Clausal pied-piping in Basque wh-questions and syntactic optionality

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Basque embedded wh-questions exhibit apparent optionality between long-distance extraction of the wh-word and clausal pied-piping. This paper attempts to account for the pattern of free alternation found in Basque in a way that addresses the issue of syntactic optionality. It establishes a more comprehensive picture of the distribution of Basque clausal pied-piping in wh-questions, and shows that Cable's QP-based analysis of pied-piping can account independently for several restrictions, while providing the possibility of syntactic optionality. The central theoretical claim here is that a Q-based analysis is compatible with a Minimalist approach to optionality of the sort pursued in Biberauer & Richards (2006).

1.   Introduction

Syntactic optionality is a bone of contention in the current Minimalist framework. It would seem rather intuitive that two different constructions that involve the same set of lexical items can be in free variation, i.e. be instances of semantically vacuous alternations. Yet this question takes on a particular weight in the Minimalist context. Indeed, the possibility of true optionality seems contrary to economy principles of the Minimalist Program, in which movement should always be motivated, either syntactically or at the interfaces.

And yet, such optionality is certainly found in natural languages. Biberauer (2003) describes, for example, the case of optional V2 in embedded sentences in Modern Afrikaans. Cable (2010b:167-170) provides many examples of optional DP-splits in several languages, among which German and Mohawk, along with instances of freely alternating preposition stranding and PP-pied-piping constructions in Icelandic, Irish and German. With regard to question strategies in particular, data has been provided for French, which famously displays a large range of question strategies. As highlighted in Adli (2006), Oiry (2011), Duguine & Irurtzun (2014) or Raynaud (2016) there are no semantic differences in presupposition requirements between wh-in-situ and wh-movement questions, which pattern alike. So it is a fact that some constructions alternate with no difference in interpretation.

While Basque has always been viewed as a bona fide wh-movement language, its wh-questions present some interesting peculiarities. Basque has the possibility to move a subordinate CP along with the wh-word in long-distance wh-questions. This operation, whereby a wh-word moves and drags along a larger constituent in which it is contained, in this case a whole clause, is named clausal pied-piping. Clausal pied-piping is a phenomenon that has only been observed in a handful of languages, such as Imbabura Quechua (Cole & Hermon 1981) or more recently Bangla (Simpson & Bhattacharya 2003). Pied-piping has been suggested to offer the 'clearest evidence of this indeterminacy in action' (Biberauer & Richards 2006:40), therefore the Basque constructions can be expected to provide insight into the question of optionality.[1]

This paper thus aims to show that true optionality in Basque wh-questions can be accounted for in a Minimalist framework. More specifically, I claim that a Q-based analysis such as Cable's provides the possibility of syntactic optionality, while accounting independently for several restrictions found in Basque. Based on previous work (Raynaud 2016), this paper also provide a more comprehensive picture of the distribution and the restrictions of clausal pied-piping in wh-questions. It does so through the lens of the question of syntactic optionality and shows that these constructions are instances of true optionality, i.e. that they are in free variation with their long-distance extraction counterparts. This can hopefully provide new insights in the controversial question of syntactic optionality in the Minimalist framework.

In section 2, I introduce the facts at hand about Basque wh-questions and argue that clausal pied-piping and wh-extraction are indeed in free variation in many contexts. Section 3 outlines cases in which this alternation is restricted by independent syntactic constraints such as islands. In section 4, it is argued that the optionality of these constructions can be accounted for by an analysis in terms of Q-particle (Cable 2010b). Such an analysis will be shown to be compatible with a Minimalist approach to optionality of the sort pursued in Biberauer & Richards (2006), who argue that while optionality is excluded from the functional motivation of movement, it is not excluded with respect to how a given feature can be formally satisfied. In other words, as long as formal requirements are fulfilled, 'the grammar doesn't mind' (Biberauer & Richards 2006). Section 5 demonstrates that a Q-based analysis accounts successfully for several independent restrictions as well. Finally, section 6 tries to provide an analysis that can explain the scope interactions and restrictions on pied-piping found with negation and interrogative complements.

2.   Clausal pied-piping vs wh-word extraction: free alternation
2.1.   Wh-question strategies in Basque

In Standard Basque, the usual strategy for forming questions is wh-movement. The questioned element, i.e. the wh-word, is required to move to the left edge of the clause. Movement of the wh-word triggers fronting of the verbal complex (V+Aux), resulting in a configuration where the wh-word is immediately left adjacent to the verb. The rest of the constituents follow the initial wh+verb group. From a neutral SOV word order (as in (1)), the order of constituents in a wh-question thus becomes: S_{WH}-V-O, as in (2), with the wh-word crucially sitting in a preverbal position.

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[1]See also Duguine & Irurtzun (2014) for work on wh-in-situ in Labourdin Basque.

(1) Peiok   gereziak   jan ditu.
    Peio.ERG cherry.ABS.PL eat AUX
    'Peio ate the cherries.'

(2) **Nork**   jan ditu gereziak?
    who.ERG eat AUX cherry.ABS.PL
    'Who ate the cherries?'   (Duguine & Irurtzun 2014:1)

These constructions have generally been analyzed as involving movement of the wh-phrase to Spec,CP (represented by dotted lines), followed by movement of the verb complex to C, as an instance of T-to-C movement (represented by dashed lines) - in other words, a V2 effect (Ortiz de Urbina 1989; Arregi 2003; Heck 2008).

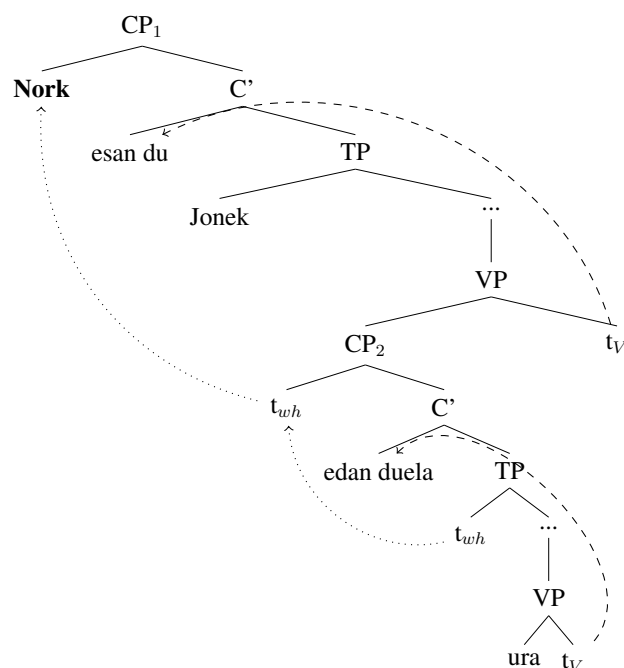(3)   *Wh-movement and verb fronting*
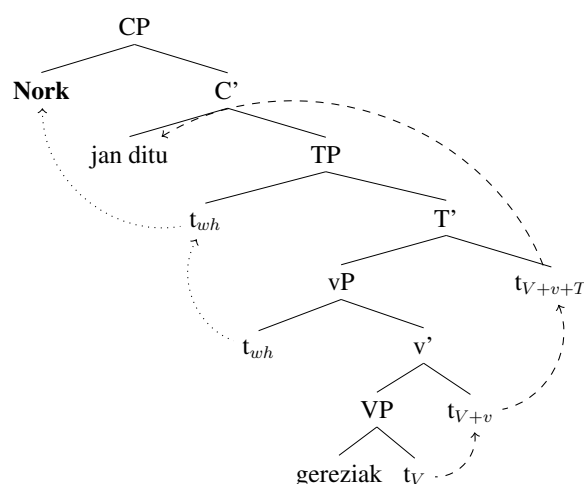
In these constructions, the position of the wh+verb group has to be clause-initial (Hualde & Ortiz de Urbina 2003), although topicalized elements may appear on the left field before the wh+verb group.

