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Clause structure folding and the “wh-in situ effect” in Italian.¹

***Abstract:** Why must a coordinative head show up before an adverbial wh-phrase in situ in Italian? In this paper I will explore this rather neglected fact showing that it reveals an otherwise hidden structure. More specifically, I will propose that this head does not directly merge with the wh-phrase it precedes, rather it takes a full clausal complement inducing remnant movement and stranding of the highest wh-phrase. This configuration yields the observed word order and explains many properties of these constructions by means of independent locality conditions. I will argue that it is a rescue strategy languages may adopt to meet a structural property of the left periphery and I will address some questions that the comparative perspective raises.*

The aim of this paper is to explore certain aspects of interrogative sentences in Italian, in particular the so-called “wh-in situ” constructions. By “wh-in situ constructions” I am referring here to the case where at least two distinct wh-phrases cooccur in a clausal structure and only one appears to be overtly dislocated in the left periphery. Descriptively, Universal Grammar (UG) allows three distinct types of strategies for multiple wh-questions: languages like Bulgarian and Polish where all wh-elements move to the front (1a); languages like Japanese and Chinese where all wh-elements stay in situ (1b); languages like Italian and English that combine these two opposite strategies and move only one wh-element to the front while leaving the other in situ (1c):³

- | | | |
|-------|---|------------------------|
| (1)a. | [_{CP} wh-phrase C wh-phrase C [_{TP} ... t ... t ...]] | (Bulgarian, Polish...) |
| b. | [_{CP} [_{TP} wh-phrase ... wh-phrase]] | (Chinese, Japanese...) |
| c. | [_{CP} wh-phrase C [_{TP} ... t ... wh-phrase]] | (English, Italian...) |

The literature in the field is vast: among others, see the seminal works by Richards (1993) and Bošković, Ž. (1999); see also Boeckx – Grohmann (2003) and Cheng – Corver (2006) for collections of papers on this and related issue and Bayer (2006) for an updated critical review of the *wh-in situ* literature. In this paper I will concentrate on the third class of languages only and limit my observation to Italian syntax proposing to that this language is included in the first class (1a), that is to say that all *wh*-phrases move to the left periphery although the final linear order is altered by a syntactic mechanism to be illustrated here. It is generally assumed that UG provides the possibility to check the *wh*-features of multiple *wh*-phrases in a different way across languages: the *wh*-features of the phrase within the CP field are locally checked by a head endowed with *wh*-features in the left periphery; the ones of the phrase within the TP field, instead, are checked *in situ*.⁴ The central proposal of this paper is to show that the analysis given for Italian is not correct. Both *wh*-phrases undergo movement and *wh*-feature checking is performed in the same portion of the left periphery: there is no *wh-in situ* for this language; the “*in situ* effect” is rather due to a movement operation that rearranges the phrases yielding the observed linear order.

This paper is organized in three sections: in the first one, I will explore the interaction of multiple adverbial *wh*-phrases with a coordinative head; in the second section, I will generalize the analysis given in the first section to a broader class of phenomena involving argumental *wh*-phrases; finally, in the last section, I will address the comparative issue following the lines of reasoning that this analysis leads to combined with a cartographic approach to the structure of the left periphery.

I. The “*wh-in situ* effect” with adverbial *wh*-phrases: the role of *e* ‘and’.

There is a sharp and quite neglected contrast in Italian: a causative adverbial like *per quale ragione* ‘for what reason’ must be immediately preceded by a coordinative head *e* ‘and’ when it occurs *in situ* (2a); this coordinative head, on the other hand, is banned with the non-interrogative counterpart of the same adverbial, namely *per questa ragione* ‘for this reason’ (2b):

- (2)a. Mi chiedo dove sono andati *(e)
 to-me wonder-1st.sng. where are-3rd.pl. gone and
 [per quale ragione]
 for what reason
 ‘I wonder where they have gone and for what reason’
- b. Mi chiedo dove sono andati (*e)
 to-me wonder-1st.sng. where are-3rd.pl. gone and
 [per questa ragione]
 for this reason
 ‘I wonder where they have gone for this reason’

Beside this very contrast, the sentence in (2a) raises *per se* an immediate and simple question: what are the two phrases that are conjoined by *e* ‘and’? Let us start with the observation that *per quale ragione* ‘for what reason’ is a PP and assume that *e* ‘and’ merges with it: what do we expect to be the other member of the coordination? A well-established property of coordinative heads is that they can only coordinate two (or more) categorically homogeneous phrases. Consider for example the following contrasts:

- (3)a. Gianni legge [[DP romanzi] [e [DP poesie]]]
 Gianni reads novels and poems
- b. Gianni legge [[PP al mare] [e [PP alla stazione]]]
 Gianni reads at-the seaside and at-the station
- c. * Gianni legge [[DP romanzi] [e [PP alla stazione]]]
 Gianni reads novels and at-the station
- d. * Gianni legge [[PP al mare] [e [DP poesie]]]
 Gianni reads at-the seaside and poems

In sum, we are in fact facing two conceptually and empirically separate questions: why is there a contrast between the two sentences in (2)? And what is *e* ‘and’ coordinating, since there is no obvious candidate to play the role of first member of the coordination in (2)a?

Notice, furthermore, that the appearance of *e* ‘and’ is not specifically restricted to *per quale ragione* ‘for what reason’. For example, paralleling the contrast in (2),

the following minimal pairs can be construed, using four different single-word wh-adverbials, namely *perché* ‘why’, *come* ‘how’, *quando* ‘when’, and *dove* ‘where’:⁵

- (4)a. Mi chiedo dove sono andati *(e) perché
 to-me wonder-1st.sng. where are gone-3rd.pl. and why
 ‘I wonder where they have gone and why’
- b. * Mi chiedo perché sono andati (e) dove
 to-me wonder-1st.sng. why are gone-3rd.pl. and why
- c. Mi chiedo quando sono partiti *(e) perché
 to-me wonder-1st.sng. when are left-3rd.pl. and why
 ‘I wonder when they have left and why’
- d. * Mi chiedo perché sono partiti (e) quando
 to-me wonder-1st.sng. why are left-3rd.pl. and when
- e. Mi chiedo come sono arrivati *(e) perché
 to-me wonder-1st.sng. how are arrived and why
 ‘I wonder how they have arrived and why’
- f. * Mi chiedo perché sono arrivati (e) come
 to-me wonder-1st.sng. why are arrived and how

These contrasts do not only indicate that *e* ‘and’ must obligatorily precede the postverbal wh-phrase, in fact they also indicate that *perché* ‘why’ preferentially occurs *after* the other wh-adverbial in a postverbal position. This is a rather unexpected fact, considering that *perché* ‘why’ is generated in a high portion of the left periphery - in fact higher than any other wh-phrase - rather than moved from a lower position. This was proved by Rizzi (1996) by comparing *perché* ‘why’ with other interrogative adverbs like *come* ‘how’. The fact that *perché* ‘why’ - contrary to all other wh-adverbs - does not induce verb second phenomena could only be explained by assuming that this specific wh-adverb is generated in the position where it occurs rather than moved there from a lower one. The following sentences reproduce the basic contrasts:⁶

- (5)a. Perché Gianni parla?
 why Gianni speaks
 ‘why does Gianni speak?’
- b. * Come Gianni parla?
 how Gianni speaks
- c. Come parla Gianni?
 how speaks Gianni
 ‘how does Gianni speak?’

