

A Feature-Based Account of Weak Islands

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Abstract The objective of this paper is to explore to what extent the Relativized Minimality view of locality developed in Rizzi (Relativized minimality. MIT Press, Cambridge, MA, 1990) coupled with a fine-grained featural analysis as in Starke (Move dissolves into merge. Dissertation. Université de Genève, 2001) and Rizzi (Structures and Beyond. The cartography of syntactic structures. Oxford University Press, Oxford/New York, 2004a) can account for a gradient of extraction from Weak Islands (WI) in French as well as in Italian and Romanian. The more general aim is to show that such an explanation holds cross-linguistically. On the basis of a series of tentative descriptive generalizations, we aim at identifying a set of formal properties to capture them. Some of these properties are related to the interplay of the features that enter the specifications of the intervener, on the one hand, and the extractee, on the other. We also aim at identifying the ameliorating/aggravating features and furthermore at establishing a hierarchy of ameliorating features.

Keywords Generative grammar • Weak islands • Locality • Comparative syntax • Micro-parameters • Features • Intervention/extraction • French • Italian • Romanian • English

1 Introduction

In language an element can be displaced to a position which is different from the position where it is inserted into the structure. Even though movement can proceed long-distance (though in steps, cyclically), it is subject to locality constraints. These constraints are classified into two classes: (i) there are domains which are completely impervious to movement; (ii) there are others where certain types of

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elements (i.e. the intervener) occurring on the movement path of the moving element (i.e. the extractee) have the capacity of blocking movement. Put differently, they intervene on the movement of an element. Whereas the locality constraint is absolute for cases like (i), it is selective for cases like (ii). In this article, we are going to focus on the second type of locality effects, i.e. those created by a specific intervening constituent. The goal of this paper is to identify the locality effects arising from the asymmetries between a moved quantificational element and another element, when the moved element is a *wh*-word and the intervener is also a *wh*-word. The hypothesis to work with is that the combination of the Relativized Minimality (RM) approach with a fine-grained feature system provides a locality system capable of predicting subtle gradations in intervention effects.

The objective of this paper is to explore to what extent the Relativized Minimality view of locality developed in Rizzi (1990) coupled with a fine-grained featural analysis as in Starke (2001) and Rizzi (2004a) can account for a gradient of extraction from Weak Islands (WI) in French as well as in Romanian and Italian. The more general aim is to show that such the account that captures the three languages can also hold cross-linguistically. In order to achieve this goal, we will proceed along two axes.

Firstly, on the basis of a series of tentative descriptive generalizations on French, we aim at identifying a set of formal properties to capture them. Some of these properties are related to the interplay of the features that enter the specifications of the intervener, on the one hand, and the extractee, on the other. We also aim at identifying the ameliorating/aggravating features and furthermore at establishing a hierarchy of ameliorating features in French.

The second axis is (micro-)comparative in the sense that it extends the area of investigation to the languages mentioned above in an attempt to refine the preliminary generalizations for French cross-linguistically. The major theoretical objective of this paper is that it will lay down a uniform analysis of extraction from WI for fairly closely related languages (Romance).

Our comparative study is situated in the theoretical framework of Cartography (Rizzi 1997, 2001a, 2004a, Cinque and Rizzi 2008 and related work) and of the Minimalist Program (Chomsky 1995, 2000, 2004, 2008). It ultimately bears on one of the central research themes in syntactic theory, a principle of locality capable of explaining subtle degrees of extractability.

The paper is organized as follows. Section 2 presents the theoretical framework related to movement and locality. In Sect. 2.1, the concept of Impenetrability is discussed (strict locality and strong barriers), while in Sect. 2.2, (selective) intervention locality is expressed in terms of Relativized Minimality. Section 3 deals with different cases of extractions from weak islands mainly in French and English. In Sect. 3.1, some asymmetries in weak island extraction are analyzed in terms of RM intervention involving feature identity and geometry. In Sect. 3.2, the argument-adjunct asymmetry in weak (*wh*-)islands is treated according to a feature-based computation of RM (selective) intervention. Section 3.3 is concerned with extractions from infinitive *wh*-islands, which are more permissive than extractions from a tensed clause. In Sect. 3.4, extraction of a *wh*-adjunct across

another *wh*-adjunct is taken into consideration. Slight effects on *wh*-argument extraction are revealed with respect to the [Animacy] property in Sect. 3.5 and to the categorial (DP/PP) property in Sect. 3.6. Section 4 is devoted to a discussion of weak islands in two other languages, namely Italian in Sect. 4.1 and Romanian in Sect. 4.2. It will be shown that, despite slight differences, the asymmetries observed for French hold for both languages. In Sect. 5, a feature hierarchy for A'-elements that involves aggravating (Q-)features and improving (Arg-)features is derived from all the asymmetries in weak island extractions observed in French, Italian and Romanian. Section 6 contains the conclusions.

2 Locality

Natural language syntax makes extensive use of movement: elements are typically pronounced in positions different from those in which they receive some of their interpretive (i.e. thematic) properties. The theoretical framework of movement is laid down in Chomsky's (1977) seminal paper "On *Wh*-Movement" which adopts and builds on his 1973 "Conditions on Transformations". It consists of the general movement rule "Move *wh*-phrase", which is shown to underlie a number of seemingly different constructions, later identified as A' constructions.

A fundamental idea of modern formal linguistics is that apparently unbounded syntactic dependencies consist of a sequence of local dependencies such as those established by the cyclic (Comp to Comp) movement of a *wh*-phrase from its original position:

- (1) Who_i do you think [that Paul said [that Andy hopes [that Mary had met t_i]]]]?