    The same strategy is applied in long-distance wh-questions which contain an embedded clause. It can then be observed that the wh-phrase moves through Spec,CP of the embedded clause to Spec,CP of the main clause. The cyclic nature of this movement through embedded Spec,CP can be evidenced by the fronting of the verbal complex of the embedded clause, as well as that of the main clause, as (4) illustrates, yielding a structure like (5).

(4) **Nork**   esan du Jonek   [edan duela   ura]?
    who.ERG say AUX Jon.ERG [drink AUX.COMP water.ABS]
    'Who did Jon say drank water?'   (Duguine & Irurtzun 2014:2)

(5)   *Wh-movement in long-distance wh-questions*

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                          CP₁
                    ┌──────┴──────┐
                  Nork          C'
                         ┌───────┴────────┐
                      esan du            TP
                               ┌─────────┴────────┐
                             Jonek              ···
                                                 │
                                                VP
                                         ┌───────┴───────┐
                                       CP₂             t_V
                                  ┌──────┴──────┐
                               t_wh           C'
                                        ┌──────┴──────┐
                                    edan duela       TP
                                               ┌──────┴──────┐
                                             t_wh          ···
                                                            │
                                                           VP
                                                        ┌───┴───┐
                                                      ura     t_V
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Interestingly, in Basque there is an alternative to long-distance extraction in wh-questions: clausal pied-piping. Pied-piping, an expression first introduced by Ross (1967), designates an operation by which an element moves and drags along a larger element in which it is contained. Small constituents like PPs or DPs may be pied-piped, but larger constituents can also be. This is the case in Basque, where in interrogative sentences, wh-words may pied-pipe an entire clause (CP) in which they are embedded. Consider the minimal pair formed by (4), repeated here for convenience as (6), and (7).

(6)   *Long-distance wh-extraction*

   Nork   esan du Jonek   [edan duela   ura]?
   who.ERG say   AUX Jon.ERG [drink AUX.COMP water.ABS]

   'Who did Jon say drank water?'

(7)   *Clausal pied-piping*

   [**Nork**   edan duela   ura]   esan du Jonek?
   who.ERG drink AUX.COMP water.ABS say   AUX Jon.ERG

   'Who did John say drank water?'   (Duguine & Irurtzun 2014:2-3)

In (7), the whole clause containing the wh-phrase appears in the same position as the wh-phrase would in long-distance wh-movement, i.e. to the immediate left of the matrix verb. In other words, it appears as if the wh-phrase has dragged along its whole clause. This process has been analyzed by Ortiz de Urbina (1989, 1993), Arregi (2003) and others as clausal pied-piping.

2.2.   Free alternation

Basque embedded wh-questions exhibit optionality between long-distance extraction of the wh-word and clausal pied-piping. Several examples discussed in the literature show pairs in which both long-distance extraction (a. examples) and clausal pied-piping (b. examples) are possible.

(8) a. **Se** pentzate su [idatzi rabela   Jonek]?
         what think   AUX written AUX.COMP Jon.ERG

   b. [**Se** idatzi rabela Jonek] pentzate su?
      what written AUX Jon.ERG think   AUX
      'What do you think Jon wrote?'   (Arregi 2003:118)

(9) a. **Nor** esan du   Jonek   [joango dela]?
         who say AUX Jon.ERG go   AUX.COMP

   b. [**Nor** joango dela]   esan du   Jonek?
      who go   AUX.COMP say AUX Jon.ERG
      'Who has John said will go?'   (Ortiz de Urbina 1989:254)

(10) a. **Nor** nahi duzue (zuek)   [etor dadin]?
          who want AUX   (you.ERG.PL) come AUX.COMP

   b. [**Nor** etor   dadin]   nahi duzue (zuek)?
      who come AUX.COMP want AUX   (you.ERG.PL)
      'Who do you want to come? '   (Hualde & Ortiz de Urbina 2003:487)

(11) a. **Zenbat**   txakurrek   erran duzu [ausiki zaituztela]?
          how.many dog.ERG.PL say   AUX bite   AUX.COMP

   b. [**Zenbat** txakurrek   ausiki zaituztela] erran duzu?
      how.many dog.ERG.PL bite   AUX.COMP say   AUX
      'How many dogs did you say bit you?'   (online corpus Norantz)

These examples illustrate a variety of circumstances in which both the clausal pied-piping construction and the extraction version are acceptable. Clausal pied-piping is a 'quite pervasive' phenomenon, as stressed by Ortiz de Urbina (1989:249), that may occur with several types of subordination. The grammatical possibility of alternation appears guaranteed in many different lexical and syntactic contexts. It should be noted, however, that although in these environments the alternation is free, there appears to be a general effect of superiority of wh-movement over its pied-piping counterpart. The movement option is overall preferred by native speakers, i.e. judged more acceptable than its pied-piping counterpart (see Raynaud 2016). Although I have no definitive justification for this preference, it could be explained by economy considerations – nevertheless if we establish that it comes to an equal cost in terms of syntactic economy, we might have to admit that it could be more costly in terms of cognition/processing. This issue is left for future research.

Having established the possibility of free alternation, the question arises then whether this alternation is motivated on semantic grounds. In cases when the choice of pied-piping or extraction is not syntactically constrained, do they have the same meaning, or in other words does the choice of one or the other construction imply semantic differences?

2.3. *The semantics of clausal pied-piping*

Arregi (2003) gives an account of the semantic properties of Basque clausal pied-piping structures. It appears that Basque clausal pied-piping is not semantically motivated: clausal pied-piping constructions are semantically equivalent to their long-distance movement counterparts, with regard to their scope and presupposition properties.

