising, but not in control constructions. The tests have often been taken to substantiate the raising vs. control division of epistemic and root modals respectively (cf. Thrainsson and Vikner 1995 and many others; Chapter 2). Recently, however, scholars have shown that the idiom-chunk subjects of root constructions do not always lose their idiomatic meaning (Eide 2002²⁰⁴, Hacquard 2006).

²⁰² Note that in this context, even if we substitute the internal subject for an animate argument, the sentence cannot give rise to a directed deontic reading; this suggests that directed readings differ from non-directed readings in that only the latter allow for expletive subjects.

(xcii) Moral bat egoteko jainko bat egon behar du.
moral one.sA be-for god one.sA be need HAVE.3sE
It is required that there is a god /We need there to be a god.
#A god (whoever) has the obligation to be there.
#A god (whoever) has the urge to be there.

²⁰³ It is assumed that the preservation of the idiomatic reading is due to the fact that the idiom-chunk subject is able to reconstruct to its trace-position inside the infinitival complement for interpretation.

²⁰⁴ In particular Eide (2002) shows that whereas root dispositional modals behave like control predicates in that they do not preserve the idiomatic interpretation of an idiom-chunk subject, deontic modals pattern with raising ones, except when they occur in pseudo-clefted constructions.

(17) Root modals with idiom chunk subjects

a. The shit can really hit the fan in this part of the world (Hacquard 2006)

b. Nød kan lære naken kvinne å spinne

'Need can teach naked woman to spin = ability'

(idiom: Nød lærer naken kvinne å spinne) (Eide 2002)

Let us see how the Basque modal constructions under analysis behave with respect to this test.

As shown by Rezac et al. (2014), in the constructions in which *behar* occurs with auxiliary HAVE, an ergative subject and an infinitival complement placed at its left (hence, in the lexical restructuring construction (Type II) of the classification provided in Chapter 5 Table 7) idiom-chunk subjects preserve their idiomatic reading (18). In the sentences in (19) I illustrate that the same behaviour is observed in the constructions in which *behar* surfaces with auxiliary BE and an absolutive subject; that is, in functional restructuring constructions (Type I). This again suggests that these types of restructuring constructions are subject raising constructions in which the idiom-chunk subject reconstructs to its base-generated position inside the infinitive complement for interpretation.

(18) Type II lexical restructuring constructions: $\sqrt{\text{idiomatic reconstruction}}$

a. Sabel-ak oso zimurtuta egon behar du.

Belly.sE very folded/creased be must HAVE.3pIE

Epistemic: There must be great hunger [zabor-ontzietan janari bila hasteko/
to start looking for food in garbage cans].

b. Txori erre-ak aho-ra etorri behar du

bird roasted.sE mouth-d.to come must HAVE.3pIE

Root (non-directed deontic): [Firin-faran bizitzeko/ To live without worry,]
things must be easy.

(Based on Rezac et al. 2014: 1292 (24))

- (19) Type I Functional restructuring constructions: √idiomatic reconstruction
- a. Sabel-a oso zimurtuta egon behar da.
 Belly.sA very folded/creased be must BE.3sE
Epistemic: There must be great hunger [*zabor-ontzietan janari bila hasteko*
to ‘start looking for food in garbage cans’].
- b. Txori erre-a ahora etorri behar da
 Bird roasted.sA mouth.to come must BE.3sE
Root (non-directed deontic): [*Firin-faran bizitzeko* ‘To live without worry’]
 things must be easy.
 (Based on Rezac et al. 2014: 1292 (example 24))

However, as I will show next, the application of the idiom-chunk test to the two constructions where the infinitive complement surfaces to the right of *behar* ‘need’ (*behar > inf*), does not lead to the same results. Notice that if we simply reverse the order between the complement and *behar* with respect to (20), the speakers find the sentence degraded:

- (20) Type II Lexical restructuring constructions: √idiomatic reconstruction
- Behar > inf* constructions: ??idiomatic reconstruction
- a. ??Sabel-ak oso zimurtuta behar du egon,
 belly.sE very folded/creased need HAVE.3sE be
zabor-ontzietan janari bila hasteko
garbage-can-the-in food look-for begin-for
 ‘There must be great hunger [to start looking for food in garbage cans].’
- b. ??Firin-faran bizitzeko, txori erre-ak behar du aho-ra etorri.
 Without-worry live-for bird roasted.sE need HAVE.3sE mouth-to come
 ‘Lit. To live without worry, the roasted bird must come to one’s mouth.’
 Idiomatic reading: ‘To live without worry, things must be easy.’
 ??Pilota-k punpe-ra behar du etorri oraindik.
 Ball.sE bounce.to need HAVE.3sE come still
 ‘It still has to be fitted.’

It must however be noted that, in this word order, the above sentences are ambiguous between lexical restructuring and lexical non-restructuring constructions (recall that the most evident observable difference between the two types of constructions is the presence vs. absence of agreement with the embedded arguments, yet no such type of agreement is expected in the context of the idiomatic expressions used, since these involve unaccusative one-place predicates whose single argument is the raised subject). The prediction is that the judgements will be different if we force disambiguation by using an idiomatic expression involving a transitive predicate that takes a plural object, as illustrated in (21 vs. 22). The presence of agreement will indicate that lexical restructuring is involved and, following the line of previous examples, we expect it to pattern like raising constructions in admitting idiomatic reconstruction of the idiom-chunk subject.

- (21) Restructuring *behar>inf* constructions: $\sqrt{\text{idiomatic reconstruction}}$

Ez kezkatu! Beharrak behar d-IT-u mahatsak ondu oraindik.

Not worry necessity-sE need HAVE.3plA.3sE grapes ripe-make still

Jakingo duzu zer eta nola egin, behar denean.

Know-fut HAVE.2sE what and how do need be-when

Lit. Don't worry! The need still must make the grapes ripe.

Idiomatic reading available: 'Don't worry! Necessity still has to make you wittier. You will know what to do when you really need it'

- (22) Type III Non-restructuring *behar>inf* constructions: $\ast\text{idiomatic reconstruction}$

#Ez kezkatu! Beharrak behar d-Ø-u mahatsak ondu oraindik...

not worry necessity-sE need HAVE.3sE grapes ripe-make still

Lit. Don't worry! The need still must make the grapes ripe.

(Idiomatic reading unavailable)

The contrast found between the two types of constructions in (21) vs (22) evidences thus that the possibility that an idiom-chunk subject undergoes idiomatic

reconstruction is not really subject to word order constraints (i.e. *inf* + *behar* vs. *behar* + *inf*); rather it is contingent on the underlying raising vs. control structure of the different constructions under analysis. In other words, idiomatic reconstruction is available in functional (Type I) and lexical (Type II) restructuring constructions (whatever word order they exhibit (18a-b, 19)), because, as shown previously, these constructions pattern with raising structures. However, Type III non-restructuring constructions (20) disallow an idiomatic reading because they correlate with control-like structures in which the modal enters into a thematic relation with the subject.

Consider now the modal interpretations available for the constructions allowing idiomatic reconstruction:

If we go back to the restructuring examples in (18-19), we see that whereas the modal sentences (18a) and (19a) are most naturally interpreted epistemically (as illustrated in the bracketed continuation), those in (18b-19b) correlate instead with a root interpretation where the necessity or requirement is not directed to the syntactic subject (i.e. a non-directed deontic interpretation). Thus, the fact that, in addition to weather-*it* subjects, inanimate subject and expletive subjects, idiom chunk subjects are also licensed in contexts in which the modal conveys a non-directed deontic (root) reading supports once again that (i) there is no one-to-one correlation between raising and control structures and epistemic and root interpretations – at least some root readings (non-directed deontic ones) do not require that the subject enters into a thematic relation with the subject and are therefore compatible with raising constructions. The data therefore points to the conclusion that (ii) we should distinguish between different types of root interpretations. That is to say, the fact that non-directed deontic readings are compatible with an idiomatic interpretation of idiom-chunk-subjects, whereas directed deontic and dispositional readings are not leads us to reject the traditional classification of modals into epistemic and root and to adopt a finer-grained classification of root modality whereby root modals are divided into non-directed deontic, directed deontic and dispositional/dynamic modals.

6.2.5. Scope reconstruction of indefinite subjects

Another argument used by Wurmbrand (1999) to show that modals are raising predicates regardless of their modal interpretation has to do with the scope ambiguity exhibited by subjects of modals constructions (Chapter 2). In the line pursued by previous work (May 1977, 1985; Lebeaux 1994, Bobaljik 1998; Fox 1998, 1999; Sauerland 1998; among others), Wurmbrand takes this scope ambiguity to indicate the availability of two syntactic positions in which the subjects can be interpreted: the surface position above the modal (surface/wide scope) and their trace position inside the infinitival complement (inverse/narrow scope). More specifically, it is assumed that the subject of modal constructions and, in general, of raising constructions, can be reconstructed to the position it occupied before raising for purposes of interpretation (an LF operation which is referred to as scope reconstruction). This operation is not possible in control construction.

In this section, I am going to show that the Basque modal constructions under analysis do not all exhibit the same scope ambiguity observed by Wurmbrand with regards to English and German modal constructions. In this too, a distinction should be made between Type I-II restructuring and Type III non-restructuring constructions: the former pattern with raising constructions in that they admit both a surface(/wide) scope and an inverse(/narrow) scope reading of the subject, whereas the latter only admit the surface(/wide) scope reading, like control constructions.

Before I present the relevant data, let me explain in which contexts scope reconstruction is available in Basque.

6.2.5.1. Scope reconstruction in Basque

In Basque, scope reconstruction is available for subjects in the preverbal focus position. If the subject bears no focus, an inverse/narrow scope reading is unavailable, as observed by Rezac et al. (2014: 1295) (23a vs. 23b).

(23) Scope reconstruction in Basque (ergative subjects) (Rezac et al. 2012 : 1295)

a. *Preverbal focus*:

IRAKASLE(REN)²⁰⁵ BATEK zaindu ditu ikasle guztiak.

teacher-GEN one-sE supervise HAVE.3pA.3sE student all.3pA

i. *Some > every*: there is one professor who has supervised every students.

ii. *Every > some* : every student is supervised by a professor.

b. *Without focus*:

Irakasle batek ikasle guztiak zaindu ditu

teacher one-sE student all.3pA supervise HAVE.3pA.3sE

i. *Some > every*: there is one professor who supervises every students.

ii. **Every > some* : every student is supervised by a professor.

The ambiguity in (23a) indicates that the indefinite subject (*irakasle(-ren) bat-ek* ‘one teacher’) is able to reconstruct from the preverbal focus position to a lower complement internal position, under the universal quantificational embedded object. As shown next, scope reconstruction is independent of whether the subject is the ergative or the absolutive subject of an intransitive (24).

(24) Scope reconstruction in Basque (absolutive subjects) (Rezac et al. 2012 : 1295)

Nik dakidala, IRAKASLE(REN) BAT mintzatu da ikasle guztiekin.

As far as I know teacher.GEN one.A talk BE.3sA student all.p.with

i. *Some > every*: there is one professor who has talked with every students.

ii. *Every > some*: every student is such that he has talked with a professor.

As in English and German, scope reconstruction of the subject to a complement internal position (below the embedded quantificational object) is prohibited in control

²⁰⁵ Scope reconstruction is easier to obtain if the indefinite article *bat* ‘one’ combines with the genitive suffix *-ren* (*irakasle-ren bat-ek* ‘teacher-GEN one-sE’). In this context, the subject gets the non-specific meaning ‘some teacher or other’ (Etxepare, p.c.)

constructions²⁰⁶, even under focus. This is so with both ergative subjects of transitive verbs and absolutive subjects of intransitive verbs (25a-b).

(25) Scope reconstruction impossible in control constructions:

- a. IRAKASLE(REN) BAT-EK erabaki du ikasle guztiak zaintzea.
Teacher.GEN one-sE decide HAVE.3pA.3sE student all.3pA supervise
i. *Some* > *every*: there is one professor who has decided to supervise every students.
ii. **Every* > *some*: every student is such that (s)he has decided to be supervised by a professor.
- b. IRAKASLE(REN) BAT ahalegindu da ikasle guztiak zaintzen.
Teacher.GEN one.A decide HAVE.3pA.3sE student all.3pA supervise
i. *Some* > *every*: there is one professor who has tried to supervise every students.
ii. **Every* > *some*: every student is such that (s)he has tried to be supervised by a professor.

To sum up, there are two conditions for scope reconstruction to be licensed in Basque: (i) the subject must be in the preverbal focus position and (ii) the subject cannot

²⁰⁶ Following Wurmbrand (1999), I will take the impossibility of a narrow scope reading of the indefinite subject relative to the embedded universal quantificational object to be related to two syntactic aspects of control constructions: first, the indefinite subject cannot lower (for scope reconstruction) to a position inside the complement; second, the universal quantifier cannot undergo long-distance raising across a control infinitive, so it can by no means target a scope position above the indefinite subject. It must be however noted that there is an ongoing controversy regarding the question whether quantifier raising is short-distance (i.e. impossible across embedded tensed clauses and control clauses) (May 1977, 1985, Fox 1999, Wurmbrand 1999) or long distance. Recently it has been suggested that long-distance QR is possible, although constrained by semantic interpretation and economy principles (Cecchetto 2004, Moulton 2007, Wurmbrand 2015, with variation among these authors as to whether Q-raising is available across non-restructuring and control infinitives. It has been also been claimed that NPs and indefinite DPs are much freer in allowing wide-quantificational readings out of control infinitives, as compared to universal, proportional and negative quantifiers (cf. Fintel & Heim 2011:114 and references therein). That is to say, different quantifiers have different scope-taking properties (cf. also Neeleman & Truswell 2006; Truswell 2013). All in all, there seems to be significant variation across languages and speakers with respect to the scope readings available for the different quantifiers and different types of complements.

be the controller subject of a control verb. Once clarified this, let us turn to the modal constructions under analysis.

6.2.5.2. Scope reconstruction in modal construction with *behar*

As shown next, in the restructuring (functional (Type I) /lexical (Type II)) modal constructions, scope reconstruction of the focalized subject to a complement internal position below the modal *behar* and universal quantificational object is available for all speakers²⁰⁷, both when the embedded infinitive is transitive or unaccusative.

Take for instance the following example provided by Rezac et al. (2014:1296):

(26) Scope reconstruction in Type I-II restructuring modal constructions: transitive and intransitive infinitives (Rezac et al. 2014:1296).

- a. IRAKASLE(REN) BATEK zaindu behar ditu ikasle guztiak.
teacher-GEN one-sE supervise need HAVE.3pA.3sE student all.3pA
i. *Some* > *must, every*: there is one professor who must supervise every student
ii. *Every* > *must, some*: every student must be supervised by a professor.
- b. IRAKASLE(REN) BATEK mintzatu behar du ikasle guztiekin.
Teacher.GEN one.A talk need BE.3sA student all.p.with
iii. *Some* > *must, every*: there is one professor who must talk with every student.
iv. *Every* > *must, some*: for every student *x* there must be a professor that supervise *x*.

Note that the modal constructions in (26) corresponds to a lexical restructuring (Type II) construction of our classification: the constructions exhibits the *inf>behar* word order (recall from Chapter 5 that *inf>behar* constructions correlate with small size vP

²⁰⁷ Recall that *inf>behar* constructions are admitted in general in all varieties of Basque, whereas the *behar<inf* word order seems to be more naturally accepted by the speakers of the varieties close to the French border.

complements lacking vP-peripheral negation/focus projections); the subject surfaces with ergative case, and the auxiliary selected is HAVE, independently of the transitivity and the case assigning properties of the embedded infinitival predicate (see Chapter 5)²⁰⁸.

Additionally, as I show below, scope reconstruction is also available in functional restructuring (Type I) constructions where the case of the subject and the auxiliary are determined by the unaccusative infinitive verb (27a) and in the lexical restructuring constructions exhibiting the *behar>inf* word order (27b-c).

(27) Scope reconstruction in functional (Type I) and lexical (Type II *behar>inf*) restructuring modal constructions

- a. IRAKASLE(REN) BAT mintzatu behar da ikasle guztiekin.
teacher.GEN one.A talk need BE.3sA student all.p.with
 - i. *Some > must, every*: there is one professor who must talk with every student.
 - ii. *Every > must, some*: for every student x there must be a professor that supervise x.
- b. IRAKASLE(REN) BATEK behar ditu ikasle guztiak zaindu
teacher-GEN one-sE need HAVE.3pA.3sE student all.3pA supervise
 - i. *Some > must, every*: there is one professor who must supervise every student
 - ii. *Every > must, some*: every student must be supervised by a professor.

²⁰⁸ As is shown next, the availability of scope ambiguity is not altered if the order between the complement and the modal is reversed:

- (xciii) IRAKASLE(-REN) BATEK behar ditu ikasle guztiak. zaindu
Teacher -GEN one-sE need HAVE.3pA.3sE student all.3pA supervise
 - a. *Some > need, every*: there is one professor who needs to supervise every students.
 - b. *Every > some, need* : every student needs to be supervised by a professor.

- c. IRAKASLE(REN) BATEK behar gaitu ikastaroan matrikulatuta
 teacher-GEN one-sE need HAVE.1pA.3sE curse-in-the registered
 gauden guztiok tutorizatu.
 BE.1pA all.1pA supervise.
- i. *Some > must, every*: there is one professor who must supervise every student who is registered in the course
 - ii. *Every > must, some*: every student who is registered in the course must be supervised by a professor.

We can thus conclude that restructuring constructions – whether functional, (Type I) or lexical (Type II) – allow for a reading where the subject reconstructs to a position below the modal and the universal quantificational object, what supports once again the hypothesis that this type of constructions are raising, rather than control structures.

Let us now consider the non-restructuring modal constructions of the classification. Recall that these constructions are distinguishable because they are opaque to agreement with the embedded arguments:

(28) Scope reconstruction prohibited in Type III non-restructuring modal constructions

- a. IRAKASLE(-REN) BATEK behar du ikasle guztiak zaindu.
 teacher-GEN one-sE need HAVE.3pA.3sE student all.3pA supervise
 - i. *One > need, every*: there is one professor who must supervise every students; for instance, Kepa.
 - ii. **Every > need > one*: Every student must be supervised by a professor.
- b. IRAKASLE(REN) BATEK behar du kastaroan matrikulatuta
 teacher-GEN one-sE need HAVE.1pA.3sE curse-in-the registered
 gauden guztiak tutorizatu.
 BE.1pA all.pA supervise.
 - i. *Some > need, every*: there is one professor who must supervise every student who is registered in the course

- ii. **Every > need, some*: every student who is registered in the course must be supervised by a professor.

In (28) I show that non-restructuring constructions pattern like control, rather than raising, in that they do not license an inverse(/narrow) scope reading of the subject relative to modal *behar* and the universal quantification object. Note that (28) contrasts with (26a) above in that it fails to exhibit agreement with the absolutive argument (*ikasle guztiak* ‘every student.pA’) and in the fact that the infinitive cannot occur preceding the modal. It thus corresponds to a Type III non-restructuring construction.

Thus, the test concerning the presence/absence of scope ambiguity demonstrates once again the hypothesis that restructuring (Type I and II) constructions involve raising whereas non-restructuring (Type III) constructions are control structures.

