

The licensing of pronominal features in WCO and OPC configurations*

Michelangelo Falco

1 Introduction

The behavior of anaphoric pronouns is more complex than usually understood in current generative grammar. Consider the following two classical configurations: *weak crossover* (WCO) (1) and *overt pronoun constraint* (OPC) (2).

- (1) If an \bar{A} -moved DP crosses over an embedded pronoun, the DP cannot bind the pronoun
 - a. ?* *Who* does [_{DP} *his* mother] admire *t*?
 - b. ✓ *Who* likes [_{DP} *his* mother]? (cf. Wasow 1972)

- (2) If an overt/null pronominal alternation is possible, an overt pronominal must not have a quantified antecedent
 - a. * *Nadie* cree que [*él* es feliz.]
 - b. ✓ *Nadie* cree que [*pro* es feliz.]
‘Nobody believes that *he/pro* is happy’ (cf. Montalbetti 1984)

These configurations display a common property: the specificity of the antecedent plays a crucial role in alleviating WCO (3) and OPC (4) effects.

- (3) ? *Which famous professor* do *his* students admire *t*? (weaker crossover cf. Falco 2007)

- (4) ✓ *Quale brillante studente t* dice che (nemmeno) *lui* supererà la selezione?
which brilliant student t says that (not even) *he* will pass the selection

Lasnik and Stowell (1991) pointed out that the quantificational nature of the antecedent determines the emergence of WCO effects, and speculated that the distinction between true quantifiers and non-quantificational \bar{A} -binders may be relevant for the OPC configurations as well. Crucially, non-quantificational binders do not give rise to WCO and OPC effects as illustrated by the parasitic gap configurations in (5) and (6).

- (5) ✓ *Who* did you gossip about *t* [despite *his* teachers having vouched for *t*].
(Lasnik and Stowell 1991, ex.23-a)

- (6) ✓ *A quiénes* contrató *t* el director [sin persuadir de que *ellos* viajen a Lima]?
‘Who did the director hire *t* without persuading that *they* should travel to Lima’
(Montalbetti 1984, ex.36, ch.4)

Building on their insight, in this contribution I further develop the parallelism between WCO and OPC with quantificational antecedents, systematically establishing that the specificity (Pesetsky 1987, Enç 1991) of the antecedent allows the circumvention of both effects. Drawing on the literature, I describe some syntactic contexts whose grammaticality is sensitive to the specificity of the extracted DP and I use these environments to test the claim that WCO is sensitive to the specificity of the antecedent. The data shows that a partitive *wh*-phrase can bind a leftward pronoun without a WCO effect, whereas a non-specific *wh*-operator cannot. In OPC configurations, a partitive *wh*-element can bind an overt pronoun alternating with a null one, whereas a non-specific *wh*-phrase cannot. Furthermore, I generalize this latter observation on OPC with the classical null/overt alternation to the wider weak/strong alternation. Establishing these generalizations systematically is the empirical contribution of this paper.

*My thanks to Pier Marco Bertinetto, Genoveva Puskas, Luigi Rizzi, Ur Shlonsky, and especially to Valentina Bianchi and to Denis Delfitto for helpful suggestions and discussions, and to the audiences of the 33rd Penn Linguistics Colloquium and of the 1st Swiss Workshop in Generative Grammar for comments.

These empirical results are the starting point of the analysis I propose. As I mentioned at the outset, to date, these phenomena have been neglected in the relevant literature and thus have been left unaccounted for. The analysis I advance is built on two basic ingredients. First, I assume the following natural condition for syntactic binding (7).

- (7) Features on bound pronouns must be licensed under c-command by features of their binders.
Condition for syntactic binding

Second, I propose a ‘syntacticization’ of the notion of specificity. It is semantically justified to assume that an index denoting a set is present on the ‘familiar’ NP-restriction of the DPs (j in (8)), as in Enç 1991. The notion of specificity overlaps with the notion of *familiar Topic* (Frascarelli, 2007) and has syntactic effects, triggering movement to the relevant position in the C-domain. Thus, it can be assumed that actually the index j is a grammatical feature. Since the NP restriction is endowed with ϕ features, through the ‘syntacticization’ the index j I advocate, we end up with the following format for specific *wh*-phrases (8).

