

ON THE DISTRIBUTION OF WH-RELATIVES IN ROMANCE AND IN ENGLISH

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1. INTRODUCTION

In the Principles and Parameters model (Chomsky 1979;1981) cross-linguistic variation was accounted for by the different fixation of a set of binary parameters of UG. This theoretical framework gave rise to an impressive number of comparative as well as diachronic studies (Rizzi 1982, Kayne 1984, Roberts 1993, Bianchi 1999, i.a.). In the current approach developed on the basis of The Minimalist Program (Chomsky 1995), UG is conceived as “maximally empty” with respect to the principles as well as the set of possible points of parametrization (Richards 2008). If a direct parametrization of UG itself is abandoned, cross-linguistic variation is necessarily restricted to the lexicon, which in any case must be learned (Borer-Chomsky Conjecture, see Baker 2008).

This article explores a particular case of cross-linguistic contrast, the distribution of *wh*-relatives. It shows the relevance of an approach based on the featural properties of the lexical *wh*-item rather than the parametrization of the complementizer domain of the clause.

As can be seen in the examples (1) through (10) below, relative clauses containing a *wh*-phrase have a different distribution in Romance and in English.

The French *wh*-word *lequel* is ungrammatical in a relative clause when it appears ‘bare’, i.e. not preceded by a preposition, as indicated in the contrast between (1) and (2).

- | | | | | | |
|-----|---|-----------|--------------|-------------------|-----------------------------------|
| (1) | * | Le garçon | lequel | Marie préfère | s’appelle Georges. |
| | | the boy | the.which | Marie prefers | is-called Georges (Kayne 1976:17) |
| (2) | | Le garçon | auquel | Marie pense | s’appelle Georges. |
| | | the boy | to.the.which | Marie is-thinking | is-called Georges |

A similar situation can be observed in Spanish, Italian, Portuguese and Catalan. The examples (3) and (4) show that, in Spanish and Italian too, a ‘bare’ *wh*-word cannot introduce a restrictive relative.

- | | | | | | |
|-----|---|-----------------------------|-----------|--------------------------|----------------------------|
| (3) | * | Valle-Inclán es un escritor | el cual | se caracteriza | por su prosa |
| | | Valle-Inclán is a writer | the which | himself characterizes | by his prose |
| | | rica y refinada. | | | |
| | | rich and refined | | | |
| (4) | * | I bambini | i quali | hanno mangiato il gelato | non possono fare il bagno, |
| | | the children | the which | have eaten ice-cream | cannot have a swim, |
| | | tutti gli altri sì! | | | |
| | | all the others yes | | | |

Spanish and Italian still pattern with French in allowing the *wh*-word, when it occurs embedded in a prepositional phrase.

- (5) Este es el libro sobre el cual hemos hablado en clase.
this is the book about the which (we) have talked in class
- (6) I bambini con i quali ho mangiato troppo gelato sono malati
the children with the which (I) have eaten too much ice-cream are sick,

tutti gli altri no!
all the others not

However, the ungrammaticality of ‘bare’ relative pronouns in restrictive relatives, is not universal. As is well known, English allows *wh*-relatives (see 10).

- (7) The book which Mary wanted is sold out.

For the sake of completeness, it should be further observed that ‘bare’ *lequel*, *el cual*, *il quale* are not banned across the board in Romance. In the non-restrictive relatives in (8), (9) and (10) below, they are perfectly grammatical¹.

- (8) Il reconnut ainsi la justesse d’un des mots favoris du maire,
he admitted thus the relevance of one of the favorite jokes of the mayor,

gros industriel de notre ville, lequel affirmait avec force que...
major manufacturer of our city, the.which stated with force that
- (9) Me estuvo explicando todas sus aventuras,
(he) to.me was explaining all his adventures,

las cuales me eran perfectamente indiferentes.
the which to.me were perfectly of.no.interest
- (10) Ti telefonerà il dottor Rossi, il quale hai già conosciuto un anno fa.
to.you will.phone the doctor Rossi, the which (you) have already met a year ago

The distribution of ‘bare’ *lequel* in French led Kayne (1976) to infer the following generalization.

- (11) French restrictive relatives disallow the overt realization of DPs in the specifier of CP.