Notice that this contrast cannot be traced to any phonological idiosyncratic property of *perché* ‘why’ as opposed to *come* ‘why’, because when *come* ‘how’ is followed by *mai* ‘ever’ the string *come mai* is interpreted exactly as “why” and the subject can stay in situ, paralleling the case with *perché* ‘why’: *come mai Gianni parla?* (Lit. how ever Gianni speaks; ‘why does Gianni speak?’).

On the other hand, when two interrogative adverbials other than *perché* ‘why’ cooccur in the same sentence - such as *quando* ‘when’ and *come* ‘how’ - the relative order of the two interrogative adverbials is free as in (6a-b) - paralleling the free-ordering of adverbials in the corresponding affirmative sentences such as in (6c-d) - although the presence of the coordinative head *e* (and) is still obligatory in the interrogative sentences:

- (6)a. Mi chiedo quando sono partiti *(e) come
 to-me wonder-1st.sng. when are left-3rd.pl. and how
 ‘I wonder when they left and why’
- b. Mi chiedo come sono partiti *(e) quando
 to-me wonder-1st.sng. how are left and when
 ‘I wonder why they left and when’
- c. I ragazzi sono partiti [ieri] [in macchina]
 the boys are left- yesterday by car
 ‘the boys have left yesterday by car’
- d. I ragazzi sono partiti [in macchina] [ieri]
 the boys are left in car yesterday
 ‘the boys left by car yesterday’

The most conservative hypothesis is to admit that *e* ‘and’ is merged with the adverbial *wh*-phrase it immediately precedes but if this were so it would be very hard to explain both the contrasts in (2) and the very presence of the coordinative head itself: what could the interrogative adverbial be possibly coordinated with? Why is one order preferred? Another possible line of reasoning to pursue would be to reproduce a sluicing-like analysis following the seminal work elaborated by Merchant (see Merchant 2001, 2005 and references cited there). In this case, one could admit that *e* ‘and’ coordinates two clauses: the full clause on its left and a clausal structure on its right where everything but the topmost *wh*-phrase has undergone ellipsis. Unfortunately, this appealing solution is unable to explain the contrasts in (3), since there is no principled reason not to generate a sentence like (7)c along with (7)a and then delete the portion of the clause which is lower than the *wh*-phrase yielding a structure like (7)d which is agrammatical (cf. 7b):

- (7)a. Mi chiedo [dove sono andati] e [perché sono andati]
to-me wonder-1st.sng. where are gone and why are gone
‘I wonder where they have gone and why they have gone’
- b. Mi chiedo [dove sono andati] e [perché ~~sono andati~~]
to-me wonder-1st.sng. where are gone and why are gone
‘I wonder where they have gone and why they have gone’
- c. Mi chiedo [perché sono andati] e [dove sono andati]
to-me wonder-1st.sng. why are gone and where are gone
‘I wonder why they have gone and where they have gone’
- d. * Mi chiedo [perché sono andati] e [dove ~~sono andati~~]
to-me wonder-1st.sng. why are left and where are gone

Moreover, a sluicing-like analysis does not seem to be appropriate in the cases we are focusing on here for further independent facts. Consider for example the following contrasts:

- (8)a. Mi chiedo [com’è che è partito] e [quand’è che è partito]
to-me wonder-1st.sng. how is that is left and when is that is left

‘I wonder how was it that he has left and when was it that he has left’

- b. * Mi chiedo [com’è che è partito] e [quand’è ~~che è partito~~]
to-me wonder-1st.sng. how is that is left and when is that is left

- c. So che Gianni è partito un certo giorno ma
know-1st.sng. that Gianni is left a certain day but
non so [quand’è ~~che è partito~~]
not know-1st.sing. when is that is left

‘I know that Gianni has left on a certain day but I don’t know when it is’

In Italian, especially in the Northern varieties spoken in Lombardy, wh-movement is normally manifested via a pseudocleft construction (for pseudoclefts, see Den Dikken (2005) and references cited there). So, for example, a simple sentence like *chi parla?* ‘who speaks?’ would be rather rendered as *chi è che parla?* (Lit. who is that speaks; ‘who is it that speaks?’). Now, the sentence in (8a) is a genuine case of coordination of two full clauses whereas (8c) is a prototypical case of sluicing construction. Crucially, deletion of the lower portion of the clausal constituent in the second member of this coordinate structure yields a sharply ungrammatical sentence (8b). With the genuine sluicing construction, instead, the occurrence of the very same wh-element is perfectly grammatical after ellipsis (8c).

I would like to propose a new analysis that, on the one hand, shares with sluicing the idea that the coordinative head is merged with a clausal constituent rather than the interrogative phrase it precedes but that, on the other hand, does not involve ellipsis. Focusing on the relevant fragment, this proposal can be formally captured with the following derivational steps:

- (9)a. ... [dove C [pro sono andati t]]
where pro are gone)
b. ... [perché C [dove C [pro sono andati t]]]
why where pro are gone
c. ... [_ e [perché C [dove C [pro sono andati t]]]]]
and why where pro are gone)
d. ... [[dove C [pro sono andati t]] [e [perché C t]]]]
where pro are gone and why

‘... where they have gone and why’

First, *dove* ‘where’ is raised from the postverbal position to the specifier of a suitable head in the Comp-field (indicated here with a series of C heads) as in (9a); second, *perché* ‘why’ is generated in a high portion of the Comp-field as in (9b); third, the coordinative head is merged to this complex clausal structure as in (1.8)c; fourth, the lower portion of the clausal constituent (a segment of the complex CP structure) is raised to the spec of the coordinative head yielding the observed word order where the coordinative head precedes the highest wh-element as in (9d). In other words, I would like to suggest that there is no wh- in situ in these cases: the appearance of a wh-phrase in its based generated position is just an effect due to a complex mechanism involving CP-splitting that I will henceforth label “clause structure folding”.⁸ Notice that the derivation proposed here requires no stipulation: rather it could only be *blocked* by stipulation, since the null hypothesis is that the conjunction *e* ‘and’ can be merged in the relevant position, and if there it provides a landing site.⁹

This analysis offers several empirical advantages that I will illustrate here, beside the immediate one of indicating the two phrases which are coordinated by *e* ‘and’, namely CPs. Consider first the following sentences:

- (10)a. [DP chi è arrivato per questa ragione] è stupido
 who is arrived for this reason is stupid
 ‘who has arrived for this reason is fool’
- b. [CP chi è arrivato per questa ragione] è ovvio
 who is arrived for this reason is obvious
 ‘who has arrived for this reason is obvious’