Let us now consider the modal interpretations available for the different types of constructions and scope interactions:

6.2.5.3. Modal interpretation of scopally ambiguous constructions

As shown above, the restructuring constructions in (26) and (27) are ambiguous with respect to the scope interaction of the subject relative to the modal *behar* and the embedded quantificational object, yet they receive a non-epistemic (i.e. root) interpretation. That is to say, the necessity modal *behar* in the sentences in (26) and (27) is not used to express what is necessary given what is known/the evidence possessed by the speaker, rather it expresses a necessity or obligation given some regulations or some particular circumstances. This again calls into question that there is a one-to-one correlation between the raising structure of the modal constructions and epistemic modality (Ross 1969, Perlmutter, 1971, Huddleston, 1974; Jackendoff 1972). What is more, the data shows that the sentences with a root interpretation can correlate not only with raising structures, but also with a narrow scope reading of the subject below modal *behar* and the universal embedded quantifier (26a-ii, 26b-ii, 27-ii). This further reveals that there is no one-to-one correlation between root modal interpretations

and a wide scope ordering of the subject relative to the modal too (*Subj* > *Mod*) (in contrasts with Lee's (2006) assumption about *have to* constructions in English).

It must be noted however that there are certain constraints regarding the modal interpretations that can be licensed when the subject exhibits a narrow scope reading relative to the modal and the object. As shown below, when the subject is interpreted below the modal and the quantificational object, directed deontic and dispositional/dynamic interpretations are not available. In other words, in the sentences in (26a-ii, 26b-ii, 27-ii) the necessity or requirement expressed by the modal cannot be directed to the subject of the clause (#'A professor is required (/has the urge to/really wants) to supervise every student'); rather, the necessity or requirement is directed to the situation expressed by the entire proposition ('It is necessary/required that every student is supervised by a professor').

By contrast, when the subject receives a wide scope reading (26a-i, 26b-i, 27-i), there is no restriction on the type of root interpretation the construction can give rise to; the sentences can have a directed deontic or a dispositional root reading ('There is one professor, Kepa, who has the obligation(/urge) to supervise every student') or a non-directed deontic one ('There is one professor x (whose identity I don't know) and it is necessary that x supervise every student')²⁰⁹.

Let us now examine the possible scope interaction of epistemic modal constructions:

Crucially, the informants questioned report that the following epistemic modal sentences too (29a-b) are ambiguous between a wide and a narrow scope reading of the subject relative to the modal and the embedded quantificational object *ikasle guztiak* 'every student', although the more natural interpretation under the epistemic reading is

²⁰⁹ Note that, the fact that epistemic and non-directed readings are available when the subject receives a wide scope reading suggests that the availability of these readings is not related with a narrow scope reading of the subject relative to the modal. However, as pointed out to me by Ricardo Etxepare (p.c), there is a contrast between the directed and the non-directed interpretations with respect to the interpretation of the indefinite subject (*irakasle(-ren) batek* 'one professor'), in the latter case, the reference of the professor in question must be unknown. In other words, the sentence cannot have the interpretation: ('#There is one professor, Kepa, and it is necessary that he supervise every student').

the one in which the subject takes narrow scope relative to the modal and the embedded quantificational object (29a-i, 29b-i).

(29) Subject reconstruction in restructuring modal constructions with an epistemic reading:

a. IRAKASLE(-REN) BATEK zaindu behar izan ditu ikasle guztiak.

teacher-GEN one-sE supervise need perf. HAVE.3pA.3sE student all.3pA

i. *Every > must, some* : every student must have been supervised by a professor.

ii. *Some > must, every*: there is one particular professor (e.g. it could be Kepa or it could be Aitor) and in view of the available evidence it must be the case that this professor supervised every student.

b. IRAKASLE(-REN) BAT mintzatu behar izan da ikasle guztiekin.

teacher -GEN one.A talk need perf. HAVE.3sE student all.p.with

i. *Some > must, every*: there is one professor (whose identity I don't know) who must have talked with every students.

ii. *Every > must, some*: every student must have received a talk by a teacher.

The data are consistent with Wurmbrand's analysis of epistemic modal constructions in German (repeated below for convenience), taken to support the hypothesis that epistemic modal constructions are scopally ambiguous between a wide scope and a narrow scope reading of the subject relative to the modal.

(30) Jemand von New York muß in der Lotterie gewonnen haben (epistemic)

'Somebody from New York must have won in the lottery'

i. *Modal > Subj*: In view of the evidence available it is necessarily the case that somebody from N.Y. win the lottery.

ii. *Subj > Modal*: There is somebody from N.Y. and in view of the evidence available it is necessarily the case that he won the lottery.

Summing up, two main conclusions can be drawn regarding the scopally ambiguous restructuring modal constructions:

The first is that they can convey the whole range of modal interpretations of the four-type classification adopted in this work: epistemic, non-directed deontic, directed deontic and dispositional/dynamic.

The second is that there is no straightforward correlation between a narrow vs. wide scope interpretation of the subject relative to the modal and the quantified object, and the epistemic vs. root distinction, in contrast with what has been assumed by Lee (2006) about *have to* modal constructions (Chapter 2, Section 2.2.4.). The only restriction is that when scope reconstruction takes place (hence, in the interpretation where the subject takes narrow scope relative to *behar* and the embedded quantificational object), directed and dispositional/dynamic root interpretations are disallowed. The following table summarises these conclusions.

Table 10 Interpretation of scopally ambiguous restructuring/raising constructions

	<i>Epistemic</i>	<i>Non-directed deontic</i>	<i>Directed deontic</i>	<i>Dispositional /dynamic</i>
<i>Wide/surface scope: Some > behar > every</i>	YES	YES	YES	YES
<i>Narrow/inverse scope: Every > behar > some</i>	YES	YES	NO	NO

6.2.5.4. Modal interpretations of non-restructuring constructions

Consider now the modal interpretation of the non-restructuring (Type III) construction in (28) above in which the subject unambiguously takes wide scope relative to the modal and the embedded quantificational object. The speakers questioned report that the most natural interpretation for this modal sentence is one in which the subject (*irakasle(ren) batek* ‘one professor’) has the obligation or the urge to bring about something; that is, a directed deontic or a dispositional(/dynamic) interpretation. A non-directed reading is also possible, but harder to obtain (e.g. ‘There is a particular professor and it is necessary that he/she supervises every student’). Besides, it requires

that the identity of the subject is not known. However, crucially, as shown in (31) below, an epistemic reading is not possible in non-restructuring constructions (not even in the presence of perfect aspect *izan* ‘have’, which, as explained before, contributes a temporal interpretation that enables this reading).

(31) Type III Non-restructuring modal constructions and modal interpretation:

- a. IRAKASLE(-REN) BATEK behar izan du ikasle guztiak zaindu
 teacher-GEN one-sE need perf HAVE.3sE student all.3pA supervise
- b. IRAKASLE(REN) BATEK behar du ikastaroan matrikulatuta
 teacher-GEN one-sE need HAVE.pA.3sE course-in-the registered
 gauden guztiok tutorizatu.
 BE.1pA all.pA supervise.
- i. *Directed deontic*: One professor has been required to supervise every student (/all the students who are registered in the course).
- ii. *Non-directed deontic*: It has been necessary (/We need) that one professor (whose identity I don’t know) supervises every student
- iii. **Epistemic*: there is one particular professor (e.g. it could be Kepa or it could be Aitor) and in view of the available evidence it must be the case that he supervised every students.

6.2.5.5. Main conclusion about the scope properties of indefinite subjects with *behar*

The analysis of the scope properties of the subjects of the modal constructions under analysis has allowed me to confirm once more that restructuring constructions pattern with raising (i.e. they allow for the scope reconstructions of the subject to a position inside the infinitival complement it has raised out from), whereas non-restructuring ones correlate with control structures.

In addition, the data analysed point to the following conclusions regarding the syntax-semantics mapping of modal constructions:

First, the restructuring and non restructuring constructions under analysis contrast with respect to the possibility that the subject reconstructs to a complement internal position below the necessity modal *behar* (inverse/narrow scope): it is possible in the case of the functional (Type I) and lexical restructuring (Type II) constructions, and impossible in the case of the non-restructuring (Type III) ones.

Second, although there exists a correlation between non-restructuring/control (Type III) constructions and the licensing of non-epistemic interpretations (epistemic modality is precluded), there is no correlation whatsoever between restructuring/raising constructions and modal interpretation; the latter can convey not only epistemic modality but root modality too, whether this corresponds to non-directed deontic modality or to directed deontic and dispositional/dynamic modality. This indicates that previous thematic-based accounts proposing a raising vs. control division of epistemic and root modal sentences respectively are inadequate to account for the syntax-to-semantics mapping of the modal constructions under analysis.

Third, there is also no one-to-one correlation between a given subject-modal scope interpretation and the type of modality (epistemic/root) licensed. On the one hand, the modal constructions exhibiting a surface subject scope interpretation (hence, a wide scope reading of the subject relative to the embedded universal object and the necessity modal *behar* (*subject>modal*)) are four-way ambiguous as to the type of modal interpretation they can give rise to (epistemic, non-directed deontic, directed deontic, dispositional). On the other hand, the constructions where the subject reconstructs to a complement internal position (below the universal quantified object and the modal (*modal>subject*)) can not only convey epistemic modality but also some type of root modality (non-directed deontic). Therefore, from this point of view, a subject-modal scope based account such as the one proposed by Lee (2006) for *have to* constructions proves inadequate for the Basque necessity modal constructions under discussion. It is however true that there exists some constraint on the type of modality that can be licensed when the subject undergoes scope reconstruction: the latter cannot give rise to directed and dispositional/dynamic modal readings.

Fourth, the data analysed evidences once again the need to adopt a finer grained classification which distinguishes between different types of root interpretations.

6.2.6. Scope interaction of embedded objects associated to focus sensitive particles

Krifka (1995, 1998) argues that focus phrases containing focus sensitive particles such as *only* act as quantificational phrases that can move to a position where they take wide scope over the sentence or the infinitive construction²¹⁰. A typical example would be (32).

(32) They were advised to learn [only Spanish].

- i. ‘What they were advised was: To learn Spanish and no other languages’
 - ii. ‘The only language they were advised to learn was Spanish’
- (Taglicht 1984)

However, as it has often been argued, long-distance Q-raising of this sort is highly restricted: it is possible out of restructuring infinitives, but is not permitted across non-restructuring and control infinitives²¹¹. The following examples from Japanese

²¹⁰ Note that Krifka’s (1995, 1998) analysis differs from the one pursued by Fox (1999), Wurmbrand (2003), Bobaljik & Wurmbrand (2005) in that it supports long-distance rather than short-distance QR.

²¹¹ The claim that quantifier raising is impossible across non-restructuring control infinitives has been contested by Kennedy (1997) and more recently Moulton (2007). Consider the following examples where the embedded quantifier is interpreted as taking wide scope with respect to the indefinite subject of the matrix clause.

- (xciv) At least two American tour groups expect to visit every European country this year.
 Some congressional aide asked to see every report
 (Kennedy 1997: 674, cited in Wurmbrand in press)

Cecchetto however argues that “English is not the good language to test inverse scope in restructuring and non restructuring contexts, since it does not have an independent reliable diagnostic for restructuring. [...] Italian is a better choice because it does have a clear diagnostic for restructuring, namely clitic climbing.”

- (xcv) QR available in restructuring configurations allowing CC (Clitic climbing)
 a. Almeno uno studente lo ha cominciato ad apprezzare CC
 At least one student it has begun to appreciate

concerning the scope interpretation of the focus particle *dake* ‘only’ evidence this restriction.

(33) Japanese: scope of the embedded object associated to *dake* ‘only’

- a. John-ga migimedake-o tumureru
John-NOM right-eye-only-ACC close-can
‘Johnn can only close his right eye.’
Wide scope: can>only; ??only>can
- b. John-ga migimedake-ga tumureru
John-NOM right-eye-only-NOM close-can
‘John can close only his right eye.’
Narrow scope: *can>only; only>can

(Tada 1993 and Koizumi 1994, cited in Wurmbrand 1998, 2001)

-
- | | | |
|---|--|---------------------|
| b. | Almeno uno studente ha cominciato ad apprezzare ogni professore | CC |
| | At least one student has begun to appreciate every professor | |
| c. | Almeno un studente lo è corso a chiamare | $\forall > \exists$ |
| | At least one student him has run to call | |
| d. | Almeno un studente è corso a chiamare ogni professore | $\forall > \exists$ |
| | At least one student has run to call every professor | |
| | (Cecchetto 2004: 372) | |
| (xcvi) QR unavailable in non-restructuring and control configurations | | |
| a. | *Almeno un poliziotto la ha ammessa di sorvegliare | *CC |
| | At least one policeman it has admitted to control | |
| | ‘At least one policemen has admitted to control it.’ | |
| b. | *Almeno un poliziotto ha ammesso di sorvegliare ogni uscita. | $\forall > \exists$ |
| | ‘At least one policeman has admitted to controlling every exit.’ | |
| | (Cecchetto 2004: 372) | |

The data reminds the one provided by Wurmbrand for German raising vs control constructions examined in Chapter 2 (Section 2.1.7.3), repeated below) for convenience:

- (xcvii) German: scope of the embedded object in raising constructions vs. control constructions
- a. Ein Professor scheint jeden Studenten zu betreuen “seem” (raising verb)
‘Lit. Some professor seems every student to supervise.’
 - i. ‘There seems to be one professor that supervises all the students’ $\exists > \forall$
 - ii. ‘Every student is supervised by at least one professor.’ $\forall > \exists$
 - b. Ein Professor versprach jeden Studenten zu betreuen
‘Lit. Some professor promised every student to supervise.’
 - iii. ‘There is at least one professor who will supervise all students’ $\exists > \forall$
 - iv. ‘Every student will be supervised by at least one professor’ $\forall > \exists$

As shown in (33), in Japanese, an object associated to the scope particle *dake* ‘only’ takes wide scope relative to the modal ‘can’ only if it bears nominative case (33a); hence, if it has undergone long object movement to the nominative case position outside the restructuring infinitive. In contrast, in the non-restructuring construction in which the embedded object surfaces with accusative case (33b), the object cannot scope outside the infinitive. Recall that Japanese is a LOM language (a language promoting long object movement to the matrix position due to the presence of a deficient restructuring voice head, unable to license case to the object), therefore the object obligatorily takes wide scope in (33a) (see Wurmbrand 2013 and Wurmbrand and Shimamura 2015; and Chapter 5 Section 5.2.6. for more detail).

Crucially, when we turn to the Basque modal constructions under discussion too, we find a contrast between the restructuring and the non-restructuring constructions under analysis:

When the necessity modal *behar* occurs in a restructuring construction with an embedded object associated to the focus particle *bakarrik* ‘only’, this is ambiguous between a narrow scope and a wide scope interpretation (34i-ii) relative to the modal *behar*.²¹²

(34) Type I-II Restructuring constructions: $\sqrt{\text{bakarrik}}$ ‘only’ > *behar* ‘need’

a. Irakaslea ikasle berriekin bakarrik mintzatu behar da. (*Type I*)

Teacher.A student new-with only talk need BE.2sA

- i. The teacher is required to talk only with the new students, he must not talk with the old ones.

*Behar*_{MODAL} > (*talk* >) *bakarrik*_{ONLY}

- ii. The teacher is only required to talk with the new students, but he may talk with the old ones too.

²¹² Note that the Basque restructuring constructions contrast with the Japanese ones in that the embedded object does not require obligatory wide scope over the modal (as it was the case with (33a) above); rather, it is scopally ambiguous. This must be because, unlike Japanese, Basque is not a LOM language; that is, it lacks voice restructuring; in other words, unlike the Japanese restructuring infinitive in (33a), the restructuring infinitive in the Basque modal construction in (34a-c) is able to license structural object case in the v_{ABS} position (see the related discussion in Chapter 5).

Bakarrik > behar (> talk)

- b. Ezkerreko leihoak bakarrik itxi behar dituzu. (Type II)

Left-of window.pA only close need HAVE.3pA.2sE

- c. Behar dituzu ezkerreko leihoak bakarrik itxi

need HAVE.3pA.2sE left-of window.pA only close

- i. You are required to close only the left-side windows, the right side ones must remain open.

Behar > (close >) bakarrik

- ii. You are only required to close the left-side windows, the right side ones might remain open.

Bakarrik > behar (> close)

By contrast, non-restructuring constructions and control constructions behave the same way in not allowing a wide scope interpretation of *bakarrik* ‘only’. This is illustrated in (35) and (36) (involving the control verb *eskatu* ‘ask’).

- (35) Type III Non-restructuring constructions: **bakarrik* ‘only’ > *behar* ‘need’

Behar duzu ezkerreko leihoak bakarrik itxi

need HAVE..2sE left-of window.pA only close

- i. You are required to close only the left-side windows the right-side ones must remain open.

Behar > (close >) bakarrik

- ii. *You are only required to close the left-side windows, the right-side ones might remain open.

**Bakarrik > behar (> close)*

- (36) Jonek eskatu digu ezkerreko leihoak bakarrik ixtea.

John.E ask HAVE.1pD.3s· left-of window only close

- i. We’ve been asked to close only the left-side windows (and not the right-side ones.)

ask > only

- ii. *We’ve been only asked to close the left-side windows; the right-side ones might remain open.

**Only > ask*

Summarizing, in restructuring constructions *bakarrik* ‘only’ can move out across the infinitive to get a wide scope interpretation over the modal *behar*, whereas in non-restructuring and control constructions the only possible interpretation is one where *bakarrik* ‘only’ takes scope inside the infinitival complement, below *behar*. This indicates once again that restructuring constructions pattern with raising structures, while non-restructuring ones do so with control structures.

Concerning the modal interpretation the different constructions can give rise to in the context of focus sensitive *bakarrik* ‘only’, a few remarks are in order:

First, as one might expect based on the results observed previously, in the context of focus sensitive *bakarrik* ‘only’ too, non-restructuring constructions cannot be used to express epistemic readings. This is illustrated in (37).

(37) Type III Non-restructuring constructions (*behar* > *bakarrik*): *epistemic

Behar duzu ezkerreko leihoak bakarrik itxi izan

need HAVE..2sE left-of window.pA only close perf

#*Behar*_{EPIS} > (*close* >) *bakarrik*: It must be the case that you have closed only the left-side windows, the right-side ones might remain open.

Second, even if the paraphrases provided for the restructuring examples in (34) correspond to a directed deontic modal interpretation there is in fact no restriction as to the type of modal interpretations that the restructuring constructions can convey.

For instance, the same sentences in (34) can be used to express non-directed modality, as illustrated in (38ai-ii-38c-i-ii).

(38) Type I and II Restructuring constructions: √non-directed deontic reading

a. Irakaslea ikasle berriekin bakarrik mintzatu behar da. (Type I)

Teacher.A student new-with only talk need BE.2sA

i. It is required/(we need) that the teacher talk only with the new students, he must not talk with the old ones.

Behar > (*talk* >) *bakarrik*

- ii. It is only required(/we only need that) the teacher talk with the new students, but he may talk with the old ones too.

Bakarrik > behar (> talk)

- b. Ezkerreko leihoak bakarrik itxi behar dituzu. (Type II)

Left-of window.pA only close need HAVE.3pA.2sE

- c. Behar dituzu ezkerreko leihoak bakarrik itxi
need HAVE.3pA.2sE left-of window.pA only close

- i. It is required(/we need) that you close only the left-side windows the right-side ones must remain open.

Behar > (close >) bakarrik

- ii. It is only required(/we only need) that you close the left-side windows, the right-side ones might remain open.