Larger DPs support this claim. As can be seen in (12) and (13), they are also excluded in French restrictive relatives, when they are not selected by a preposition,

- (12) * L’homme le fils duquel Marie adore s’appelle Maurice.
the man the son of-the-which Marie loves is called Maurice

¹ Albeit pertaining to a rather elevated register.

- (13) L'homme au fils duquel Marie est très attachée s'appelle Maurice.
 the man to the son of-the-which Marie is deeply attached is-called Maurice

However, Kayne (1976) does not provide a principled account of why the generalization in (11) holds in Romance. A major step in unravelling the source of the generalization and the cause of the English-Romance contrast is taken in Bianchi (1999). In this author's view, a difference in the featural endowment of the heads in the complementizer domain is responsible for the different distribution of *wh*-words in English and Romance relatives.²

The present article will summarize Bianchi's (1999) proposal and discuss two issues that it raises (section 2). I will then propose a modification of the analysis which rests on *i.* the postulation of a *nominalizing* projection on top of *ForceP* in selected clauses (section 3.1) and *ii.* a different inner structure of *wh*-words in English and in Romance (section 3.2). In section 3.3, I will discuss the absence of 'bare' *wh*-infinitival relatives in English and in section 3.4. the ban on heavy pied-piping in restrictive relatives will be addressed. Finally, section 4 will conclude this article and present further related aspects, which remain to be explored.

2. THE PARAMETRIC SETTING OF TOP° (Bianchi's 1999 approach)

2.1. Presenting the analysis

Bianchi (1999) adopts the *raising* approach to headed relatives. In this framework, the NP that is standardly considered the antecedent of the relative is not represented in the matrix. It is first merged in argument position inside the relative clause and further raised to a specifier position in the left periphery of this clause. In compliance with Kayne's (1994) Antisymmetry theory, the relative clause is not adjoined to an NP, it is selected by a determiner in the main clause. The landing site of the *raised* constituent is linearly adjacent to the external determiner, yet the determiner and the following NP do not form a constituent.

The different steps of the derivation are shown for a *that*-relative in example 0 below.

- (14) a. [CP that I read D_{REL} book]
 b. [CP [DP D_{REL} book] [that I read < [DP D_{REL} book] >]
 c. [DP the [CP [DP D_{REL} book] [that I read < [DP D_{REL} book] >]

As Bianchi (1999:170) observes, the proposal raises the question of why the relative determiner fails to be pronounced in 0 when it must do so in prepositional relatives. Compare 0 with 0.

- (15) the book { about which / * about D_{REL} } we talked

² In recent analyses, the existence of complementizers as a lexical category has been called into question. Kayne (2008;2014), Arsenijevic (2009), Manzini (2010;2014), among others, have claimed that the syntactic position C° hosts only formal features without phonological realization. In this family of approaches, *que /che* is a nominal in all contexts. If these analyses are on the right track, if *que* in *i* belongs to the same lexical category as *lequel* in (1), repeated here in *ii*, the contrast between the two sentences is unexpected.

i- Le garçon que Marie préfère s'appelle Georges.
 ii- *Le garçon lequel Marie préfère s'appelle Georges.
 the boy the.which Marie prefers is.called Georges

These proposals raise a number of other questions. For English, Aoun & Li (2003) suggest that *that* and *which* restrictive relatives have a distribution related to the availability (respectively the non-availability) of reconstruction effects. In this case as well, a distinction between the two types of restrictive relatives would be difficult to account for if both are introduced by the same lexical category.

The solution put forward rests on two ingredients: i. the postulation that the raised NP must be in a local configuration with the external determiner and ii. the claim that the specifier of DP is only an operator position and thus cannot house an NP. These two points imply that *wh*-prepositional relatives are available in both English and Romance. In the two cases, the specifier of the PP can accommodate the raised NP, which ends up in the required local configuration with the external determiner. The derivational steps are represented for English in 0 below.

- (16) a. [CP [we talked [PP about which book]]
the relative phrase then moves to left periphery where it satisfies a Relative Criterion →
- b. [CP [PP about which book] C° [we talked < [PP about which book]>]]
the relative NP then moves to the specifier of PP →
- c. [CP [PP book [about which <book>]] C° [we talked < [PP about which book]>]]
the external determiner selects the relative CP →
- d. [DP the [CP [PP book [about which <book>]] C° [we talked < [PP about which book]>]]]

The same derivational steps are postulated for Romance prepositional relatives. The French example in (2) thus patterns with (16c), as sketched in 0 below.