The free relative occurring in subject position can be the subject of predication of semantically different types of predicates: a predicate like *stupido* (fool) that takes an individual as a subject (10a) and a predicate as *ovvio* (obvious) that rather takes a proposition as a subject (10b). This could be captured by labeling the two preverbal constituents in a different way, i.e. DP and CP respectively, assuming that in the former case the wh-DP is projecting whereas the CP is in the latter along the lines suggested by Donati (2006). The crucial point here is that if the causative adverbial *per questa ragione* (for this reason) is turned into an interrogative adverbial *per quale*

ragione (for what reason) obligatorily involving the coordinative head, the following sharp contrast is yielded:

- (11)a. * [_{CP} *chi è arrivato e per quale ragione*] è stupido
 who is arrived and for what reason is fool
- b. [_{CP} *chi è arrivato e per quale ragione*] è ovvio
 who is arrived and for what reason is obvious
 ‘who has arrived and for what reason is obvious’

If the causative adverbial *per quale ragione* ‘for what reason’ were *in situ*, this contrast would remain unexplained. Instead, if we adopt the clause structure folding analysis it follows straightforwardly. The occurrence of the conjunction and the (remnant) movement of a clausal constituent are not compatible with the possibility to assign a DP label to the clausal structure, for *chi* ‘who’ is too deeply embedded in the first member of the coordinative structure due to the folding process: the only reasonable label for *chi è arrivato e per quale ragione* (Lit. who is arrived and for what reason; ‘who has arrived and for what reason’) can be CP, yielding the incompatibility of this sentence with a non-propositional predicate like *fool* in (11a).

The following sentence also provides a further independent piece of evidence for the clause structure folding analysis:

- (12) Mi chiedo [quando negheranno che i ragazzi sono arrivati
 to-me wonder-1st.sng. when deny-fut.3rd.pl. that the boys are arrived
 e perché]
 and why
 ‘I wonder when they will deny that the boys have arrived and why’

Potentially, *perché* ‘why’ can be interpreted both as referring to the denial or to the arrival. In fact, the only available interpretation here is the one where *perché* ‘why’ refers to the denial. The fact that a verb like *negare* ‘deny’ can restrict the interpretation of a causative interrogative adverbial is not new. Rizzi’s (1990) theory of relativized minimality, for example, accounted for the following contrasts:

- (13)a. Mi chiedo perché dicono [t che i ragazzi sono arrivati]
 to-me wonder-1st.sng. why say-3rd.pl. that the boys are arrived
 ‘I wonder why they say that the boys have arrived’
- b. * Mi chiedo perché non dicono [t che i ragazzi sono arrivati]
 to-me wonder-1st.sng. why not say that the boys are arrived
 ‘I wonder why they don’t say that the boys have arrived’ (*why* referred to the arrival)
- c. * Mi chiedo perché negano [t che i ragazzi sono arrivati]
 to-me wonder-1st.sng. why deny-3rd.plur. that the boys are arrived
 ‘I wonder why they deny that the boys have arrived’ (*why* referred to the arrival)

A negative operator (whether it is independently realized as *non* ‘not’ or inherently licensed by a verb like *negare* ‘deny’) is able to block the lower reading of *perché* ‘why’ intervening between the antecedent (*perché*; ‘why’) and its trace. More explicitly, the sentence in (13a) is ambiguous: it can either be a question on the reason of the arrival or of the affirmation; the one in (13b-c) can only be interpreted as questions on the affirmation or the denial, not on the arrival. This contrast, however, cannot be immediately exploited to explain the lack of ambiguity in (12): the verb *negare* ‘deny’ is in fact higher than *arrivare* ‘arrive’ and thus should not interfere with the antecedent-trace relation. But if *negare* ‘deny’ stood in between *perché* ‘why’ and *arrivare* ‘arrive’ at some point of the derivation this would immediately explain the selected reading for (12) by applying the same principles that explain (13a-c). Such a configuration where *negare* ‘deny’ stood in between *perché* ‘why’ and *arrivare* ‘arrive’ is immediately available in fact if one adopts the clause structure folding analysis, as in the following simplified representation:

- (14) Mi chiedo [[quando negheranno che i ragazzi
 to-me wonder-1st.sng. when deny-fut.3rd.pl. that the boys
 sono arrivati]_i e [perché t_i]]
 are arrived and why
 ‘I wonder when they will deny that the boys have come and why’

Before the whole constituent *quando negheranno che i ragazzi sono arrivati* (Lit. when deny-fut.3rd.pl. that the boys are arrived; ‘when they will deny that the boys are arrived’) is raised to the spec position of the coordinative head, *negare* ‘deny’ would stand in between *perché* ‘why’ and *arrivare* ‘arrive’ blocking the unwanted reading: in other words, (12) (and its associated structure in (14)) can only be a question on the timing and the reason of the denial because *perché* ‘why’ cannot be referred to *arrivare* ‘arrive’ but only to *negare* ‘deny’. This conclusion can be indirectly supported by analyzing the occurrence of the negative variant of the coordinative head *e* ‘and’, namely *né* ‘nor’. This head can occur only if the first member of the coordination contains a negative word (for example, *non* ‘not’). The following contrast, thus, reinforces the hypothesis that *perché* ‘why’ cannot be *in situ*:

- (15)a. Gianni non sa quando diranno che hanno telefonato né perché
 Gianni not knows when say-fut.3rd.pl. that have telephoned nor why
 ‘Gianni doesn’t know when they will say that they have phoned nor why’
- b. * Gianni sa quando non diranno che hanno telefonato né perché
 Gianni knows when not say-fut.3rd.pl. that have telephoned nor why
 (cf. * Gianni knows when they will not say that they have phoned nor why)

In conclusion, the clause structure folding hypothesis for adverbial wh-phrases not only offers an analysis of the structural role of *e* ‘and’; it also leads to the discovery of otherwise hidden phenomena, such as the fact that *perché* ‘why’ must follow all other adverbial wh-phrases, the fact that free relatives containing a postverbal adverbial wh-phrase cannot be the subjects of individual predicates and it explains some surprising selective interpretations of negation. If there were no structure folding it would be very hard to capture all these data (in a unified theory). On the other hand it says nothing as to why *e* ‘and’ must occur. I will propose an explanation in the last section of the paper. Before doing that, I will explore the possibility to extend the analysis given here for adverbial wh-phrases to argumental ones.

II. The “wh-in situ effect” with argumental phrases.

In the second part of this paper I would like to suggest that the analysis given for interrogative adverbials “in situ” can be extended to all other cases involving wh-movement. More specifically, I would like to suggest that all the apparent instances of wh- in situ in Italian are just the effect of clause structure folding or, equivalently, that there is no wh-in situ in Italian.