**Bakarrik > behar (> close)*

Likewise, the restructuring sentences involving perfect *izan* (cf. fn. 5) shown below evidence that these type of structures can also be used to express epistemic modality, as illustrated in the paraphrases (39a-i), (39b-i) and (39c-i).

(39) Type I and II Restructuring constructions: $\sqrt{\text{Epistemic reading}}$

- a. Irakaslea ikasle berriekin bakarrik mintzatu behar izan da. (Type I)

Teacher.A student new-with only talk need perf. BE.2sA

- i. It must be the case that the teacher has talked only with the new students (it must not be the case that he has talked with the old ones.)

Behar_{epis} > (talk >) bakarrik

- ii. *It must only be the case/The only thing that can be concluded is that the teacher has talked with the new students, we do not have evidence whether or not he has talked with the new ones.

**Bakarrik > behar_{epis} (> talk)*

- b. Ezkerreko leihoak bakarrik itxi behar izan dituzu. (Type II)

Left-of window.pA only close need perf. HAVE.3pA.2sE

c. Behar izan dituzu ezkerreko leihoak bakarrik itxi (Type II)

need perf. HAVE.3pA.2sE left-of window.pA only close

- i. It must be the case that you have closed only the left-side windows; the right-side ones must be open.

Behar_{epis} > (close >) bakarrik

- ii. *It must only be the case/The only thing that can be concluded is that you have closed the left-side windows; as far as we know, the right-side ones might be open.

**Bakarrik > behar_{epis} (> talk)*

The attentive reader may have noticed that the interaction of *bakarrik* ‘only’ with modal *behar* under the epistemically interpretation contrasts with respect to the one exhibited under the non-epistemic/root interpretations. More specifically, in the sentences that receive an epistemic interpretation, *bakarrik* ‘only’ cannot outscope the modal (39a-ii, 39b-ii, 39c-ii), whereas in the non-epistemic/root cases this is perfectly possible, regardless of whether the modality is directed to the subject (directed deontic modality) or not (non-directed deontic modality). One could argue that the reason why *bakarrik* ‘only’ can scope over *behar* under the root sense, but not under the epistemic sense, is that the scope position associated to the epistemic interpretation is higher than the one associated to the root interpretations. However, as I will show in Section 6.3., there is no difference as to the scope interpretation exhibited by the necessity modal *behar* relative to other scope bearing elements such as tense, negation or quantificational subjects. Consequently, the explanation may well not be at all related with the different structural position of the modal.²¹³ Actually, in other contexts (when *bakarrik* ‘only’ is not associated to the embedded object inside the infinitival complement), the speakers questioned report they could admit an interpretation where

²¹³ Recall from Chapter 2 that the alleged scopal difference between epistemic and root modals relative to negation and quantificational subjects is used as an argument in support of a hierarchical approach to the syntax-to-semantics mapping of modal sentences. However, I will claim that the only demonstrated scopal difference exhibited by epistemic and root *behar* constructions is with respect to the possibility that *bakarrik* ‘only’ takes wide scope relative to the modal, when this surfaces associated to an argument inside the embedded infinitival complement.

the focus sensitive particle *bakarrik* scopes over epistemically interpreted *behar*. Consider for instance the following conversation:

(40) *Bakarrik*>*behar*_{epistemic}

A. Kaleak buztita daude; euria egin behar izan duen seinale.
 streets-the.pA wet be3plA rain do need have HAVE.3sE-rel signal
 ‘The streets are, so it must have rained’

B. Ez du zertan. Garbitu dituztela bakarrik behar du izan.
 Neg HAVE.3sE why clean HAVE.3pA.3pE only need HAVE.3sE be
 ‘Not necessarily. It only must be the case that they have cleaned them.’

In the answer provided by speaker B in (40), *bakarrik* ‘only’ is interpreted as taking scope above epistemic modality²¹⁴. This shows that the impossibility of a wide scope readings of *bakarrik* ‘only’ over *behar* in the epistemic sentence in (39a-c) need not be taken to mean that the epistemic reading is derived from a higher merging position of the modal in the clausal structure.

To sum up this section, the interaction of modal *behar* with the focus sensitive particle *bakarrik* ‘only’ in the modal constructions under analysis has led me to confirm the two conclusions drawn so far about the syntax-to-semantics mapping of modal constructions:

(i) The first one is that while the restructuring modal constructions pattern with raising structures (they admit scope raising of *bakarrik* ‘only’ from its surface, complement internal position following the embedded object, to a position outside the complement above *behar*), the non-restructuring constructions do so with control (*bakarrik* ‘only’ cannot undergo scope raising out of the infinitival)

(ii) The second one is that, while there is no restriction as to the type of modal readings that the restructuring (raising) constructions may give rise to (epistemic, non-directed deontic, directed deontic or dispositional/dynamic), the non-restructuring (control) constructions are restricted in that they cannot convey an epistemic modal interpretation.

²¹⁴ More research would be required to understand why exactly scope raising of *bakarrik* ‘only’ to a position above the modal is impossible in (39a-c) but not in (40). Unfortunately, for time and scope considerations, I will not be able to elaborate further on this question here, so I will leave it for the future.

6.2.7. Dative experiencer arguments and the raising vs. control division

In this last subsection, I am going to examine some other asymmetries exhibited by the restructuring (Type I-II) and non-restructuring (Type III) modal constructions under analysis in the context of dative experiencer arguments.

Recall from Chapter 2 that one argument used in support of the different theta-assigning properties of Icelandic epistemic and root modals has to do with their (in)ability to occur with quirky case subjects; that is to say, with subjects that receive oblique case from the embedded infinitival verb (Thrainsson & Vikner 1999)²¹⁵.

Like in Icelandic, Basque too has certain verbs which take dative experiencer arguments (Austin and López 1995; Ortiz de Urbina 2003b: 3.5.6.1.2; Goenaga 2006; Albizu and Fernández 2002, 2006; Rezac 2006, 2008a-b, 2010), as is the case of the verbs *gustatu* ‘like’ and (*loteria*) *tokatu* ‘win (the lottery)’ in (41). Yet, the phenomenon is taken to be somewhat different from the one found in Icelandic (Rezac 2006).

(41) Verbs assigning dative experiencers in Basque:

- a. Niri zure oinetakoak gustatzen zaizkit. (Austin and López 1995:12)
1sD your shoes-pA like BE.3pA.1sgD
‘I like your shoes’
- b. Joanesi loteria tokatu zaio.
JoanesD lottery-the-sgA win BE3sgA.3sgD
‘Joanes has won the lottery’

As argued by Rezac (2006), unlike in Icelandic, Basque experiencer datives are never subjects (see the battery of tests provided in Rezac op. cit.). If this is correct, the possibility that a modal construction occurs with dative experiencer arguments in Basque cannot be used as a diagnostic for the raising nature of the embedding modal. There are, however, other properties of dative experiencers that prove them a good testing ground for determining the raising vs. control structure of the construction they

²¹⁵ Although see Wurmbrand (1999) for the claim that both epistemic and root modals pattern like raising verbs in admitting quirky subjects; Chapter 2)

occur in. One such property has to do with the intervention of dative experiencer arguments in *behar* constructions, which I will explain next.

6.2.7.1. Dative intervention effects

Rezac et al. (2014) observed that in the constructions where the infinitival complement precedes *behar* and the auxiliary selected is *have* (that is to say, in Type II *inf>behar* lexical restructuring constructions), dative experiencer arguments of unaccusative psych verbs like *gustatu* ‘like’ intervene blocking ergative agreement with the matrix auxiliary, and the presence of ergative case on the subject. This is illustrated by the contrast exhibited in (42a) vs. (42b). Note that in (42a), where there is no dative experiencer argument, the constructions surface with the auxiliary *dute* ‘HAVE.3pE’, hence with ergative agreement, and with an ergative case-marked subject (*bertsolari-ek* ‘poet-D.pE’); whereas in (42b), where the infinitive takes a dative experiencer, the same subject surfaces with absolutive case *bertsolari-ak* ‘poet-D.pA’, and the auxiliary exhibits dative agreement but no ergative agreement *zaizkio* ‘BE.3pA.3sD’.

(42) Dative experiencers in *inf>behar* (=Type II) raising constructions (Rezac et al. 2014: 1308)

- a. Bertsolari-ek gehiago hurbildu behar dute.
Poet-D.pE more approach must HAVE.3pE
‘The poets must come closer.’
- b. Bertsolari-ak/*ek Miren-i gehiago hurbildu behar zaizkio/ *diote.
Poet-D.pA/*D.pE Miren-D more approach must BE.3pA.3sD/*HAVE.3sD.3pE
‘The poets must come closer to Miren.’

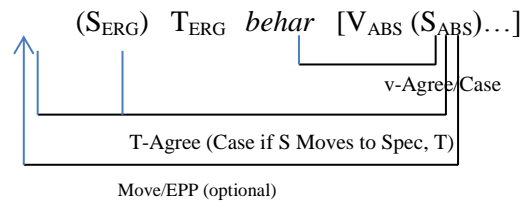
Recall from Chapter 5 that, for Rezac et al. (2014), *inf>behar* constructions are manifestly subject-raising (as I have shown throughout this chapter): the internal subject of the infinitive verb (S) enters into an Agree relation with T_{ERG} and, once it moves out of the infinitive, it receives ergative case in the Spec, T_{ERG} position in the matrix

clause²¹⁶. This can be seen in the derivation in (43a), which would correspond to the constructions in (42a).

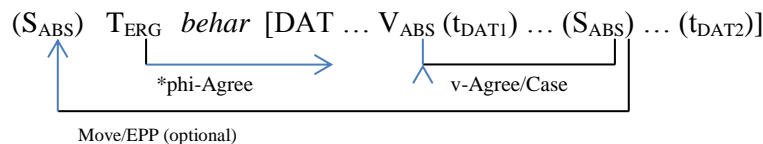
However, these authors argue that, when a dative experiencer argument is introduced, this intervenes between the internal argument of the infinitive (*S*) and T_{ERG} , blocking both ergative agreement and the assignment of ergative case. This is due to the fact that dative experiencer arguments, which are assumed to be located higher up in the structure²¹⁷ than the internal subject (*S*), intervene in the agreement and case licensing relation between the internal (theme) argument and T_{ERG} . This type of intervention is directly observable on the morphology exhibited by the auxiliary and on the case the subject surfaces with: the auxiliary fails to exhibit ergative agreement (i.e. *zaizkio* ‘BE.3pA.3sD’ in (42b)) and the subject is assigned absolutive (i.e. *bertsolari-ak* ‘poet-D.pA’). This is illustrated in the derivation in (43b).

(43) *Derivation of inf > behar without vs with dative experiencer* (Rezac et al. 2014:1310)

a. No dative intervener



b. Dative intervener



²¹⁶ Recall that Rezac et al. (2014) assume that ergative agreement takes place at a phrase structural distance through Agree (when the DP goal is inside the infinitival complement), like nominative, accusative, absolutive case agreement, but ergative case assignment requires Agree+Move to Spec,T.

²¹⁷ Rezac et al. (2014) assume that, within the infinitival vP, dative experiences are located higher than internal (theme) subjects (although see Rezac 2008a-b for a height difference between the experiencer arguments of psych verb like *gustatu* ‘appeal/like’ vs. *hurbildu* ‘approach’)

6.2.7.2. Dative intervention: the restructuring vs. non-restructuring contrast

In this section, I will show that the intervention effects under discussion are not exclusively found in the *inf>behar* word order. They are also observable in the lexical restructuring (Type II) constructions where the infinitival complement surfaces to the right of *behar* (*behar+inf*)²¹⁸. However, they are never found in the (Type III) non-restructuring constructions. I will argue that this contrast is again related with the fact that the non-restructuring constructions, unlike the restructuring ones, are not subject-raising structures; they rather pattern with control structures. Note that, under this assumption, the non-restructuring constructions would have not just *one* but *two* subject arguments: a phonologically empty PRO subject located inside the complement, corresponding to the internal argument of the infinitive verb, and an independent ergative subject occupying the matrix *Spec, T_{ERG}* position, corresponding to the subject of *behar*. In other words, in the non-restructuring constructions, unlike in the restructuring ones, the ergative subject has not raised from a complement internal position inside the complement and, consequently, the presence of a dative experiencer argument in the infinitival complement is not expected to generate the kind of intervention effects exhibited by its restructuring counterparts (as the dative would be located lower than the ergative external argument introduced by *behar*).

Let us first consider Type II *inf>behar* and *behar>inf* lexical restructuring constructions

(44) Type II Lexical restructuring constructions: $\sqrt{\text{dative intervention}}$

Inf + behar word order

a. (=42b) Bertsolari-ak/*ek Miren-i gehiago hurbildu behar zaizkio.

poet-D.pA/*D.pE Miren-D more approach must BE.3pA.3sD

‘The poets must come closer to Miren.’

²¹⁸ Unfortunately, this test cannot be applied to the Type I functional restructuring constructions when combined with unaccusative predicates, whose subject invariably shows up with absolutive case and whose auxiliary lacks ergative agreement.

- b. Tasio-ri eta Aitor-r-i Nora eta Irati gustatu behar zaizkie²¹⁹
 Tasio.D and Aitor.D Nora.A and Irati.A like need BE.3pA.3pD
 ‘Tasio and Aitor must like Nora and Irati.’

*Behar + inf word order*²²⁰

- c. Bertsolari-ak/*ek behar zaizkio Miren-i gehiago hurbildu
 poet-D.pA/*D.pE must BE.3pA.3sD Miren-D more approach
 ‘The poets must come closer to Miren.’
- d. Tasio-ri eta Aitor-r-i behar zaizkie Nora eta Irati gustatu.
 Tasio.D and Aitor.D must BE.pA.pD Nora.A and Irati.A like
 ‘Tasio and Aitor must like Nora and Irati.’

As explained before, the absence of ergative agreement ($\sqrt{u} > \text{HAVE}$) on the auxiliary (zaizkio ‘BE.3pA.3sD’, zaizkie ‘BE.3pA.3pD’), on the one hand, and the presence of an absolutive rather than an ergative subject (*bertsolaria-ak* ‘poet-D.pA’, *Nora eta Irati* ‘Nora.A and Irati.A’), on the other, must be taken to evidence that the dative acts as an intervener, hence, the constructions correlate with raising constructions of the type illustrated in the derivation in (43b).

I will now show that, unlike the restructuring constructions analysed, non-restructuring constructions do not exhibit dative intervention effect.

²¹⁹ The informants consider the sentences with *gustatu* ‘like’ somewhat odd from a pragmatic point of view. The reason for this is that you actually cannot oblige someone to like something/somebody.

²²⁰ Interestingly, my informants report that, for this construction to be grammatical, the dative argument must surface before inflected *behar*; the following sentences are ruled out.

- (xcviii) *Behar zaizkie Aitor eta Tasiori Nora eta Irati gustatu.
 must BE.pA.pD Aitor and Tasio.D Nora and Irati.A like
- (xcix) *Nora eta Irati behar zaizkie Aitor eta Tasiori gustatu.
 Nora and Irati.A must BE.pA.pD Aitor and Tasio.D like
 ‘Tasio and Aitor must like Nora and Irati.’

This suggests that the dative argument has moved for some reason out of the infinitival to a position higher than *behar* in the matrix clause. Note that this movement is impossible for the internal argument, as evidenced by the ungrammatical (xcviii), and obligatory for the dative argument, as shown in (xcvi), where the two arguments surface lower than *behar*.

(45) Type III Non restructuring constructions: *dative intervention

- a. Bertsolariek behar dute Mireni hurbildu.
Jon.E need HAVE.3sE Maia.D talk
'Jon is required/needs to talk to Maia.'
- b. Nora-k eta Irati-k behar dute [Aitor eta Tasio-ri gustatu]
Nora-E and Irati-E need HAVE.3pE Aitor and Tasio-D like
'Nora and Irati must please Tasio and Aitor.'

In (45a-b) the case realized on the subject of the *behar* construction is ergative, and the auxiliary too surfaces with ergative agreement morphology (\sqrt{u}). This means that no dative intervention has taken place. Notice that the auxiliary is actually opaque to agreement with the embedded infinitival dative and absolutive arguments, indicating that the infinitival complement is a non-restructuring control infinitive which projects an independent agreement domain.

Let us now consider the modal interpretations of restructuring and non-restructuring constructions.

6.2.7.3. Modal interpretation in the context of dative experiencer subjects

Note that whereas the example in (44a=42a) involving the verb *hurbildu* 'approach' (provided by Rezac et al. 2014) are most naturally interpreted under a root (either directed deontic, dispositional/dynamic or non-directed deontic) interpretation²²¹, the example provided in (44b) involving the stative verb *gustatu* 'like' prefers an epistemic reading ('It must be the case that Tasio and Aitor like Nora and Irati')²²². To put it simply, there is no constraint as to the type of modal reading that raising/restructuring constructions can give rise to.

²²¹ Note that the construction in (44a) may actually be paraphrased as (i) 'The poets must come closer to Miren [if they want to appear in the photo]', correlating with the directed deontic interpretation, as (ii) 'The poets have the urge/need to come closer to Miren [whom they deeply admire]', expressing dispositional/dynamic modality, or as (iii) 'It is necessary that the poets come closer to Miren [for us to be able to take the picture]', in which case they express non-directed deontic modality.

²²² This is also related with the fact that an obligation root reading results unnatural when the infinitive verb is *gustatu* 'like', as discussed previously.

By contrast, the only available interpretations for the non-restructuring construction in (45) necessarily correlate with a root/non-epistemic interpretation. They can express (i) *directed deontic modality* (i.e. (45a) can be paraphrased as ‘The poets must come closer to Miren [if they want to appear in the photo] and (45b) as ‘Nora and Irati are required to like Aitor and Tasio’); (ii) *dispositional/dynamic modality* (‘The poets have the urge/need to come closer to Miren [whom they deeply admire]’ and ‘Nora and Irati have an urge(/really want) to like Aitor and Tasio’); and also (iii) *non-directed deontic modality* (‘It is necessary that Tasio and Aitor like Nora and Irati [so that we can be introduced to them later]’). Yet, the sentence cannot be used to convey the epistemic meaning that ‘It is necessarily the case that Aitor and Tasio like Nora and Irati.’

It is also interesting that (45b) contrasts in meaning with (44b), in which it is *Tasio and Aitor* who must like *Nora and Irati*. This contrast in meaning is reminiscent of the one observed by Picallo (1990) between active vs. passive root modal constructions in Catalan (45a-b), (repeated from Chapter 2).

(46) Contrast between root active vs. passive modal constructions

- a. El metge podia visitar els pacients.
The doctor could visit the patients
‘The doctor was able /allowed to visit the patients.’
- b. Els pacients podien ser visitants (pel metge).
The patients could be visited by-the doctor.
‘The patients were able /allowed to be visited.’
(Picallo 1990: 298)

Recall that Picallo attributes the change in meaning between (45a) and (45b) to the fact that the subject receives a theta-role (bearer of the obligation) from the modal (Picallo 1990: 297). Along this line, I take the change in meaning observable between (43) and (42) to further support that, in the non-restructuring constructions under discussion, *behar* assigns the role of bearer of the obligation to the subject of the clause. That is to say, in Type III non-restructuring constructions, predicate *behar* is not a

raising modal, but a control verb that enters into a thematic relation with the subject of the clause.