- (8) [DP Q [NP] $_{\phi, j}$] Specific Q-phrase format

The interaction of these basic ingredients derives the empirical pattern at issue here. The presence of the j feature yields two consequences. On the one hand, following Rizzi’s (2001a) theory of LF chains, j has the syntactic effect of reducing WCO configurations involving operators endowed with this feature to the OPC configurations: in specific WCO cases, binding obtains from the \bar{A} position, if the condition (7) holds. On the other hand, under condition (7), this same specificity feature allows binding of a c-commanded strong pronoun, endowed with a specificity feature too, as I argue.

According to Rizzi (2001a), if the *wh*-phrase is specific, it is moved, due to its topical nature, to the relevant position within the left-periphery: a Q+TOP complex head (Luigi Rizzi, p.c.) (9a). Conversely, in the non-specific *wh*-phrases the restriction must reconstruct in argumental position (9b), and only the *wh*-operator is licensed in the left periphery, in the spec of Q.¹ From this perspective, specific crossover configurations, reduce to the OPC configuration with the binder c-commanding the bound pronoun (modulo the additional level of embedding in OPC). The very existence of these syntactic effects provides evidence for the ‘featurization’ of the j index.

- (9) a. [Q+TOP Q [NP] $_{\phi, j}$] ... [pro] ... ⟨[Q [NP] $_{\phi, j}$]⟩ Specific LF chain
b. [Q Q ⟨[NP] $_{\phi}$ ⟩] ... [pro] ... [⟨Q⟩ [NP] $_{\phi}$] Non-specific LF chain

Building on Lasnik’s (1991) insight, I suggest that the binding relation should be characterized in terms of the ‘relative referentiality’ of the binder and the bindee, and that Lasnik’s (1991) prohibition against binding of a more referential expression by a less referential one is the underlying factor in blocking a binding relation in WCO and OPC configurations. This predicts that in any sentence in which the bindee is more referential than the binder, binding should fail to result. In the spirit of Lee (2001), I reinterpret this insight in terms of the sets of features carried by the elements that enter the binding relation: in other words, the amount of features possessed by two nominal expressions determines their ‘relative referentiality’ for the purposes of binding. Recast in these terms, Lasnik’s (1991) argument is implemented by imposing a feature subset relation between binder and bindee (10). This is my hypothesis predicting that ‘featurally’ richer antecedents are able to bind ‘featurally’ richer pronouns.

- (10) a. ✓ binder $_{[\phi, j]}$ \supseteq bindee $_{[\phi]}$ Subset relation
b. * binder $_{[\phi]}$ \subset bindee $_{[\phi, j]}$ No subset relation

All in all, in the present approach, the wider binding possibilities of specific *wh*-operators are reduced to their (explicit or implicit) lexical restriction which is richer in featural make-up and, thus, is allowed to stay in the C-domain.

The rest of the paper is organized as follows. In the next two section the empirical basis is established: I demonstrate the role of specificity in WCO in §2 and I extend the observation to OPC

¹The portion of structure that counts as trace is indicated by angled brackets.

and the weak/strong alternation in §3. §4 is devoted to the notion of D-linking (Pesetsky, 1987) and specificity (Enç, 1991), while in §5 I illustrate the syntactic consequences of specificity and the account in terms of different LF configurations for specific and non-specific *wh*-phrases (Rizzi, 2001a): the result is that specificity can be naturally conceived as a grammatical feature and that in specific WCO configuration binding is established directly from the \bar{A} position. Finally, in §6, first, I propose a featural make up for specific and non-specific elements on the one hand, and for weak vs. strong pronouns on the other hand, then, on this basis, I illustrate how the condition on binding (7) yields the empirical pattern previously established.

2 The role of specificity in WCO

In Falco (2007), reviving and systematizing a classical observation on the role of specificity in WCO (Wasow, 1972), I showed that we get sharply different grammaticality judgments in crossover configurations with D-linked and non D-linked *wh*-elements: when a D-linked *wh*-element crosses over a pronoun, the bound reading is (almost) acceptable (11b), whereas when the moved *wh*-phrase is non-specific, the sentence is completely out (11a).

- (11) Only non-specific *wh*-operators give rise to WCO effects
- | | |
|---|--------------|
| a. ?* <i>Who the hell</i> do <i>his</i> students admire <i>t</i> ? | Non-specific |
| b. ? <i>Which famous professor</i> do <i>his</i> students admire <i>t</i> ? | Specific |
- (Falco 2007, ex. 2)

In order to establish this claim systematically, I used a series of operational tests of specificity, that is contexts where it has been argued that the specificity of the extracted DP plays a role in determining the grammaticality of the constructions. Here I review a test of specificity and a test of non-specificity to support the relevance of specificity for WCO.