- (17) [DP le [CP [PP garçon [auquel < garçon >]] C° [Marie pense < [PP auquel garçon]>]]]
the boy to.the.which Marie thinks to.the.which boy

As regards ‘bare’ *wh*-relatives, a similar movement involving a unique complementizer projection is impossible. The second movement step, the movement of the NP past the *wh* word is illegitimate given that the specifier of a DP cannot house an NP. Therefore (18) below cannot represent the internal structure of (10).

- (18) * the [CP [DP book [which < book>]] C° [Mary wanted]]

Bianchi (1999) proposes thus that ‘bare’ *wh*-relatives in English make use of a more articulated structure of the complementizer domain. The relative DP is first moved to the specifier of the *Topic* projection and the relative NP is then sub-extracted and raised to the specifier of *ForceP*. The proposed syntactic structure of (10) is given in 0.

- (19) the [_{ForceP} book Force° [_{TopicP} which <book> Top° [Mary wanted]]

Support for this proposal comes from the conjoined observation that:

- i. ‘bare’ *wh*-phrases are disallowed in English infinitival relatives (see 20 and 21),

- (20) I found a topic on which to work.

- (21) * I found a topic which to explore.

(adapted from Chomsky & Lasnik 1977:460-470)

and ii. topics are disallowed in English infinitival clauses,

- (22) * My friends tend [_{TopP} [the more liberal candidates]_i PRO to support t_i
(Hooper & Thomson 1973:485)

If ‘bare’ *wh* must be stranded in the specifier of *TopP*, as Bianchi (1999) suggests, the ungrammaticality of 0 is easily captured given that topicalization is in general disallowed in English infinitival clauses.

Summing up, the English-Romance contrast in the distribution of *wh*-relatives is accounted for, in Bianchi’s (1999) perspective, by postulating a different parametric setting of the *Topic* head in the two languages. Top° is positively set for the [+/- Rel] feature in English but not in Romance.

2.2. Discussing some points of the analysis

2.2.1. *The locus of the feature Rel. in the complementizer domain*

As a matter of fact, it looks highly plausible that the feature [+Rel.] be encoded in a Topic head in the left periphery of relative clauses. A unified theory of topicalization and relativization has been proposed in the literature (Kuno 1976, Chomsky 1977, among others). As Kuno (1976:420) puts it “a relative clause must be a statement about its head noun.” In a theory where the head noun is inside the complementizer domain of the relative clause, the parallelism of such clauses with topic-comment structures is particularly striking.

What is less clear, however, is why the locus of the relative feature could vary, in one and the same language, as well as across languages. The semantic property triggering the topic-comment interpretation is an unlikely point of parametrization. I will propose, in section 3, an alternative view in which all English and Romance headed restrictive relatives make use of two specifier positions in the complementizer domain, one of which being the specifier of *Top/RelP*.

Let us observe a second aspect of Bianchi’s (1999) proposal. Recall that the major reason that led her to postulate a different structure for prepositional and non-prepositional *wh*-relatives is linked to the second movement step: the raising of the relative NP past the *wh*-word. The specifier of a PP but not that of a DP was identified as a possible landing site. Although the availability of a specific syntactic position for a given category is a necessary condition, it is not a sufficient one. As the author observes, the motivation for this step of the movement chain must be elucidated.

2.2.2. *The trigger of the raising of the NP past the relative determiner*

Bianchi (1999:78) suggests two options.

She proposes that the external determiner selects an *AgrP*, which selects in turn the relative clause. The syntax of the resulting structure is given in 0 below, which reproduces Bianchi’s (1999:79 ex.17c).

- (23) [_{DP} the [_{AgrP} boy [_{AgrD} [_{CP} [_{DP} who t_{NP}]]] [_{IP} I met t_i]]]]

The *Agr* head searches for the closest NP and attracts it to its specifier giving rise to the observed word order.

Alternatively, the external determiner might bear a strong [+N] feature. The author assumes, following Rizzi (1997), that head government does qualify as a proper configuration for feature checking, therefore movement of the relative NP to the specifier of *ForceP* allows the uninterpretable N feature of the external determiner to be checked.