Summarising, the presence vs. absence of dative intervention effects in restructuring and non-restructuring constructions respectively, leads me to corroborate the conclusion drawn so far about the underlying raising vs. control structures of restructuring and non-restructuring modal constructions. Moreover, regarding modal interpretation, the analysis of the constructions involving dative experiencers arguments shows once more that, whereas restructuring/raising constructions can ambiguously give rise to either epistemic and non-epistemic (directed/non-directed deontic or dispositional/dynamic) readings, non-restructuring/control constructions cannot yield an epistemic interpretation.

Let us now proceed with the second test in relation with dative experiencer arguments: the one regarding the impossibility of complement internal null dative subjects.

6.2.7.4. Impossibility of dative experiencer subjects in non-restructuring constructions

The other property I am going to examine to determine the underlying raising vs. control structure of the constructions under discussion concerns the impossibility that the null subject of the infinitival complement correspond to a dative experiencer.

Recall that in Section 6.2.7.2., I mentioned that dative experiencers in Basque can never be subjects (Rezac 2006). This entails that the null subject of an obligatory control infinitive cannot correspond to a dative experiencer argument, as illustrated in (30), involving OC verb *jakin* ‘know’ + an infinitival complement headed by *-TU*.

(47) Dative experiencers \neq null (PRO) infinitival subjects (Rezac 2006: 13; ex. (22b))

*Kepa- k_i ez daki [e $_i$ zer gustatu.]

Kepa-E not know.3sE e $_i$ what.A like

‘Kepa does not know what/who should appeal to him.’

Crucially, non-restructuring constructions exhibit the same behaviour as obligatory control constructions regarding this property. Observe the ungrammaticality of (48).

- (48) Non-restructuring constructions: *Dative experiencers* \neq *null infinitival subject*

*Jonek_i behar du [e_i kirolak gustatu].

Jon-Ei need HAVE.3sE sports.pA like

‘John needs to like sports.’

By contrast, the reference of the complement-internal null argument in a restructuring infinitival construction like (49) can perfectly correspond to a dative experiencer argument (notice that in this context, dative intervention is observable). If Rezac is on the right track, this indicates that in (49) the null dative is not a controlled syntactic subject (big PRO), but a dropped argument (small pro)²²³.

- (49) zortzi milako batera igotzea ez da bakarrik hara joatea,
 eight thousand-of one-to climb not BE.3sA only there-to go-NOMIN
 [e_i] kirola gustatu behar zaizu_i, bestelako bizimodua baita
 sport like need BE-2sA another lifestyle because-BE.3sA

‘To climb an eight thousand metre-high (mountain) you must really like sport, it is not just to go there, it is another way of life.’

Retrieved from <http://www.vitoria-gasteiz.org/wb021/http/contenidosEstaticos/adjuntos/es/04/47/30447.pdf>

All things considered, we can conclude that non-restructuring *behar* constructions, unlike their restructuring counterparts, certainly correlate with control structures.

²²³ Recall that in Rezac’s (2006) view, in a sentence like (49) above, the subject argument (i.e. the one that satisfies the EPP feature in Spec, T) would be the theme argument (*kirola* ‘sport’) rather than the dative argument.

6.2.8. Interim summary

In this section, I have examined a series of syntactic properties which have led me to conclude that the different type of modal constructions under analysis correlate with underlying structural differences: restructuring (Type I and Type II) constructions pattern like raising structures, whereas non-restructuring (Type III) constructions do so with control structures.

First, I have shown that restructuring constructions – whether functional (Type I) or lexical (Type II) systematically allow for non-thematic *weather-it* subjects. In contrast, non-restructuring (Type III) constructions consistently reject subjects which are non-thematic.

Second, I have shown that restructuring constructions (Type I and II) can license inanimate subjects, what indicates that *behar* ‘need’ does not impose selectional restrictions onto the subject. By contrast, non-restructuring constructions (Type III) always require an animate subject that plays the role of experiencer of the need or bearer of the obligation; this indicates that *behar* imposes selectional restrictions onto the subject argument it occurs with.

Third, I have provided evidence that in some construction involving stage level predicate *egon* ‘be’ and some unaccusative predicates, restructuring constructions admit the presence of null expletive subjects and in-situ absolutive arguments, whereas non-restructuring constructions do not.

Fourth, I have demonstrated that restructuring and non-restructuring constructions also differ with respect to the possibility to preserve the idiomatic reading (idiomatic-reconstruction) of idiom chunks. More specifically, I have shown that the idiomatic reading of the idiom-chunk subject is only preserved in restructuring contexts (Type I functional and Type II lexical). In non-restructuring (Type III) constructions the idiomatic reading is unavailable.

Finally, I have shown that restructuring and non-restructuring *behar* constructions also exhibit different properties in the context of dative experiencers. On the one hand, I have shown that dative intervention effects block ergative agreement in those

restructuring constructions where the auxiliary otherwise exhibits ergative agreement. By contrast, in non-restructuring constructions no dative intervention effects can be observed. On the other hand, I have shown that non-restructuring constructions pattern with obligatory control constructions with respect to the impossibility that the null subject (PRO) of the infinitival complement corresponds to a dative experiencer argument.

Table 11 below summarises these findings.

Table 11. Raising vs control properties of the modal constructions involving behar and an infinitive

Syntactic property	Restructuring (Type I + Type II)	Non-restructuring (Type III)
Weather- <i>it</i> subjects	√	X
Inanimate subjects	√	X
Expletive subjects	√	X
Idiomatic reconstruction	√	X
Dative intervention effects	√	X
Null infinitival subjects = dative experiencer	-	X

In addition, I have analyzed whether there is any correlation between the presence/absence of the aforementioned syntactic properties and the modal interpretation the constructions can give rise to. This analysis has led me to draw the following conclusions:

First, there is no one-to-one correlation between the constructions that exhibit raising properties (i.e. restructuring constructions) and an epistemic modal interpretation: restructuring/raising constructions can convey either epistemic, deontic (directed and non-directed) or dispositional/dynamic readings. The availability of some

of these readings is however constrained by semantic and syntactic factors; thus, if the subject is a weather-*it*, expletive or inanimate subject, or if it undergoes reconstruction to its complement internal trace-position for interpretation (as in the case of idiom chunk subjects), directed deontic and dispositional readings are no longer available. In other words, the only available reading of restructuring/raising modal constructions when these occur with inanimate or idiom chunk subjects are epistemic and non-directed deontic ones, whereas restructuring/raising modal constructions occurring with animate subjects admit the full range of modal readings *behar* can give rise to: epistemic, non-directed deontic, directed deontic and dispositional/dynamic.

Second, non-restructuring/control modal constructions (Type III) in which *behar* enters into a thematic relation with the subject can convey any of the root readings *behar* can give rise to (either directed or non directed deontic readings and dispositional or dynamic readings); however, they cannot license epistemic modal interpretations.

Table 12. Interim conclusions on modal interpretation and syntactic structure

Type and properties of the modal construction and modal interpretation		Epistemic	Non-directed deontic	Directed Deontic	Dispositional
Restructuring/ Raising (Type I- Type II) constructions	weather- <i>it</i> / expletive/ inanimate/ idiom chunk subjects	YES	YES	NO	
	Animate animate subjects	YES	YES	YES	YES
Non-Restructuring/ Control (Type III) constructions (only animate subjects available)		NO	YES	YES	YES

It must be noted that the findings of Section 6.2 have important theoretical implications for the thematic and scope-based accounts of modal constructions reviewed in Chapter 2.

On the one hand, the data analyzed suggests that a scope-based account such as the one proposed by Lee (2006) for *have to* modal constructions, which proposed that the epistemic/root distinction is derived from the different scope relation of the subject relative to the modal (*Mod*>*Subj* and *Subj*>*Mod* respectively), fails to account for the syntax-to-semantics mapping of the Basque modal constructions under analysis. As shown in section 6.2.5, epistemic and root interpretations do not correlate with a narrow scope (*Mod*>*Subj*) and a wide scope (*Subj*>*Mod*) reading of the subject respectively. The only restriction concerning the scope interaction between the subject and the modal affects directed deontic and dispositional/dynamic interpretations, which require that the subject take wide scope relative to the modal.

On the other hand, regarding previous thematic accounts of modals, the analysis shows that a uniform raising account (Wurmbrand 1999, Bobaljik and Wurmbrand 1999, Bhatt 1998) cannot be extended to the Basque constructions under analysis, but it also highlights the inappropriateness of traditional accounts proposing a clear-cut intransitive/raising vs transitive/control division of epistemic and root modals respectively (Ross 1969; Perlmutter, 1971; Jackendoff 1972, Huddleston 1979, 1984, among others). The data analyzed suggests that even if control constructions correlate with non-epistemic/root interpretations, the availability of root interpretations is not contingent on an underlying control structure of the modal construction. In other words, in addition to an epistemic interpretation, raising modal construction may well convey a root interpretation; however, directed deontic and dispositional/dynamic root interpretations depend on the fulfilment of some syntactic conditions in order to be licensed. One condition is the animacy requirement (i.e. the presence of an animate subject). A second one is, as mentioned, the requirement of a wide scope/presuppositional reading of the subject relative to the modal.

6.3. THE SCOPE OF BEHAR RELATIVE TO QUANTIFIERS AND NEGATION: AGAINST A HIERARCHICAL APPROACH TO THE SYNTAX-SEMANTICS OF MODALS

As shown in Chapter 2, one of the most popular syntactic accounts of modal interpretation derives the epistemic vs. root distinction from the distinct positions the modal is merged in the clausal architecture. This hierarchical approach to modal interpretation is to a large extent motivated by the alleged difference regarding the scope interaction that epistemic and root modals exhibit with respect to other scope bearing elements of the clause, such as quantificational subject, negation or tense (Butler 2003, 2004; Hacquard 2006 et seq., Ramchand 2012).

In this section, I will focus on the scope interaction of the Basque modal *behar* with quantificational phrases (mainly subjects) and negation. The analysis will show that, whatever the position of *behar* is under the different modal interpretations, the scope interaction of epistemically and root interpreted *behar* with QP subjects and negation does not support the hypothesis that epistemics are merged above and roots below these scope bearing elements²²⁴.

²²⁴ I will not provide here a detailed analysis of the scope interaction of modal *behar* with tense, since this is an intricate question that requires a thorough study in itself. I will therefore defer it for future work where it can be given the full attention it deserves.

Let me just note that, as in the case of modals in languages like French or Spanish, necessity modal *behar* is ambiguous between a present (cii-a) and a past perspective (cii-b) epistemic reading when it appears in combination with past tense inflection.

(c) Il pouvait/devait pleuvoir

(ci) Podía/debía llover.

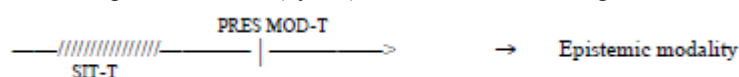
It can/must_{PAST-IMP} rain

(cii) Euria egin behar zuen.

It rain do must HAVE.3sE.past

a. Present perspective epistemic interpretation:

‘It is held possible/certain (by me) now that it was raining then’



b. Past perspective epistemic interpretation:

‘It was held possible/certain (by me) then that it was raining then.’

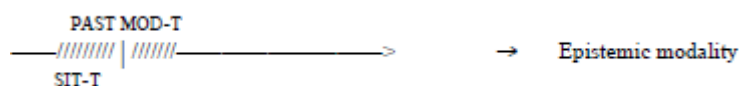
6.3.1. The scope interaction between quantificational subjects and modals

In Section 6.2.5. I have shown that restructuring *behar* constructions (Type I-II), unlike non-restructuring ones (Type III), allow for two scope readings of indefinite subjects (i.e. they can correlate not only with a wide scope position of subject relative to the modal (*subj>modal*) but with also with a narrow scope position (*modal>subject*)). I have additionally argued that the constructions under discussion do not exhibit the alleged correlation between the wide scope (*modal>subject*) ordering and epistemic modality and the narrow scope (*subject>modal*) ordering and root modality, respectively (in contrast with what has been assumed by Lee (2006) to be the case with *have to* modal constructions). The only restriction regarding the scope interaction of these subjects with *behar*) affects the directed deontic (and dispositional/dynamic) root readings, which are unavailable when the subject takes scope inside the complement below the modal and universal quantificational objects; by contrast, in this same context, non-directed deontic root readings are perfectly possible (cf Table 10).

Note that this scopal ambiguity exhibited by the restructuring modal constructions is also problematic for the hierarchical approaches which relate the different (epistemic/root) interpretations of the modal to the syntactic position this occupies in the clausal hierarchy. Recall from Chapter 2 that one of the main arguments supporting this view is precisely the alleged difference between epistemic and root modal constructions regarding the scope interaction between the modal and a quantificational subject (Butler 2003, 2004; Hacquard 2006). The following examples from Brennan (1993) are often used to illustrate this scopal difference:

(50) Quantificational subjects (Brennan 1993, cited in Hacquard 2011)

- a. Every radio may get Chicago stations and no radio may get Chicago stations.



The availability of such readings where the epistemically interpreted modal appears to be in the scope of past tense is problematic for syntactic approaches assuming that modal verbs in epistemic readings outscope tense.

‘It’s possible that every radio gets C. stations, it’s also possible that none of them do.’

- b. #Every radio can get Chicago stations and no radio can get Chicago stations.

‘Every radio is such that it gets C. stations, and no radio is s.t. it gets C stations.’

As argued by Hacquard (2006, 2011), the fact that no contradiction arises in the epistemic sentence in (50a) suggests that, under this modal interpretation, *every radio* is interpreted below the modal: it may be that every radio gets Chicago stations and (it may also be that) no radio gets Chicago stations. In contrast, the contradictoriness of the root²²⁵ example in (50b), suggests that, under this reading, ‘every radio’ is interpreted above the modal (cf. Chapter 2 for a detailed explanation of the data in Hacquard’s hierarchical approach to modal interpretation).

Note, however, that the fact that the epistemic sentence in (50a) escapes contradiction does not mean that only a narrow scope reading is available for the quantified subject, it only means that, pragmatically, the narrow scope reading is the only felicitous interpretation of the sentence; but it may well be the case that epistemic sentences are syntactically ambiguous.

Precisely, unlike Butler (2003, 2004), who claims that epistemically interpreted modals unambiguously scope over indefinite and quantified subjects (whether the latter undergo reconstruction or not), Hacquard (2006: 118-119) assumes that what the example in (50a) shows is that with an epistemic modal, a quantifier *can* (but *need not*) reconstruct. Recall from Chapter 2 that, in relation with this, she notes that there are

²²⁵ Note that Brennan’s examples involve the dynamic/dispositional use of *can*, understood as physical ability (to get Chicago stations), vs *may*, which lacks this dynamic meaning of physical capacity and is rather interpreted as (non-directed) possibility. However, the analysis presented so far suggests that not all root readings behave homogeneously. In fact, Brennan takes the above data to illustrate the contrast between *ought-to-be* modality (not directed to the subject) and *ought-to-do* modality (directed to the subject) (Feldman 1986), rather than between epistemic and root modality (see Chapter 2 for an explanation of this alternative classification). However, neither Butler (2003, 2004) nor Hacquard (2006, 2011) make such distinction; they rather adopt a unilateral epistemic/root classification, with no nuances with respect to subject orientation.

some counterexamples to the generalization that quantifiers have narrow scope with respect to an epistemic modal (consider for instance (51)).

(51) Each student may be home.

This, she suggests, might be related with the fact that different quantifiers have different landing sites²²⁶ (Beghelli & Stowell 1997), with *each* landing higher than the epistemic position. That is to say, when a quantifier (e.g. *each* in (50)) takes wide scope relative to the modal, not only does it fail to reconstruct to a position lower than the epistemic, but its landing site is higher than the epistemic position and, presumably, other quantifiers such as *every*.

In contrast with the idea that epistemic modals can take narrow scope relative to some quantifiers (Hacquard 2006 *et seq.*), von Stechow & Iatridou (2003) propose a syntactic principle – the Epistemic Containment Principle (ECP) – whereby quantifiers *cannot* outscope epistemic modals²²⁷.

(52) The Epistemic Containment Principle (ECP):

A quantifier cannot have scope over an epistemic modal.

According to von Stechow & Iatridou, the ECP is evidenced by sentences like (53a), for which they present the context in (53b).

(53) Scope interaction of *every* in epistemic sentences

a. Every student may have left. (*every>may; may>every)

(i) Every student x (may have left x) true, *ECP

(ii) May (every student have left) false, ^{OK}ECP

b. Context:

We are standing in front of an undergraduate residence at the Institute. Some lights are on and some off. We don't know where particular students live but

²²⁶ Hacquard (2006 *et seq.*) does not elaborate further on what the exact landing position for quantifiers like *each* and *every* might be.

²²⁷ Note that Hacquard (2011) assumes instead that there is no syntactic obligation for the subject to reconstruct. In her view, the ECP may well be a restriction on 'every' itself, rather than a general ban on the interaction between quantifiers and epistemic modals, since some quantifiers (e.g. *each* in (51)) are definitely able to scope above epistemics.

we know that they are all conscientious and turn their lights off when they leave. So, we clearly know that not all of the students are out (some lights are on and they wouldn't be on if the students were away). It could in fact be that all of them are home (the ones whose lights are off may already be asleep). But it is also possible that some of them are away. Since we don't know which student goes with which light, for every particular student it is compatible with our evidence that she or he has left. (F&I 2003)

Von Stechow & Iatridou report that informants reliably judge (53a) to be false in the context presented in (53b), which forces a wide scope reading of the quantifier over the modal (*for every particular student it is compatible with our evidence that she or he has left*). These authors take this to suggest that the wide scope reading of the QP relative to the epistemic modal is ruled out by the ECP.

In the following section I will show that, in Basque, a quantificational subject can not only outscope epistemically interpreted *behar* (against the assumption that epistemic modals are merged in a position higher than the landing site of quantificational expressions and the Epistemic Containment Principle), but it can also take narrow scope under modals with a root (non-directed deontic) interpretation.

6.3.2. Quantificational subjects and *behar*

Let us first consider root modal constructions with *behar*.

As reported by Rezac et al. (2014: 1304-5), for the speakers who admit the ergative-absolutive alternation in the constructions where *behar* takes some unaccusative predicates, the choice of the absolutive case correlates with a narrow scope reading of the weak quantificational subject (*politikari gutxi-k* 'few politicians', *arkeologo gutxi-k* 'few archaeologists') relative to the modal (54a-i, 54b-i), whereas the choice of ergative case correlates with a wide scope reading (54a-ii-54b-ii). An illustration of this is (54), which corresponds to a Type II lexical restructuring construction with root meaning.

(54) Scope of *gutxi* ‘few’ relative to *behar* (from Rezac et al 2014: 1305)

a. POLITIKARI GUTXI/GUTXI-K etorri behar dute.

politicians few.A/ few-E come need HAVE.3pE

- i. ABS: ‘It is necessary that few politicians come (because otherwise the manifestation would become too political).’

behar>gutxi ‘few’

- ii. ERG: ‘Few politicians are obliged to come (the manifestations will go on in any case.)’

gutxi ‘few’>*behar*

b. ARKEOLOGO GUTXI/GUTXI-K etorri behar dute.

archaeologists few.A/few-E come need HAVE.3pE

- i. ABS: ‘For the cave to be opened, it is necessary that few archaeologists come (if too many come, the danger of damage to the cave is too great, it will be kept closed).’

behar>gutxi ‘few’

- ii. ERG: ‘For the cave to be opened, few archaeologists are obliged to come (the interest of two is enough to merit the cave’s opening).’

gutxi ‘few’>*behar*

Interestingly, as reported by some of these speakers, under the wide scope reading of *gutxi* ‘few’ relative to the modal, the most natural modal reading is one in which the obligation/necessity is directed to the subject (hence, a directed deontic or a dispositional one). By contrast, a narrow scope reading of this quantificational subject correlates with a non-directed deontic reading. (Note the difference in the paraphrases provided by these authors in (53a-b-i) vs (54-a-b-ii) above).