There is a first problem here. The distribution of *e* ‘and’ with argumental wh-phrases is not as sharp as in the case of adverbials. A simple statistical analysis of grammaticality judgments indicates that in Italian there are at least three subvarieties of speakers when it comes to wh-in situ with argumental phrases: those who do not accept wh-in situ at all, those who do accept it only without the occurrence of the coordinative head and those who do accept it with both a coordinative head and without it. However, all the native speakers of Italian of the last two subgroups that I tested gave the same judgments concerning the distribution of multiple wh-phrases. The hypothesis that I will pursue here, then, is that whether or not it is overtly realized, an overt coordinative head is involved in apparent wh-in situ constructions in Italian, paralleling the cases illustrated in the first section. I will show that this proposal provides us with the explanation of some crucial facts characterising these constructions and with new questions as well. As for the reason why the coordinative head is not always obligatorily overt, the only generalization that emerges is that for all speakers it is obligatory for wh-PPs only, disregarding whether or not the PP is an adverbial, an argument of the verb or the complement of a nominal head. This implies that the phonological realization of the coordinative head is related to morphological requirements rather than to other structural reasons. In a sense, the possibility to have overt vs. null coordinative head (*e* ‘and’ vs. an empty coordinative head [e]) parallels the possibility to have overt vs. null complementizer (i.e. *that* vs. an empty C° head [e]) in Rizzi’s (1990) analysis of locality restriction on wh-movement. The possibility to have an overt complementizer or a phonologically null one was there considered as a morphosyntactic phenomenon, relying on the assumption that the null variant was the one endowed with agreement features. In this paper, I will not attempt at deriving the reasons requiring the coordinative head to be overt or null: whether or not they are amenable to the morphological requirements of PPs vs. DPs is a matter that exceeds the goals of this paper and my present understanding of this issue. I will rather explore the empirical consequences of assuming that a coordinative head *always* occurs in

Italian in wh-in situ yielding clause structure folding, in other words I will extend the clause structure folding analysis proposed for wh-adjuncts to wh-arguments.

Let us start with a case involving subject and object wh-movement. From an abstract point of view, the relevant part of the derivation that I propose involving clause structure folding is the following where the symbol $[(e)]$ represents the coordinative head which may be overt or null:

- (16)a. ... [wh₂ C [wh₁ C [t₁ ... t₂]]]
 b. ... [(e)] [wh₂ C [wh₁ C [t₁ ... t₂]]]
 c. ... [[wh₁ C [t₁ ... t₂]]_j [[(e)] [wh₂ C t_j]]]

Both wh-phrases, namely the subject (wh₁) and the object (wh₂), are moved to the left periphery to reach a local configuration with the proper functional head (16)a (see Richards (2006) for a critical and detailed account of this proposal in a comparative perspective and the works cited in the introduction to this paper); then the coordinative head is merged as in (16b); finally, the lower portion of the clausal constituent is moved to the spec position of the coordinative head, stranding the highest wh-phrase hence yielding the “wh-in situ effect” (WISE) as in (16c).

There is a crucial property embodied in this derivation. As indicated in the abstract representation in (16) the derivation involves nested rather than crossing movement paths which would have otherwise given: ... [wh₁ C [wh₂ C [t₁ ... t₂]]. This restriction has been independently witnessed by contrasts like the following – involving either D-linked (17a-b) or non D-linked (17c-d) phrases - along the lines suggested by the seminal work of Pesetsky (1980) and much subsequent work including in particular Rizzi (1985):

- (17)a. ? [Cosa₂ C si chiedono [chi₁ C persuadere
 what to-themselves wonder-3rd.pl. who persuade
 [t₁ a comprare t₂]]]
 to buy
 ‘what do they wonder who to persuade to buy’
 b. * [Chi₁ C si chiedono [cosa₂ C persuadere [t₁ a comprare t₂]]]
 who to-themselves wonder-3rd.pl. what persuade to buy
 (cf. * who do they wonder what to persuade to buy)

- c. ? [Quale libro₂ C si chiedono [quale ragazzo₁ C
 which book to-themselves wonder-3rd.pl. which boy
 persuadere [t₁ a comprare t₂]]]
 persuade to buy
 ‘which book do they wonder which boy to persuade to buy?’
- d. * [quale ragazzo₁ C si chiedono [quale libro₂ C persuadere
 which boy to-themselves wonder which book persuade
 [t₁ a comprare t₂]]]
 to buy

Assuming this condition, one of the immediate predictions of the clause structure folding theory is that only wh-objects can appear after the verb, as opposed to subjects – possibly occurring with the overt coordinative head *e* ‘and’. This is due to the fact indicated in (16) that the highest wh-phrase before remnant movement takes place must be the object, due to the nesting condition on chain formation. This can be illustrated by means of several contrasts involving wh-objects as well as different types of argumental wh-phrases with the subject. Let us start with a subject/object asymmetry involving an transitive verb which obligatorily requires an object such as *esprimere* ‘express’:

- (18)a. Mi chiedo chi ha espresso (e) cosa
 to-me wonder-1st.sng. who has expressed and what
 ‘I wonder who has expressed and what’
- b. * Mi chiedo cosa ha espresso (e) chi
 to-me wonder-1st.sng. what has expressed and who
- c. Gianni ha espresso *(un’opinione)
 Gianni has expressed an opinion

In this example only the wh-object can appear postverbally, while the subject is always banned from this position. The fact that D-linked expressions are used here is irrelevant, witness the following contrast where non D-linked expression occur:

(19)a. Mi chiedo quale uomo ha espresso (e) quale opinione
 to-me wonder-1st.sng. which man has expressed and which opinion
 ‘I wonder which man has expressed and which opinion’

b. * Mi chiedo quale opinione ha espresso (e) quale uomo
 to-me wonder-1st.sng. which opinion has expressed and which man

Notice that the very fact that the subject cannot appear in a postverbal position is particularly surprising in a *pro*-drop language like Italian. In fact, if both (20a-b) are acceptable, the interrogative counterpart of (20b) is not, leaving (20d) with wh-movement to the left periphery as the only option, even if the complementizer is endowed with wh-features as in the case of *se* ‘if’ (cf. *mi chiedo se pro è arrivato qualcuno*; Lit. I wonder if *pro* is arrived anyone; ‘I wonder if anyone arrived’):

(20)a. Mi chiedo se Gianni è arrivato
 to-me wonder-1st.sng. if Gianni is arrived
 ‘I wonder if Gianni has arrived’

b. Mi chiedo se *pro* è arrivato Gianni
 to-me wonder-1st.sng. if *pro* is arrived Gianni
 ‘I wonder if Gianni has arrived’

c. Mi chiedo chi è arrivato
 to-me wonder-1st.sng. who is arrived
 ‘I wonder who has arrived’

d. * Mi chiedo (se) *pro* è arrivato chi
 to-me wonder-1st.sng. if *pro* is arrived who

This contrast immediately suggests that in Italian there is no long-distance wh-features checking (possibly via Agree; see Chomsky (2006)): they can only be assigned in a local configuration, by activating the proper head in the comp-field via movement.