Both options face an intricate issue in a Phase Theory framework. Both require that a probe in the matrix (the external D or its *Agr*^o complement) searches inside the complement clause. When the complementizer domain is split into a series of projections, it is unclear which should be considered the phase edge, i.e. the searchable domain. If only the highest head is phasal, then the relative NP, embedded by hypothesis in the specifier of *TopP*, is out of reach for an outside probe.

The direct movement to the *Agr* position, which is postulated in the first option, would thus represent a violation of the Phase Impenetrability Condition (Chomsky 2000:108)³.

The movement to the specifier of *ForceP*, postulated in the second option, cannot be driven by the external determiner which, as we just argued, cannot reach the bowels of the complement clause. Nor can it be driven by some edge feature on the phasal head: this movement step is only accessible to elements bearing an unvalued feature. The [+N] feature is intrinsically valued in the relative NP. A movement to the *escape hatch* (the specifier of the phasal head) would thus be unmotivated.⁴

In the following section, I will suggest a justification of the movement of the NP past the *wh*-determiner that circumvents these potential difficulties. I will then show how the different distribution of *wh*-relatives in English and Romance can be accounted for in the new proposal.

3. THE NEW APPROACH TO THE RAISING ANALYSIS OF RELATIVES

3.1. The final step of the derivation

In section 2.2.1, I observed that the link between relativization and topicalization should be immune from parametrization, on semantic grounds. My claim is more precisely that all relative clauses, be they English or Romance, prepositional or not, involve a Relative projection (*RelP*) in the complementizer domain and that *RelP* is plausibly a particular instance of *TopP*.

I further assume that all headed relatives make use of a second position in the complementizer system. This position cannot be the specifier of *ForceP* since *Force*^o lacks the appropriate specification for attracting an NP.

There is evidence that a higher projection exists above *ForceP*. In Berthelot (2017:191), I claim that complement clauses need Case and that *à ce* in (24) is the overt realization of Case in the embedded clause.

³ An anonymous reviewer argues that “all the left periphery must be transparent w.r.t. the *PIC*, if one wants to allow cyclic movement that avoids improper movement (e.g. from *Spec,FocP* of a lower phase to *Spec,FocP* of a higher phase)”. It seems to me that movement out of lower *SpecFocP* is illegitimate, it violates Criterial Freezing or to phrase it in den Dikken terms “movement to scopal or otherwise interface readable positions...is a once-only event for each operator” (den Dikken 2009:4).

⁴ Aoun & Li (2003) provide an analysis that avoids this difficulty. In their view, in *wh*-relatives, the *wh*-element is a pronoun not a determiner and the head noun is first-merged in the specifier of the embedded *ForceP*. This analysis implies that *wh*-relatives are necessarily derived by operator movement not head raising. It accounts for the absence of reconstruction effects in English *wh*-relatives as opposed to their *that* counterpart. Prepositional *wh*-relatives are not examined by the authors. The normal expectation would be that in this case as well no reconstruction effects are observed. French data though are not compatible with this claim (see *i*).

i- Voici les deux docteurs avec lesquels chaque patient sera mis en contact.

here are the two doctors with whom every patient will get in touch

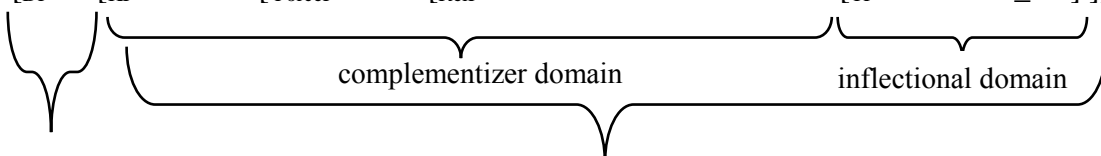
The QP, *deux docteurs*, can have narrow scope with respect to *chaque patient*, which means that it can be interpreted in its low position inside the relative clause, despite the presence of the *wh*-pronoun/determiner.

However from the perspective of this article nothing hinges on the lexical category the *wh*-word. What matters is its internal structure: deficient or strong.

- (24) Je veillerai [_{KP} à ce [_{ForceP} qu'il prenne ses médicaments]].
 I will.make.sure that he takes his medicine

The label *KP* was given to the functional projection housing *à ce* because this projection is overtly filled only when the clause bears an oblique Case. For the sake of clarity, I will keep referring to this position as *KP*, although its primary function is to nominalize the CP, Case marking being only a necessary consequence of the categorial make-up.