The theory of locality is a major component in those theories which assume that syntactic derivations involve movement operations. The identification of locality principles that constrain movement operations has enriched the scientific debate on how linguistic computations work, providing evidence on how the human cognitive system for language computes structures, and raising questions on the generality or task-specificity of computational principles embodied in language.

Ever since the 1960s, a number of formal locality principles have been put forth. Rizzi (2011:210) summarises them as intervention and impenetrability:

- (A) Intervention: a local relation is disrupted by the intervention of an element with certain properties which make it a potential participant in that local relation.
- (B) Impenetrability: certain syntactic configurations are impervious to local rules, which cannot take place across their boundaries.

Below the two concepts are taken over and discussed.¹

¹For the possible unification of the two concepts see Rizzi (2010).

2.1 *Impenetrability*

Though couched in different terms, impenetrability can be traced back to Ross' (1967) Island Constraints (see, for instance, (2) exemplifying the Complex NP Constraint) and Chomsky's (1973) Subjacency, in terms of Bounding Nodes or Barriers (Chomsky 1986). An influential thorough discussion about the impermeability to local rules is Huang's (1982) Condition on Extraction Domain. The concept has been discussed more recently by Nissenbaum 2000 and Chomsky 2001 (the Phase Impenetrability Condition of Phase Theory).

- (2) * Whom_i do you know [the date [when Mary invited t_i]]?

In the original formulation (Chomsky 1973), the Subjacency Condition was based on the notion of bounding nodes. The principle stated that a moved phrase can cross at most one bounding node; Chomsky (1977) proposed that the bounding nodes for English are NP and IP, thus forcing *wh* extraction to proceed cyclically, from Comp to Comp (see Rizzi 1982 for a parametrisation for Italian). As such, movement is strictly local.

As said, a natural development of Subjacency in the Minimalist Program is the Phase Impenetrability Condition. It states that only the edge of a phase, i.e. the head and the specifier, can be accessed for movement, the complement of a phase head being opaque (this being a consequence, in fact, of the cyclic spell-out mechanism). CP and vP constitute phases. Within this view of locality long-distance movement is a result of successive-cyclic movement through the edges of different phases. In the course of the derivation, the phases are transferred to the interface systems for spell-out and interpretation.

2.2 *Intervention Locality: Relativized Minimality*

Intervention locality is expressed, in different forms, by the principle of Relativized Minimality (Rizzi 1990, 2004a and much subsequent work) or the Minimal Link Condition/Minimal Search (Chomsky 1995; Chomsky 2000). Chomsky's (1964) A over A Condition (Chomsky 1964) can also be subsumed under intervention. Similarly, the interpretive locality effects in multiple *wh* constructions discussed by Beck (1996, 2006) and Pesetsky (2000) are also instantiations of the intervention concept.

This paper focuses on Intervention locality. It proposes to investigate several types of configurations to be discussed in more detail in Sect. 2.3.

An illustration of intervention locality is provided below. These are the examples discussed by Rizzi (2011: 221).

- (3) How do you think [he behaved < how >]?
 (4) *How do you wonder [who behaved < how >]?

The *wh*-adjunct cannot be extracted across another element of the same kind, that is the *wh*-subject *who*, which intervenes on the chain between *how* and its trace. (3) is not a case of intervention as *how* and the pronominal subject *he* are not of the same kind.

Relativized Minimality (Rizzi 1990) generalizes this observation to all local relations. Informally, X and Y cannot be related in the following configuration (3) when Z qualifies as an intervener:

- (5) ...X....Z...Y Z = the intervener

Intervention is defined hierarchically, in terms of c-command: the intervener Z c-commands Y but does not c-command X. The original implementation of RM took into account the following structural types of positions:

- (6) (i) A'-positions, (ii) A-positions, and (iii) head positions.

Rizzi (2004a) shows that the typology in (6) is not fine-grained enough to make a difference between, say, two intervening adverbs *beaucoup* 'a lot' and *attentivement* 'carefully' in French. This is illustrated by the contrast in (7) discussed by Rizzi (2004a) and (2011).

- (7) a. *Combien a-t-il beaucoup lu < combien > de livres?
 'How many has he a lot read of books?'
 b. Combien a-t-il attentivement lu < combien > de livres?
 'How many has he carefully read of books?'

Though both adverbs are A' specifiers, only the quantificational adverb *beaucoup* 'a lot' creates an RM effect in (7a). The manner adverb *attentivement* 'carefully' in (7b) does not (see also Laenzlinger 1998) (for further critical discussions of the 1990 version of RM, see Rizzi (2004a)).²

This concept of locality is rephrased in Chomsky (1995) in terms of the Minimal Link Condition (MLC) in (8). This condition is violated when an intervener is identical in feature make-up to the target.

- (8) Minimal Link Condition:
 K attracts a only if there is no b, b closer to K than a, such that K attracts b.
 (Chomsky 1995)

As shown in Rizzi (2004a), the MLC can account for certain facts due to the fine-grained feature-based typology of interveners it relies on (i.e. identity of the attracting feature). However, such a system is too selective and loses an explanation for other facts, for instance, it cannot immediately capture (7a) where the Q-adverb

²Besides the movement account, there are alternative views. For instance, a pure semantic approach has been proposed to explain intervention effects in *wh*-questions (Beck 2006, Beck & Kim 1997, see also Szabolcsi & Zwarts 1993/1997, Szabolcsi & den Dikken 2003). Basically, a weak island violation would produce a semantically ill-formed structure (at LF).

intervener is not “attractable” to C.³ However, a few words should be said about these two principles.