Similar contrasts can be detected by testing the occurrence of a wh-subject with a predicative noun phrase such as *cosa* (what) with a verb like *diventare* (become) which requires an obligatory predicative element:

(21)a. Mi chiedo chi è diventato (e) cosa
 to-me wonder-1st.sng. who is become and what
 ‘I wonder who has become what’

b. * Mi chiedo cosa è diventato (e) chi
 to-me wonder-1st.sng. what is become and who

c. Gianni è diventato *(un professore)
 Gianni is become a professor
 ‘Gianni has become a professor’

Another similar contrast is also provided by testing subject wh-movement with wh-movement of an interrogative adverb with a verb such as *comportarsi* ‘behave’ which requires a manner adverbial expression:

(22)a. Mi chiedo chi si è comportato (e) come
 to-me wonder-1st.sng. who himself is behaved and how
 ‘I wonder who has behaved how’

b. * Mi chiedo come si è comportato (e) chi
 to-me wonder-1st.sng. how himself is behaved and who

c. Gianni si è comportato *(bene)
 Gianni himself is behaved well
 ‘Gianni behaved himself’

All these cases, *mutatis mutandis*, can be explained by the same derivation in (16): both the wh-subject and the other wh-phrase move to the left periphery creating a nested dependency, then the lower segment of the clausal constituent undergoes

movement to the spec position of the (abstract) coordinative head stranding the wh-phrase which has been raised to the highest position yielding the WISE.¹⁰

Before proceeding I would like to address a potential objection to the complex analysis given in (16). Consider for example a simple sentence like the following where, for the sake of the argument, I will first give the gloss only:

- (23) mi chiedo cosa e chi adori
to-me wonder-1st.sng. what and who adores

This sentence has two potential meanings (related to the fact that the subject in Italian can be expressed by *pro*): “I wonder who adores what” or “I wonder what and who s/he adores”. These two potential interpretations would correspond to two different structures. One where *chi* ‘who’ is a DP object coordinated with another DP object *cosa* ‘what’ – *pro* being the subject of *adori* ‘adores’ as in (24a). The other where the DP object *cosa* ‘what’ is coordinated with the CP *chi adori* (Lit. who *pro* adores; ‘who s/he adores’) as in (24b):

- (24)a. Mi chiedo [cosa e chi] *pro* adori t
to-me wonder-1st.sng. what and who *pro* adores
‘I wonder what and who s/he adores’

- b. * Mi chiedo [cosa e [chi t adori t]]
to-me wonder-1st.sng. what and who adores

The question is what rules out the structure in (24b) and the corresponding interpretation, i.e. ‘I wonder who adored what’. The explanation for this puzzling case is given by taking the property of conjunction *e* ‘and’ to coordinate to same category seriously. Let me reproduce the basic contrast in (3) here, for the sake of convenience:

- (25)a. Gianni legge [[DP romanzi] [e [DP poesie]]]
Gianni reads novels and poems
b. Gianni legge [[PP al mare] [e [PP alla stazione]]]
Gianni reads at-the seaside and at-the station

- c. * Gianni legge [[DP romanzi] [e [PP alla stazione]]]
 Gianni reads novels and at-the station
- d. * Gianni legge [[PP al mare] [e [DP poesie]]]
 Gianni reads at-the seaside and poems

Thus the reason why (24b) is not the proper structure for (23), thus, is a consequence of an independent well-established property of conjunctions requiring that the two members of the coordination belong to the same category. The only possible structure is the one where *cosa* ‘what’ and *chi* ‘who’ are both objects; the alternative one where *e* ‘and’ coordinates a DP and a CP does not meet this requirement. Equivalently, *chi* ‘who’ cannot be the subject of *adori* ‘adores’ in (23).

To counterproof this notice, that in fact the order of *cosa* ‘what’ and *chi* ‘who’ can be permuted in (23) yielding a perfectly well-formed sentence such as:

- (26) mi chiedo [chi e cosa] adori
 to-me wonder-1st.sng. who and what adores
 “I wonder who and what s/he adores”

Notice that the analysis of this case has a non-trivial impact on the theory presented here. Consider again the following sentence:

- (27) mi chiedo chi ha espresso cosa
 to-me wonder-1st.sng. who has expressed what
 ‘I wonder who has expressed what’

By adopting the idea that a silent coordinative head intervenes in the derivation, one should justify the reason why that head could not coordinate the DP *chi* ‘who’ with the TP *abbia espresso cosa* ‘has expressed what’ or equivalently, that *cosa* ‘what’ is after all really in situ while only the wh-subject has been raised to the spec position made available by the phonologically null coordinative head. Now, if that were so, the structure would violate the basic property of conjunction we just examined and the sentence would not be grammatical.

Summarizing, when a wh-subject cooccurs with another wh-element – being it an object, a predicative noun phrase or an obligatory adverb – the derivation involves

clause structure folding where two segments (CPs) of the same clause structure are coordinated by a conjunction. The obvious question that raises here now is why this process is required. I will propose an explanation in the last section of this paper. Before concluding this section, I would like to show some more complex cases involving three or more wh-elements. The alternative possibility to offer a comprehensive analysis involving all types of wh-phrases is not viable since the number of cases will immediately reach a level of complexity which would not be suitable just for bare combinatorial reasons. I am confident that the crucial cases are nevertheless included here.

In fact, contrasts similar to those observed in (18) to (22) can be construed in a relatively easy way to the extent that wh-movement builds up an ordered fixed hierarchy in the left periphery. Again, we will focus here on some prototypical cases, leaving a full taxonomy as a future research. One such contrast is given when there is extraction of a wh-element like *di chi* ‘of who’ out of an object noun phrase like *alcune foto di Gianni* ‘some pictures of John’ in a sentence that contains a wh-subject:

- (28)a. Mi chiedo chi ha acquistato alcune foto (e) di chi
to-me wonder-1st.sng. who has purchased some pictures and of who
‘I wonder who has purchased some pictures of who’
b.* Mi chiedo di chi ha acquistato alcune foto (e) chi
to-me wonder-1st.sng. of who has purchased some pictures and who

Instead, if the sentence contains a wh-object *quali foto* ‘which pictures’ which on its turn contains a wh-complement such as *di chi* ‘of who’, we get:

- (29)a. Mi chiedo quali foto ha acquistato (e) di chi
to-me wonder-1st.sng. which pictures has purchased and of who
‘I wonder which pictures s/he has purchased of who’
b.* Mi chiedo di chi ha acquistato (e) quali foto
to-me wonder-1st.sng. of who has purchased and which pictures

Notice that the latter contrast can be explained only if one assumes that movement of the object as a whole takes place before extraction from the object in the following fashion:

- (30)a. ... [[quali foto di chi] C ...t ...
 which pictures of who
- b. ... [[di chi] C [[quali foto t] C ... t ...
 of who which pictures

Otherwise, if extraction from the object could take place before movement of the object, the contrast in (29) should be reversed.¹¹ Again, we could take it to be the consequence of the requirement that wh-chains do not intersect but rather proceed by nested dependencies.