I claim that all selected clauses contain a *nominalizing* projection in the topmost position, (which may be phonetically empty). Relative clauses, in the raising analysis, are selected by a determiner in the matrix. Under the proposed approach, we can say, more precisely, that the external determiner selects a nominalizing projection in the highest position of the relative CP. The head of this projection searches its c-command domain for the closest nominal element. The *wh*-determiner is stranded in the Relative projection, where it is trapped by application of Criterial Freezing (Rizzi 2006). Under these assumptions, the structure of *wh*-relatives in English can be described as shown in 0 and 0.

- (25) [_{DP} the [_{KP} book K[°] [_{ForceP} Force[°] [_{RelP} which <book> Rel[°]... [_{TP} Mary wanted_]]]]]
 (26) [_{DP} the [_{KP} book K[°] [_{ForceP} Force[°] [_{RelP} about which <book> Rel[°]... [_{TP} we talked _]]]]]

 main clause relative clause

At this stage of the discussion, we are in a position to answer the two points discussed in the precedent section.

Firstly, both *that* and *wh* relatives make use of an articulated CP domain, in both case a dedicated *RelP* is exploited alongside with the topmost clausal projection *KP*.

Secondly, if the highest head of the complementizer domain counts as the Phase head, no violation of the Phase Impenetrability Condition is incurred in (25) and (26): it is not the external determiner that searches into the complement of the phasal head. A strong uninterpretable nominal feature inside the relative CP probes for an interpretable counterpart.

- (27) [_{DP} the [_{KP} book K[°] [_{ForceP} that [_{RelP} D_{rel} <book> Rel[°]... [_{TP} Mary wanted_]]]]]

One important question to be asked now is: How can we account for the English Romance contrast, presented in (1) vs. (10), in the proposed framework? Clearly, the derivation sketched in 0 can apply to Romance prepositional relatives as well. The example 0 below gives the French version of the movement chain proposed.

- (28) [_{DP} le [_{KP} garçon K[°] [_{ForceP} Force[°] [_{RelP} auquel <garçon> Rel[°] [_{TP} Marie pense _]]]]]
 the boy about.the.which Marie is.thinking

Yet, unexpectedly, Romance non-prepositional *wh*-relatives cannot exploit the same path, as shown by the ungrammaticality of the French example repeated here in 0.

- (29) * [_{DP} le [_{KP} garçon K[°] [_{ForceP} Force[°] [_{RelP} lequel <garçon> Rel[°] [_{TP} Marie préfère _]]]]]
 the boy the.which Marie prefers

reach the object NP, *table*.⁶ Note that moving *table* to the specifier of *RelP*, which would bring it in a local configuration with the probe K° , must be independently excluded because the specifier of *RelP* is an operator position.

I will thus consider that Romance relative determiners *lequel* and cognates appear ‘bare’ only in subject appositive relatives because only in this context can they surface in their argumental position.

Crucially, English *wh*-determiners do not show the same distributional constraints. We can see in examples 0 and 0 that English *wh*-appositives are perfectly grammatical even when the relative phrase is not the subject of the embedded clause.

- (34) John, who {we all know_/we are all proud of_}... (Cinque 2008:111)
 (35) This book, which I read_ thoroughly, is delightful. (Bianchi 1999:158)

The behavior of English and Romance *wh*-determiners is clearly reminiscent of that of strong and deficient personal pronouns in Cardinaletti and Starke’s (1999) system. Romance *lequel* and cognates pattern with the French personal pronoun *le*, ‘him’, both being limited to argumental positions (see 36). Conversely, English *who/which*, pattern with the strong personal pronoun *lui*, ‘he/him’, in having the distribution of full DPs (see 37).

- (36) a. * **Le**, je l’ai rencontré hier.
 b. * un des types **lequel** j’ai rencontré hier
 (37) a. **Lui**, je l’ai rencontré hier.
 him I him met yesterday
 b. one of the guys **who** you met yesterday

The distributional contrast, Cardinaletti and Starke argue, is due to the impoverished internal structure of *le* in 0 compared to *lui* in 0. The deficient element, which lacks the topmost layer which houses Case information, is forced to stay in a local configuration with its Case assigner. The strong pronoun *lui*, in turn, is free to move to the left periphery.