Both MLC redefined in terms of Agree (Chomsky 2000) and RM can treat intervention as a locality condition on syntactic relations. The former applies to the relation between a Probe and a Goal (Agree). The latter applies to (members) of chains formed by movement.

Both MLC and RM establish non-local relations among features. A natural theoretical move would be to consider them as facets of the same process or mechanism. However, there are some non-trivial problems in the attempt to reduce one to the other. First, Agree is a derivational relation, while RM is a condition on representations. Second, and perhaps more importantly, it is frequently claimed that the intervention effects which delimit Agree are different from those that hold of RM. A case in point is dative intervention in Icelandic (Holmberg and Hróarsdóttir 2004 and references cited therein): A quirky dative subject in situ blocks Agree-ment between T and a lower nominative while failing to block raising of the nominative above the dative. On the face of it, it indeed looks like Agree is more stringently constrained than Move (chain formation).⁴

Rizzi (2004a) proposes a feature-based version of Relativized Minimality as a general formal intervention principle which is more fine-grained than the typology of positions in (6) and less selective than the feature identity of the MLC in (9). This version of Relativized Minimality (RM) is conceived of as a condition on representations.

- (9) Y is in a Minimal Configuration (MC) with X iff there is no Z such that
- (i) Z is of the same structural type as X, and
 - (ii) Z intervenes between X and Y.

Crucially, the structural typology is expressed in terms of classes of morphosyntactic features, along the following lines:

³Nevertheless, it is possible to assume that Attract from the Probe applies to a set of features or a feature class (e.g. Q).

⁴We note, however, that movement can “cheat” intervention in a way that Agree cannot. Concretely, movement can include a smuggling operation (in the sense of Collins 2005a) and raise the nominative—encapsulated within a larger category—above the dative, thus circumventing the intervention effect. Such an operation can be overtly observed in French. One can argue that the intervention of the dative in (ia) is circumvented in (ib) by moving the small clause *containing* the nominative above the dative, prior to movement of the nominative itself. (Belletti and Rizzi (2012) deal, in similar terms, with experiencer-subject verbs like *piacere* in Italian; see also Collins (2005b)).

(i) a. * Les enfants semble(nt) à Marie [< les enfants > heureux]

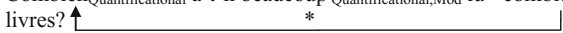
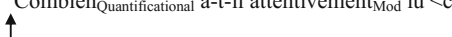
b. Les enfants semblent [< les enfants > heureux] à Marie < [les enfants heureux]>

Transposed to Icelandic, one could argue that smuggling cannot be triggered for Agree as it can only be licensed as a derivational stage of an independently-triggered movement operation. If this way of seeing things can be generalized, it may turn out that the intervention effects which constrain Agree are actually the same as those described for chain formation, namely, RM.

- (10) a. Argumental: person, number, gender, case
 b. Quantificational: Wh, Neg, measure, focus...
 c. Modifier: evaluative, epistemic, Neg, frequentative, celerative, measure, manner,...
 d. Topic

What this version of the principle says is that RM effects arise within the same feature class, but not across classes. To illustrate, consider (7) repeated as (11).

(11)

- a. Combien_{Quantificational} a-t-il beaucoup_{Quantificational,Mod} lu <combien_{Quantificational}> de livres? 
- b. Combien_{Quantificational} a-t-il attentivement_{Mod} lu <combien_{Quantificational}> de livres? 

A quantificational specifier acts as an intervener on a quantificational chain (11a), but a pure modificational specifier does not, as in (11b).

Thus, RM effects are triggered by interveners which bear features which are either identical or similar to the target, where “similar” is precisely understood as “belonging to the same feature class” (see also Starke 2001; Abels 2012; Lahousse et al. 2014 and Haegeman 2012). Configurations like (11) and others, known as asymmetries, to be discussed in Sect. 3.1, can be treated in terms Starke’s (2001) system who proposes to treat locality in terms of the featural specifications of the elements involved. There can be different significant set-theoretic relations between the featural specifications of the intervener Z and the two elements, X and Y, which should enter into a local relation (see Friedmann et al. 2008 and Rizzi 2011):

- (12) a. $\alpha \dots \beta \dots \alpha$ (disjunction)
 b. $\alpha\beta \dots \alpha \dots \alpha\beta$ (proper inclusion of the intervener)
 c. $* \alpha \dots \alpha\beta \dots \alpha$ (proper inclusion of the target)
 d. $* \alpha \dots \alpha \dots \alpha$ (identity, simple case)
 e. $* \alpha\beta \dots \alpha\beta \dots \alpha\beta$ (identity, complex case)

While an intervener with disjoint featural specification (12a) or with a featural specification properly included in the specification of the target (12b) are well-formed, the remaining cases, with an intervener which is at least as richly specified as the target (12d-e), or more (12e), give rise to a violation of featural RM. Of special relevance for this paper is the proper inclusion case (12b), intended to capture cases of selective extractability from Weak Islands. This will be discussed below.

3 Extractions from Weak Islands

3.1 *Asymmetries with Weak Islands*

In Sect. 2.1, we introduced the fundamental empirical issue that this paper addresses: it is not the case that all elements are equally (un)extractable from weak islands. Some wh-elements can, to some degree, be extracted across certain types of elements.

Several asymmetries have been pointed out and discussed in the literature. Huang (1982) observed that while adverbial elements strongly resist wh-extraction from wh-islands, wh-arguments are at least marginally extractable, as shown below:

- (13) a. ? Which problem do you wonder how to solve < which problem >?
 b. * How do you wonder which problem to solve < how >?