What these data indicate is that, contrary to what the advocates of a hierarchical approach defend, quantificational subjects do not necessarily take wide scope relative to the modal in all the root readings. When the sentence receives a non-directed deontic reading, the quantifier can reconstruct to a position below the modal, as shown above to be the case with indefinite subjects (Section 6.2.5). The possibility of the narrow scope reading when the sentences give rise to a non-directed deontic interpretation suggests

once more that a finer-grained classification of modal types is needed, which distinguishes among various subtypes of root modalities (in the line of Barbiers 1995; see Chapter 2, Section 2.3. in this dissertation).

Consider now the following epistemic constructions involving in this case the strong quantifier *gehien* ‘most of (the)’ (55b) in the context provided in (55a).

(55) Scope of quantifiers in epistemic constructions (*gehien* ‘most (of the)’)

- a. Context: There has been called a manifestation in protest with the educational reform proposed by the government. When the teacher of one of the fourth year students gets into the classroom and finds this almost empty, (s)he utters:
- b. *Ikasle gehien-ek manifestaldian egon behar dute,*
student most-pE demonstration-at be must HAVE.3pE
klasea ia hutsik dago
class.sA almost empty BE.3sA
ERG (presuppositional, partitive, proportional): ‘Most of the students (the set of students is contextually familiar; e.g., the students of 4th year) must be at the demonstration’.
gehien ‘most (of the)’ > *Modal*

The example corresponds to a lexical restructuring (*inf*>*behar*) construction in our classification. Note that the subject (*ikasle gehien-ek* ‘most (of the) students.E’) surfaces with ergative case, which, as explained before, is assigned structurally after the subject raises to matrix Spec, T. Recall also that in this context, the speakers who exhibit the ergative-absolutive alternation interpret the ergative case-marked subject in its surface/high position, where it receives a definite/presuppositional/partitive reading (the inverse scope reading is unavailable for these speakers). That is to say, for these speakers, the only possible reading for the ergative quantificational subject (*ikasle gehien-ek* ‘most (of the) students’) in (55) is a wide scope reading relative to the modal *behar*; yet the fact that under an epistemic reading of the modal the sentence is not contradictory (as opposed to the one provided by F&I (2003) in (53)) suggests that, at least in the case of Basque, there is no syntactic constraint preventing a quantifier to outscope *behar* when

this is epistemically interpreted. Hence, there is no such syntactic principle as the ECP (von Stechow & Iatridou 2003) at play in the Basque epistemic modal constructions involving *behar*.

This is further confirmed by the scope interaction of the strong quantifier *bakoitz* ‘every/each’ relative to *behar*, in the epistemic constructions in (56). As argued by Etxebarria (2012), *bakoitz* ‘every/each’ always forces a wide-scope distributive reading, therefore the only available reading for the sentence in (56) is one in which the quantificational object involving *bakoitz* ‘every/each’ outscopes the epistemically interpreted modal *behar* on the indefinite subject. Again, the sentence is perfectly grammatical.

(56) Strong quantifier *bakoitz* ‘every/each’ *ECP

IKASLE BATEK irakurri behar izan zuen liburu bakoitza

Student D.sE read must perf. HAVE.3pE(past) book every/each

Wide scope/distribute reading: ‘For every book there is a student, such that each book must have been read by a (different) student.’²²⁸

It must be noted that the ability of strong quantifiers to outscope epistemically interpreted modals is not an exclusive property of Basque. As mentioned in the introduction to this section, in English too some quantifiers (e.g. *each*) allow for a wide scope interpretation relative to the modal under the epistemic reading (see (51)).

²²⁸ The sentence is based on the following examples provided in Etxebarria (2012: 54; fn 69.):

(ciii) Ikasle bat-ek irakurri zuen liburu bakoitza.

Student one.sE read HAVE.3sA.3sE(past) book every.sA

(civ) Liburu bakoitza, ikasle batek irakurri zuen.

book every.sA student one.sE read HAVE.3sA.3sE(past)

‘A/One student read every book’

As he argues, the only possible reading for the object *liburu bakoitza* ‘every book’ is the wide scope reading, when word order or topicalization enables this reading (note the ungrammaticality of (cv)).

(cv) *Ikasle batek liburu bakoitza irakurri behar izan zuen.

Student one.sE book every.sA read HAVE.3sA.3sE(past)

Since the restructuring *behar* constructions at stake are raising structures, *liburu bakoitza* ‘every book’ can raise enabling a wide scope reading of the object (OWS), and consequently the example is rendered grammatical, calling into question the ECP.

Hacquard (2006) argues, following Beghelli & Stowell (1997), that this might be related with the different lading site of quantifier *each* with respect to *every*; however, other scholars show that even *every* can outscope epistemically interpreted modals if the context is built carefully (Swanson 2010). Take for instance the following examples:

(57) Every moment you spend with your child could be the one that really matters.

(Swanson 2006: xv–xvi)

- a. *Every moment > could* (WS): For any given moment you spend with your child, that specific moment could have a property that at most one moment could have: being the moment that really matters.
- b. *#Could > every moment* (NS): every moment you spend with your child has the property that at most one moment could have.

(58) Almost every square inch of the floor might have paint on it. (After painting the ceiling...²²⁹

- a. *Every > might*: Almost every square inch of the floor might be a square with paint on it.
- b. *#Might > every*: It might be that almost every square inch of the floor has paint on it.

For Swanson, the natural interpretation of these sentences is one where the QP takes wide-scope relative to the modal (56a, 57a), while the scope ordering *modal < every* (56b, 57b) is anomalous.

Along the same line, Schütze (2005) argues that the fact that speakers exclude a narrow scope reading of quantifier *every* in epistemic sentences has to do with pragmatic rather than with syntactic reasons. According to this author, the truth value

²²⁹ As observed by Swanson (2010), even if (56) is incompatible with a continuation like “But the floor may not have paint on it” (along the line proposed by F&I 2003), the arising contradiction cannot due to the unavailability of a wide scope reading of the quantifier due to a violation of the ECP. Rather, (58) is used ‘to contest the claim that the floor doesn’t have paint on it’, so the natural interpretation is a wide scope reading of *every* relative to the modal; the follow-up must be anomalous for independent reasons.

judgments of informants upon examples such as the one provided by von Fintel and Iatridou in (53) do not necessarily relate to the ungrammaticality of the sentence (i.e. to the ECP); rather, what they reflect is that the salient reading in the context provided is the surface scope reading²³⁰.

Therefore, after analysing the behavior of Basque quantifiers like *gehien* ‘most’ or *bakoitz* ‘each’ and bearing in mind the new data and the explanations provided above about the behavior of quantifier *every*, it seems reasonable to conclude that neither in Basque nor in English there exist such principle as the Epistemic Containment Principle. The preference observed by some authors for a narrow scope reading of quantificational subjects in epistemic contexts must rather be due to pragmatic considerations concerning context and knowledge of the world²³¹.

To end up, in this section I have presented counterevidence against the assumption that, like indefinite subjects, quantifier subjects too take different scope relative to modals under epistemic and root modal interpretations (contra Lee 2006), an assumption that has also been claimed to follow from the hypothesis that, under each of the two interpretations, modals are merged at a different point in the structure (Butler 2003, 2004; Hacquard 2006, 2011).

²³⁰ Schütze’s (2005) work analyses the truth value judgement task (TVJT) of speakers, and in the particular case concerning F&I’s judgment-based conclusion about the example in (54a) he points out that:

The interpretation of this particular kind of example relies on the assumption that speakers explore all the available readings of a (potentially) ambiguous sentences before answering as to its truth. With regard to children’s behaviour in the TVJT [truth value judgement task] this assumption has been questioned (Crain & Wexler 1999), so von Fintel and Iatridou’s conclusion might be a bit hasty. Suppose instead that [53a] were ambiguous, but the [53aii] reading is more prominent, and adult speakers do not go out of their way to try to find a means of making an utterance true in this task. Knowing that in syntactic ambiguity resolution the reading(s) not appropriate to the context often seem to be ignored without conscious awareness, we might worry whether the same is true here, in which case the reported judgements would show that reading [53aii] is available, but would not show that reading (53ai) is grammatically unavailable. I believe there are ways in which this concern can be addressed, however, and the TVJT can be put to effective use in this kind of situation. (Schutze 2005: 474)

²³¹ Recall that Wurmbrand (1999) reaches the same conclusion in relation with the scope ambiguity exhibited by indefinite subjects in modal constructions in English and German (Chapter 2).

On the one hand, I have shown that some root modal constructions; namely, those giving rise to a non-directed deontic reading, are compatible with not only a wide scope reading of the subject relative to the modal, but also with an interpretation where the quantificational subject takes narrow scope, as it happened to be the case with root modal constructions involving indefinite subjects.

On the other hand, I have demonstrated that, in Basque, quantificational subjects do not necessarily take narrow scope relative to epistemically interpreted modals. This calls into question the so-called ECP (F&I 2003) – a principle who has otherwise generated much controversy in recent years – and suggests that the preference for one scope ordering over the other is rather due to contextual salience or related pragmatic aspects.

The data analysed supports once more the need of revising traditional two-fold classifications of modality in favour of finer-grained classifications distinguishing among various subtypes of root modality: non-directed modality, directed deontic modality and dispositional or dynamic modality.

6.3.3. The scope interaction between modals and negation

In this section I will critically examine another argument which has also been used to prove that modals take different syntactic positions under the epistemic and root readings: the alleged difference with respect to the scope interactions exhibited by epistemic and root modals relative to clausal negation.

As shown in Chapter 3, some scholars assume that cross-linguistically, epistemic modality tends to be interpreted above and root modality below sentential negation (Coates 1983, Drubig 2001; Butler 2003; Hacquard 2006²³²), what is taken to signal that

²³² Hacquard (2011) does not say that all epistemic and root modals interact in this way with negation; she acknowledges that the interaction of modals with negation is a complex matter, in which several factors are at play, among others, she cites the position of negation, which she takes to vary cross-linguistically, and idiosyncrasies of various modal auxiliaries. In whatever case, she ends up assuming that: ‘when a modal is ambiguous between a root and an epistemic interpretation, it is never the case

the structural positions at which the modal is merged is different under the two modal interpretations: epistemically interpreted modals are merged higher and root modals lower than the merging/scope position for sentential negation. The following examples illustrate the scopal difference between the two modalities:

(59) Interaction of modals with negation

- a. Dia mesti tidak belajar. Epistemic (Malay) Drubig (2001)
He must not study
- b. Dia tidak mesti belajar. Root
He not must study
- c. Darcy may not be at home. (English) (Hacquard 2006: 120)
 - i. Epistemic: modal>not
 - ii. Root: not>modal

The Malay data in (59a-b) are taken to transparently reflect the structural difference between epistemic and root modality relative to negation: for the necessity modal *mesti* ‘must’ to be interpreted epistemically, the modal must precede negation (*tidak* ‘mesti’) (59a); by contrast, if the modal follows negation it receives a root interpretation (59b). In English too, although the modal and negation appear in a fixed order on the surface, epistemic and root interpretations appear to correlate with different scope positions; thus, modal *may* takes scope above negation (59c) under the epistemic interpretation and below negation (59d) under a root one.

However, not all modals behave on a par with *may* with respect to their scope interaction with negation. For instance, necessity modal *must* scopes over negation (60a)²³³; in contrast, possibility modal *can* is interpreted in the scope of negation both under the epistemic and root interpretations (60b-c).

that the modal scopes above negation when it receives a deontic interpretation and below it when it receives an epistemic one, though, all other cases are attested (negation takes scope over the modal no matter the interpretation, negation takes scope in between the two, or below both)’ (Haquard 2011: 27).

²³³ *Musn’t* lacks an epistemic sense.

(60) *Mod-Neg* scope interaction *must, can*

- a. The children mustn't do that in here. (Butler 2003: 984)
Root necessity > Negation
- b. The children can't do that in here. (Butler 2003: 984)
Negation > Root possibility
- c. The registrar can't have got my letter. (Butler 2003: 985)
Negation > Epistemic possibility

In order to account for the data in (60), Butler (2003) argues that modals not only split scopally with respect to the epistemic/root distinction, they also split into necessity and possibility (Butler 2003: 984; see also Cormack & Smith 2002). As reviewed in Chapter 2 (Section 2.2.3.2.), in his approach to sentence structure, Butler proposes that both modality and negation have two syntactic scope positions: a lower one in the periphery of vP and a higher one in the periphery of CP, with the different modalities (epistemic necessity, epistemic possibility, root necessity and root possibility) being located at different positions with respect to the two available scope positions for negation. As the reader will recall from Chapter 2, this is illustrated by the hierarchy in (61):

(61) epistemic necessity > **negation (Foc)** > epistemic possibility > root necessity > **negation (Neg)** > root possibility > vP

Note that in (61) root necessity scopes above lower negation but below higher (Foc) negation. In order to instantiate the higher scope position, Butler states that it is necessary to use marked modals (which is how he refers to modals with NPI properties) such as *need*, that is to say, modals which are only available in negative or interrogative environments.

(62) The children needn't do that.

As will be shown as follows, Butler's account of the scope interaction between negation and modality is however insufficient to explain the behavior of Basque *behar*

(and in general, *need*-type predicates across language) when this is interpreted epistemically.

6.3.4. Interaction of negation and *behar* in epistemic and root constructions

In this section, I will show that, even if *behar* differs in its scope interaction with negation under the epistemic and root interpretations, the scope-ordering exhibited by *behar* under the two interpretations is not predicted by those hierarchical approaches that claim that epistemic modality is merged above and root modality below sentential negation. Even Butler's (2003) afore-reviewed approach distinguishing different positions for necessity and possibility modality (cf. 61) is unable to account for the scope interaction of *behar* relative to negation, when it expresses epistemic necessity.

Consider first *behar* under root interpretations. As illustrated in (63), unlike root necessity modals like *must* in English (60a) or *mesti* in Malay (60b), *behar* scopes ambiguously relative to negation: it can be interpreted not only below negation (63-i, 64-i) but also above negation (63-ii, 64-ii), as is the case of root necessity *need* in English. (Note that the scope interaction is the same in the functional (63) and in the lexical cases (64)).

(63) Jon ez da etorri behar. (Functional restructuring)

Jon.A neg BE.3sA come need

- i. Not > *Behar*-*DEON*²³⁴: 'John is not required to come.'
- ii. *Behar*-*DEON* > Not: 'John is required not to come.'

²³⁴ See Section 3.2.4. for an analysis of the type of deontic modality scopally ambiguous examples like (63-64) can give rise to; as well as for the interaction of dispositional/dynamic *behar* with negation.

(64) Jon-ek ez du etorri behar. (*Lexical restructuring*)²³⁵

Jon-E neg HAVE.3sE come need

- i. Not > *Behar-DEON*: ‘John is not required to come.’
- ii. *Behar-DEON* > Not: ‘John is required not to come.’

The scope ambiguity exhibited by (63-64) calls into question the generalization that root modality is merged structurally in a position below sentential negation. The data is otherwise nicely captured under the assumption that negation takes scope in different positions, as proposed by Butler (2003) (also Zanuttinni 1997; Haegemann 1995; Poletto 2008; Haddican 2004, 2007; Etxepare & Uribe-Etxebarria 2010a-b; and De Clercq 2013; among others), and as defended in Chapter 5 of this dissertation; with root necessity merged in a fixed position in-between these two positions for negation (see for instance Butler’s proposal in (61)). The biggest drawback for a hierarchical approach, whether negation is taken to split scopally (Butler 2003) or not, comes from the behavior of epistemically interpreted *behar*.

Let us analyse the interaction of epistemic *behar* with negation.

When *behar* is interpreted epistemically, there is no scope ambiguity relative to negation. However, rather than exhibiting fixed wide scope (which is what the hierarchical view assumes), *behar* exhibits fixed narrow scope relative to negation. That is to say, the scope of *behar* relative to negation (i.e. Neg > Mod_{epis}) is the opposite of the (Mod_{epis} > Neg) scope predicted by the hierarchical approach to the epistemic/root distinction.

²³⁵ It must be noted that the constructions where the infinitive surfaces to the right of *behar* are not compatible with matrix negation for independent reasons that have to do with word order constraints; namely, with the Final-over-Final constraint (Holmberg 2010, Biberauer, Holmberg and Roberts 2014). I will leave aside at this point for the sake of simplicity (The reader is referred to Section 6.3.6.2. and to Haddican & Etxepare 2013 for more details).

(cvi) *Jon-ek ez du behar [garaiz etorri] (Haddican & Etxepare 2013)
 Jon-E neg HAVE.3sE on-time come
 ‘John does not need to come on time.’

Take for instance the pair in (65a-b). Crucially, the speakers who admit an epistemic interpretation of the necessity modal *behar* in affirmative contexts (65a) cannot use this modal to convey the interpretation where the epistemic modality scopes over negation (65b):

(65) Epistemically interpreted *behar* and negation

a. [Argia piztuta ikusi dut, beraz...] Jonek bulegoan egon behar du.

Light switched see HAVE.1sE so Jon.E office be need HAVE.3sE

‘[The lights were on, so...] it must be the case that John is in his office.’

b. [Argia itzalita ikusi dut, beraz...] Jonek ez du bulegoan egon behar.

Light switched see HAVE.1sE so Jon.E neg HAVE.3sE office be need

#[The lights were OFF, so...] it must be the case that John is NOT in his office.

**Behar-EPIS* > *Neg*

In order to express a wide scope epistemic meaning relative to negation, Basque speakers make use of other linguistic expressions; for instance, they use the future of uncertainty (66) or evidential particles like *omen/bide* (67), which unlike modal *behar*, are able to take scope above negation.

(66) Ez da han egonen/egongo.

Neg BE.3sA there be.fut

‘He will not be there.’

Lit. ‘It is unlikely that he is there.’

(67) Ez omen/bide/ei dago bulegoan.

Neg part.evid. be.3sA office

‘Apparently, he is not in his office.’

Strikingly, as shown in (68), the same speakers have no problem in admitting a narrow scope reading of epistemic *behar* relative to negation²³⁶. This provides strong counterevidence for a hierarchical approach to modality and calls for a different explanation of the scopal relation between modality and negation.

(68) Narrow scope of epistemically interpreted *behar* relative to negation²³⁷

Context: Someone in the office utters:

A. Ask Peter to come over! He must be in his office by now.

Esan Peruri etortzeko! Bulegoan egon behar du dagoeneko.

Ask Peter.D come-to office-in be must HAVE.3sE by-now

To which the addressee replies:

B. [*Ez pentsa!*] *Ez du nahitaez egon behar.*

Not think-imp not HAVE.3sE necessarily be must

‘Not really! He need not be there’

Batzuetan beranduago dator.

sometimes later come.3sA

‘Sometimes it comes later.’ *Neg > behar*

Actually, in other languages too we find necessity modals which are also able to scope below negation when interpreted epistemically. This is the case of English *have*

²³⁶ Some of the speakers questioned still show preference for other type of structures that do not involve necessity modal *behar* to express epistemic uncertainty in the scope of negation (see (cvii) below), but admit (65) too.