Now, let us consider the case where three rather than two wh-elements are cooccurring in the same sentence. For example, let us take the case where a wh-subject and a wh-object containing a wh-complement occur in the same sentence. We do get the following contrast (for the sake of simplicity I will omit here the case with postverbal wh-subject which is unexpectedly ungrammatical as in the other cases):

- (31)a. Mi chiedo chi ha acquistato quali foto (e) di chi
 to-me wonder-1st.sng. who has purchased which photoes and of who
 ‘I wonder who has purchased which photoes of whom’
- b. * Mi chiedo chi ha acquistato di chi (e) quali foto
 to-me wonder-1st.sng. who has purchased of whom and which photoes

The contrast in (31) is consistent (and in fact predicted) by the clause structure folding theory. The derivation proceeds as follows:

- (32)a. ... [[quali foto di chi] C [chi C t abbia acquistato t]]]
 which photos of whom who has purchased
- b. ... [[di chi] C [[quali foto t] C [chi C t abbia acquistato t]]]
 of whom which photos who has purchased
- c. ... [[quali foto t] C [chi C t abbia acquistato t] [e] [di chi t ...

- which photos who has purchased and of whom
- d. ... [chi C abbia acquistato] [(e)] [[quali foto t] C t [e] [di chi
who has purchased which photos and of whom

First, the wh-subject and the wh-object are moved to the left periphery (32a); then, *di chi* ‘of whom’ is extracted from the object (32b); as a last step, the inner clausal constituent is moved to the spec of a second coordinative head (exactly as in the simple case involving a wh-subject and a wh-object only). Notice also that merging of a coordinative head in (32a) with successive movement of *di chi* ‘of whom’ to the spec position of that coordinative head is correctly excluded, for it would amount to coordinating two categorially different constituents (a PP and a CP).

Another case involving three wh-elements is given by verbs like *consegnare* ‘deliver’ that takes three arguments as in *Gianni consegnò un libro a Maria* ‘Gianni delivered a book to Mary’ or *Gianni consegnò a Maria un libro* (Lit. Gianni delivered to Mary a book; ‘Gianni delivered Mary a book’). In this case, the following pattern is observed: the subject can never be postverbal, as expected (33a-d); the relative ordering of the other two wh-arguments instead (either when they cooccur with a wh-subject or when they do not) doesn’t seem to have any preference, as a consequence of the fact that for virtually all speakers there is no preferential ordering in the affirmative case as well, (33e-h), with a slight preference for stranding of the PP argument:

- (33)a. Mi chiedo chi ha consegnato a Gianni (e) cosa
to-me wonder-1st.sng. who has delivered to Gianni and what
‘I wonder who has delivered Gianni what’
- b. * Mi chiedo cosa ha consegnato a Gianni (e) chi
to-me wonder-1st.sng. what has delivered to Gianni and who
- c. Mi chiedo chi abbia consegnato un libro (e) a chi
to-me wonder-1st.sng. who has delivered a book and to whom
‘I wonder who delivered a book to whom’
- d. * Mi chiedo a chi ha consegnato un libro (e) chi

to-me wonder-1st.sng. to whom has delivered a book and who

e. Mi chiedo chi ha consegnato cosa (e) a chi
to-me wonder-1st.sng. who has delivered what and to who
'I wonder who has delivered what to whom'

f. Mi chiedo chi ha consegnato a chi (e) cosa
to-me wonder-1st.sng. who has delivered to who and what
'I wonder who delivered whom what'

g. Mi chiedo cosa pro ha consegnato (e) a chi
to-me wonder-1st.sng. what pro has delivered and to whom
'I wonder what has s/he delivered to whom'

h. (?) Mi chiedo a chi pro ha consegnato (e) cosa
to-me wonder-1st.sng. to whom pro has delivered and what
'I wonder to whom s/he has delivered what'

Finally, after having tested the case of multiple adverbial wh-phrases in section one and multiple argumental ones in this section, we are left to the case of an adverbial wh-phrase cooccurring with an argumental one, i.e. with a subject as in (34a-d) or an object (34e-h), as in the following examples:

(34)a. Mi chiedo chi sia partito *(e) perché
to-me wonder-1st.sng. who is left and why
'I wonder who has left and why'

b. Mi chiedo chi sia partito *(e) come
to-me wonder-1st.sng. who is left and why
'I wonder who has left and why'

c. * Mi chiedo perché sia partito (e) chi
to-me wonder-1st.sng. why is left and who

d. * Mi chiedo come sia partito (e) chi

to-me wonder-1st.sng. how is left and who

e. Mi chiedo cosa ha espresso *(e) perché

to-me wonder-1st.sng. what has expressed and why

‘I wonder what has expressed and why’

f. Mi chiedo cosa ha espresso *(e) come

to-me wonder-1st.sng. what has expressed and how

‘I wonder what s/he has expressed and how’

g. * Mi chiedo perché ha espresso (e) cosa

to-me wonder-1st.sng. why has expressed and what

h. * Mi chiedo come abbia espresso (e) cosa

to-me wonder-1st.sng. how has expressed and what

These mixed cases do not present any surprising fact: the occurrence of an overt coordinative head is still required for stranded adverbials and the relative order of the wh-phrases is the one predicted by assuming clause structure folding, that is the adverbials must follow.

Summarizing, in this section I have extended the analysis for the “wh-in situ effect” (WISE) adopted for interrogative adverbials to interrogative argumental phrases, including direct and indirect objects and subextraction from (interrogative) noun phrases, showing that those wh-phrases that appear to be “in situ” are in fact stranded after having been moved to the left periphery. The WISE is also in this case due to remnant movement of a subpart of the clausal constituent to the specifier of a coordinative head (and) which can be silent or overtly realized as *e* for some speaker.

In the next section I will address two conceptually related issues quite synthetically. First, I will explain why a coordinative head must show up when two wh-phrases cooccur in the same sentence (or more than one coordinative head when more than two wh-phrases occur); then, I will attempt to cast the kind of expectations this theory leads to on the comparative side.

III. Clause structure folding and the structure of the left periphery: prolegomena to a case study in comparative syntax.