Extraction from a weak island is a specificity test as established most notably by Cinque (1990). Let us take the base paradigm illustrated in (12): in (12a) the D-linked *wh*-phrase can be extracted from a weak island, while in (12b) the extraction of an aggressively non D-linked phrase causes ill-formedness.

- (12) a. ✓ *Dimmi quale degli studenti interrogati* pensi che Gianni non sappia come valutare *t*.
 ‘Tell me *which of the evaluated students* do you think John does not know how to grade *t*.’
- b. ?* *Mi chiedo chi diavolo* pensi che Gianni non sappia come valutare *t*.
 ‘I wonder *who the hell* do you think John doesn’t know how to grade *t*.’
- (Falco 2007, ex. 26a-26b)

In the test (13), we add a potentially offending WCO pronoun. A combined question with weak island extraction and WCO can be used when D-linked phrases are at stake: no WCO effect arises and no weak island violation (13a). In the non-specific case, the WCO configuration must be tested in isolation (eliminating the weak island), in order to ascribe the agrammaticality to the crossover violation.² The WCO effect clearly emerges (13b), confirming Falco’s (2007) hypothesis.

- (13) a. ✓ *Dimmi quale degli studenti interrogati* pensi che il *suo* insegnante non sappia come valutare *t*.
 ‘Tell me *which of the evaluated students* do you think (that) *his* teacher doesn’t know how to grade *t*’
- b. ?* *Mi chiedo chi diavolo* pensi che il *suo* insegnante voglia bocciare *t*.
 ‘I wonder *who the hell* do you think (that) *his* teacher would fail *t*’
- (cf. Falco 2007, ex. 27a-27c)

Extraction from existential *there* contexts is a syntactic test of non-specificity (Heim 1987; Frampton 1991 a.o.). Consider the base paradigm in (14): in (14a) the trace of *how many soldiers*

²For a more exhaustive discussion of this methodological point see Falco 2007, §5.

can be in an existential *there* context if the *wh*-phrase is interpreted as a pure cardinal (non-specific) DP, whereas the trace of a specific *wh*-element in (14b) produces ill-formedness.

- (14) a. ✓ *How many soldiers* does the commander think there are *t* in the infirmary?
 b. ?* *Which student* does the professor think there is *t* in the great-hall?
 (cf. Falco 2007, ex. 33a-35a)

In the test paradigm in (15) a potentially offending pronoun is inserted in the base sentences. In (15a), the non-specific case, we propose a combined question with extraction from a *there* context that crosses over a WCO pronoun: as the extraction of these non-specific phrases is legitimate from *there* contexts (14a), we can ascribe the ill-formedness to the WCO violation. In (15b), a *wh*-phrase that cannot be extracted from *there* contexts (15a), thus a specific one, does not produce WCO, therefore supporting Falco's claim.

- (15) a. ?* *How many soldiers* does *their* commander think there are *t* in the infirmary?
 Combined case
 b. ✓ *Which student* does *his* professor think is *t* in the great-hall?
 (cf. Falco 2007, ex. 34a-35b)

On the ground of this evidence, I conclude that WCO does not arise with D-linked *wh*-elements. In order to express the lack of the expected WCO violation in these cases, while keeping them distinct from Lasnik and Stowell's (1991) *weakest crossover* configurations, I dub this phenomenon *weaker crossover*.

3 The role of specificity in OPC

Specificity of the antecedent plays a crucial role in OPC configurations as well, allowing the circumvention of the effect (16).

- (16) Only non-specific *wh*-operators give rise to OPC effects

While a null *pro* can be bound by both a non-specific (17a) and a specific (17b) antecedent, the Italian overt pronoun *lui* can actually be bound by a specific *wh*-operator (18b), though not by a non-specific one (18a). I conclude, therefore, that Montalbetti's (1984) classical OPC is not refined enough.

