WH-INFINITIVES AND THE LICENSING
OF "ANAPHORIC TENSE"[*]
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1. Introduction

In this paper I wish to discuss an interesting constraint on the interpretation of the Italian infinitive in subordinate clauses introduced by an interrogative or relative phrase (for short, "wh-infinitives").

Firstly, observe that in an infinitival declarative complement, as in (1), the compound infinitive describes an event which is temporally located before the event or state described by the matrix clause:

(1)   Dice/ricorda [di aver messo il portafoglio nel cassetto].
        say/remember-PRES.3.SG. di have-INF put the wallet in the drawer

I will dub this the "anaphoric tense" interpretation, for reasons to be discussed below.[1]

Observe now that in an interrogative or relative clause, the very same interpretation is unavailable, and the compound infinitive is plainly ungrammatical:

(2)   a. *   Non ricordo [dove aver messo il portafoglio].
              not remember-PRES.1.SG. where have-INF put the wallet
              intended interpretation: 'I can't remember where I put my wallet'
      b. *   Cerco il posto [dove aver messo il portafoglio].
              look-for-PRES.1.SG. the place where have-INF put the wallet
              intended meaning:'I'm looking for the place where I put my wallet'

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[1] With the noncompound (present) infinitive, the anaphoric tense interpretation amounts to overlapping between the matrix state/event and the state/event expressed by the infinitive:
   (i) Dice di lavorare a un progetto segreto
      say.3.SG. work.INF on a secret project
   'He claims that he's working on a secret project.'
However, this interpretation is subject to Aktionsart constraint (as it is difficult to obtain with non-durative infinitival predicates). In order to avoid this complication, I will consistently exemplify the anaphoric tense interpretation by means of the compound infinitive.

In these clause types, only the simple (present) infinitive is allowed, and it only allows for a quasi-modal interpretation, in which it takes on either a possibility or a necessity value, depending on the context:

(3)   a .   Non so [dove mettere il portafoglio].
                not know- PRES.1.SG. where put-INF the wallet
                'I don't know where I could put my wallet'
         b.   Cerco un posto [dove mettere il portafoglio].
                look-for-PRES.1.SG. a place where put-INF the wallet
                'I'm looking for a place where I could put my wallet'

In formal syntactic terms, the crucial property opposing (2)-(3) to (1) is the fact that an interrogative or relative phrase has been fronted to the left periphery of the infinitival clause, an instance of wh-movement.

The above data can be summarised in the following way:

(i)   In Italian, wh-movement to the edge of an infinitival clause is incompatible with the anaphoric tense interpretation required by a compound infinitive, and it is only compatible with the quasi-modal interpretation allowed by a simple infinitive.

Note that in (2)-(3) the wh-phrase undergoes *local* movement to the edge of the infinitival clause in which it originates (as a locative complement to the infinitival predicate). However, it is well known that wh-movement is in principle an unbounded dependency, which can cross one or more clause boundaries. Under a well established view of syntactic locality (most recently, Chomsky's Phase Impenetrability Condition), long-distance movement must proceed through a sequence of local steps: the wh-phrase is fronted to the left edge of each clause whose boundary must be crossed. Now we can ask whether these intermediate steps of movement have the same effect as local wh-movement on the interpretation of the infinitive.

The plain answer is, no. As the data in (4) show, intermediate ("successive cyclic") movement through the left edge of an infinitival complement clause (indicated by *t'*) is fully compatible with the anaphoric tense interpretation of the compound infinitive, much as in (1):

(4)   a.   *Che cosa* dice [t' di aver trovato t]?
                what say- PRES.3.SG. di have found
                'What does he say he found?'
         b.   Che cosa ricordi [t' di aver messo t nel cassetto]?
                what remember- PRES.2.SG. di have put in the drawer
                'what do you remember that you put in the drawer?'

We can then formulate a second observation:

(ii) Contrary to local wh-movement, successive cyclic movement through the edge of an infinitival clause is compatible with the anaphoric tense interpretation of the infinitive.

These data raise two interesting, though conceptually independent, questions. Firstly, we can ask why the presence of an interrogative or relative phrase in the left periphery of the clause should interfere with the interpretation of the infinitive: what has wh-movement to do with tense/aspect? As I will argue below, only a formal syntactic approach to temporal structure can give a plausible answer to this question.

The second issue is on a more theoretical side: why do local and successive cyclic wh-movement behave differently in this respect? This question is highly relevant in the current minimalist framework, which tends to assimilate the intermediate and final steps of movement under the phase-by-phase view of syntactic derivations .