(13) illustrates the argument-adjunct asymmetry: while adverbs fully show the expected RM effects for A' chains, arguments seem to be able to escape, at least in part. Since the mid-1980's, much work (Chomsky 1986; Rizzi 1990; Manzini 1992; Szabolcsi and den Dikken 2003, a.o.) has been done on the issue of how to best characterize the asymmetries and to identify the class of interveners determining RM effects on A' chains.

Related to the contrast in (13) it was observed that wh-arguments can be marginally extracted only if they have a special interpretation, i.e. if they are presupposed or discourse-linked (Pesetsky 1987; see also Comorovski 1989, Cinque 1990). Certain types of wh-phrases like *what the hell* or *what on earth* are incompatible with D-linking (these are Pesetsky's aggressively non-D-linked expressions) and thus cannot be extracted:

- (14) a. ? Which problem do you wonder how to solve < which problem >?
 b. * What the hell do you wonder how to solve < what the hell >?

The importance of D-linking (or the existence of a pre-established range of variables in the discourse) has also been discussed for English by Frampton (1991), for Italian by Rizzi (2001b), for French by Obenauer (1994, 1983).⁵

Another type of asymmetry observed in the literature on French is the one induced by negation (Ross 1983, Szabolcsi and Zwarts 1993/1997, Kuna and Takami 1997, a.o.). The asymmetry is exemplified in (15):

⁵In order to account for such exceptions to RM, distinct mechanisms have been proposed. Cinque (1990) and Rizzi (1990) propose a mechanism which makes recourse to referential indices with D-linked wh-arguments (see also Frampton 1991 for a critical discussion; Manzini (1992) for a different view on the asymmetries).

- (15) a. Combien de problèmes ne sais-tu pas résoudre < combien de problèmes >?
How many of problems can't you solve?
b. * Combien ne sais-tu pas résoudre < combien > de problèmes?
How many can't you solve of problems?

It was also noted that certain kinds of quantificational adverbs expressing measure have a blocking effect on the extraction of the *combien* 'how' part of the argument *combien de livres/films* 'how many of books/films' (Obenauer 1983, 1994; see also (7) above). This is illustrated in the two pairs of examples below.

- (16) a. Combien de livres a-t-il beaucoup consultés < combien de livres >?
How many of books has he a lot consulted?
b. * Combien a-t-il beaucoup consultés < combien > de livres?
How many of books has he a lot consulted?
(17) a. Combien de films a-t-elle peu aimés < combien de films >?
How many of films did she little like?
b. * Combien a-t-elle peu aimé < combien > de films?
How many did she little like of films?

One way to treat such asymmetries is Starke's (2001) system who proposes to treat weak islands and extraction out of Weak Islands in terms of RM (1990) coupled with a feature geometry, which gives rise to the relations already discussed in (12).

The crucial point is that beyond these well-recognized asymmetries, French presents a series of cases of subtle extractions from WI (see sections below) and it is the major aim of this paper to provide an empirical study of these extractions. The other major goal is to extend the empirical study to other languages (Italian and Romanian, see Sect. 4). Our working hypothesis is that RM (2004) and a fine-grained featural analysis (see also Haegeman 2012: chap. 3) can account for subtle effects cross-linguistically.

3.2 The Argument-Adjunct Asymmetry Revisited

Our preliminary investigation of WI in French has concentrated on some cases of wh-islands which are discussed in the sections below.

Consider the argument/adjunct asymmetry.⁶ The important point is that the judgments below are not absolute (all the examples are deviant to some extent), but contrastive i.e. relative to each pair of sentences.

⁶The use of another interrogative verbal expression like *wonder* (instead of *know*) increases the deviance of extraction cases. The difference between *know* and *wonder* is plausibly related to the fact that only the latter is exclusively an interrogative verb (*wonder* [+ wh] versus *know* [+/-wh]) selecting either an interrogative or an indicative clause, see (McCloskey 1992, and also Adger and Quer 2001 on the unselective property of verbs like *know*).

- (18) a. * Comment ne sais-tu pas qui il va rencontrer?
 How don't you know who he will meet
 b. ?? Qui ne sais-tu pas comment il va rencontrer?
 Who don't you know how he will meet

Extraction of the manner wh-adjunct *comment* across the wh-argument *qui* leads to strong ungrammaticality, whereas extraction of this wh-argument past the wh-adjunct leads to a somewhat better result. Our working hypothesis is that the contrast is to be sought in the featural make-up of the extractee and of the intervener. The wh-argument is specified [+wh, +Arg], whereas the adjunct has the feature [+wh]. In keeping with Starke's system the richer feature specification of the argument suffices to soften the RM effect. Derivationally, following Rizzi's (1997) split-CP hypothesis, the wh-adjunct moves to the specifier of the embedded FocP, while the wh-argument targets the specifier of the higher FocP.⁷

Let us compare the extraction case in (18) to (19).

- (19) a. * Comment ne sais-tu pas lequel de ces problèmes tu peux résoudre?
 How don't you know which of these problems you can solve
 b. ok/? Lequel de ces problèmes ne sais-tu pas comment tu peux résoudre ?
 Which of these problems don't you know how you can solve

RM effects substantially improve in (19b). In other words, the asymmetry argument-adjunct strengthens. The working hypothesis for the contrast in (19a-b) is the fact that the wh-argument extractee has a D-linked interpretation. Rizzi (2001a) considers D-linked wh-elements as being endowed with both wh and top-features and therefore are associated in some way with both a TopP and a wh operator position in the left periphery. It is this Top property that makes its extraction across a wh-element easier.⁸ What (19b) illustrates is Starke's relation of inclusion of the features of the intervener into those of the target. Put differently, the extractee is more richly specified than the target and extraction is perfect (or almost perfect).