- (17) a. ✓ *Chi diavolo t* dice che *pro* sarà ricco alla fine della carriera? Non-specific
 who the hell *t* says that *he* will be rich at the end of the career
 b. ✓ *Quale brillante linguista t* dice che *pro* sarà ricco alla fine della carriera? Specific
 which brilliant linguist *t* says that *he* will be rich at the end of the career
 (18) a. ?* *Chi diavolo t* dice che *lui* sarà ricco alla fine della carriera? Non-specific
 who the hell *t* says that *he* will be rich at the end of the career
 b. ✓ *Quale brillante linguista t* dice che *lui* sarà ricco alla fine della carriera? Specific
 which brilliant linguist *t* says that *he* will be rich at the end of the career

More particularly, the sentence in (18b) is grammatical in the bound reading with a contrastive topic interpretation, "the linguist say that he will be rich, but possibly not his colleagues". Therefore, null *pro* and overt *lui* are not in free alternation.

Moreover, the contrast illustrated by (17)-(18) is better interpreted as a contrast between the weak/strong pronominal alternation, rather than the null/overt alternation, as originally proposed by Montalbetti (1984). The following sentences in German involve respectively a the weak overt pronoun *er* (19) and its strong version (20). The grammaticality judgements are parallel to those concerning the null/overt alternation.³

³Thanks to Martin Salzmann and Josef Bayer for their judgements.

- (19) a. ✓ *Wer* zum Teufel glaubt, dass *er* hier einfach seinen Dreck rumliegen lassen
who.NOM to the devil believes that *he* here simply his rubbish lay around let
kann? Non-specific
can?
- b. ✓ *Welcher brillante Linguist* denkt, dass *er* am Ende seiner Karriere reich sein
which brilliant linguist thinks that *he* at the end *his.GEN* career rich be
wird? Specific
will?
- (20) a. * *Wer* zum Teufel glaubt, dass *ER* hier einfach seinen Dreck rumliegen lassen
who.NOM to the devil believes that *he* here simply his rubbish lay around let
kann? Non-specific
can?
- b. ✓ *Welcher brillante Linguist* denkt, dass *ER* am Ende seiner Karriere reich sein
which brilliant linguist thinks that *he* at the end *his.GEN* career rich be
wird? Specific
will?

Summarizing, I have established that both WCO and OPC are circumvented by specific *wh*-elements (overtly or covertly restricted). Thus the classical OPC is not refined enough: with a specific antecedent and a strong pronoun a contrastive topic interpretation is grammatical. Furthermore the contrast concerning the null/overt alternation in OPC contexts, was generalized to the wider weak/strong pronouns distinction. Having established the empirical generalizations, we can now move to the analysis.

4 The notion of specificity

As a first step in the analysis we need to make more precise the notion of specificity. Among various notions of specificity, I will adopt Enç's (1991) formalization of Pesetsky's (1987) notion of D-linking. Pesetsky analyzes the discourse properties of interrogative elements and distinguishes them on the basis of their discursive properties. When a *wh*-question asks for answers in which the entities that replace the *wh*-phrase are drawn from a set that is presumed to be salient both to speaker and hearer, the *wh*-phrase is D-linked. Pesetsky distinguishes interrogative elements on the basis of this property, as summarized below.⁴

- *which N*: always D-linked
- *who, what, how many*, adjuncts: could be D-linked
- *who the hell, what the hell*: aggressively non D-linked

Enç (1991) provides a semantic formalization of the notion of D-linking.⁵ Her proposal is based on Heim's (1982) *File Change Semantics*. This theory accounts for the difference between definite and indefinite DPs through the *familiarity condition* and the *novelty condition*.⁶ The *familiarity condition* applies to definites and requires their discourse referents to have been previously introduced

⁴Crucially, Pesetsky noted that these pragmatics distinction have syntactic consequences. D-linked *wh*-elements can circumvent superiority effects (1a vs. 1b).

- (1) a. ?? *What* did you persuade who to read *t*?
LF: [who [*what* [you persuade t read *t*]]]
- b. ✓ *Which book* did you persuade which man to read *t*?

⁵Enç (1991, fn. 8) explicitly says that D-linking is exactly the same phenomenon as what she characterizes as specificity.

⁶Enç 1991 and Heim 1982 use NP instead of DP, but in the text I employ updated terminology.

in the discourse representation, while the *novelty condition* applies to indefinites and requires them to introduce new referents in the discourse domain. Enç extends this account to include specificity. In her view, specific phrases are equivalent to partitives (e.g. *two of the books*), so they impose one more restriction on the structure of the discourse domain.

Every DP has a double indexing $\langle i, j \rangle$: i denotes the DP referent and j a set in which i is included (the index of *books* in the partitive indefinite *two of the books*).