2.3.1. *Matrix scope: amount wh-phrases (zenbat 'how many')*

Arregi (2003) demonstrates that clausal pied-piping results in the formation of a matrix question in which the embedded argument takes scope over the whole structure. Simpson & Bhattacharya (2003) highlight the same property of Bangla clausal pied-piping. Arregi's argument starts from the observation that when amount wh-phrases like *zenbat* 'how many' undergo long-distance movement over a scope bearing element, such as an intentional verb like *pentzaten* 'think', then it results in an ambiguous interpretation. Consider the following:[2]

(12) a. *Long-distance movement*

[Semat   argaski]$_1$ desiriu rau Jonek [$_{CP}$ erakusti lagunai   t$_1$]?
[how.many picture]$_1$ decided AUX Jon.ERG [$_{CP}$ to-show friends.DAT t$_1$]
'How many pictures did Jon decide to show his friends?'

b. *Clausal pied-piping*

[$_{CP}$ Semat   argaski erakusti lagunai]   desiriu rau Jonek   t$_{CP}$?
[$_{CP}$ how.many picture to-show friends.DAT] decided AUX Jon.ERG t$_{CP}$
'How many pictures did Jon decide to show his friends?'   (Arregi 2003:128)

For both the long distance movement and the clausal pied-piping options, there are the same two competing interpretations:

(13) a. decide > many
       What is the number *n* such that Jon decided to show *n*-many pictures to his friends?

b. many > decide
       What is the number of pictures such that Jon decided to show those pictures to his friends?

These two possible readings can be elicited by looking at possible answers to the questions in a disambiguating context. Arregi provides the following scenario:

(14)   After his trip to New York, Jon has decided to show some of the pictures he took to his friends. Since he does not want to bore them with too many pictures, he has decided that he will show only forty of them. Furthermore, he has also decided that, among the ones he will show, he will include twenty specific ones that are particularly beautiful. (Arregi 2003:129)

In this scenario, both (12a) and (12b) can be answered by 'either forty, which would correspond to the reading of the question where *many* takes scope under *decide* (13a), or twenty, which would correspond to the reading in which *many* takes scope over *decide* (13b)' (Arregi

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[2] All data from Arregi (2003) is from a dialect of Basque spoken in the western coastal town of Ondarroa.

2003:129). The fact there there is apparently no difference between the ambiguous interpretations of both structures would imply that they are semantically equivalent, and, as Arregi proposes, that they have the same LF structure.

2.3.2. *Presupposition*

Second, Arregi shows that the Basque long-distance wh-movement and its clausal pied-piping variant have no strong presuppositionality requirement. Consider examples (15) and (16), constructed after Arregi (2003).

(15) *Long-distance movement*

Nori pentsatzen du Mirenek [$_{CP}$ eman diola Jonek musua]?
who.DAT think AUX Miren.ERG give AUX Jon.ERG kiss.ABS

'To who does Miren think that John gave a kiss?'

(16) *Clausal pied-piping*

[$_{CP}$ **Nori** eman diola Jonek musua] pentsatzen du Mirenek?
who.DAT give AUX Jon.ERG kiss.ABS think AUX Miren.ERG

'To who does Miren think that John gave a kiss?' (Raynaud 2016:32)

Both sentences have the same level of presupposition: they both assume that there is someone that Miren thinks that Jon kissed. In neither of them does the matrix sentence inherit the stronger presupposition that Jon kissed someone. Indeed, the wh-word takes scope over the matrix clause and that results on a question on the matrix verb, and not only on the embedded clause. This can be checked by preceding the sentence by the denial that Jon actually kissed someone, as in (17), which does not make either sentence unfelicitous.

(17) Jonek ez dio inori musua eman, baina Mirenek pentsatzen du
Jon.ERG not AUX anyone.DAT kiss.ABS give but Miren.ERG think AUX
norbaiti musua eman diola.
someone.DAT kiss.ABS give AUX.COMP
'Jon did not kiss anybody, but Miren thinks he kissed somebody.'

(Raynaud (2016:32) after Arregi (2003:128))

It can thus be concluded that clausal pied-piping and long-distance extraction do not exhibit semantic differences when it comes to presupposition or scope.

3. *Restricted alternations*

Although constructions involving clausal pied-piping seem to be able to optionally alternate with long-movement structures in a variety of syntactic and semantic contexts, it appears that clausal pied-piping is not completely free either – it obeys a certain number of independent constraints with respect to which elements can pied-pipe and be pied-piped.

3.1.   Obligatory fronting of the wh-word

First of all, Basque presents the distinctive property that the subordinate wh-clause can only be pied-piped if the wh-word is fronted to the left periphery of that clause (Cable 2010b).

(18)   a.   [$_{CP}$ **Nor**$_1$ joango dela   t$_1$] esan du   Jonek?
            who go   AUX.COMP   said AUX John
            'Who did John say will go?'

       b.   *[$_{CP}$ Joango dela   **nor**] esan du   Jonek?
            go   AUX.COMP who said AUX John
            'Who did John say will go?'   (Cable 2010b:154)

In the clausal pied-piping examples in (18) above, Heck (2008:106-107) observes that in (18a) both the verb and the auxiliary appear to the left of the complementizer *-(e)la* (indicating movement of the verb from T to C). The wh-phrase *nor* appears to the left of this verbal complex. As described in section 2, movement of the embedded verb and left adjacency of the wh-word indicates that the wh-word must have transited via the specifier position of the embedded CP. In (18b) by contrast, the wh-word appears to the right of the verbal complex, yielding an ungrammatical question. So (18) shows that Basque doesn't seem to allow wh-clauses to be pied-piped by wh-words that are internal to the subordinate CP, i.e. that have not moved to a preverbal position.

What matters for grammaticality purposes is the left-adjacency of the wh-word with respect to the verbal complex, and the requirement that nothing intervenes between them. The fact that it is at the left edge of the clause does not seem to matter as much, as evidenced by the fact that sentences with topicalized elements on the left field before the wh+verb group are acceptable. It is the intervention of an element between the wh-word and the verb that is considered ungrammatical. This is especially visible with direct object wh-words like *nor* 'who'. Consider the case of a simple question like (19).

(19)   a.   Auzokideek   atzo   **nor**   ikusi zuten?
            neighbor.ERG.PL yesterday who.ABS see   AUX

       b.   **Nor**   ikusi zuten auzokideek   atzo?
            who.ABS see   AUX neighbor.ERG.PL yesterday
            'Who did the neighbors see yesterday?'

In (19b) the wh+verb complex is fronted at the very left of the clause whereas in (19a) it is preceded by other elements. However, both sentences display immediate adjacency between the wh-word and the verb and are equally well-formed.

3.2.   Islands

Furthermore, there are cases in which extraction of the wh-word is not allowed: wh-words cannot move out of certain islands (Ross 1967). As will be shown in this section, pied-piping can be a constrained alternative in such cases, but it need not always be, and I will claim that pied-piping is not solely a default option.

Wh-words originating in a referential adjunct clause cannot be extracted and yield ungrammatical sentences. With a temporal adjunct clause like (20a), extraction is indeed ungrammatical. Its clausal pied-piping counterpart (20b) is preferred.

(20) a. *__Zer__ izutu   zen erregea [entzun zenuenean]?
          what frightened AUX king   hear   AUX.COMP.when

      b. %[__Zer__ entzun zenuenean]   izutu   zen erregea?
          what   hear   AUX.COMP.when frightened AUX king
          'What did the king become frightened when he heard?'