I thus propose to apply the same reasoning to *wh* determiners. This leads us to the generalization in 0.

- (38) Romance relative determiners (*lequel* and cognates) have a deficient internal structure; English ones (*who/which*) are fully equipped and contain the topmost layer which encodes Case information.

The generalization in 0 captures the fact that ‘bare’ *lequel* can occur in subject appositives, under the hypothesis just discussed that it stays in a Case position. It also accounts for the ban of ‘bare’ *lequel* in restrictive relatives: deficient DPs being trapped in their Case position, *lequel* cannot reach the operator position that would allow the restrictive interpretation.

Let us examine now the situation of prepositional *wh* relatives. In French, as observed in (2) repeated below in (39), *lequel* preceded by a preposition gives rise to a well-formed restrictive relative.

⁶ Sauerland (2003:220) compares the deletion process of the matching analysis with the ellipsis in comparatives, as in *i* below.

i- Ahab saw a longer whale than a long whale was ever seen. (Bresnan 1973)

In comparatives a locality constraint applies, as shown in *ii*, where the comparative deletion site cannot be interpreted as being ‘wide’.

- (45) a könyv amit akart —
 the book the.which (he) wanted_{indef} (Bianchi 1999:III (22))

This leads us to the conclusion that: “the definite morphology (of the *il quale* type of relative determiners) may be regarded as semantically inert.” (Bianchi 1999:104). From our perspective, this means that the first morpheme of complex relative determiners of the *lequel* type cannot occupy the topmost position identified in Cardinaletti & Starke (1999) as bearing the Case feature and the referential index⁷. Therefore the complex relative determiner may perfectly qualify as a deficient element, its morphology does not contradict our claim.

For the sake of completeness, let us see how we can describe the inner structure of *lequel*. I will follow Kunstmann (1991), who considers that the definite article *le* was introduced in the paradigm of *qualis*, early in the history of French, in order to express the grammatical gender, an information that could no longer be read off the suffix. Grammatical gender being a property of the noun, the projection encoding it in a determiner can only be a semantically vacuous *AgrP*. The relative determiner consists thus plausibly of *AgrP* followed by a projection encoding the *wh* feature.

We must address now an important question which challenges the proposal I put forward in this article. As we saw in section 2, Bianchi (1999) assumes that the English-Romance contrast, with respect to *wh*-relatives, is due to the structure of the complementizer systems rather than the internal syntax of the *wh*-words. The reason for this stance is the behavior of infinitival relatives in English⁸. I repeat here in 0 and 0 the relevant examples, 0 and 0.

- (46) I found a topic on which to work.
 (47) * I found a topic which to explore.

In the framework that I proposed, we must explain why the strong *wh*-determiner *which* is barred from infinitival contexts.

3.3. Infinitival relatives

One may wonder whether the structure (*topic*) *on which to work* should be considered a *bona fide* relative. Quirk et al. (1992) place it within a larger category called “Postmodification by infinitival clauses”. The category contains also gapless infinitivals, such as: *the power to frighten the US*.

What then should prompt us to consider that (45) is not the tenseless counterpart of standard finite relatives? It has often been observed that infinitivals convey a deontic modality. However, this need not be the case in all contexts. In particular, infinitival declarative complement clauses, as a rule pattern, semantically, with their tensed counterpart. The examples in 0 and 0 have the same interpretation.

- (48) Je reconnais avoir manqué de sang-froid.
 I reckon to have lacked self-control

⁷ See Cardinaletti & Starke (1999:§5.4.7) for a detailed analysis of the link between Case and referential index and, more precisely, for the claim that ?index is not a feature *besides* K (Case) in C°, but rather index is *the interpretation of K*.

⁸ As observed in Girard & Malan (1999), a *wh*-relative determiner is incompatible with an overt subject in a *for* infinitival as in ii.

- i. It was a room for hopes to die in.
 ii. * It was a room in which for hopes to die.

These data are unexpected in the proposal based on the absence of *TopP* in relative clauses.

- (49) Je reconnais que j'ai manqué de sang-froid.
I reckon that I have lacked self-control

The same observation applies to 0 and 0 (in the appropriate context where more than one person is concerned by the action of leaving).