- (21) Every $[_{DP} \alpha]_{\langle i, j \rangle}$ is interpreted as $\alpha(x_i)$ and
- a. $x_i \subseteq x_j$ if $DP_{\langle i, j \rangle}$ is singular
 - b. $\{x\}_i \subseteq x_j$ if $DP_{\langle i, j \rangle}$ is plural
- (Enç 1991, p. 7)

Indices have a definiteness feature: the presence of this feature on the first index marks the DP as definite, while its presence on the second index is associated to its specificity. If index j is definite the DP must be familiar and, as (21) requires that the referent of the DP be a subset of x_j , it must have a specific interpretation, i.e. its referent has to be included in a familiar referent. In contrast, if the index j is indefinite, the DP must be new, so x_j is introduced as a new referent in discourse representation.

Both specific and definite phrases require their discourse referents to be familiar, while non-specific indefinites have to be new. In the case of familiar entities, the nature of the link with discourse referents comes in two types: for definites there should always be identity, while for specifics there is only an inclusion relation, corresponding respectively to *strong* and *weak antecedents* in Enç's system.

According to (21) all definites (nouns, pronouns, definite descriptions and demonstratives DP) are specific because identity of referents implies inclusion, so if the first index is definite, the second one is definite, too. Indefinites can be specific or non-specific. Summarizing we obtain the three cases below:

- Definites: $i[+\text{definite}] \ j[+\text{definite}]$
- Specific Indefinites: $i[-\text{definite}] \ j[+\text{definite}]$
- Non-specific Indefinites: $i[-\text{definite}] \ j[-\text{definite}]$

5 The syntax of specificity

The semantic notion of specificity outlined in the previous section has syntactic consequences, in particular it triggers (covert) movement to the left periphery to check the relevant feature. I argue that specificity can be 'featurized' and that, because of this movement, specific WCO configurations are parallel to OPC configurations at LF.

The contrast between weak and *weaker crossover* (§2) is parallel to the asymmetries between non-specific and specific *wh*-elements with respect to weak island extraction (22) and reconstruction (23). In these configurations the specificity of the extracted constituent plays a crucial role in permitting extraction from the *wh*-islands (22) and allowing antireconstruction effects (23).⁷

- (22) ? *Which one of the books that you need don't you know where to find t ?*
Weak island extraction (cf. Cinque 1990)

- (23) ✓ *Which stories about Diana did she most object to t ?*
Antireconstruction (cf. Heycock 1995, ex. 33)

⁷*Antireconstruction* is a term introduced by van Riemsdijk and Williams (1981) to describe the absence of principle C effects, which are expected if the moved phrase is reconstructed in argument position. Heycock (1995) demonstrates that only specific *wh*-elements display this effect.

- (1) a. *Which stories about Diana did she most object to t ?*
 b. * *How many stories about Diana is she likely to invent t ?* (Heycock 1995, ex. 33)

Rizzi (2001b) accounts for the syntactic asymmetries through a theory of LF chains, proposing different structures for specific and non-specific *wh*-elements. Rizzi's (2001a) proposal is based on the copy theory of traces (Chomsky 1995, ch. 3), the use of deletion at LF to satisfy the principle of *full interpretation*, and a strictly representational definition of traces/copies. In his system chains are defined as follows (24).⁸

- (24) (A_1, \dots, A_n) is a chain if and only if, for $1 < i < n$
- $A_i = A_{i+1}$
 - A_i C-commands A_{i+1}
 - A_{i+1} is in a Minimal Configuration with A_i (Rizzi 2001a, ex. 15)

Both constructions in (25) are expected to be ungrammatical according to condition (24), given the violation of *Relativized Minimality* (RM) expressed in terms of Minimal Configuration. Nevertheless, as we know, the sentence with a D-linked DP (25a) is acceptable.

- (25) a. ? Which problem do you wonder how to solve (which problem)?
 b. * How do you wonder which problem to solve (how)? (Rizzi 2001a, ex. 9)

In order to illustrate the account of this asymmetry proposed by Rizzi (2001a), consider the non-specific (26a) and the specific (26b) structures in (26). Rizzi proposes that the restriction of non D-linked *wh*-elements must reconstruct in its base position at LF and that only the operator can stay in the left periphery (26a). On the other hand, the restriction of D-linked *wh*-elements can (and in fact must) stay in the left periphery at LF, due to its topical nature, this element move to Q and then further to a Topic position, forming a complex Q+TOP head (Luigi Rizzi, p.c.), where both the operator and its topical restriction are licensed. In (26b), the non-specific mass noun *money* receives a specific interpretation due to the use of the overt partitive ('of the money that you need').