⁷Since long-distance wh-movement must respect phases given Chomsky's (2008) Phase Impenetrability Condition, the higher wh-element must move through Spec-ForceP (Spec-ForceP being the edge of the CP-phase), an escape hatch. Our analysis is consistent with the phase-based approach, but we will not spell out the consequence of phrasing things in phase theoretic terms.

⁸Topics in Romance CLLD (French in (i) below) can extract from wh-islands, since Top is a RM-feature distinct from Q/wh, as in (i).

(i) Cet homme, je ne sais pas qui va l'inviter.
 This man I don't know who is going to invite (him).

3.3 *Extraction from Infinitive Weak Islands*

It is interesting to test the RM effects observed in the asymmetry in (18) in non-finite infinitive WI. This is shown below.

- (20) a. * Comment ne sais-tu pas qui contacter?
How don't you know who to contact?
b. ? Qui ne sais-tu pas comment contacter?
Who don't you know how to contact?

The observation is that RM effects improve in (20b). In (20b) extraction takes place across an infinitival sentence in French. One explanation for this improvement is to be sought in the 'reduced' or 'truncated' structure of the infinitival clause (Haegeman 2006; Rizzi 1993/4; Hooper and Thompson 1973). As proposed by Shlonsky (2006), the infinitival CP is a defective structure containing only FinP (allowing neither topicalization, nor focalization) and/or a mood projection given that the interpretation in (20b) is "Who don't you know how you can/should contact?" (hidden modal reading). The configuration in (20c) shows that the two Wh reach a different landing site:

- c. [_{FocP} Wh1 [... [_{FinP/MoodP} Wh2 [...]]]
Who don't you know how to contact?

As a consequence, the featural make-up of the two wh-elements is different: Wh1_[wh, foc] and Wh2_[wh, fin/mood]. This difference in feature composition weakens RM-effects (i.e. improves extraction) in infinitival wh-contexts.

The next question to ask is whether the same RM effect obtains with the extraction of another wh-argument, *quoi* 'what' and its 'lighter' form, which is a clitic, *que*. Our preliminary investigation suggests that there is a contrast between the two wh-arguments.

- (21) a. ? Quoi, habituellement, /^{??}Que ne sais-tu pas comment faire?
What don't you know how to do
b. * Comment ne sais-tu pas quoi faire?
How don't you know what to do

The differential RM effects between *quoi* and *que* can be attributed to the clitic nature of *que* (see discussion of the properties of *que* in Kayne 1975, Friedemann 1990).

3.4 *Wh-Adjunct Extraction Across Another Wh-Adjunct*

The examples below are illustrative of wh locative adjunct extraction across the manner adjunct.

- (22) a. ? Où ne sais-tu pas comment te comporter?
Where don't you know how to behave?

b. * Comment ne sais-tu pas où te comporter?

How don't you know where to behave

The contrast shows that the locative wh-adjunct can marginally cross the manner wh-adjunct,⁹ but the reverse configuration yields a strong intervention effect, i.e. a RM violation. The explanation for this contrast has to do with the featural make-up of the adjuncts.

Let us further compare the extraction of the locative wh-adjunct *où* 'where' across another type of wh-adjunct, the time adjunct intervener *quand* 'when':

(23) a. ?(?) Où ne sais-tu pas quand passer tes vacances?

Where don't you know when to spend your holidays

b. ?? Quand ne sais-tu pas où passer tes vacances?

When don't you know where to spend your holidays

The contrast shows that, though judgments are very subtle, the locative wh-adjunct can be more easily extracted across the time wh-adjunct. What the data in (22) and (23) suggest is that in French the locative wh-adjunct is a better extractee than the time wh-adjunct, which, in its turn, is a better extractee than the manner adjunct. One other empirical aim of our study is to look into this kind of very subtle effect with these three types of adjuncts and understand what feature(s) makes the locative a better extractee. To the puzzle of the wh-adjuncts, it is worth taking into account another wh-adjunct, the reason *pourquoi* 'why'. Testing intervention effects with *pourquoi* 'why' would be interesting in itself as this adjunct is argued to have properties different from those of the other wh-phrases in that it is not sensitive to negation and it is merged in the left periphery of the clause, to mention only some (Bromberger 1992; Bolinger 1978; Stepanov and Tsai 2008; Rizzi 1990, 2001a; Shlonsky and Soare 2011, a.o.)¹⁰ We leave this question for future research.

3.5 Animacy ([+Human]) in Wh-Argument Extraction

The examples below focus on wh-argument extraction across another wh-argument. To the best of our knowledge, this contrast has not been observed in the literature. It shows that the wh-argument *qui* 'who', specified for the feature [+Human], is slightly more easily extractable across [-Human] argument than the reverse. This seems to suggest that the feature [+Human] may play an ameliorating feature for extraction from a wh-island, that is for RM effects.

(24) a. ? Qui ne sais-tu pas de quoi informer?

Who don't you know of what to inform

⁹Even if the manner adverb is selected as an argumental complement, it is not a θ -referential argument. Therefore, it is marked as non-argument..

¹⁰The French *pourquoi* 'why' is particularly interesting as it does not allow Stylistic inversion (Kayne 1984).