- (50) Je tiens à partir à l'heure.
I insist.on to.leave on time
- (51) Je tiens à ce que nous partions à l'heure.
I insist.on it that we leaveSubj on time

With respect to “relative” clauses, however, we see that the infinitival clause systematically triggers an interpretation slightly different from the tensed variant. A deontic modality of possibility is present in example 0 contrary to its finite counterpart in 0.

- (52) Je lui ai présenté une personne à qui confier ses enfants.
I her have presented a person with whom to leave her children
- (53) Je lui ai présenté une personne à qui elle a confié /confiera ses enfants.
I her have presented a person with whom she has left/will leave her children

Similarly⁹, 0 contains a necessity modality absent from its variant in 0.

- (54) Elle lui a donné la liste des choses à faire avant de partir.
she her has given the list of things to do before to.leave
- (55) Elle lui a donné la liste des choses qu'ils feront avant de partir.
she her has given the list of things that they will do before to.leave

A possible way to account for this contrast is to consider that 0 and 0 have a radically different structure. I suggest that so called infinitival relatives are better analyzed as post-nominal modification of a type akin to *hard nut* constructions (Berman 1974), also termed *clausal attributive-with-infinitive construction* (clausal AIC) in Fleisher (2008). The canonical example of these structures is given in 0.

- (56) This construction is a hard nut to crack.

At first glance, it seems that 0 is just the attributive version of the *tough* construction. Fleisher (2008) lists however some differences between the two structures. Of interest for us here is the fact that a number of adjectives, incompatible with a *tough* construction, are legitimate in a clausal AIC. The example 0 is a case in point.

- (57) Bob is an odd person to see in Berkley.

This leads us to suggest that a silent adjective, ‘POSSIBLE’ or ‘OBLIGATORY’ takes the infinitival CP as its complement in so called infinitival relatives. The infinitival clause in

⁹ An anonymous reviewer points out that the variation between possibility and necessity depends on the determiner of the noun. (see Bhatt 2006)

"*I find a topic to explore*" exploits the structure postulated for clausal AIC as sketched in 0 and 0 below.

- (58) odd [Op_i [to see _i in Berkley]]
 (59) POSSIBLE [Op_i [to explore_i]]

In both constructions, the operator linked to the gap in the infinitival clause is silent. We thus capture the ban on overt *wh*-word in alleged infinitival relatives.

It remains to explain why a *wh*-word must surface when a preposition is pied-piped, as shown in 0, repeated here in 0.

- (60) I found a topic on which to work.

That is, we must examine why the two options in 0 are ruled out.

- (61) a. * a topic ~~on~~ Op_i to work _i
 b. * a topic on Op_i to work _i

Under the assumption that a recoverability condition applies in silencing processes, the ungrammaticality of 0 is expected: the information encoded in the preposition could not be retrieved.

As for 0, it seems plausible to assume that the quantificational operator is linked to a DP not a PP. Furthermore, the pied-piping of the preposition should be possible if and only if the string *on* Op_i DP_i forms a constituent. A logical expectation is thus that Op_i is Case-marked by *on*. However, for Op_i to be able to bear Case it should be a nominal category. I assume that this is not the case and that the interro-relative operator *which* must be recruited to serve this purpose¹⁰.

This analysis is strengthened by the observation that, in canonical clausal AIC as well, the silent operator alternates with an overt one when a preposition is pied-piped, as can be seen in 0 to be compared with 0.

- (62) a. Buckminster Fuller, "bold visionary," does seem an odd person with whom to end the book. (M.P.Hearn. *The Washington Post* 12.10.1995)
 b. Johnny Depp would be an odd person with whom to compare Louis XVI. (K.McLendon. *Inquisitr*. 5.7.2017)¹¹

To sum up, I have proposed that the availability of bare *wh*-words in English restrictive relatives is due to the internal structure of these determiners in this language: being strong they are able to A-bar move. The ban on 'bare' *wh* in the infinitival variants of relative clauses was difficult to account under this hypothesis. This issue was answered by suggesting

¹⁰ The two possible options, given in *i* and *ii*, are thus derived from two different lexical arrays. Either the initial numeration contains a silent operator and the preposition must be stranded in its first merged position or it contains the interro-relative *which* and pied piping takes place.

i- a topic POSSIBLE [Op_i to work on _i]

ii- a topic POSSIBLE [[on which]_i to work _i]

Principles of economy, akin to Chomsky's (1981) *Avoid Pronoun*, or more generally Cardinaletti & Starke's (1999) *Minimize Structure*, ensure that *which* will surface only when forced to do so.