- (26) a. * Quanti soldi non sai come guadagnare (quanti soldi)? Non-specific
 'How much money don't you know how to earn?'
 LF: quanti (soldi) non sai come guadagnare (quanti) soldi
- b. ? Quanti dei soldi che ti servono non sai come guadagnare (quanti dei soldi che ti servono)? Specific
 'How much of the money that you need don't you know how to earn?'
 LF: quanti dei soldi che ti servono non sai come guadagnare (quanti dei soldi che ti servono) (cf. Rizzi 2001a, ex. 27b-27c)

The deletion of the restriction in the LF representation in (26a) triggers a *shrinking* mechanism that redefines the portion of structure that counts as trace/copy in the base position: only *quanti* has a trace status, while the restriction, being deleted from the left periphery, is not part of the trace structure in the base position. This mechanism accounts for traditional reconstruction asymmetries between the specific and the non-specific cases. Now, to explain the asymmetries with respect to weak island sensitivity (25 and 26), Rizzi assumes that DPs can enter into a long distance binding relation not subject to RM.

Considering the WCO configurations in terms of the two types of LF chains (specific/non-specific), we obtain the abstract LF configurations in (27). The specific representation in (27a) is parallel to a OPC configuration, since at LF a full DP endowed with its restriction c-commands the bound pronoun.

- (27) a. $[Q [NP]_{\phi, j}] \dots [pro] \dots \langle [Q [NP]_{\phi, j}] \rangle$ Specific LF chain
 b. $[Q \langle [NP]_{\phi} \rangle] \dots [pro] \dots [Q [NP]_{\phi}]$ Non-specific LF chain

⁸The notion of *Minimal Configuration*, is a reformulation of the classic *Relativized Minimality* (Rizzi 1990):

- (1) Y is in a Minimal Configuration with X if and only if there is no Z such that
- Z is of the some structural type as X, and
 - Z intervenes between X and Y. (Rizzi 2001b, ex. 4 and Rizzi 2001a, ex. 8)

Summarizing, specificity has syntactic effects explained in Rizzi's (2001a) proposal by means of two different LF configurations. Under this account specificity behaves as a feature allowing the restriction to remain in the C-domain at LF, triggering a movement to a Q+TOP complex head hosting both the *wh*-operator with its restriction, without reconstruction and *shrinking*. Thus the specific WCO configurations reduce to OPC configurations, in that the binder c-commands the bindee.

6 Features and bound pronouns licensing

Since specificity behaves as a grammatical feature §5, triggering movement in the syntax, I propose to implement Enç's second index as a formal feature. In particular if the referential second index *j* is [*-definite*] it is simply unspecified, whereas if [*+definite*] it is part of the feature set of a DP: [ϕ , (*j*)]. We can now consider the featural make up of *wh*-elements and pronouns.

Specific *wh*-elements are endowed with both ϕ and *j* (28a). On the contrary, non-specific operators are endowed only with ϕ features, sitting on a silent nominal nutshell (28b).

- (28) a. [Which linguist]_[\phi, j] [Q NP]_[\phi, j]
 b. [Who (NP)]_[\phi] [Q (NP)]_[\phi]

As for pronouns, naturally they are all endowed with ϕ features, but *lui* is a covert partitive and thus possesses the feature *j*, too. This claim is supported by the fact that *lui* cannot be the head of an overt partitive. Consider the example in (29) where the sentence in (29a) is the Italian translation of the one in (29b). The strong pronoun *lui* cannot be modified by a partitive, because it is already a partitive, but this is not the case with the weak pronoun *he* in English sentences.

- (29) a. *Lui fra/di questi linguisti che risolve il problema vincerà un ricco premio.
 b. ✓ He among/of these linguists who solves the puzzle will win a rich prize.

Actually, in the sentences in (29), besides the partitive, a relative clause is necessary for constructing the example, and the strong *lui* contrasts with the weak *he* with respect to the possibility of simply heading a relative clause (30). The invisible and definite restriction of *lui* cannot be modified by visible material, neither a partitive, nor a relative clause.

- (30) a. *Lui che vincerà il premio.
 b. ✓ He who will win the prize.

Therefore, I conclude that while strong pronouns are actually covert partitives, weak pronouns are unrestricted variables (apart from their ϕ features).