- b. ?(?) De quoi ne sais-tu pas qui informer?
Of what don't you know who to inform

If this kind of explanation is on the right path, it is reminiscent of the Animacy hierarchy of the typological tradition (for instance, Comrie 1981). This hierarchy (elements marked [+ Human] must precede others marked [-Human]) is strictly observed in languages like Navajo (Willie 1991, Hale 1973).¹¹ In multiple wh-fronting languages like Romanian and Bulgarian wh-argument ordering also exhibits the Animacy hierarchy at the left periphery of the clause, i.e. first come the [+ Human] arguments and then the [-Human] ones (for Romanian, *cine* 'who' > *pe cine* 'who_{Acc}' > *cui* 'who(m)' > *ce* 'what') (Soare 2009 for Romanian; Krapova and Cinque 2005, Billings and Rudin 1996 for Bulgarian).

3.6 Categorical Feature, DP Versus PP

Consider the second contrast of wh-argument extraction across another wh-argument:

- (25) a. ?? Qui ne sais-tu pas à qui présenter?
Who don't you know whom to introduce?
b. ?(?) A qui ne sais-tu pas qui présenter?
Whom don't you know who to introduce?

Both the extractee and the intervener are [+ Human] argumental wh-elements, one being a DP and the other a PP. Although the two wh-elements are of the same featural type (i.e. [+human], [+argument]), there is a light RM effect in that *à qui* is more easily extractable than *qui*. Plausibly this is related to the distinct categorical features of the extractee and intervener.

To summarize so far, beyond the classical asymmetries (Sect. 3.1), a series of generalisations on the subtle differential effects in French have emerged from the above discussion which indicate the role the following features play in ameliorating extraction to a varying degree:

- (A) The Top-like feature in a D-linked wh-phrase like *lequel de ces problèmes*;
- (B) The [+ Human] feature specified on a wh-argument;
- (C) The PP feature on a wh-argument;
- (D) The locative wh-adjunct seems to be a better extractee than the time wh-adjunct;
- (E) Extraction out of the infinitive Weak Islands is better than out of an indicative WI.

Recall that one of the major empirical aims of this paper is to describe such subtle differences in detail. The discussion above suggests that a hierarchy of the

¹¹In Malayalam, a language with differential object marking, only animate and human objects are marked with the accusative case, but not inanimate objects (De Swart et al. 2008).

‘betterness’ of extraction, depending on the intrinsic properties of the extractee, can be tentatively drawn for French:¹²

- (26)
- | | | | | | | | | | | |
|---------------|---|----------------------|---|----------------------|---|-----------|---|----------|---|---------|
| D – linked XP | > | Arg ₊ hum | > | Arg ₋ hum | > | Loc | > | Time | > | Manner |
| quel N | | qui | | quoi | | olsquou | | quand | | comment |
| ‘‘which N’’ | | ‘‘who’’ | | ‘‘what’’ | | ‘‘where’’ | | ‘‘when’’ | | ‘‘how’’ |

Besides describing subtle RM effects in Weak Islands in French, the other major aim of our work is to study and refine such preliminary generalizations cross-linguistically. This goal will be achieved by extending the research to two more Romance languages, Italian and Romanian. Below we consider each language and justify its choice.

4 Weak Islands in Other Languages

4.1 Italian

One reason for specifically choosing Italian is that this language displays effects of slightly higher permissibility in extractions than other languages like English. Such microvariations were identified in the very first contributions on the topic (Rizzi 1982; see also Sportiche 1981) but they have never been the object of a detailed microparametric analysis.¹³ In Italian (Rizzi 1982) extraction of a relative pronoun from an indirect question was judged to be better than extraction of another interrogative element, as illustrated below.

- (27) a. Ecco un uomo a cui non saprei che cosa potremmo dire. Italian
 Here is a man to whom I don’t know what we could say
 b. ? A chi non sapresti che cosa potremmo dire?
 To whom don’t you know what we could say

This kind of contrast was known well before the discussion of asymmetries (and thus presented as a clear-cut contrast). However, the discussion of this kind of extraction already introduced an element relevant for the featural analysis we propose here, namely that, featurally speaking, a relative pronoun has less in common, with the interrogative pronoun than another interrogative pronoun. The question relevant for microparametrisation is: is there a genuine difference between

¹²This corresponds to the following hierarchy of wh-elements for English: *which-N* > *who* > *what* > *where/when* > *how*. It would be interesting to investigate whether this hierarchy resembles that of the fronted wh-phrases in multiple wh languages (e.g. Romanian) and/or the hierarchy of wh-phrases in their base positions (see Cinque’s 2006 hierarchy of adjuncts in the Midfield of the clause)..

¹³French and Italian are more permissive than English concerning extraction of a relative pronoun from a wh-island. This led to a parametrisation of bounding nodes.

Italian and languages which seem to make no difference between extractions with relatives and questions?

In Rizzi (1982) and Sportiche (1981), an alleged difference between Italian and French was that the former allows extraction from tensed indirect questions, whereas the latter only allows extraction from untensed indirect questions. The question arises: is this a genuine difference leading to a microparametric analysis? In order to answer one needs to consider extraction cases from a subjunctive clause (28b), an indirect clause (28a) and a clause with a modal verb in Italian (28c).

- (28) a. ?* Chi non sai come hanno contattato? Italian
 Who don't you know how they have contacted
 b. ?? Chi non sai come abbiano contattato?
 Who don't you know how the have-subj contacted
 c. ? Chi non sai come potremmo contattare?
 Who don't you know how they could contact

These data suggest that Italian is also sensitive to mood/finiteness distinctions, so perhaps the gradient is the same as in French and languages may possibly cut at slightly different points.