(cvii) *Ez du zeren/zertan han egonik.*
not HAVE.3sE why there be-PART
‘Lit. no reason to be there.’

²³⁷ Likewise, in the following occurrences retrieved in a Google search, necessity modal *behar* must be taken to scope below negation; they can both be paraphrased with ‘It need not X’.

- (i) *ez da oso garestia izan behar*, honelako aparatu-elektronikoak merkeak direlako
it BE3sA very expensive be need, this-type-of electronic devices cheap are-because
‘It need not be very expensive, because this type of electronic devices are cheap.’
Retrieved from <https://karabezu.wikispaces.com/15%C2%B7%C2%B7Petrut>
- (ii) *Dena dela zientifikoek esaten dutena beti ez da egia izan behar*
In-any-case scientific.pE say HAVE.3pE always neg BE3sA true be need
‘In any case, what the scientists say need not always be true’
Retrieved from <http://jasolh5a11-12.blogspot.com.es/2012/>

*to*²³⁸ (69a), and it is also crucially the case of several of the modal verbs meaning ‘need’ across languages – i.e. German *nicht brauchen* (69b), Norwegian *ikka trenge/behove* (69c), and even English *need not/needn’t* (69d) – which, as the reader will recall from Chapter 3, share many properties with the Basque necessity modal *behar*.

(69) Negation > epistemic necessity

- | | | |
|----|---|------------------------|
| a. | The murder didn’t have to take place in the study. It could have happened in the garage.
(Lee 2006: 246) | English <i>have to</i> |
| b. | Das braucht nicht der Fall zu sein.
That need not the case to be
(Mache 2013: 37) | German ‘need’ |
| c. | Jon trenger/behøver ikke (a) være morderen.
John need not to be the killer
(Eide 2002: 42) | Norwegian ‘need’ |
| d. | John need not be the prime suspect.
(Papafragou 2005: 1694) | English <i>need</i> |

In what follows, I will explore an alternative account of the scope of necessity modals relative to negation based on the polarity sensitive properties of this type of modals, which distinguishes between positive polarity, negative polarity and polarity neutral modals (Iatridou & Zeilstra 2010, 2013). I will analyse where the Basque necessity modal *behar* fits within this classification, and if this polarity-based account can best explain the range of data that hierarchical accounts could not explain (i.e. the ability of epistemically interpreted necessity modal to scope under negation).

²³⁸ The scope of epistemic *have to* is unnoticed by Butler (2003).

6.3.5. The polarity sensitivity of necessity modals

Iatridou & Zeijlstra (from now on I&Z) (2010, 2013) have recently proposed that the fact that, both crosslinguistically and language internally, different deontic modals exhibit different scope behaviour relative to negation (note for instance the contrast between *must*, *need* and *have to* in (70)) results from the fact that these modals may have distinct polarity properties: some deontic modals (i.e. *need*) behave like negative polarity items (NPIs), others (i.e. *must*) do so because they are positive polarity items (PPIs) or because they are polarity neutral (*have to*).

(70) Polarity sensitivity of *must/need/have to* (I&Z 2013: 1)

- a. John *mustn't* leave *must*: Deon > Neg; *Neg > Deon
- b. John *need*(n't)* leave *need*: Neg > Deon, *Deon > Neg
- c. John *doesn't* have to leave
- d. John *doesn't* need to leave *have to*: Neg > Deon, *Deon > Neg

Therefore, in I&Z's view, deontic modals are grouped as in the following table:

Table 13 Polarity sensitivity of modals (I & Z 2013)

PPI, neutral, and NPI modals

	PPI modals	Neutral modals	NPI modals
Universal	<i>must, should, ought to, to be to</i>	<i>have to, need to</i>	<i>need</i>
Existential	—	<i>can, may</i>	—

As shown in (70a vs. 70b-d), while positive polarity modals invariably scope above negation, negative polarity modals and neutral modals take narrow scope. Thus, polarity neutral modals are defined as those modals that exhibit fixed scope under negation but do not require negation (70c-d). The fixed scope of polarity neutral modals leads I&Z to further propose that English modals are lexical predicates base-generated in a position lower than negation. The fixed narrow scope of modals relative to negation is thus seen as a consequence of the fact that, after moving to T° to check their tense features, modals undergo reconstruction.

The only difference between deontic modals being base-generated in I° and being base-generated inside VP is that in the latter case, these modals are taken to be lexical verbs and therefore they must be interpreted in their base position as well (I&Z 2010: 321)

The only exception to reconstruction is PPI modals, since interpreting a PPI modal under negation would make the sentence crash at LF. Therefore, as a last resort option, the PPI modal is interpreted in its high position where it can outscope negation.

To sum up, under I&Z's proposal, the scope behaviour of necessity modals follows directly from (i) the status of these modals as polarity items and (ii) the possible positions of interpretation of modals in the clause²³⁹.

With this explanation in mind, let us now turn back to the modal under discussion in this dissertation, the Basque necessity modal *behar*.

6.3.6. Basque necessity modal *behar* from a polarity sensitivity perspective

Recall that *behar* can perfectly occur in affirmative contexts both under the epistemic reading and under the deontic reading. This suggests that, assuming I&Z's three-fold classification, *behar* should be considered a polarity neutral modal; however, deontically interpreted *behar* does not exhibit the same behaviour as polarity neutral modals in languages like English. Recall that when *behar* is interpreted deontically, it can freely scope under or over negation; however, English polarity neutral modals like *have to* exhibit fixed scope under negation. This indicates that, if we want to provide a unified crosslinguistic account of the behaviour of polarity neutral modals with respect to negation, I&Z's proposal should be revised.

²³⁹ It must also be noted that, even if I&Z mainly focus on deontic modals, they do add that “generally, the way a modal scopes with respect to negation in its deontic interpretation is the same as the way it scopes with respect to negation on its epistemic interpretation” (I&Z 2013: 56), although they admit that certain modals are more restricted in their scopal properties with respect to negation in their epistemic usages rather than in their deontic usages (I&Z 2013: 57).

Recall also that, in I&Z's account, it is the fixed narrow scope of neutral modals like *have to* what leads to the assumption that modals are lexical predicates which undergo reconstruction to a VP internal position below negation. However, letting aside the possibility that some modals be lexical or have lexical as well as functional variants (see Chapter 3), I do not think that the narrow scope of modals like *behar* must be seen as a consequence of a reconstruction operation below negation. The reason why, unlike polarity sensitive modals, polarity neutral modals like Basque *behar* are free to scope above and below negation may well be that negation scopes at different positions in the clause²⁴⁰, as convincingly argued by various authors (Zanuttinni 1993, Cormack & Smith 2002, Butler 2003, De Clercq 2013, Holmberg 2016; also Haddican 2004, 2007 and Etxepare & Uribe-Etxebarria 2010 for Basque). This is precisely the hypothesis posed by De Clercq (2013) to explain the behaviour of positive polarity items like *must*.²⁴¹

To put it simply, if we assume that it is negation that takes variable scope relative to the neutral polarity modal *behar*, it then follows naturally that this modal will exhibit wide or narrow scope depending on the position where negation is interpreted: when negation is interpreted in the higher scope position (PolP), *behar* will exhibit narrow scope; when negation is interpreted in a scope position lower than the modal (in the vicinity of vP), *behar* will exhibit wide scope relative to negation. Note that this is in fact the expected behaviour of a polarity neutral element; as observed by Yanovich (2013), if a scope-bearing expression is neither an NPI or a PPI, its scope with respect to negation is not fixed; rather, they are scopally ambiguous (see Yanovich *op.cit.* for further details).

²⁴⁰ Note that this allows us to dispense with the generalization that modals scope below negation because, being lexical, they reconstruct to a VP internal position (I&Z 2009, 2013).

²⁴¹ In De Clercq's (2013) unified syntax of negation, sentential scope negation takes place when a negative marker (merged in the VP) enters into an agreement relation with the higher Pol^o head. Since polarity sensitive modals value their polarity features with the head of the Polarity Phrase, a positive polarity modal like *must* would act as an intervener blocking agreement with the high scope negation and causing negation to be interpreted below the modal.

The scope ambiguity exhibited by *behar* is in fact not exclusive of this modal, in other languages too, some necessity modals pattern with *behar* in exhibiting free or ambiguous scope, as is the case of Russian *dolžná* and *núžno* ‘must, have to’ (Yanovich 2013), French *devoir* or Spanish *deber*.

(71) Scope neutral deontics across languages :

- a. Ona ne dolzna upominatj o svojom znakomstve s Anej.
She neg DEONTIC mention about her acquaintance with Anya
‘She musn’t mention she’s acquainted with Anya.
- b. Masa objasnila, sto Anja ne dolzna pisatj otcot.
Masha explained that Anya neg DEONTIC write report
‘Masha explained that Anya does not have to write a report.’
(Yanovich 2013: 261)
- c. Él no debe partir.
He neg must leave
 - i. ‘He must not leave’. *deber* > neg
 - ii. ‘He is not required to leave’ neg > *deber*
- d. Il ne doit pas partir.
He neg must neg leave
 - i. ‘He must not leave. devoir > neg
 - ii. ‘He is not required to leave’ neg > devoir

In contrast with polarity neutral modals, the scope interaction of polarity sensitive modals with respect to negation is constrained by the polarity specification of these modals. As explained by De Clercq (2013), positive polarity modals like *must* intervene blocking a narrow scope relation of the modal relative to negation. By contrast, as observed by Butler 2003, negative polarity modals (i.e. English *need*) require that negation is interpreted in the highest scope position (PolP), where it takes scope over the modal; that is to say, on this view, polarity negative modals require that negation agrees with the PolP in the left periphery in order for the modal to be licensed.

As shown, a polarity-based account of the interaction modal-negation has many advantages when it comes to explain the free scope of polarity neutral modals in

languages other than English (i.e. French (71d), Spanish (71c), Russian (71a-b)). However, there are some remaining questions that require an explanation.

6.3.6.1. The scope of polarity neutral modals

On the one hand, it is unclear why polarity neutral modals in English (i.e. *have to*) exhibit fixed scope when they occur with negation²⁴² and why the scope interaction of some modals should be more constrained under an epistemic than under a deontic modal interpretation (as observed by I&Z (cf. fn. n° 56)).

Note that such scope differences are not only found with *behar*, neutral necessity modals like French *devoir* and Spanish *deber* differ with respect to the scope exhibited under the deontic and epistemic interpretations. However, in contrast with *behar*, epistemically interpreted *devoir* and *deber* do not take fixed scope below negation but above it:

(72) Jean ne doit pas arriver à l'heure. (De Haan 2013)

Jean neg must neg arrive on time

'It must be the case that J. will not arrive on time.' *devoir_{epis} > neg*

(73) Juan no debe estar en casa.

Juan neg must be at home.

'It must not be the case that J. is at home.' *deber_{epis} > Neg*

The following table summarises the scope properties of neutral modals relative to negation under the deontic and epistemic reading.

²⁴² Yanovich (2013) has recently argued that, in addition to the polarity restrictions on deontics, there might exist some semantic filters on scope which arise as speakers generalize "from the range of actual uses that a pre-deontic construction used to have". In this line, he attributes the narrow scope of polarity neutral *have to* relative to negation to the fact that, diachronically, *have to* tends to occur with complements denoting unpleasant or effort-requiring situations. Thus, if Yanovich is right, polarity neutral modals would be ambiguous unless they have conventionally specialized to convey a given scope interpretation.

Table 14 Scope properties of polarity neutral modals

POLARITY NEUTRAL MODALS		
Ambiguous scope	Fixed scope	
<i>Mod</i> > <i>Neg</i> ; <i>Neg</i> > <i>Mod</i>	<i>Mod</i> > <i>Neg</i>	<i>Neg</i> > <i>Mod</i>
<i>Deber</i> -deon	<i>Deber</i> -epis	<i>Behar</i> -epis
<i>Devoir</i> -deon	<i>Devoir</i> -epis	
<i>Dolzna</i> -deon		
<i>Behar</i> -deon		

One possible explanation for the different scopal behaviour between epistemic *behar* and epistemic *deber* and *devoir* might be related with the fact that *behar* (but not *deber* or *devoir*) is a *need*-type modal, that is to say, it derives from the homophonous noun meaning “necessity” (see Chapter 3 for a characterization of *need*-type modals) and, as the reader will recall, there seems to be a strong crosslinguistic tendency for *need*-type modals to develop negative polarity properties in their path to grammaticalization (van der Wouden 1994, 2001). However, more needs to be said about why *need*-type modals tend to become NPI modals across languages and other necessity modals (i.e. *must*, *moeten* ...) become PPIs to understand if this bears any relation with the aforementioned contrast.

6.3.6.2. The scope of *behar* relative to negation in *inf*>*behar* constructions

I would now like to bring your attention to a problem that the scope interpretation exhibited by deontic modal *behar* relative to negation poses for the assumptions held in Chapter 5 about the underlying structure of the functional and lexical restructuring constructions involving this modal.

Recall that in Chapter 5 I have argued that Type I functional restructuring constructions and Type II lexical restructuring constructions occurred with a small size infinitival complement – a vP – placed to the left of the modal. One of the arguments

put forth in support of the small size of these complements was precisely the fact that they do not admit the presence of the negative marker *ez* in any position inside the infinitival, what I have interpreted to mean that these complements lack a scope position for sentential negation. However, the deontic examples in (63) and (64), which correspond to Type I and Type II *inf>behar* constructions, come to show that negation can in be fact interpreted below the modal. On a first approximation, this calls into question the hypothesis that the infinitival complements of these constructions project no position (high or low) for sentential negation.

There are two possible explanations to accommodate these contradictory data, as I will show below:

6.3.6.2.1. Moving up deontic behar

One way of explaining how the scope relation *behar_{deon}>neg* is derived in *inf>behar* configurations would be to assume that in the deontic interpretation, the modal undergoes raising to a scope position over the negative marker *ez* located in the PolP position for sentential negation, to some illocutionary projection (e.g. ForceP). This hypothesis would be supported by the fact that this type of deontic sentences where the modal scopes above negation are interpreted as directives. Thus, a sentence like (74a) in which the deontic modal is interpreted above negation is used to express an order or a prohibition directed to the addressee (as shown in the paraphrases). Likewise, the sentence in (74b) involving the 3rd person subject *Jon*, rather than a second person subject, is interpreted as an order or warning (or a similar speech act) directed also to the addressee, whereby he/she is advised/warned/compelled to bring about some action that prevents the subject, *Jon*, from coming.

(74) Illocutionary force of *behar_{deontic}>Neg*

a. Ez zara/duzu etorri behar.

Neg BE.2sA/HAVE2sE come need

Interpretation: I compel you not to come.

b. Jon(ek) ez da(/du) etorri behar.

Jon.A(E) neg BE.3sA/HAVE3sE come need

Interpretation: I compel you to bring about some action that prevents the subject, *Jon*, from coming.

Under this view, the scope interaction of the modal relative to negation would be explained without needing to assume that there is a scope position for negation below the modal, and the data will no longer be problematic for the assumption that the infinitivals selected by *behar* in these constructions are small vP size infinitivals lacking a position for sentential negation. However, this hypothesis has the problem that movement of the modal to this high projection would violate the head movement constraint.

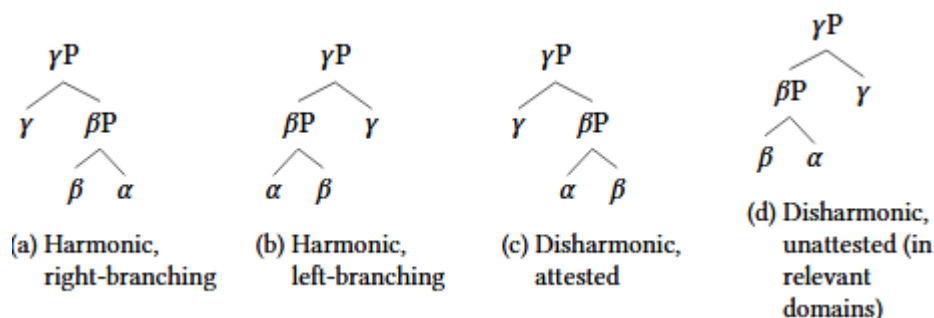
6.3.6.2.2. The FOFC approach

Another possible explanation suggested to me by Etxepare (p.c.) would be to assume that the infinitivals of these (Type I-II) constructions do indeed contain a low position for sentential negation on top of the verb phrase; yet, the presence of the negative marker *ez* is precluded by independent reasons related with word order constraints; more specifically, by the so-called Final Over Final Constraint (henceforth FOFC, cf. Holmberg 2010, Biberauer, Holmberg and Roberts 2014). Let us explain what the FOFC consists in and elaborate further on this other possibility.

6.3.6.2.2.1. The FOFC

Based on previous typological research, Holmberg (2000) noted that whereas harmonic dominance relations are common crosslinguistically (75a), others are disharmonic (75c-d):

- (75) Harmonic and disharmonic relations
(Holmberg 2000, cited in Haddican & Etxepare 2013)



In order to capture the interaction between dominance relations and head-complement orderings illustrated in (75), Holmberg and colleagues (Biberauer, Holmberg and Roberts 2014) propose what is known as the FOFC:

- (76) The Final-over-Final constraint
(Biberauer, Holmberg and Roberts 2014, cited in Haddican & Etxepare 2013)

The Final-over-Final constraint:

If α is a head-initial phrase and β is a phrase immediately dominating α , then β must be headinitial.

If α is a head-final phrase, and β is a phrase immediately dominating α , then β can be head-initial or head-final, where:

- (i) α and β are in the same Extended Projection;
- (ii) α P has not been A-bar-moved to Spec β P.

With this in mind, let us now turn to the case of Basque and to the problematic *inf>behar* modal constructions presumably involving low scope negation.

6.3.6.2.2.2. Basque modal constructions and the FOFC

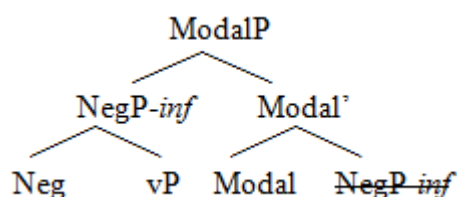
Basque is a “mixed-head” language: heads in the clausal spine below T appear to the right of their complements, while heads above T, including preverbal speech act and evidential particles appear to the left of their complements (Rijk 1969, Ortiz de Urbina 1989, 1994; Laka 1990; Elordieta 2001; Irurtzun 2007; Elordieta 2008).

In view of this, most generative approaches to Basque have proposed a head-directionality parameter: T and clausal heads below it take their complements to the left, while those heads above T take their complements to the right.

However, in contrast to these view, other works (Haddican 2004, 2008; Haddican & Etxepare 2013) propose an antisymmetric approach whereby the left-branching structure of the extended VP is derived via roll up movement (Kayne 1994) of the complement of the head-final phrases (those generated below T) to their specifier.