Summarizing the featural make up for pronouns, the possessive and *pro* are endowed only with ϕ (31a), instead *lui* is endowed with both ϕ and *j* (31b).⁹

- (31) a. *suo*_[\phi] / *pro*_[\phi]
 b. *lui*_[\phi, j]

We can now see how bound pronouns licensing works in WCO and OPC. Under the the condition for syntactic binding repeated in (32).

- (32) Features on bound pronouns must be licensed under c-command by features of their binders.
 Condition for syntactic binding

This means that binders must c-command and must be endowed (at least) with all the features of the pronouns they bind.

In the non-specific chain (33a) only the bare operator is in the C-domain, while the NP endowed only with ϕ features reconstructs in the trace (A) position. So the bare operator fails to match the pronoun's ϕ features and thus the pronoun cannot be bound. As for specific chains (33b), a full DP,

⁹Of course, the proposed treatment of *lui* should extend to strong pronouns, given the generalization I made (3).

with both ϕ and j , is present in the C-domain. These features match those on the pronoun, which can therefore be syntactically bound by the DP operator. Crucially, binding in specific chains takes place directly from the \bar{A} position and the argumental position is irrelevant.

- (33) a. [Q ⟨(NP)_[ϕ]⟩] [*his*_[ϕ] ...] [⟨Q⟩ (NP)_[ϕ]] Non-specific chain
 b. [Q NP_[ϕ , j]] [*his*_[ϕ] ...] [⟨Q NP_[ϕ , j]⟩] Specific chain

Let's now consider the licensing of pronouns in OPC configurations. In (34a) and (35a), a non-specific operator, with ϕ , is merged in subject position. It can match the ϕ features of *pro* (34a) but not those of *lui*, which is endowed with ϕ and j (35a). Instead, in specific chains the operator is restricted and endowed with both ϕ and j features in its A and \bar{A} position, and for this reason it can match the features of both *pro* (34b) and *lui* (35b).

- (34) a. ✓ [Q ⟨(NP)_[ϕ]⟩] [⟨Q⟩ (NP)_[ϕ]] *pro*_[ϕ] Non-specific chain
 b. ✓ [Q NP_[ϕ , j]] [⟨Q NP_[ϕ , j]⟩] *pro*_[ϕ] Specific chain
- (35) a. * [Q ⟨(NP)_[ϕ]⟩] [⟨Q⟩ (NP)_[ϕ]] *lui*_[ϕ , j] Non-specific chain
 b. ✓ [Q NP_[ϕ , j]] [⟨Q NP_[ϕ , j]⟩] *lui*_[ϕ , j] Specific chain

The predictions of the account I presented can be tested in sentences involving both WCO and OPC in the same configuration. Consider first the non specific cases in (36). In (36a) and in (36b), a non-specific operator is merged in object position. It does not possess the j feature which allows it to stay in the C-domain at LF, so its nominal nutshell reconstruct at LF and the ϕ features are in a position that does not C-command *pro* (36a). A non specific element fails to match the ϕ features and the j feature on *lui* (36b).

- (36) a. * Dimmi *chi diavolo* [il libro di sintassi che *pro* ha scritto] ha reso famoso *t* nel settore.
 Tell me [who *the hell* [the book of syntax which *pro* has written] has made popular *t* in the field
pro
- b. * Dimmi *chi diavolo* [il libro di sintassi che *lui* ha scritto] ha reso famoso *t* nel settore.
 Tell me *who the hell* [the book of syntax which *he* has written] has made popular *t* in the field
overt *lui*

Now, look at the specific cases (37). In (37a) and (37b), a specific operator is merged in object position. As it possess the j feature, it is allowed stay in the left periphery at LF, where it is endowed both with both ϕ and j . For this reason it can match both the features of *pro* (37a) and those of *lui* (37b).

- (37) a. ✓ Dimmi *quale giovane linguista* [il libro di sintassi che *pro* ha scritto] ha reso famoso *t* nel settore.
 Tell me *which brilliant linguist* [the book of syntax which *pro* has written] has made popular *t* in the field
pro
- b. ✓ Dimmi *quale giovane linguista* [il libro di sintassi che *lui* ha scritto] ha reso famoso *t* nel settore.
 Tell me *which brilliant linguist* [the book of syntax which *he* has written] has made popular *t* in the field
overt *lui*

The judgements of these constructions, involving both WCO and OPC, are quite delicate, nevertheless they tend to confirm the predictions of my account.