¹¹ In French as well clausal AICs contain an overt interro-relative operator when a preposition is pied-piped (*ii*).

i- C'est un curieux livre à offrir à un enfant de 7ans !

it is a strange book to give to a seven year old child

ii- C'est un curieux livre sur lequel fonder un cours d'histoire !

it is a strange book on which to base a history class

that a very different structure may be at play in so called infinitival relatives. I proposed more precisely that these clauses are better viewed as a variety of *hard nut* constructions. In these constructions, as a rule, the operator related to the gap in the infinitival is silent. If this analysis is correct, we are in a position to explain away the possible counterargument represented by the infinitival paradigm in English.

A last point must be discussed. As previously observed in (12), repeated here in 0, the *wh*-operator cannot pied-pipe a large DP, contrary to what happens in interrogatives (see 64).

- (63) * L'homme le fils {duquel/de qui } Marie adore s'appelle Maurice.
 the man the son{of.the.which/of whom} Marie is.found.of is called Maurice
- (64) Le fils {duquel/ de qui} est-ce que Marie voudrait épouser¹²?
 the son {of.the.which/of whom} C° Marie would.like to marry?

The ungrammaticality of 0 is not accounted for in the proposal developed so far.

3.4. Heavy pied-piping in *wh*-relatives

In principle, the large constituent [*le fils duquel*] should be able to A-bar move since it is uncontroversially a strong DP. What is then the source of the ungrammaticality in 0?

Recall that we claimed in section 3.1. that restrictive relatives make use of two positions in the left periphery. A *nominalizing* head, dubbed K° , above *ForceP* attracts to its specifier the relative NP, which is forced to strand its determiner in the specifier of *RelP*, by virtue of Criterial Freezing. The grammatical variant of 0, given below in 0, complies with these requirements.

- (65) L'[_{KP}homme[_{ForceP}[_{RelP} duquel <homme>[_{TP}Marie adore le fils <duquel homme>]]
 the man of.the.which man Marie loves the son of.the.which man
 s'appelle Maurice.]]
 is.called Maurice

However if the head noun *le fils*, 'the son' gets pied-piped, it intervenes between the probe in K° and the relative noun. An attempt to derive 0 will yield the intermediary step, described below.

- (66) L'[_{KP} [_{ForceP}[_{RelP} le fils duquel homme_i [_{TP}Marie adore <le fils duquel homme>]]
 the the son of.the.which man Marie loves the son of.the.which man
 s'appelle Maurice_i.
 is.called Maurice

At this stage, the probe will attract the closest NP, *fils*, 'son', and the derivation will crash at the semantic interface. In effect, it is easy to see in 0 that the output of such a derivation would trigger the unwanted reading according to which the son, not the father, bears the name *Maurice*. In more general terms, only the relative NP must be attracted to the specifier of the *nominalizing* projection *KP* because relative clauses are statements about the

¹² As is the case, with *Lequel est-ce que Marie voudrait épouser?*, "the.which C° Mary would.like to marry?" , the *duquel* variant of (66) requires that a given set be contextually present.

relativized category. Any operation that would result in bringing another NP in the position, which agrees with the external head, would necessarily be doomed to failure.

4. CONCLUSION

I have argued in this article that the contrast observed between English and Romance with respect to *wh*-relatives should not be ascribed to a difference in the structure of their respective complementizer domains but rather to the make-up of the lexical *wh*-items involved in the given languages. This proposal not only accounts adequately for the data but also complies with the Borer-Chomsky conjecture according to which parametric variation is restricted to the lexicon. I have proposed a means of deriving relative clause in the raising approach without violating *Last Resort* and *Phase Impenetrability* constraints. Finally I have offered a tentative account of the semantic as well as syntactic specific properties of so called infinitival relatives.

For reasons of space, I have set aside the syntax of Italian *cui* and Spanish *cuyo*, which do appear 'bare' in restrictive relatives, conflicting with the generalization given in (11). I will treat this aspect of the problem in a separate work.

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