In (20a), the wh-word *zer* 'what' is extracted out of the embedded adjunct clause and moved to the front of the matrix clause. As is expected, extraction of the wh-word out of an island is illicit. This contrasts with (20b), in which the entire embedded adjunct moves to Spec,CP leaving *zer* within the island and thus circumventing the extraction ban by clausal pied-piping.

Other types of islands yield similar effects. For instance, wh-words cannot be extracted from a relative clause, as exemplified in (21a) below. In that case, like above, the pied-piping option is acceptable, as in (21b).

(21) a. *__Nork__ irakurri du Peruk   [idatzi zuen   liburua]?
          who   read   AUX Peru.ERG write AUX.COMP book
          'Who did Peter read the book that wrote?'

      b. [__Nork__ idatzi zuen   liburua] irakurri du   Peruk?
          who   write AUX.COMP book   read   AUX Peru.ERG
          'The book that who wrote has Peter read?'   (Ortiz de Urbina 1989:249, 252)

Basque wh-words originating in a transitive subject clause (22) or a complex DP (23) may not be extracted either.

(22) *__Non__ esaten   du asko zutaz   [onartua izateak]?
      where say.IMPF AUX a.lot you.about admitted being?
      'Where does it say a lot about you being admitted?'
      lit. 'To be admitted where says a lot about you?' (Hualde & Ortiz de Urbina 2003:485)

(23) *__Se__ ikusi su   [idatzi raben gixona]?
      what seen AUX written AUX man.ABS
      'What did you see the man who wrote?'   (Arregi 2003:117)

The survey conducted in Raynaud (2016) suggests that, unlike what might have been thought, in these two last configurations, clausal pied-piping is not felicitous either and does not offer speakers a way to get round the ineffability scenario that arises from the extraction problem in wh-questions islands (Richards 1997). Pied-piping does not act, in these cases, as a last resort solution to a blocked movement alternative. It does, however, in the case of blocked wh-movement out of referential adjunct clauses and relative clauses, as illustrated above in (20) and (21). In these cases, since extraction of the wh-word and thus long wh-movement are impossible due to independent syntactic restrictions, clausal pied-piping appears to be a constrained alternative. As stated by Hualde & Ortiz de Urbina (2003:489), clausal pied-piping is the 'only strategy available for constituents inside adjuncts [...] which may not be extracted'. In other words, clausal pied-piping is then obligatory and there seems to be no optionality at play here. In a way, this is also true of the two cases in (22) and (23), where none of the two options is a satisfying alternative and there is no functional alternation. Nevertheless, as we have seen from the free variation contexts, it is also not the case that clausal pied-piping is a 'default option' (Horvath 2006) that occurs if and only if the pied-piper cannot be extracted from the clause. The possibility for syntactic optionality therefore needs to be formally acounted for.

4.   Accounting for syntactic optionality

4.1.   The theoretical puzzle

The concept of true optionality is a controversial one. The criterion for optionality is surely 'phenomenological' in nature: if speakers have the choice between different word orders, then two structures stand in optionality with respect to one another. But although true optionality could be defined as 'semantically vacuous alternations in surface order' (Biberauer & Richards 2006:35), its syntactic and conceptual implications remain under discussion, because it poses a theoretical problem in the context of the Minimalist Program.

True optionality, of the sort that is observed in the above examples, appears to be contrary to economy principles of the Minimalist Program, namely Last Resort (LR) and Full Interpretation (FI), which regulate operations, ensuring that neither too much nor too little occurs. So concretely, nothing happens for no reason: everything that happens in a derivation must be motivated either by a formal requirement, such as feature checking, or by an interface requirement, i.e. a difference in meaning. This is the so-called Fox-Reinhart intuition on optionality, captured by Chomsky (2001:34) as a 'general economy principle': 'An optional rule can apply only when necessary to yield a new outcome'. In this spirit, Move/internal Merge is something that does not occur freely: to happen, it needs to be triggered by features. In the case of wh-movement, it has been argued that a wh- or Q-feature is borne by the wh-word and needs to be checked/valued against C, which carries the same feature. What follows from the Fox-Reinhart intuition is that given a possible alternation between two different constructions, one of them must be 'marked', in the sense that it is less economical. If they have the same meaning, then this alternation constitutes a violation of LR, as it implies non-feature-driven movement. What is more, it also constitutes a violation of FI if there is no interpretative effect ('α enters the numeration only if it has an effect on output'(Chomsky 1995:294)). Under these circumstances, there should not be a possible choice between moving and not moving, rendering the presence of semantically vacuous alternations superfluous, and thus impossible. 'Since movement is the operation that feeds the surface order of constituents, it follows that word-order alternations involving (what appears to be) the same set of lexical items should not exist.' (Biberauer & Richards 2006:36).

We can see how the facts that we just described about Basque clausal pied-piping constructions fit into this debate. Contrary to what is predicted by Minimalism, it seems that in some cases movement is indeed optional. How can the pattern of optionality found in Basque be accounted for in terms that are compatible with economy principles of Minimalism? Two sub-questions arise here. First of all, does the general architecture of Minimalism allows for such optionality conceptually and formally, and how? Section 4.2 aims at answering this question by showing that true optionality is actually built-in the Minimalist system, as demonstrated by Biberauer & Richards (2006), if we consider that such a system is driven by the satisfaction of feature checking requirements. These theoretical preliminaries established, the rest of this paper addresses the second question, i.e. how can we implement the Basque data concretely in the syntax while preserving the conceptual insights? I argue that Cable's Q-based analysis of pied-piping provides the possibility of syntactic optionality, while accounting independently for the alternation restrictions found in Basque. The central theoretical claim here is that a Q-based analysis is compatible with a Minimalist approach to optionality of the sort pursued in Biberauer & Richards (2006).

4.2. Built-in underdetermination: True Optionality

Among the propositions that have been made to account for optionality in a Minimalist framework, one possibility consists in saying that optionality – of the true kind – is actually built in the system.[3] The possibility of truly optional variation is theoretically legitimated by Biberauer & Richards (2006). While such true optionality would appear to be contrary to economy principles of Minimalism, Biberauer and Richards remark that such variation is actually admitted on system-internal grounds. They argue that whereas optionality is indeed excluded from the functional motivation of movement, it is not with respect to how a given feature is formally satisfied. In other words, sometimes 'the grammar doesn't mind' (Biberauer & Richards 2006) as long as formal requirements are fulfilled, and there arises true optionality.

When there are actually grounds for the system to privilege one option over the other, then it does, but if not, Biberauer and Richards argue, it can be more efficient to leave the choice open. Efficiency in the syntax is determined in terms of cost. Formerly, cost was determined on the basis of number of steps. In the more recent Agree-based framework however, it relies on a more local notion of feature-triggered operations. As a result, 'an operation Ω will now be equally as costly as any other operation Ω' that may potentially apply at a given stage σ of the derivation if Ω and Ω' are both valid ways of satisfying the formal imperative F driving operations at σ (i.e. both Ω and Ω' result in a well-formed structure, obey locality, etc.). LR and FI simply require that F be (immediately) satisfied; they do not specify how. Therefore, Ω and Ω' are optional operations with respect to each other.'(Biberauer & Richards 2006:39). As pointed out already above, as these operations are motivated by obligatory features that are already present in the derivation no matter what, they need not yield for a new interpretation, and can result in a semantically vacuous alternation. This approach introduces a definition of optionality that relies on the equal satisfaction of formal and featural requirements rather than on the identity of derivations.