7 Conclusions

I illustrated the parallel between WCO and OPC configurations, proposing that in both cases the wider binding possibilities of specific operators can be reduced to their (explicit or implicit) lexical restriction. Specific antecedents have a feature j , and this feature allows them: to stay in the C-domain from where they C-command a WCO pronoun, and to bind the overt *lui*, which has an

intrinsic *j* feature, too. My feature matching hypothesis is similar to Kratzer's (2009) condition of feature transmission for binding. In the feature system I presented third person pronouns could be instances of *minimal pronouns*, as first and second person pronouns in Kratzer's (2009) proposal.

References

- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Massachusetts: MIT Press.
- Cinque, Guglielmo. 1990. *Types of A-bar Dependencies*. Cambridge, Massachusetts: MIT Press.
- Eng, Mürvet. 1991. The semantics of specificity. *Linguistic Inquiry* 22:1–25.
- Falco, Michelangelo. 2007. Weak crossover, specificity and LF chains. In *Coreference, Modality and Focus*, ed. Luis Eguren and Olga Fernández-Soriano, 19–44. Amsterdam: John Benjamins. URL <http://ling.auf.net/lingBuzz/000668>.
- Frampton, John. 1991. Review of Relativized Minimality. *The Linguistic Review* 8:1–46.
- Frascarelli, Mara. 2007. Subjects, topics and the interpretation of referential. An interface approach to the linking of (null) pronouns. *Natural Language and Linguistic Theory* 25:691–734.
- Heim, Irene. 1982. The Semantics of Definite and Indefinite Noun Phrases. Doctoral Dissertation, University of Massachusetts, Amherst, Massachusetts. Published as ?.
- Heim, Irene. 1987. Where does the definiteness restriction apply? Evidence from the definiteness of variables. In *The Representation of (In)definiteness*, ed. Eric Reuland and Alice ter Meulen, 21–42. Cambridge, Massachusetts: MIT Press.
- Heim, Irene. 1988. *The Semantics of Definite and Indefinite Noun Phrases*. New York: Garland.
- Heycock, Caroline. 1995. Asymmetries in reconstruction. *Linguistic Inquiry* 26:547–570. URL <http://www.jstor.org/stable/4178914>.
- Kratzer, Angelika. 2009. Minimal pronouns. Fake indexicals as windows into the properties of bound variable pronouns. *Linguistic Inquiry* 40.
- Lasnik, Howard. 1991. On the necessity of binding conditions. In *Principles and Parameters in Comparative Grammar*, ed. Robert Freidin, 7–28. Cambridge, Massachusetts: MIT Press.
- Lasnik, Howard, and Tim Stowell. 1991. Weakest crossover. *Linguistic Inquiry* 22:687–720.
- Lee, Gun-Soo. 2001. On bound pronouns and anaphors. *Studies in Generative Grammar (The Korean Generative Grammar Circle)* 11:151–166. URL <http://mercury.hau.ac.kr/kggc/publications/sigg/sigg11/sigg11.htm>.
- Montalbetti, Mario. 1984. After Binding. Doctoral Dissertation, MIT.
- Pesetsky, David. 1987. Wh-in-situ: Movement and unselective binding. In *The Representation of (In)definiteness*, ed. Eric Reuland and Alice ter Meulen, 98–129. Cambridge, Massachusetts: MIT Press.
- van Riemsdijk, Henk, and Edwin Williams. 1981. NP-structure. *The Linguistic Review* 1:171–217.
- Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge, Massachusetts: MIT Press.
- Rizzi, Luigi. 2001a. Reconstruction, weak island sensitivity and agreement. In *Semantic Interfaces: Reference, Anaphora and Aspect*, ed. Carlo Cecchetto *et al.*, 145–176. Chicago: CSLI.
- Rizzi, Luigi. 2001b. Relativized minimality effects. In *The Handbook of Contemporary Syntactic Theory*, ed. Mark Baltin and Chris Collins, 89–110. Oxford: Blackwell.
- Wasow, Thomas. 1972. Anaphoric Relations in English. Doctoral Dissertation, MIT. Reorganized and revised version published as ?.
- Wasow, Thomas. 1979. *Anaphora in Generative Grammar*. Ghent, Olanda: E. Story-Scientia.

Michelangelo Falco
m.falco@sns.it
 Scuola Normale Superiore
 Piazza dei Cavalieri, 7
 56126 Pisa – Italy