Another difference between the two languages regards the behavior of the clitic *wh*-pronoun *que* in French and *che* in Italian, which display a peculiar behavior in RM contexts. While *que* can be (marginally) extracted from a Neg-island, *che* cannot (29a). Extraction of the strong form *che cosa* produces a grammatical result, thus patterning more with *que* in (29b).

- (29) a. Che *(cosa) non vuoi fare? Italian
 b. (?) Que ne veux-tu pas faire?
 What_{clit} don't you want to do

The extraction possibilities of *que* and *che* across distinct types of interveners (i.e. with distinct featural specifications) need to be further tested in order to identify the microparameters that account for their distinct behavior.

As shown by the data below, Italian displays the same asymmetries in *wh*-islands/weak islands as French, namely [XP_{D-linked} > Manner] in (30a-b), [Arg_{+hum} > Manner] in (31a-b), [Arg_{+hum} > Loc] in (32a-b), [Arg_{-hum} > Loc] in (33a-b), [Loc > Manner] in (34a-b) and [Arg_{+hum} > Arg_{-hum}] in (35a-b).

- (30) a. * Come non sai quale di questi problemi posso risolvere?
 How don't you know which of these problems you can solve
 b. ok/? Quale di questi problemi non sai come posso risolvere?
 Which of these problems don't you know how you can solve
 (31) a. * Come non sai chi contattare?
 How don't you know who to contact
 b. ? Chi non sai come contattare?
 Who don't you know how to contact

- (32) a. ?? Dove non sai chi contattare?
Where don't you know who to contact
b. ? Chi non sai dove contattare?
- (33) a. ? Che cosa non sai dove comprare?
What don't you where to buy
b. ?? Dove non sai che cosa comprare?
Where don't you know what to buy
- (34) a. ? Dove non sai come comportarti?
Where don't you know how to behave
b. * Come non sai dove comportarti?
How don't you know where to behave
- (35) a. ? Chi non sai di che cosa informare?
Who don't you know of what to inform
b. ?(?) Di che cosa non sai chi informare?
Of what don't you know who to inform

Thus, these facts give further support for the hierarchy of extractability given in (26). In the next section, we will test extraction possibilities in *wh*-islands in Romanian and check if the generalization in (26) also holds for this language.

4.2 Romanian

Romanian is a multiple *wh*-fronting language in which the *wh*-phrases are hierarchically (and linearly) ordered (for different analyses, see Rudin 1988; Alboiu 2000; Soare 2009). For instance, the *wh*-subject obligatorily precedes the *wh*-object, as illustrated in (36).

- (36) a. Cine ce a spus?
'Who what said?'
b. * Ce cine a spus?
'What who said?'

Since Romanian is a different language type, it is interesting to test some intervention effects in extractions from *wh*-islands. Consider first the case of the classic argument-adjunct asymmetry below.

- (37) a. * Cum nu stii pe cine vei intampina?
'How don't you know who you will welcome?'
b. ?? Pe cine nu stii cum vei intampina?
'Who don't you know how you will welcome?'

As expected (see discussion in Sect. 3.2), extraction of the *wh*-adjunct *cum* 'how' across the argument results in a strong RM effect (37a), whereas argument extraction across the adjunct leads to a lesser RM effect. Presumably this contrast is

related to the status of the *wh*-argument, i.e. it is an argument and in addition also has the feature [+Human].

If (37) is compared to (38) below, there is a contrast in *wh*-argument extraction across the intervener *cum* ‘how’. We observe that extraction of the Accusative *pe cine* ‘who’ across the intervener *cum* ‘how’ in (38b) fares better from a subjunctive clause than from a tensed clause in the future, as is the case in (38b). It is to point out that Romanian has a very reduced use of infinitivals and employs instead the subjunctive, marked by the particle *sa* (the counterpart of the English *to* in cases like *I want you to leave*.) Let us consider the nature of the improvement found when extraction takes place from an infinitival (recall the Italian/French data) and from a subjunctive clause (Romanian).

- (38) a. * *Cum nu stii pe cine sa contactezi?*
 ‘How don’t you know who to contact?’
 b. ? *Pe cine nu stii cum sa contactezi?*
 ‘Who don’t you know how to contact?’

Since extraction from subjunctive clauses seem to result in better acceptability, let us consider other cases of extraction in this particular context. Consider (39) below.

- (39) a. ? *Ce nu stii cum sa faci?*
 ‘What don’t you know how to do?’
 b. * *Cum nu stii ce sa faci?*
 ‘How don’t you know what to do?’

The pair in (39) represents extraction of another type of *wh*-argument across the same adjunct ‘how’. The contrast suggests that even in cases when the argument is marked [-Human], the RM effect obtained with the intervener ‘how’ is slight.

Below we compare *wh*-adjunct extraction across ‘how’.

- (40) a. ?? *Unde nu stii cum sa te compoti?*
 ‘Where don’t you know how to behave?’
 b. * *Cum nu stii unde sa te compoti?*
 ‘How don’t you know where to behave?’

Since the two *wh*-phrases are adjuncts and thus belong to the same feature class in Rizzi’s system, one expects to find ungrammaticality in both (40a) and (40b). Yet, as was the case for Italian and French, there is a contrast. Extraction of the locative leads to a somewhat better result than does extraction of the manner adjunct.

Consider further the extractions below involving two *wh*-arguments. The contrast obtained in the first pair must be related to the feature [+Human]. When a *wh*-argument is specified for this feature and is extracted across an intervener negatively specified for it, acceptability is greater.