4.3. A Q-based analysis

The Basque data can be successfully accounted for in the framework of Cable (2010b, 2012, 2013), which predicts this kind of free alternation, in a way that is consistent with Biberauer & Richards (2006)'s approach to optionality.

Cable proposes a novel account of pied-piping and wh-movement in general, by claiming that the wh-feature of the wh-word is not the actual target of wh-movement operations. Instead, he proposes the existence of a Q-particle, based on data from Tlingit, a Na-Dene language. Tlingit wh-questions require the wh-word (i) to precede the main predicate of the clause, like Basque, and (ii) to be followed by the interrogative particle *sá*, which either directly follows the wh-word or a phrase properly containing it (Cable 2010b, 2012).

(24)   [[Wáa kwligeyi   *CP*] xáat *NP*] **sá** i   tuwáa sigóo?
        how   it.is.big.REL   fish   Q do.you.want
        'How big a fish do you want?'
   lit. 'A fish that is how big do you want?'   (Cable 2010a:572)

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[3]For other proposals, see for instance Adger & Smith (2005) for the idea of multiple grammars/parametrized variation and Müller (2001) for an account in terms of optional features.

(25) Daa **sá**wé i   éesh al'óon?
      what Q.FOC your father he.hunts.it
      'What is your father hunting?'

                          (Dauenhauer & Dauenhauer (2000) qtd. in Cable (2010b:22))

Cable argues that this particle bears a Q-feature that must agree with C_Q, thereby triggering movement of the QP to Spec,CP. That Q-particle/operator is present in all languages and may be phonologically realized, as in Tlingit, or not, as in English or Basque. The Q-particle merges with the phrase containing the wh-word, taking this phrase as its complement and agreeing with it, as in (26). It is this Q-particle that is the target of wh-movement operations, instead of the wh-word itself.

(26)   *The Q-Based Analysis of Wh-Movement* (Cable 2012:823)
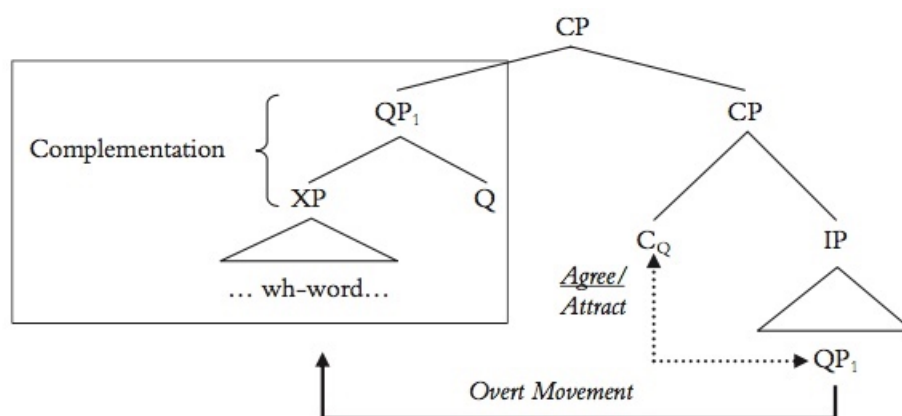
The existence of pied-piping structures is derived from cases where the targeted Q-particle is not directly structurally adjacent to the wh-word. Instead of merging with the DP directly containing the wh-word, the Q particle may merge with a bigger constituent containing it, such as a PP or a CP. In this case, the Q particle takes the whole embedded CP as its complement. The QP, containing the CP, is then attracted to the specifier position of the matrix CP to check its [+Q] feature against C_Q, thus moving the entire embedded clause. In this perspective, it is to be noted that this account actually negates the existence of pied-piping. Indeed, for Cable it is no longer the case that 'an operation that targets the features of a lexical item L applies to a phrase properly containing the maximal projection of L'(Cable 2012:817). Since the target of movement is no longer the wh-word, it does not drag along its maximal projection, and no pied-piping is involved. Cable talks of 'pied-piping structures', which he distinguishes from the operation of pied-piping itself. How can Cable's account be implemented in the case of Basque to show the possibility of true optionality? I will try to show that it naturally accounts for syntactic optionality in the sense established by Biberauer & Richards (2006), and how it deals with restrictions on the distribution of clausal pied-piping.

   In pied-piping structures, the Q-particle is not structurally adjacent to the wh-word. As illustrated in (26) above, in a structure involving extraction of the wh-word, the Q-particle is merged in a position directly adjacent to the wh-word and becomes its sister, taking it as its complement. In order for a clausal pied-piping structure to be possible, the QP must be merged in a

position that allows it to move the whole CP: therefore, the QP needs to take the CP as its complement. Indeed, theoretically nothing requires that 'Q be 'as close as possible' to the wh-word it associates with'(Cable 2010b:167). So nothing prevents the wh-word from being optionally extracted from its original clause or not. Moreover, in the same conditions where there are no barriers and no intervention effects, clausal pied-piping and wh-extraction can theoretically occur in free variation. Such an account correctly predicts the occurrence of alternations such as those found in Basque. In order to see how that works, recall examples (6) and (7) repeated here for convenience, which are in free variation, and observe their corresponding derivations.

(27) **Nork**   esan du Jonek   [edan duela   ura]?
      who.ERG say   AUX Jon.ERG [drink AUX.COMP water.ABS]
      'Who did Jon say drank water?'

(28) [**Nork**   edan duela   ura]   esan du   Jonek?
      who.ERG drink AUX.COMP water.ABS say   AUX Jon.ERG
      'Who did John say drank water?'   (Duguine & Irurtzun 2014:2-3)