The analysis illustrated in the previous sections for Italian multiple wh-phrases - arguing that there is no wh-in situ in this language - is based on the idea that when more than one wh-phrase occurs in a sentence a coordinative head intervenes in the left periphery, inducing clause structure folding and providing a landing site for a subpart of the clausal constituent. Assuming that this analysis as to *how* lexical items are composed proves correct, still the natural question remains as to *why* UG requires coordination. For the sake of clarity, let me first recall the core steps of the derivation by considering two wh-phrases, say a subject cooccurring with an object or any adverbial other than *perchè* ‘why’:

- (35)a ... [TP wh-phrase₁ ... wh-phrase₂]
 b ... [wh-phrase₂ C [wh-phrase₁ C [TP ...t₁ ... t₂ ...]]]
 c ... [_ [(e)] [wh-phrase₂ C [wh-phrase₁ C [TP ...t₁ ... t₂ ...]]]
 d ... [[wh-phrase₁ C [TP ...t₁ ... t₂ ...]]_J [[(e)] [wh-phrase₂ C t_J]]]]

To understand why this mechanism is required, let us consider it from the point of view of feature checking. First, the two wh-phrases move for checking reasons to the spec position of a proper head (35b); then, a coordinative head, overt or null, is inserted in the derivation (35c); finally, the recursive CP structure undergoes a splitting process and the lower CP segment is raised to the spec position made available by the coordinative head, stranding the higher wh-phrase.

Why isn’t (35b) sufficient for the derivation to converge, that is why is a coordinative head required to allow the folding process to take place? The explanation relies on the fact that in a language like Italian the left periphery of the clause structure does contain only *one* position for wh-elements: this conflicts with the presence of *two* wh-phrases. Formally, following Rizzi’s (1997) seminal analysis of the left periphery, we get the following abstract representation of the Comp field in Italian:¹³

- (36) ... Force > (Top) > Foc > (Top) > Fin > TP

Crucially, the head which is endowed with wh-features is Foc (underlined here) which, unlike Top, cannot occur more than once in the structure, i.e.:

(37) * ... Force > (Top) > Foc > Foc > (Top) > Fin > TP

This makes (35b) an impossible structure for Italian without further assumptions: the sequence of two heads endowed with wh-features in the split-Comp field is simply not an option in this language. The intuition that I would like to pursue here is that CP-splitting and coordination, i.e. clause structure folding, is a strategy to rescue a single sentence containing two wh-phrases to avoid the language specific restriction in (37) requiring Foc head to be unique in the left periphery:¹⁴

(38) ... Force > [[Wh C ...]_j [[(e)]_{+Foc} [Wh C t_j

The role of the coordinative head here is to “absorb” the wh-features of the two Foc heads in whose spec-position either wh-phrase has been moved by providing the left periphery with a proper structure to allow folding.^{15,16}

Synthetically, clause structure folding in Italian is result from the conspiracy of these two independent facts:

- (39)a Wh-phrases occupy a spec Foc head
- b There is only one Foc head per CP-field

Notice that the hypothesis that the functional head that checks the feature of wh-phrases in Italian is unique is not *ad hoc* in the sense that (39b) is not stipulated by observing the distribution of wh-phrases only. In fact, it is also indirectly supported by sentences like the following first observed by Rizzi (1997):

- (40)a. Mi domando [a chi Foc [pro abbiamo detto questo]]
to-me wonder-1st.sng. to whom pro have said this
'I wonder to whom they have said this'
- b. Mi domando se [QUESTO Foc [pro abbiamo detto
to-me wonder-1st.sng. if THIS pro have said

(non qualcos' altro)]]
 not something else
 'I wonder if THIS they have said (not something else)'

c.*? Mi domando [a chi Foc [QUESTO Foc [abbiamo detto
 to-me wonder-1st.sng. to whom THIS have said
 (non qualcos' altro)]]
 not something else

The ungrammaticality of (40c) shows that both wh-phrases (like *a chi*; to whom) and focus phrases (like *QUESTO*; THIS) compete for the same functional head within the Comp-field and, obviously, that there is only one such head.

Of course, this way of rescuing the sentence by folding the clause structure is not unrestricted, in particular it must meet the morphological requirements related to the coordinative head. For example, as we saw in section 1 of this paper (see in particular the comment to the example in (17)). The category of the two elements that the coordinative head is merged with must be the same; in case under discussion here, the coordinative head takes two CP segments of the same clause structure, producing folding. This is what makes CP-splitting the only solution to rescue the structure: given the lexical elements available, it is the only possibility for the coordinative head to have two same categories as specifier and complement, namely two CPs. Moreover, this also explains why the same strategy could not rescue a sentence like (40c): since the Foc-phrase does not contain the *same* set of morphological features as a wh-phrase - arguably only a *subset* of them - a rescue strategy based on clause structure folding process yielding something like **mi domando se QUESTO abbiamo detto e a chi* (Lit. I wonder if THIS pro have said and to whom) is not allowed.

Obviously, in this explanation there is a language specific assumption that plays a crucial role, namely that there is only one Foc head in the left periphery. If this is true for languages like Italian, and possibly others, it is also true that things may well differ in other languages, and in fact - as far as I can see - there is no principled reason why this state of affairs should be universal. In languages like Bulgarian, Romanian, Serbo-Croatian and Polish, for example, it is reasonable to assume that this restriction does not hold: all wh-words are free to move to the left periphery in the spec position of C heads endowed with wh-features and stay there without further

modifications of the structure. The following prototypical case, taken from Boskovic (1995) and cited in the seminal work of Richards (1993) (see also Cinque – Krapova (2008) for a detailed analysis of the order of wh-phrases in multiple fronting in Bulgarian) implements the sequence in (41b):¹⁷

(41)a. ... [kogo C [kakvo C e pital Ivan]]?

whom what aux asked Ivan

'Who did Ivan aske what?'

b. ... Force > (Top) > Foc > Foc > (Top) > Fin > TP

Thus, one of the empirical advantages of the proposal suggested here is that it predicts variability across languages as to whether the presence of multiple wh-phrases in the same clausal structure forces clause structure folding yielding the WISE. More explicitly, if the inventory of clausal heads in the left periphery of a given language is richer than in Italian in that it allows the occurrence of multiple Foc heads then the complex phenomena of clause structure folding we have observed in the first sections of this paper (the WISE) should not exist in that language. Notice also that since clause structure folding is a rescue strategy it could well be the case that other languages implement different mechanisms to save the structure if the left periphery is not rich enough to host more than one wh-phrase. This amounts to saying that wh-in situ could still be an option for other languages, provided that long distant feature checking is available via Agree, or that they involve LF movement of wh-phrases (see footnote 3). Certainly, the empirical data analysed here show that this is not an option in Italian.

Summarizing, in this paper I proposed that there is no such a thing as a wh- in situ in Italian. Rather, all wh-elements move to the left periphery: the resulting word order at the final stage of derivation is due to a rearrangement of the structure called here “clause structure folding”, involving a coordinative (abstract) head and CP-splitting. Furthermore, I have argued that this case of clause structure folding is due to a language specific restriction on the architecture of the left periphery requiring the syntactic locus for wh-movement feature checking to be unique. Clause structure folding and the “wh-in situ effect” (WISE) in Italian ultimately turns out to be the

result of a rescue strategy allowed by UG. As far as Italian is concerned, then, this language belongs to the (2a) class as Bulgarian and Polish, in that there is no mixed strategy for multiple wh-phrases: they all move to the left periphery. Whether or not the taxonomy can be reduced to two the first two classes in (2) only for all languages is an intriguing issue but one that must be left for future research.