Let us consider this anti-symmetric approach to Basque word order and turn back to the modal constructions at stake, where *behar* takes a complement headed by (low) negation (let us refer to this negation as NegP²⁴³). This would yield the FOFC violating configuration in (77), where a head-initial phrase (NegP) is dominated by a head-final phrase (the ModalP):

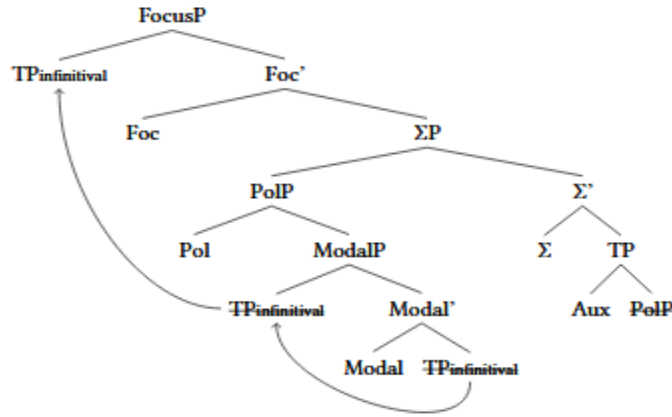
(77) FOFC offending *inf*>*behar* configuration



Let us now assume that, in order to prevent the derivation from crashing, the offending infinitival phrase (i.e. the negation phrase) is subextracted and moved to the left peripheral Focus Projection. This is what Haddican and Etxepare (2013) have recently proposed to be the case with the complex TP-sized infinitival complements of modals (Haddican & Etxepare (2013) and also E&UE (2009) for independent motivation that the infinitival takes scope in the focus position in these constructions). To illustrate this movement this authors provide the structure in (78).

²⁴³ As explained in Chapter 5 and in this section, this position would correspond to what De Clercq (2013) and Butler (2003, 2004) refer to as Foc_{NegP} , located in the periphery of the vP (see also Zanuttinni 1997, Poletto 2008, among others).

(78) FOFC repair-strategy:



These authors further assume that subextraction of the infinitive is followed by movement of the remnant (Sigma Phrase) to the Topic position, what yields the word order *behar*>*inf*. Note that this proposal successfully explains why complex (TP sized) infinitival complements must surface to the right of *behar*, which before remained unexplained.

So, if we apply the same repair strategy to the offending NegP-sized infinitivals (i.e. subextraction of the complement to FocP followed by movement of the remnant to TopP), this too would explain why, as argued in Chapter 5, the presence of the negative marker *ez* inside the complement is only found in *inf*>*behar* constructions.

The remaining question is how the word order and the scope interpretation found in the deontic constructions in (63-64) might be explained in similar grounds.

Let us assume that what happens in these cases is that the negative particle *ez* merged in the NegP below the modal moves to the leftmost Polarity Phrase of the clause to check polarity before or after the FOFC repair strategy takes place (i.e. subextraction followed by remnant movement to TopP). This will explain why in (63-64) *ez* surfaces in the high position above the auxiliary but is still able to scope below the modal.

(79) [... [_{Σ/PolP} **ez** [_{TP} AUX [_{NegP1} [_{VP} **ez** [_{VP} **behar** [_{NegP2} **ez** [_{VP} [_{VP} *etorri*]]]]]]]]]]

The problem with this derivation is that it would yield a word order “*Ez du behar etorri*” rather than “*Ez du etorri behar*”. So some additional stipulation is required to explain why the infinitive surfaces before the modal.

To sum up, in this subsection I have addressed a problem raised by the deontic constructions where negation scopes below the modal in the *inf>behar* restructuring configurations. The problem has to do with the conclusion reached in Chapter 5 whereby the infinitival complement of these constructions lacks a position for negation. I have presented two possible explanations: one that derives the required scope relations by moving the modal over negation and is consistent with the assumption that the infinitive lacks a NegP, and another one which would instead assume that the infinitive contains a NegP, and assumes that the negative particle *ez* moves from the complement internal position to the higher PolP to avoid the FOFC. The two explanations have advantages and disadvantages and, so far, I have no reason for choosing one over the other. I would therefore leave this question open for future research.

The principal conclusion we have to keep in mind from this chapter is that the uncontroversial scope facts described in this section show that the syntax-to-semantics mapping of modal constructions cannot be explained by a hierarchical approach whereby epistemic modals are generated in a position higher than root modals lower than negation (and other scope bearing elements).

6.3.6.3. The fine-grained classifications of modality and negation

In the previous section I have shown that *behar* ‘need’ exhibits a different scopal behaviour relative to negation under the epistemic and the deontic interpretation (see examples 64-65); however, nothing has been said so far regarding the interaction of the two types of readings (non-directed or directed) deontic *behar* can give rise to, or about the interaction of *behar* relative to negation when this expresses dispositional/dynamic modality.

Let us consider again the deontic examples in (63-64) above, repeated here under (80a-b):

(80) Negation and directed/non-directed deontic uses of *behar*

a. Jon ez da etorri behar. (Type I)

Jon.A neg BE.3sA come need

b. Jon ek ez du etorri behar. (Type II)

Jon.E neg HAVE.3sE come need

iii. Neg > *Behar-DEON*:

Directed deontic: ‘John is not required to come.’

Non-directed deontic: ‘It is not necessary that John comes’

iv. *Behar-DEON* > Neg:

Directed deontic: ‘John is required not to come.’

Non-directed deontic: It is necessary that John does not come’

As shown in (80), deontic *behar* takes ambiguous scope relative to negation, irrespectively of whether the obligation/requirement is directed to the subject or not; that is to say, both when the sentences express a directed deontic reading (‘John is not required to come’/‘John is required not to come’) or a non-directed deontic reading (‘It is not required/necessary that John comes’/‘It is required/necessary that John does not come’).

Note that, unlike in the cases where *behar* expresses deontic modality, when *behar* conveys dispositional/dynamic modality (i.e. when the necessity is internal to the subject), as in (81), *behar* again shows fixed narrow scope relative to negation.

(81) Oraindik ez dut betaurrekorik erabili behar.

Yet not HAVE.1sE glasses use need

Neg > *Behar*_{DISPOSITIONAL}: ‘I don’t need to wear glasses yet.’

#*Behar*_{DISPOSITIONAL} > Neg: ‘I need to not wear glasses yet’

Crucially, the scope differences between deontic and dispositional/dynamic root modality seem to indicate, again, that a finer-grained distinction of modality is more adequate than the traditional two-fold epistemic-root distinction.

Table 15 Types of modality and scope relative to negation

Scope relative to negation	Epistemic	Non-directed deontic	Directed deontic	Dispositional /Dynamic
Mod>neg	NO	YES	YES	NO
Neg>Mod	YES	YES	YES	YES

6.3.6.4. Conclusions on the scope interaction of modals with negation

In Section 6.3.2. I have shown that the observed asymmetries regarding the scope interaction of some modals relative to negation under the epistemic and root interpretations are insufficient to motivate a hierarchical account of modal interpretation.

In this respect, the data coming from the Basque necessity modal *behar* provides clear counterevidence to the claim that epistemically interpreted modals are generated above, whereas root modals are generated below, negation; in neither of the two interpretations of *behar* does this modal behave as predicted: deontically interpreted *behar* takes ambiguous (wide/narrow) scope (rather than fixed narrow scope) relative to negation, whereas epistemically interpreted *behar* scopes below (rather than above) negation. Not even more intricate accounts like Butler's (2003) – where two different scope positions for negation are acknowledged, and where modality is argued to split in four with respect to the two existing scope positions for negation – can account for the whole range of crosslinguistic data concerning the interaction of modals with negation.

In addition, the analysis carried out in this section provides additional motivation for a four-type classification of modality, since, as shown in Table 15, *behar* exhibits different scope relations relative to negation under the different types of modal

interpretations it can license: it exhibits variable scope relative to negation under the deontic (directed and non-directed) modal interpretations ($behar_{DEONTIC} > neg$; $neg > behar_{DEONTIC}$), and fixed narrow scope relative to negation under the epistemic and dispositional modal interpretations ($neg > behar_{EPISTEMIC/DISPOSITIONAL}$; * $behar_{EPIS/DISPOSITIONAL} > neg$).

In this section, I have also explored an alternative account which derives the scopal differences between modals relative to negation from the different polarity properties modals are specified for. Such polarity-based accounts receive wide crosslinguistic support and has the advantage that the scope interaction between negation and polarity sensitive modals follows without further stipulation. However, a polarity-based account would still have to face various drawbacks. On the one hand, it remains unclear why in some languages neutral modals exhibit fixed narrow scope (ie. English *have to*), whereas in others, the scope of neutral modals varies depending on modal interpretation (e.g. Basque *behar*, French *devoir* and Spanish *deber*): deontically interpreted modals are scopally ambiguous relative to negation, while epistemically interpreted ones exhibit fixed – narrow (*behar*) or wide (*devoir*, *deber*) – scope relative to negation (cf. Table 15). On the other hand, the explanation provided to account for the variable scope of deontic modals, i.e. that in the $neg > deon$ scope ordering negation scopes in a high position above the modal, whereas in the $deon > neg$ scope ordering negation scopes in a lower position below the modal, is contradictory with the assumption held in Chapter 5 that $inf > behar$ constructions lack a complement internal position below the modal.

6.4. CONCLUSIONS ON THE SYNTAX-TO-SEMANTICS MAPPING OF MODAL CONSTRUCTIONS

In this chapter I have revised the main syntactic (thematic-based, scope-based and hierarchical) approaches to modal interpretation in the light of new data coming from an exhaustive analysis concerning several properties of modal constructions involving the Basque denominal necessity modal *behar*.

I have first shown that, among the different types of infinitival constructions modal *behar* can occur with, restructuring Type I-II constructions clearly pattern with raising structures whereas non-restructuring Type III constructions pattern with control ones. However, contrary to what has been argued in traditional thematic (/raising vs control) approaches to modal interpretation (Ross 1969; Perlmutter, 1971; Jackendoff, 1972; Huddleston 1976, 1984; Zubizarreta 1982; Roberts 1985), there is no one-to-one correlation between the underlying raising/control structure of modal constructions and the type of interpretation (epistemic/root) they can give rise to. Even if the generalization that epistemic modality correlates with raising rather than control appears to be correct in the light of the Basque data analysed, we find substantial counterevidence that root modality is not restricted to control configurations. There are, however, other syntactic restrictions depending on the type of root modality expressed: non-directed deontic readings arise freely in raising contexts whether the sentence occurs with weather-*it*, expletive, idiom-chunk or inanimate subjects, but directed deontic and dispositional/dynamic modality are contingent on the presence of an animate subject and are unavailable if the subject undergoes reconstruction to a complement internal position; otherwise (if the subject is animate and takes surface scope), these type of root readings are perfectly possible in raising constructions.

In addition, the fact that certain root readings (non-directed deontic ones) are available in raising constructions where the subject takes narrow scope relative to indefinite subjects undermines a possible account of modal interpretation in the line of Lee (2006), whereby root readings invariably correlate with a wide scope (*Subj* > *Mod*) and epistemic ones with a narrow scope (*Mod* > *Subj*) of the subject relative to the

modal. The inadequacy of such scope-based account is further demonstrated by the analysis carried out in Section 2 regarding the scope interaction between quantificational subjects and the modal in epistemic and root constructions. There, it is shown that, as it was the case with indefinite subjects, quantificational subjects do not take wide scope relative to the modal in all the root readings (under a non-directed deontic interpretation, for instance, the quantifier *gutxi* ‘few’ can reconstruct for interpretation to a position below the modal (54)). Moreover, when *behar* is interpreted epistemically, indefinite and quantifier subjects can take wide scope over it (53). This calls into question von Stechow and Iatridou’s (2003) Epistemic Containment Principle according to which there exist some type of intervention effect at LF prohibiting quantifiers to bind their trace across an epistemically interpreted modal.

Finally, the analysis of the scope interaction of Basque necessity modal *behar* with not only quantifier subjects, but with negation too, invalidates two of the strongest arguments used to sustain a hierarchical approach to the syntax-semantics mapping of modal interpretations. According to the hierarchical view, epistemic interpretations are derived from the high position of the modal in the structure (above negation, Tense and the canonical scope position for subjects); by contrast, root interpretations are derived from the low position of the modal under all the afore-mentioned scope bearing elements. Actually, the scope interaction of necessity modal *behar* with respect to negation happens to be very different from what one would expect under such hierarchical account, since, when interpreted deontically, *behar* can take variable scope (rather than fixed narrow scope) relative to negation and, when interpreted epistemically, *behar* necessarily scopes below (rather than above) negation. The Basque data cannot be explained even in hierarchical approaches proposing different positions for negation (i.e. Butler’s 2003). When one looks at the interaction of necessity modals with negation across languages (ie. Basque *behar*, Spanish *deber*, French *devoir*, English *must*) and even within the same language (ie. English *must* vs. *need*, *have to*), it seems that each modal interacts with negation in a specific way given its particular idiosyncrasies (whether it has acquired positive or negative polarity properties (van der Wouden 1994, 200, I&Z 2010, 2013), or whether it has conventionally specialized for expressing a particular type of scope interpretation (Yanovich 2013)).

In conclusion, none of the accounts reviewed in Chapter 2 is sufficiently adequate to explain the syntax-to-semantics mapping of the Basque necessity modal constructions under analysis.

The data analysed in this chapter suggests that, rather than one single linguistic factor (i.e. modal height, subject-modal scope, presence/absence of a thematic relation with the subject), it is a combination of different syntactic factors what filters out the type of modality expressed by modal *behar*. This leads me to propose the following conspiracy approach to modal interpretation:

Table 16. A conspiracy approach to modal interpretation

CONSTRAINING FACTORS	MODALITY TYPED ALLOWED			
	Epistemic	Non-directed deontic	Directed Deontic	Dispositional
Presence of a thematic relation with the subject	NO	YES	YES	YES
Presence of inanimate subjects	YES	YES	NO	NO
Scope reconstruction of indefinite/Q subjects to a complement internal position below the modal	YES	YES	NO	NO
Wide scope relative to Negation	NO	YES	YES	NO

7. Conclusions

7.1. THE MAIN CONTRIBUTIONS OF THE DISSERTATION

In this dissertation, I have analysed the syntax-to-semantics mapping of the modal constructions from the perspective of the necessity modal *behar*.

My main goal has been to show how is it that the same modal word is used to express a wide range of modal meanings.

In relation with this central question, I have concluded that the modal meanings *behar* can give rise to can be syntactically derived from a combination of thematic, selectional and scopal properties exhibited by the different underlying structures where this modal can occur, either in its functional or in its lexical variant. More specifically, the properties that play a key role in the derivation of the different modal meanings examined are: (i) the presence/absence of a thematic relation with the subject; (ii) the presence/absence of an animacy feature of the subject; (iii) the (im-)possibility for the subject to undergo scope reconstruction to a complement internal position; and (iv) the scope of the modal relative to negation.

The investigation carried out in this dissertation contributes a comprehensive account of the syntax and semantics of the Basque necessity modal *behar* focusing on different aspects which have not been analysed so far. It also offers an alternative way of thinking about the way modal predicates map into modal meanings.

Next, I provide a summary of the main conclusions of this dissertation.

7.1.1. The functional and lexical variants of *behar* and *need*-type verbs

In relation with the controversy in the literature as to whether modals are functional or lexical elements, in Chapter 3 I have argued that the Basque necessity modal *behar* occurs in two variants: it can be merged as a functional modal in a monoclausal construction, or as a lexical or semi-lexical head. In the former case, the uninflected verb is the main predicate of the clause and determines the case assigned to

the subject and the auxiliary of the construction; in the second case, modal *behar* functions as a transitive verb triggering the presence of auxiliary HAVE and ergative case.

In addition, the lexical variant of *behar*, unlike the functional one, can select for a range of complements – DP complements, -TZEA nominalized complements and finite complements, some of which (i.e. DPs) are only available for transitive verbs in Basque. In this, the Basque necessity modal *behar* patterns close to many of the modal verbs expressing ‘need’ in other languages (e.g. English, Spanish, German, etc.).

Basque *behar* also shares with these verbs other properties that make it difficult to classify them as strictly functional or lexical elements (in contrast with other necessity modal verbs like English *must* or German *müssen*. Basque *behar* and *need*-type modals coexist with a homophonous noun (or at least a morphologically related noun) meaning ‘need’, and this has led some researchers to argue that these verbs are denominal in origin (Harves & Kayne 2012, Etxepare & Uribe-Etxebarria 2012). These verbs, as a class, exhibit properties that distinguish them from the class of unequivocal functional modals. I related this fact to the origin of these modals in a noun meaning *need*, and the different stages they follow in the grammaticalization process that leads them from nouns to functional heads in the clausal structure. The following is a table summarizing the various distributional properties shown by denominal modals in comparison to functional modal predicates that I have examined in this dissertation.

Table 17(=5, Ch.3). Mixed properties of need-type predicates²⁴⁴

	<i>Must-type verbs</i>	<i>need not</i>	German (nicht) brauchen	Norwegian trenge /behove ikke	Spanish necesitar (inani -mate)	Need (+)	German Brauchen (+)	Norwegian trenge /behove (+)	Spanish necesitar (ani -mate)	Basque behar
Functional properties										
Deficient verbal morphology	√	√	-	-		X	-	-	-	* ²⁴⁵
IPP effect	√	-	%	-		X	-	-	-	-
To/Zu-less complements	√	√	%	√		X	-	X	-	-
Restructuring properties	-	-	-	-	%	-	-	-	%	√ /% optional
Co-occurrence restrictions	√	√	-	-	%	X		-	%	X
Ordering restrictions	√	√	-	-	%	X	-	-	%	X
Lexical properties										
Extraposition	X	X	%	-	-	-	-	-	-	-
DP complements/ Finite complements /Complements with overt infinitival subject	X	X	X	X	X	√	√	√	√	√
Thematic /selectional restrictions	X	X	-	X	X	X	-	√	%	% Only when restructuring effects are absent

In view of the afore-described mixed behaviour of need-type modals, I have argued that in all the languages examined these modals come (at least) in two variants: as functional or auxiliary-like elements and as lexical predicates.

²⁴⁴ The symbol ‘-’ means that either this property cannot be tested in this language or that I have not data in relation with this property in this language.

²⁴⁵ Recall that even if *behar* exhibits morphological deficiency, this is attributed to its nominal status (Ettxepare & Uribe-Etxebarria 2012, Berro 2015)

7.1.2. The cartography of the modal constructions in which *behar* can occur

In this dissertation, I have also been concerned with the syntactic variability exhibited by the modal constructions where *behar* takes a *-TU* infinitival complement, and how this might affect modal interpretation.

I have thus examined a series of asymmetries that arise in relation with the two word orders in which the modal and the complement can surface (*inf>behar/behar>inf*: asymmetries related to case assignment and auxiliary selection, and asymmetries concerning the indexing of agreement in the auxiliary (Chapter 4).

A close analysis of these asymmetries has led me to propose three-types of modal constructions involving *behar* and *-TU* complements:

- (i) Type I Functional restructuring constructions
- (ii) Type II Lexical restructuring constructions.
- (iii) Type III (Lexical) non-restructuring constructions.

As argued in detail in Chapter 5, the three types correlate with a series of different syntactic properties summarised in Table 18(=9, Ch. 5) below.