(29) *QP-extraction in Basque*
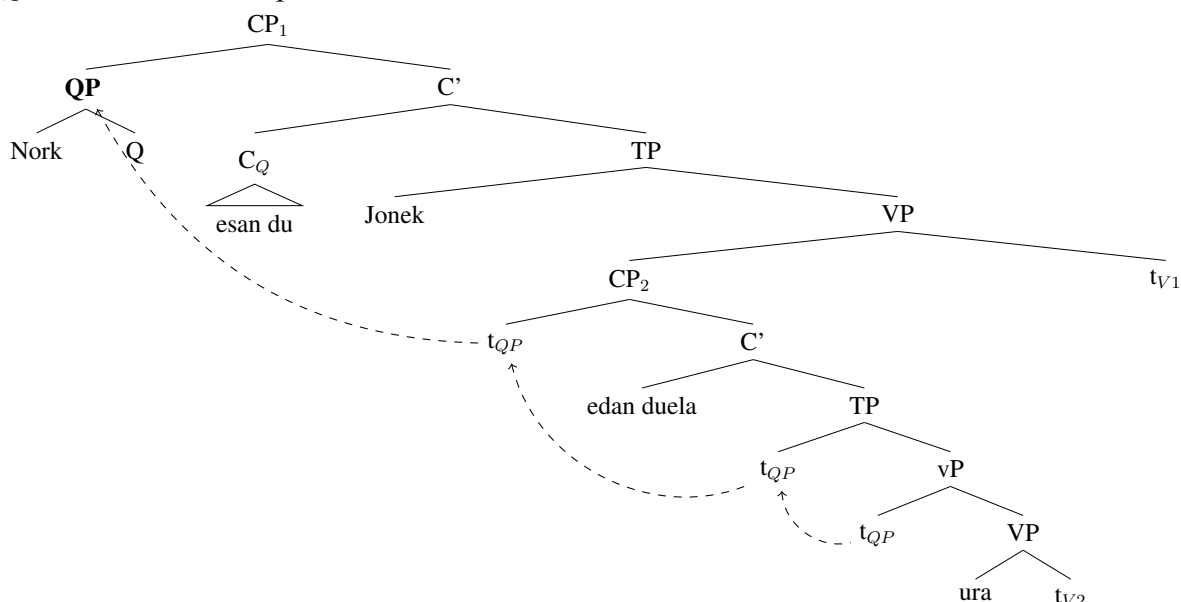
(30) *Q-based CP-pied-piping in Basque*
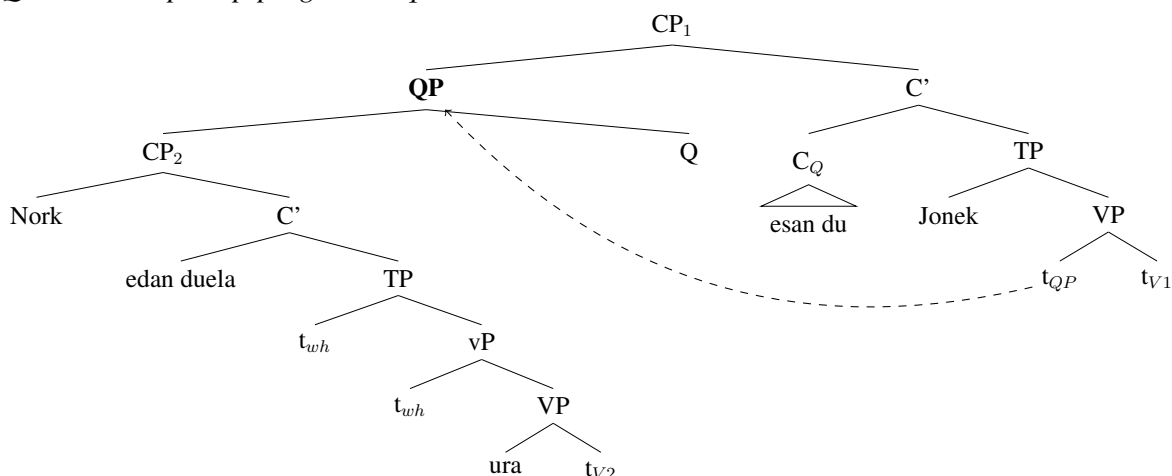
We can see how Biberauer and Richards's (2006) proposal is compatible with an analysis of pied-piping like the one offered by Cable. Derivations (29) and (30) both are adequate ways to satisfy their featural requirements (i.e. to check off the Q-feature). They have the exact same lexical array and differ only in where Q Merges. Therefore a Q-based account of wh-movement à la Cable provides us with a straightforward answer to the licensing of clausal pied-piping in a feature-based framework on the one hand and the possibility of syntactic true optionality on the other. Indeed, the insertion of Q in the derivation may apply at two different stages σ of the derivation and represent in both cases a valid way of 'satisfying the formal imperative F driving operations at σ'(Biberauer & Richards 2006:39). Both operations will result in a well-formed structure, illustrated by (27) and (28), which satisfy formal requirements and obey independent constraints such as locality. Therefore, Cable's analysis of clausal pied-piping provides us with a framework in which wh-extraction and clausal pied-piping can be said to be syntactically optional operations with respect to each other.

5. Accounting for restrictions

Recall that it has been established that some contexts impose restrictions on the distribution of pied-piping and wh-extraction. There are some instances where one option is not available and the other prevails, like with adjuncts or relative islands that constitute independent syntactic constraints to movement. I will now show that Cable's Q-based analysis successfully accounts for these restrictions as well.

5.1. Q-Agreement

In order to account for the locality constraints on pied-piping, Cable postulates that in some languages, pied-piping is limited by the need for the wh-word and the Q-particle to Agree. In these so-called Q/wh-Agreement languages, the Q-particle bears an unvalued Q-feature that must be valued through Agreement with a wh-word in its c-command domain.

(31) *Q-wh Agreement* (Cable 2013:124)
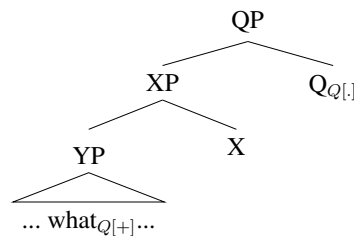
It then follows that if certain structures are barriers to Agreement, like islands, these will not be able to c-command a wh-word within the pied-piped phrase, and the resulting structure will be excluded. This leads to the following consequences. Cable (2010b) predicts that pied-piping past lexical categories is forbidden in Q/wh-Agreement languages, and more generally that pied-piping across separate phases should be impossible. Cable relies on the notion of derivational phase introduced by Chomsky (2001). Phases are lexical subarrays that get spelled-out in a

cyclic fashion, thus breaking up the derivation in smaller domains. Such a conception of the derivation necessarily affects the possibility of movement, as captured for instance by the Phase Impenetrability Condition (PIC).

(32) **The Phase Impenetrability Condition** (after Chomsky 2001)
The domain of [a phase head] H is not accessible to operations at [the next highest phase] ZP; only H and its edge are accessible to such operations.

Thus in virtue of the PIC, Cable states, the wh-word cannot be in a separate phase/Spell-Out domain from the head Q of the pied-piped phrase. Recall:

(33) a. $[_{CP}$ **Nor**$_1$ $[_{IP}$ joango dela t$_1$]]$_2$ esan du   Jonek t$_2$?
        who   go   AUX   said AUX John
      'Who did John say will go?'

   b. *$[_{CP}$ $[_{IP}$ Joango dela **nor**]]$_2$ esan du   Jonek t$_2$?
        go   AUX who   said AUX John
      'Who did John say will go?'   (Cable 2010b:154)

If we assume with Cable that Basque is a Q/wh-Agreement language, then we can account for a constraint we already mentioned on the internal form of pied-piped CPs in Basque: a clause can only be pied-piped if the wh-word has been moved to the left edge of that clause. It is impossible for a subordinate CP to be pied-piped by wh-words internal to it. Ungrammatical structures like (33b) follow from the inability for Agreement to apply across separate Spell-Out domains. Since C heads are a typical example of phase heads, a structure like (33b) would require agreement between Q and the wh-word to apply in separate Spell-Out domains, something that the PIC forbids. Thus, 'in order for a Q-particle to Agree with a wh-word contained within a subordinate CP, that wh-word must undergo movement to the specifier of the CP'(Cable 2010b:155). Indeed, Spec,CP is a phase edge and remains accessible for agreement after Spell-Out. Thanks to that movement, the wh-word and the Q-particle are placed in the same phase and can agree.