- (41) a. ? Cui nu stii despre ce sa povestesti?
 ‘Whom don’t you know about what to tell?’
 b. ?* Despre ce nu stii cui sa povestesti?
 ‘About what don’t you know whom to tell?’

The pair in (42) below is interesting as the two wh-arguments are specified for the feature [+ Human] (in Romanian, the accusative DP is obligatorily preceded by the preposition *pe*). Accusative wh-PP extraction results in better acceptability (42a) than dative DP extraction across the accusative wh-PP (42b). What this contrast shows is that besides the [+ Human] feature, the categorical status of the extractee/intervener must also play a role in argument extraction out of a wh-island.

- (42) a. ? Pe cine nu stii cui sa prezinti?
 ‘Who don’t you know whom to introduce?’
 b. ?? Cui nu stii pe cine sa prezinti?
 ‘Whom don’t you know who to introduce?’

Let us next test a D-linked wh-argument and a bare wh-argument.

- (43) a. Pe care dintre fete nu stii cui sa le prezinti?
 ‘Which of the girls don’t you know whom to introduce?’
 b. ?* Cui nu stii pe care dintre fete sa le prezinti?
 ‘Whom don’t you know which of the girls to introduce?’

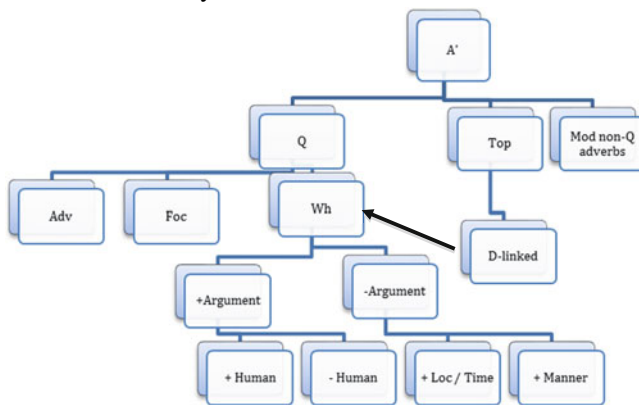
When the extracted wh-argument is D-linked, the sentence is fine (see (43a)) and this is what is expected under the assumption that the D-linked wh-element is featurally richer than the intervener *cui* ‘who(m)’ (recall Rizzi’s (2001b) analysis of such elements as being [+Wh +Top], thus having a Topic-like interpretation). Romanian shows one piece of evidence that the D-linked wh-element is Topic-like which comes from the obligatory presence of the clitic *le* ‘them’. As seen in (43b), extraction of the bare wh-phrase across the D-linked wh results in a quite strong RM effect. Thus, as observed in the case of French/Italian/English, a D-linked wh-element has an ameliorating (or at least improving) effect on extraction from a wh-island.

We can conclude that the data in Romanian also confirm the hierarchy of extractability established in (26). Thus, Romanian behaves like French and Italian with respect to extraction of wh-elements from wh-islands.

5 Feature Hierarchy for A’-Elements

On the basis of the data coming from French, Italian and Romanian, we propose the hierarchy of A’-features in (44) below. The Q-, Top- and Mod(ifier)-features are Rizzi’s (2004a) classes of features.

(44) A'-feature hierarchy:



This hierarchy reads as follows: the more [+] features from top to down the element has, the better extractee it is. Conversely, the less [+] features from top to down the element has, the worse extractee it is. The place of the element at the bottom of the hierarchy is important: an element which is on the left side is a better extractee than the one on right side, i.e. a [+Human] argument is a better extractee than the [+Manner] element. The next feature on the left side relevant to RM effects is [-Human]. The element bearing this feature is then a better extractee than the element bearing the [+Loc/Time] feature or the [+Manner]-feature.

The feature [D-linked] has a special status: though not all possible combinations have been tested in this paper, it is seemingly an ameliorating feature for extraction.

Apart from the feature make-up of the extractee or the intervener, what counts for the calculation of RM effects, is the subset (intervener)/superset (extractee) relations (see (12) in Sect. 2.2), which must take into account: (i) the blocking effects of $Q_{\{wh,foc,adv\}}$, (ii) the ameliorating features related to argumenthood, event-referentiality and specificity (discourse linking), (iii) distinctive morphological marking for Animacy (e.g. *qui/que* in French and *pe cine/ce* in Romanian), (iv) differences in landing sites with feature inheritance (Wh + Foc versus Wh + Mood in the general case of infinitives with wh-elements) and (iv) the categorial features DP versus PP relevant in the case of wh-arguments.

6 Conclusions

In this paper, we have taken over Rizzi's (2004a) feature-based RM and applied it to French, Italian and Romanian data. We have proposed to analyze the subtle interactions between the targets of movement (or the extractees including arguments) and the interveners in terms of the superset-subset feature/property make-up. The hierarchy of extractability obtained from comparative data in Romance

(French, Italian and Romanian) is given in (45). It illustrates the bottom of the hierarchy in (44).

(45) D-linked XP > Arg_{+hum} > Arg_{-hum} > Loc > Time > Manner.

We have put forth a hierarchy of A'-features, where the relevant features are Rizzi's (2004a) features: Q(uantificational), Top(ic) and Mod(ifier) non-Q adverbs.

The blocking features or at least the aggravating features are {+Q, +Wh (+Foc)}, whereas the ameliorating features correspond to {+Top} (D-linking), {+Arg, +Hum, +Loc} and also {+Mood} (subjunctive mood, modals). We have speculated that categorial features (i.e. {DP, PP}) must also be taken into account in the feature-based computation of RM-effects.

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