Table 18(=9, Ch. 5). Summary of properties and underlying structure of behar constructions

	Functional Restructuring/ Type I	Lexical Restructuring/Type II			Lexical Non- restructuring/ Type III
		I.	II.	III.	
Infinitival structure	[_{VP} [_{VP}]]	[_{VP} [_{VP}]]	[_{NegP} ...[_{VP}]]	[_{TP} ...[_{VP} [_{VP}]]]	[_{PolP} ...[_{VP} [_{VP}]]]
Correlation with previous classification (Chapter 4)	Type I (Functional)	Type II (<i>inf>behar</i>) (Lexical)	Type II (<i>behar>inf</i>) (Lexical)	Type II (<i>behar>inf</i>) (<i>√person</i> vs. * <i>number agr.</i>) (Lexical)	Type III (* <i>person</i> ; * <i>number agr.</i>) (Lexical)
Subject Case/aux.	ABS ‘BE/HAVE’	ERG ‘HAVE’	ERG ‘HAVE’	ERG ‘HAVE’	ERG ‘HAVE’
Low absolutive subjects (<i>v_{abs}</i> position)	YES	YES	YES	YES	Not possible because they are control stucures
Non-finte Aspect (<i>izan_{perf}</i>)	NO	NO	NO	YES	YES
Non-finite Tense	NO	NO	NO	YES	YES
3rd Pers./Num. agreement	YES	YES	YES	NO	NO
1 st /2 nd person/ Clitic climbing to the matrix auxiliary	YES	YES	YES	YES	NO
Low (Foc/NegP) negation (ABS>Neg)	NO	NO	YES	YES	YES
Low FocP	NO	NO	YES	YES	YES
High (PolP) negation (Neg>ABS)	NO	NO	NO	NO	YES
High FocP	NO	NO	NO	NO	YES

These findings thus come to support the hypothesis put forth by Wurmbrand (1998 et seq.) according to which infinitival constructions vary with respect to the

amount of functional structure they project; the underlying structure of infinitives ranges from bare vPs to full CPs.

As I show in Chapter 6, the choice of a given type of infinitival complement has implications for semantic interpretation: the selection of a non-restructuring clausal complement is incompatible with epistemic modality.

7.1.3. The modal meanings of *behar* and how they are derived

Basque necessity modal *behar* conforms to the crosslinguistic tendency exhibited by many modals to express more than one type of modal meaning; in other words, *behar* is a polyfunctional modal. Among the often subtly different meanings that *behar* can convey, we have focused on the following four:

(82) Types of modalities conveyed by the necessity modal *behar*

a. *EPISTEMIC*:

Diruak hor egon behar du, nonbait.
money.sE there be need HAVE.3sE apparently
'The money must be there, apparently.'

b. *NON_DIRECTED DEONTIC*:

Biharko diruak nire mahai gainean egon behar du.
Tomorrow-by money.sE table on-the be need HAVE.3sE
'It is necessary that the money be on my table by tomorrow.'

c. *DIRECTED DEONTIC*:

Jonek berandu arte lan egin behar du.
John.sE late until work do need HAVE.3sE
'John is required to work until late.'

d. *DISPOSITIONAL/DYNAMIC*:

Non dago komuna? Txiza egin behar dut.
Where is toilet.3sA pee do need HAVE.1sE
'Where is the toilet? I need to pee.'

In Chapter 6, I extensively argued that none of the proposals put forth in the literature on the syntax-to-semantics mapping of modals succeed in accounting for how the modal meanings described in (63) are derived.

One of the main problems shared by these views is that they adopt a traditional two-fold distinction of modals, which is too coarse to approach in a proper way the systematic correlations between the semantics and the syntax of modal constructions.

In addition, the main solutions put forth in each of these proposals – (i) that modal interpretation is derived from the different theta-assigning properties of modals; (ii) that modal interpretation is derived from the different insertion points of the modal in the structure; (iii) that modal interpretation is derived from the variable scope position of the subject relative to the modal (*modal*>*subject*/*subject*>*modal*) – are not appropriate or sufficient to derive the modal interpretations of *behar*.

I argue that the best approach to the syntax-to-semantics mapping of the modal constructions formed with modal *behar* is one that derives their modal interpretation from a combination of thematic, selectional and scopal properties, rather than from their behaviour with respect to just one single property.

Next, I describe in more detail some of the main conclusions I have drawn with regards to the question how modal interpretation is derived.

7.1.3.1. Thematic and selectional properties and modal interpretation

Throughout Section 2 of Chapter 6, I have shown that the constructions that exhibit restructuring phenomena (i.e. Type I functional and Type II lexical restructuring constructions) contrast with the constructions that exhibit no restructuring effects (i.e. Type III constructions) with respect to a wide range of syntactic properties held to determine the raising vs. control status of complex verb constructions:

To start with, the restructuring constructions can co-occur with (i) the non-thematic null subjects of weather predicates, (ii) null expletive subjects of existential

predicates, and with (iii) inanimate subjects that do not conform to the selectional requirements of a necessity predicate; that is to say, with inanimate subjects that cannot fulfil the role of the needer or the bearer of the obligation. In contrast, non-restructuring constructions cannot license any of these subjects.

Second, the restructuring modal constructions also pattern with raising structures in that (iv) they can occur with the subjects of an idiomatic expression embedded by the modal, without the idiom losing its idiomatic reading, whereas the non-restructuring constructions cannot.

Third, the restructuring constructions can (v) license an inverse scope reading of the subject (that is to say, a reading in which the subject of the modal construction gets interpreted within the modal complement, below the modal and scope bearing objects); the non-restructuring constructions, however, cannot.

Fourth, the restructuring constructions can license (vi) a wide scope reading of the focus-sensitive particle *bakarrik* ‘only’ when this surfaces in a complement internal position, associated to the embedded object of the infinitive predicate; the non-restructuring constructions, once more, cannot.

Finally, the restructuring constructions also show evidence of being raising structures in that (vii) they exhibit dative intervention effects when they occur with the dative experiencer arguments of an unaccusative uninflected verb. By way of contrast, the non-restructuring constructions do not exhibit such intervention effects.

Table 19(=11, Ch.6) raising vs. control properties of (Type I-II) restructuring and (Type III) non-restructuring constructions

Syntactic property	Restructuring (Type I + Type II)	Non- restructuring (Type III)
Weather- <i>it</i> subjects	√	X
Inanimate subjects	√	X
Expletive subjects	√	X
Idiomatic reconstruction	√	X
Scope reconstruction	√	X
Wide scope of Focus Sensitive <i>bakarrik</i> ‘only’	√	X
Dative intervention effects	√	X
Null infinitival subjects = dative experiencer	-	X

Concerning the central question of this dissertation, how modal interpretation is derived, the analysis developed in relation with the thematic/raising vs. control properties of these modal constructions has provided the following findings:

The first is that the non-restructuring constructions are compatible with all the subtypes of root modalities examined: non-directed deontic modality, directed deontic modality and dispositional modality; but they cannot be used to express epistemic modality. An example that would illustrated this is (83).

- (83) Mahastizainak behar izan du mahats guztiak prezio merkean saldu
 Vinegrower.sE need perf HAVE.3sE vine all.pA price cheap-at sell
 ‘The vine-grower has had to sell all the vines at a low price.’

Note that (83) satisfies all the syntactic properties in Table 20 provided in the concluding section of Chapter 6 and repeated at the end of this chapter, favouring the accessibility of an epistemic interpretation except for one: *behar* patterns like a control predicate and assigns a theta-role to the subject.

The second finding is that, in all the cases where the restructuring modal construction shows clear signs of subject-raising (i.e. (i)-(vii)), the modal construction is

compatible with either an epistemic or a non-directed deontic root interpretation, but not with a directed deontic or a dispositional interpretation. It is not the case, however, that the directed-deontic modality and dispositional modality are unavailable in contexts of restructuring. These readings are also possible iff the following two conditions are met: (i) the subject conforms to the animacy requirement the modal imposes in these two readings, and (ii) the subject is interpreted in its surface position, where it takes wide scope relative to the modal and receives a specific or presuppositional reading.

These findings show that the thematic accounts of modal interpretation reviewed in Chapter 3 are inadequate to derive the modal interpretation of Basque *behar*. Not only is the traditional view that defends a one-to-one correlation between epistemic and root modals and raising and control structures untenable, the alternative thematic account of modals where the division is drawn between *ought-to-be* and *ought-to-do* modality (Eide 2002, Asarina & Holt 2005) is also inadequate.

The only solid conclusion that can be drawn in relation with how the thematic (and selectional) properties of modal constructions affect the modal interpretation are the following:

- I. Epistemic modality requires that no thematic relation be established between the modal and the subject.
- II. Directed deontic and dispositional modalities require that the subject be animate, and that it receive a wide scope presuppositional reading. For this reading to arise, it is not necessary that the modal discharges a theta-role on the subject; these readings are also available in restructuring/raising constructions, provided the aforementioned conditions are met.
- III. Non-directed deontic modality is not restricted regarding these properties: it can give rise both in raising and control configurations; it can occur with both animate and inanimate subjects; and it is compatible

with either a wide scope or a narrow scope reading of the subject relative to the modal and scope bearing objects.

7.1.3.2. Scope interaction, structural height and modal interpretation

In section 3 of chapter 6, I have argued against two main assumptions regarding the scope interaction of modals under the different epistemic and root readings.

(I) The first assumption is that epistemic modals take wide scope whereas root modals take narrow scope relative to the subject ($Mod_{epis} > subj$ vs. $subj > Mod_{root}$) (Brennan 1993; Butler 2003, 2004; Hacquard 2006). This assumption has been used to support two different accounts of the interpretation of modal predicates: a) the hierarchical account whereby epistemic and root modality is derived from their different merging positions (with (Butler 2003, 2004; Hacquard 2006); and b) Lee's (2006) account where the two modal interpretations are straightforwardly derived from the two variable scope ordering between the subject and a raising modal, without assuming that the modal takes different structural positions (i.e. the surface scope $subj > modal$ ordering correlates with the root construal, and the inverse scope $mod > subj$ ordering correlates with the epistemic construal).

(II) The second assumption is that epistemic modals take wide scope whereas root modals take narrow scope relative to negation ($Mod_{epis} > Neg$ vs. $Neg > Mod_{root}$). (Drubig 2001). This is also taken to indicate that the merging position of the modal is different under the two interpretations (Butler 2003, 2004).

With respect to the first assumption, I provide substantial evidence that the alleged correlation between the wide scope ($Subj > Mod$) and the narrow scope ($Mod > Subj$) interpretation of the subject relative to the modal and the epistemic and root interpretation does not hold for the Basque modal constructions I have analysed. On the one hand, as mentioned in the previous section, I show that non-directed deontic (root) interpretations admit the scope reconstruction of the subject to a complement internal position, where it scopes below the modal and a universal quantificational object. On the other hand, I show that, when the context is carefully built, subjects can be interpreted as taking wide scope relative to epistemic *behar*. For instance, I have

shown that indefinite and quantificational subjects can be interpreted in their surface position above epistemic *behar*, where they receive a specific/presuppositional interpretation. This is particularly evident in the context where *behar* takes an existential predicate as complement. For some speakers, the presence of ergative case on the subject must unambiguously correlate with a specific/presuppositional reading of the subject in these existential modal constructions²⁴⁶. This allows us to determine that epistemic readings are compatible with such scope positions. In addition, I show that the epistemic modal reading of *behar* is compatible with the presence of a QP involving the quantifier *bakoitz* ‘each’, which has been shown to require a wide scope reading in Basque (Etxebarria 2012).

With regard to the second assumption – that epistemic modals take wide scope whereas root modals take narrow scope relative to negation ($\text{Mod}_{\text{epis}} > \text{Neg}$ vs. $\text{Neg} > \text{Mod}_{\text{root}}$) – the analysis I have developed in Section 3 of Chapter 6 shows that this assumption is again incorrect for modal *behar*.

I show that although it is true that modal *behar* exhibits different scope positions with respect to negation in its epistemic and root construals, this scope interaction contrasts sharply with the scope interaction one would expect if the assumption in (II) were correct.

To begin with, in its epistemic interpretation, modal *behar* always scopes below negation, against the assumption in (II)

(84) Epistemically interpreted *behar* and negation

- a. [Argia piztuta ikusi dut, beraz...] Jonek bulegoan egon behar du.
 Light switched see HAVE.1sE so Jon.E office be need HAVE.3sE
 ‘[The lights were on, so...] it must be the case that John is in his office.’
- b. [Argia itzalita ikusi dut, beraz...] Jonek ez du bulegoan egon behar.
 Light switched see HAVE.1sE so Jon.E neg HAVE.3sE office be need

²⁴⁶ Otherwise, if the constructions shows up with an absolutive subject, this receives an existential interpretation, rather than a specific/presuppositional one.

#[The lights were OFF, so...] it must be the case that John is NOT in his office. **Behar*-*EPIS* > *Neg*

In addition, the scope interpretation of modal *behar* with respect to negation is not the same when the modal receives the different types of modal readings often grouped under root modality. Thus, whereas in the dispositional uses, *behar* scopes under negation, in the non-directed and directed deontic uses, it exhibits variable scope.

(85) Negation and directed/non-directed deontic uses of *behar*

- a. Jon ez da etorri behar. (Type I)

Jon.A neg BE.3sA come need

- b. Jon ek ez du etorri behar. (Type II)

Jon.E neg HAVE.3sE come need

- i. *Neg* > *Behar*-*DEON*:

Directed deontic: ‘John is not required to come.’

Non-directed deontic: ‘It is not necessary that John comes’

- ii. *Behar*-*DEON* > *Neg*:

Directed deontic: ‘John is required not to come.’

Non-directed deontic: It is necessary that John does not come’

(86) Oraindik ez dut betaurrekorik erabili behar.

Yet not HAVE.1sE glasses use need

Neg > *Behar*_{DISPOSITIONAL}: ‘I don’t need to wear glasses yet.’

#*Behar*_{DISPOSITIONAL} > *Neg*: ‘I need to not wear glasses yet’

Actually, the crosslinguistic data discussed in some works show that in other languages too, different modals interact in different ways with negation (van der Wouden 1994, 2001; Iatridou & Zeilstra 2010, 2013, Yanovich 2013): there are modals which always scope over negation (as for instance, English *must*), modals that always scope below negation (e.g. English *need*), and modals that exhibit variable scope (e.g. French *devoir* ‘must’, Spanish *deber* ‘must’, Russian *dolžná* and *núžno* ‘must, have to’, and, as shown in this dissertation, Basque *behar*). Some authors have provided an account for this heterogeneous data by proposing that modals can develop different

polarity properties that affect the way they interact with negation (van der Wouden 1994, 2001; Iatridou & Zeiljstra 2010, 2013).

I follow this line of reasoning and explore a tentative account for the scope interaction of modal *behar* with negation that assumes that *behar* is a neutral modal that takes fixed narrow scope (Neg>Mod) in its epistemic and dispositional readings and variable scope in its deontic readings. I also argue that the scopal differences exhibited by *behar* in the different interpretations should not be correlated with different syntactic positions of *behar* in the clausal hierarchy (contra Butler 2003, 2004; Hacquard 2006 et seq.). Following the hypothesis defended in some analysis of the syntax of negation (Zanuttinni 1997, Haegeman 1995; Poletto 2008, Haddican 2004, 2007, Etxepare & Uribe-Etxebarria (2010a-b), and De Clercq 2013, among others), I suggest that *behar* is in fact merged under the higher PolP negation in all the readings and it is the different position where negation scopes (the matrix left peripheral position of the clause or a lower scope position dominated by the modal) that gives rise to one or another scope relation. I also explore a possible account whereby the particular semantic properties of *behar* and other *need*-type modals (their polarity features) constrain the position where negation can be interpreted; however, this account leaves some open questions I postpone for future research.

7.1.3.3. Summary of the syntactic constraints on modal interpretation

To sum up, based on the analysis of the properties developed in Chapter 6, I have argued that the availability of the different modal interpretations of Basque necessity modal *behar* follows from a conspiracy of syntactic factors (A-D):

- I. A conspiracy approach to modal interpretation (thematic, selectional and scopal constraints of *behar* ‘need’
 - A. Epistemic modality requires that no thematic relation is established between the modal and the subject and that *behar* scopes below negation.
 - B. Directed deontic modality requires that the subject be + animate and take a wide scope specific or presuppositional reading.

- C. Dispositional modality also requires the subject be + animate and take a wide scope specific or presuppositional reading; but in addition, they correlate with a narrow scope reading of negation relative to *behar*.
- D. Non-directed deontic readings are unrestricted with respect to all these thematic, selectional or scopal properties.

Table 20(=16; Ch. 6) Thematic, selectional and scopal constraints of *behar* 'need'

CONSTRAINING FACTORS	MODALITY TYPED ALLOWED			
	Epistemic	Non-directed deontic	Directed Deontic	Dispositional
Presence of a thematic relation with the subject	NO	YES	YES	YES
Presence of inanimate subjects	YES	YES	NO	NO
Scope reconstruction of indefinite/Q subjects to a complement internal position below the modal	YES	YES	NO	NO
Wide scope relative to negation	NO	YES	YES	NO

7.2. Open issues

This dissertation has helped clarify many aspects of the underlying syntax of the Basque necessity modal *behar* and how its various interpretations are derived, but it also raises many questions that will need to be studied further in future research. Some of the aspects that I would like to investigate in the future are:

(i) The crossdialectal variation regarding the type of structures the modal *behar* can occur in and the modal meanings associated to these structures.

The analysis I have developed in this dissertation has been mainly focused on the Basque varieties surrounding the French border. In the future, I would like to carry out a more exhaustive crossdialectal study to determine the variation in the use of these and other possible structures.

(ii) The relation between the modal predicate *behar* and other *need*-type modals and their homophonous noun expressing ‘need’.

I would also like to analyse in more detail how the modal *behar* is derived from the noun *behar* and how this might be connected with the syntactic properties exhibited by this class of modals. As discussed in Chapter 3, Harves & Kayne (2012) propose that the noun *need* is derived into the transitive verb *need* via incorporation. On the other hand, Etxepare and Uribe-Etxebarria (2012) argue that the derivation of the modal predicate *behar* does not involve incorporation. In the future I plan to explore this in order to understand better how modal *behar* has emerged.

(iii) The nature of the scope differences exhibited under the different interpretations of *behar* (and other polarity neutral modals) relative to negation.

At the end of Chapter 6 I have presented two possible hypotheses to derive the scope relation where deontic *behar* is interpreted above negation from the structures in which negation surfaces above the modal: one based on the assumption that deontic *behar* raises to a high illocutionary projection and another one which in turn assumes that it is the negative marker that raises to a position above the modal to prevent an illicit derivation from crashing (due to a FOFC violation). In the future I would like to explore the two hypotheses and their implications more closely.

(iv) A more thorough comparative study of the syntax-to-semantics mapping of *need*-type predicates in languages other than Basque. In chapter 3 I have presented a comparative study of *need*-type that encompasses a few Germanic and Romance languages and Basque. I would like to examine other languages too to see what conclusions can be drawn with regarding not only the development of these modals from a diachronic perspective but also the syntax-to-semantic mapping of these modal constructions.

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Abbreviations

1p, 2p, 3p	1st, 2nd, 3rd person plural
1s, 2s, 3s	1st, 2nd, 3rd person singular
A	Absolutive
ACC	Accusative
CL	Clitic
COMP	Complementizer
COND	Conditional
D	Dative
DEF	Definite
DEON	Deontic
Det	Determiner
E	Ergative
EPIS	Epistemic
FUT	Future
GEN	Genitive
INE	Innesive
INF	Infinitive
IPP	Infinitive for Participle
ITR	Intransitive
MOD	Modal
NOM	Nominative
OBJ	Object
PART	Partitive
PASS	Passive
PERF	Perfect
PP	Participle
SUBJ	Subject
TR	Transitive
UNACC	Unaccusative