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³ In this paper I will not discuss the hypothesis of wh-movement at LF as suggested in the seminal work by Pesetsky (1987); for an interesting recent discussion of this hypothesis and the empirical phenomena that support it see Cheng – Rooryck (2000) and references cited there. For a critical discussion on the existence of covert movement see also Kayne (1988).

⁴ The mechanism of long distance feature checking will not be discussed here.

⁵ The grammaticality judgments given in this section of the paper are taken out of a group of 87 native speakers (mean age 22; 77 females, 10 males, college students): on average, only 1.5% gave judgments different from the one indicated here.

⁶ The following contrast found in the Italian variety spoken in Fano (Marche, Italy) provides a further piece of evidence that *perché* ‘why’ may occupy a different position with respect to other interrogative adverbs like for example *come* ‘how’ with a special rethorical effect expressed in the translation:

(i) Sei andato là, perché/*come? (Marchigiano, Italy)
are gone there why/how
'is it because you have gone there?'

Only with *perché* ‘why’ can the lower portion of the clause be moved to a higher spec-position. For a critical reflection on the order of wh-elements see also Cinque – Krapova (to appear).

⁸ The alternative to raise *perché* ‘why’ in (9c) as opposed to the CP segment yielding $[[_{PP} \text{perché}] e [_{CP} t \text{ come sono arrivati}]]$ (Lit. why and how are arrived-3rd.pl.; ‘why and how they arrived’) is not viable, since it would run against the basic requirement that the two elements to be coordinated belong to the same category; we will come back to this specific property of the coordinative head in the next section of this paper. The fact that the sentence *perché e come sono arrivati* (Lit. why and how are arrived-3rd

pl.; ‘why and how they arrived’) is grammatical is rather due to the fact that *perché* ‘why’ and *come* ‘how’ can indeed be coordinated: this simply means that *perché* ‘why’ can be locally merged with another adverb yielding *[[perché [e come]] pro sono arrivati]* (Lit. why and how pro are arrived-3rd.pl.; ‘why and how they have arrived’).

⁹ I am very grateful to an anonymous reviewer for pointing me out this important theoretical aspect of the analysis suggested here, which would have otherwise escaped my attention.

¹⁰ Marcel den Dikken (p.c.) made me notice that this analysis based on the impossibility to get crossing paths competes in fact with another one that doesn’t refer to crossing which is based on a long-standing principle that was elaborated in Chomsky (1986) on the original observation by George (1980), namely the so-called “Vacuous Movement Hypothesis” (VMH). According to this principle – whose consequences and nature are not entirely clear yet (see for example the discussion in Moro 2000 and references cited there) – movement does not take place if it is so local that it cannot be detected by an overt change in the word order. Thus, assuming the VMH amounts to saying that wh-subject never move in languages like English. So in a simple sentence like *(I wonder) who left*, *who* would never reach the left periphery (unless it does so at LF, an issue that cannot be approached here). Now, suppose that the VMH holds: the ungrammaticality of a sentence like (18a) repeated here **mi chiedo cosa ha espresso chi* (Lit. I wonder what pro has expressed who) could be derived without referring to the crossing condition. After the wh-object has moved to the left periphery and the conjunction merged, the only option would be to move the full TP yielding the correct word order, that is *mi chiedo chi ha espresso cosa* (Lit. I wonder who pro has expressed what; ‘I wonder who has expressed what’). But this alternative analysis based on the VMH would make the prediction that the impossibility to have a postverbal wh-subject would hold only for the highest subject. In other words, if there were no constraints on crossing paths – i.e. if we leave the formation of multiple wh-dependencies free – then in the case on non highest subject we should be able to produce at the relevant stage of derivation:

- (i) ... e [chi [cosa [pro credi che [t ha espresso t]]]]
and who what pro thinks that has expressed

Nothing would then prevent from stranding the subject yielding **cosa credi che ha espresso chi* (Lit. what do you think pro has expressed who). The ungrammaticality of this sentence thus reinforces the analysis of based on the prohibition to have crossing wh-paths and discards the alternative based on the VMH.

¹¹ This example shows that there is no freezing effect on the first wh-phrase (Clemens Mayr, p.c.), i.e. this doesn’t count as a crossing violation. If this effect is related to phases, though, one could argue that it is the highest phasal head that counts.

¹³ This is orthogonal with respect to the idea that there may be focal positions in other portions of the clause structure lower than the left periphery: see Belletti (1999) and Longobardi (2000); as for the existence of further clausal heads in Italian higher than Force such as those pertaining to Vocative see Moro (2003).

¹⁴ Of course, the residual part of the left periphery will be contained in the segment of the CP phrase that has been moved. The following representation gives the full structure in a more detailed fashion:

- (i) ... Force > (Top) > [[Wh C > (Top) > Fin > TP]_j [(e)]_{+Foc} [Wh C t_j]
In other words, the portion of the split-Comp field containing Top and Fin heads does not follow the last Wh-phrase.

¹⁵ A natural question arises here as to why *e* ‘and’, rather than say *o* ‘or’, is exploited in this operation of clause structure folding (cf. **mi chiedo chi arriva o perché*; Lit. to-me wonder-1st.sng. who arrives or why; ‘I wonder who arrives or why’). I do not have clear answers at the moment, although the ungrammaticality of *o* ‘or’ in this sentence is a reflex of a much broader incompatibility of *o* ‘or’ to occur in interrogative sentence coordination, witness cases like **mi chiedo chi arriva o perché arriva* (Lit. to.me wonder-1st.sng. who arrives or why arrives; ‘I wonder who arrives or why s/he arrives’). Interestingly, though, the sentence is nearly fully acceptable if we choose a matrix verb which does not have an inherent interrogative meaning as in *ditemi chi arriva o perché arriva* (Lit. tell-imper. to-me who arrives or why arrives; ‘tell me who arrives or why s/he arrives’).

¹⁶ Another way to explain why a sequence of two wh-phrases in the left periphery leads to clause structure folding in Italian is to consider a fragment of (37) as too symmetrical in the sense of Moro (2000), (2009). That is, (37) is ruled out because it contains a structure of the kind [XP YP] which is unstable for the computation since both X and Y are potential Goals for the same probe H, which makes the process of labelling impossible (for the existence of such structures in other domain than wh-phrases, see also Moro (1997)). Such an alternative would imply that the two wh-phrases symmetrically c-command each other in the sense of Kayne (1994), or equivalently that wh-movement

constitutes a multiple adjunct structure, much in the sense as QR was assumed to create multiple IPs in the standard models. I will not pursue this line of reasoning here.

¹⁷ Coordination can of course be exploited in languages without necessarily involving clause structure folding. For an interesting analysis of the occurrence of conjunction in Russian multiple wh-phrases constructions – potentially extendible to cover other Slavic languages such as Bulgarian see Chaves – Paperno (2007) (David Pesetsky, personal communication).