(34) *Blocked Q/wh-Agreement in Basque clausal pied-piping*
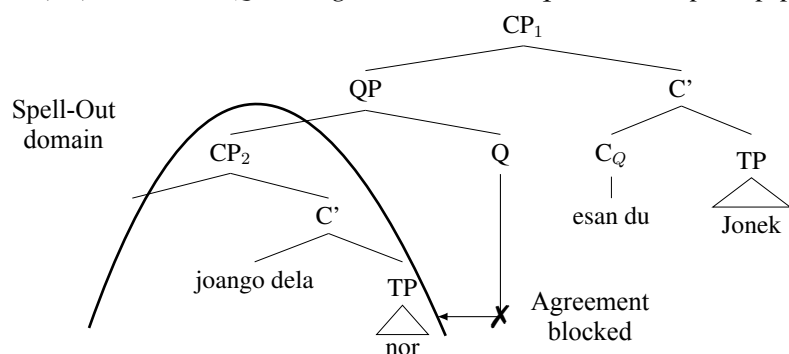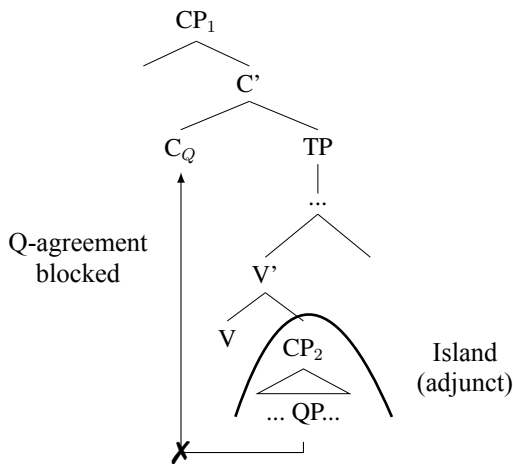

5.2. *QPs and islands*

As we saw, there are further restrictions that apply to clausal pied-piping in Basque, and more specifically to its free alternation with wh-extraction. Firstly, there are cases in which movement of the wh-word out of the clause is ungrammatical, and clausal pied-piping is the only option.

These configurations (Subject Condition, Complex DPs, Adjuncts and Relative clauses) are islands, and wh-extraction is therefore expected to be impossible. What needs to be explained is how a Q-particle framework accounts for the possibility of clausal pied-piping as an alternative in these cases. Recall example (20):

(35) a. ***Zer** izutu   zen erregea [entzun zenuenean]?
           what frightened AUX king   hear   AUX.COMP.when

       b. %[**Zer** entzun zenuenean]   izutu   zen erregea?
           what   hear   AUX.COMP.when frightened AUX king
           'What did the king become frightened when he heard?'

(35a) is ungrammatical because extraction of the wh-word out of the adjunct island is forbidden. (35b), its clausal pied-piping counterpart, is grammatical. In constructions that involve extraction of the wh-word, we know that the Q-particle is merged in a position directly adjacent to the wh-word which becomes a complement of the QP. Since islands are barriers for movement, it is ungrammatical for the QP to move and Agree with C_Q, as illustrated by (36)

(36) *Q-agreement blocked*   (37) *Q-agreement ok*
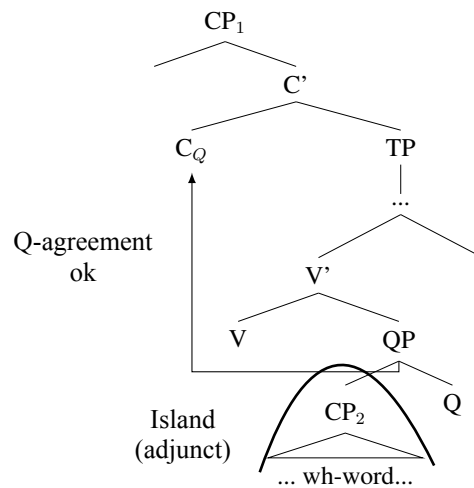
But in the clausal pied-piping configuration, the Q-particle merges in a position where it is no longer dominated by the phase boundary induced by the subordinate C, and movement of the QP no longer involves crossing a barrier and is therefore perfectly grammatical (37).[4]

So far, we have seen that Cable's account explains nicely cases in which the alternation is syntactically free. Indeed, as transpires from the present analysis of Basque clausal pied-piping constructions with respect to their long-distance movement counterpart, the numerations appear to be the same and the derivations appear to involve the same number of steps. Furthermore, Cable's Q-theory can also account for situations in clausal pied-piping is the constrained alternative when extraction of the wh-word is not permitted, and finally the necessity of the wh-word to be at the left edge of the clause. Finally, Cable's account has the advantage of predicting cases in which both wh-extraction and clausal pied-piping are viable options and can potentially alternate freely.

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[4]This story, however, is not specific to Cable. Heck (2008) also resorts to the argument that wh-extraction can be blocked by an intervening island because of impossible Agreement. For him however, Agreement takes place between the wh-word and the interrogative C_{+WH}.

However, his account does not make any predictions about further cases of restricted alternation, in which clausal pied-piping is not allowed in Basque and to which I turn now.

6. *The scope problem*

While the above accounts for the possibility of syntactic optionality, one might expect there to be semantic consequences associated with which element the Q-particle merges with. Although we have seen that there is no difference in interpretation (section 2.3), this other class of restrictions on the alternation of wh-extraction and clausal pied-piping would suggest some sort of a scope effect.

6.1. *Negation*

In these cases, clausal pied-piping is ungrammatical, and extraction is therefore the only option. For instance, whereas long-distance extraction is allowed across negation (38a), clausal pied-piping is not (38b) (Arregi 2003).

(38) a. Sein$_1$ **es** tau esan Mirenek   [$_{CP}$ t$_1$ jun danik]?
          Who not AUX said Miren.ERG [$_{CP}$ t$_1$ gone has]

      b. *[$_{CP}$ Sein jun danik] **es** tau   esan   Mirenek t$_{CP}$?
          [$_{CP}$ who gone AUX] not AUX said Miren.ERG
          'Who didn't Miren say left?'   (Arregi 2003:135)

Arregi (2003) accounts for this negative island effect by hypothesizing that clausal pied-piping involves reconstruction at LF and argues, after Heim (1992) and Beck (1996), that negation blocks reconstruction of pied-piped material. Concretely, he claims that the pied-piped complement reconstructs at LF in its base position, leaving the wh-word behind. This results in an LF structure which mirrors the long-distance extraction construction (as shown by the parallel structures in (39) and (40b)), thereby accounting for their semantic equivalence.

(39) *LF structure for long-distance extraction*

      [$_{CP_1}$ sein$_i$ esan tau Mirenek [$_{CP_2}$ t$_i$ jun danik]]
      [$_{CP_1}$ Wh$_i$ ...   [$_{CP_2}$ t$_i$ ...   ]]

(40) a. *Surface structure for clausal pied-piping*

          [$_{CP_1}$ sein$_i$ [$_{CP_2}$ t$_i$ jun danik] esan tau Mirenek t$_{CP2}$]
          [$_{CP_1}$ Wh$_i$ [$_{CP_2}$ t$_i$ ...   ] ...   t$_{CP2}$]

      b. *LF structure for clausal pied-piping*

          [$_{CP_1}$ sein$_i$ t$_{CP2}$ esan tau Mirenek [$_{CP_2}$ t$_i$ jun danik]]
          [$_{CP_1}$ Wh$_i$ t$_{CP2}$ ...   [$_{CP_2}$ t$_i$ ...   ]]

This reconstruction happens in two steps: first, the wh-word moves out of the pied-piped clause, so it takes scope over the matrix sentence (40a). Second, the remaining clause is reconstructed to its base position, where it is interpreted, just as it would be in the long-distance counterpart (40b). The intervention of negation makes reconstruction impossible, and therefore excludes the possibility of clausal pied-piping in the presence of matrix negation (42).

(41) *Long-distance extraction over negation*

$[_{CP_1}$ sein$_i$ **es**   tau esan Mirenek $[_{CP_2}$ t$_i$ jun danik]]
$[_{CP_1}$ Wh$_i$ **NEG** ... $[_{CP_2}$ t$_i$ ...   ]]

(42) *Clausal pied-piping: intervention by negation*

*$[_{CP_1}$ sein$_i$ t$_{CP2}$ **es**   tau esan Mirenek $[_{CP_2}$ t$_i$ jun danik]]
$[_{CP_1}$ Wh$_i$ t$_{CP2}$ **NEG** ... $[_{CP_2}$ t$_i$ ...   ]]

While this proposal has many qualities, an analysis in terms of Q-particle makes resorting to reconstruction superfluous. As correctly pointed out by a reviewer, Cable's theory renders pied-piping structures directly interpretable without applying any sort of reconstruction.

6.2.   *Interrogative complements*

Furthermore, another case of restriction alternation arises with complements of interrogative verbs (Ortiz de Urbina 1992, 1993). There are two different kinds of complementizers in Basque: the declarative complementizer *-(e)la* and the interrogative complementizer *-(e)n*. Wh-words in indirect questions selected by the matrix verb may not pied-pipe an embedded interrogative clause (Hualde & Ortiz de Urbina 2003:488). In other words, pied-piping is not allowed in questions with interrogative complements, introduced by verbs like *galdetu* 'ask' and the [+WH] complementizer *-(e)n* (Ortiz de Urbina 1989), as illustrated in (43). Conversely, it is fine with declarative complements introduced by *esan* 'say' and the complementizer *-(e)la* as in (44).

(43) *[Nor etorriko d-en]   galdetu duzu?
      who   come   AUX-COMP asked   AUX
      'Who will come have you asked?'

(44) [Nor etorriko d-ela   bihar]   esan diozu Mireni?
      who come   AUX-COMP tomorrow said AUX   Mary.DAT
      'Who will come tomorrow have you told Mary?'   (Ortiz de Urbina 1992:297)

To be more precise, a sentence like (45), which, like (43), is an instance of clausal pied-piping of an interrogative complement (with fronting/topicalization of the subject *Miren*), is grammatical if it takes a yes/no question reading, but not with a matrix wh-reading, indicating a scope effect.

(45) Mirenek   zer egin zu-en   galdetu duzue?
      Miren.ERG what do AUX-COMP ask   AUX
      *'What did you ask Miren did?'
      'Did you(pl) ask what Miren did?'   (Raynaud 2016:23)

Pied-piping of an wh-interrogative clause selected by a [+WH]-complementizer is permitted when the scope of the interrogative element is restricted to the embedded clause - it can not take matrix scope, as would be expected in (45). That is to say that in the sentence above, the question no longer bears on the wh-word, but it is now interpreted as a yes/no question on the matrix verb *galdetu* 'ask'. The wh-word can only take matrix scope in a pied-piped construction if the verb selects for a [-WH]-complement (like *esan* 'say'), as shown above in (44).

So it looks like in these constructions that involve negation or an interrogative verb, in order to get matrix scope, clausal pied-piping may not occur. Providing we assume [+WH]-verbs to be scope sensitive elements, this would suggest some kind of intervention effect. Although in both cases, the ordering of scope taking elements is the same, i.e. the wh-word c-commands the negation or the [+WH]-verb (wh-word > NEG/[+WH]-verb). What changes is that the negation or the [+WH]-verb do not scope over the embedded sentence anymore in cases of pied-piping.

(46)   a. *Wh-extraction*
       $[_{CP1}$ $[_{QP}$ wh-word] ... NEG/[+WH]-verb ... $[_{CP_2}$ ...]]
       QP [wh-word] > NEG/[+WH]-verb > embedded predicate

   b. *Pied-piping*
       $[_{CP1}$ $[_{QP}$ CP$_2$] ... NEG/[+WH]-verb ...]
       QP [wh-word > embedded predicate] > NEG/[+WH]-verb

This seems to have the effect of disallowing a matrix scope reading in cases of interrogative complements, while still allowing pied-piping under a yes-no reading question (the interrogative verb no longer has scope over the embedded predicate). In the case of negative sentences, pied-piping seems to be disallowed completely, as negation cannot take scope over the embedded predicate. The relative order of scope-taking elements over the embedded clause seems to make the correct prediction for the unavailability of clausal pied-piping in two contexts, matrix negation and interrogative complements, that have not been previously connected. Moreover, it could account for this class of restrictions in a way that is compatible with a Q-based analysis. Further investigations need to be conducted in order to determine if this proposal could be the right one.

7. *Conclusion*

The main focus of this paper has been to account for the distribution and the free variation patterns of clausal pied-piping and long-distance wh-movement in Basque wh-questions. In what precedes, I established a more comprehensive picture of Basque wh-questions that substantiates the claims for true optionality. Clausal pied-piping constructions can alternate with their long-distance extraction counterparts without any interpretative effect in many contexts. Based on an analysis of wh-movement that involves a relation between a C head and a QP (Cable 2010b), I have been able to show that the syntactic representations of these constructions are such that they share a same lexical array but differ in the stage of the derivation in which the Q-particle merges. Relying on Biberauer and Richards's (2006) analysis legitimating the possibility of true optionality, I have shown that the proposed Q-based derivations equally satisfy formal requirements, albeit in different ways. Such an analysis can furthermore account independently for several restrictions governing the distribution of clausal pied-piping in Basque, such as the leftness requirement for the pied-piper and constrained pied-piping in cases where the wh-word orginates in an island. Finally, I have attempted to provide an analysis that can explain the scope interactions and restrictions on pied-piping that surface with negation and interrogative complements. Although syntactic optionality remains a debatable issue, this paper would hopefully have made a contribution to the debate by documenting an instance in which syntactic optionality can be accounted for in a Minimalist framework.

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