Before tackling these questions, let us briefly discuss the "anaphoric tense" interpretation of the infinitive.

2. **Licensing "anaphoric tense"**

The temporal and aspectual properties of the infinitive have not yet received a thorough characterization, in part because the infinitive can be used in a wide variety of contexts, both nominal and verbal, which plausibly correspond to very different syntactic structures (see Bertinetto 2003 for an overview of the Italian infinitive). However, there is general agreement on one central point: the infinitive lacks temporal anchoring to the deictic Speech Time, which is why it cannot be used in independent assertive clauses (see Hornstein 1990: 146-154; Bertinetto 2003; Bianchi 2003).

Consider again the compound infinitive in (1):

(1)   Ricorda [di aver messo il portafoglio nel cassetto].
        remember-PRES.3.SG. di have-INF put the wallet in the drawer

The infinitive merely expresses an *anteriority* relation between the event it describes and the event/state described by the matrix verb. This anteriority relation can be characterised either as a temporal or an aspectual property: in the second case, anteriority would result from the fact that from the vantage point of the matrix event time, the event described by the perfective infinitive must be completed (see Bertinetto 2003).

The issue is quite complex and exceeds the limits of the present discussion. For my current purposes, I will only make the following minimal assumption: the anteriority relation between the matrix and the infinitival clause events is not direct, but rather, the Event Time of the infinitive is anterior to/completed w.r.t. an

Evaluation Time belonging in the temporal/aspectual structure of the infinitival clause; this Evaluation Time is, in turn, *anaphoric* to the matrix clause event – whence the label "anaphoric tense":

(5)　　　matrix E　　　　　　[EvalTime　　　　　　　　　infinitival E]

This assumption is consistent with various neo-reichenbachian syntactic approaches to temporal structure (Zagona 1990; Stowell 1996; Giorgi & Pianesi 1997, among many others), which conceive of tense as a dyadic predicate relating two temporal or eventive arguments. In our case, the infinitival clause Event Time is temporally (or aspectually) related to a local Evaluation Time; the latter is anaphoric to the matrix clause Event Time, which is temporally related to the deictic Speech Time. In this way, the event time of the infinitival clause comes to be indirectly placed w.r.t. the Speech Time.
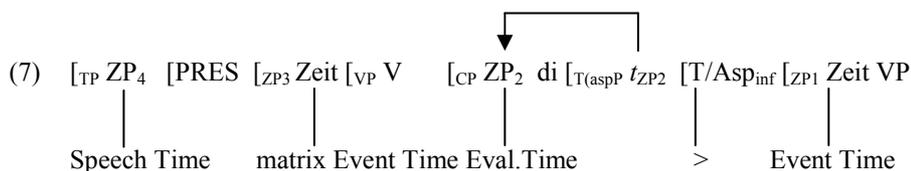
I will adopt here the syntactic implementation of temporal structure proposed by Stowell (1996): the Verb Phrase projected by the lexical verb is enveloped in a functional syntactic projection denoting a time, which Stowell dubs Zeit Phrase. This constitutes the complement to, and the internal argument of, some temporal or aspectual functional head which expresses the anteriority relation. The external argument of this relation is a phonetically empty Zeit Phrase originating in the Specifier position of the T/Asp head:[2]

(6)　　... $[_{CP}$ di $[_{T/AspP}$ ZP$_2$ $[T/Asp_{inf}$ $[_{ZP1}$ Z VP]]]]]
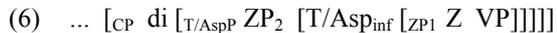
The higher Zeit Phrase is not only phonetically empty, but it also lacks any intrinsic reference: it is an anaphoric category, which must inherit its reference from some syntactic antecedent. As discussed above, the antecedent is the matrix clause Event Time, denoted by the matrix Zeit Phrase. I will make the crucial assumption that in order to establish a proper anaphoric relation with the matrix ZP, the anaphoric ZP must move to the left edge of the infinitival clause, as represented in (7). The anaphoric ZP thus acts as a temporal empty operator, which undergoes (invisible) wh-movement.[3]

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[2] I will not try to characterise in any detail the internal functional structure of the infinitival clause. Under Stowell's assumptions, the compound infinitive would actually involve a complex temporal structure, with a lower part corresponding to the past participle and a higher part corresponding to the auxiliary. I will adopt the very simplified representation in (6), because it is sufficient for my current purposes.

[3] Stowell (1996) assimilates covert Zeit Phrases to the PRO category, undergoing control; I will not follow his proposal on this point. In any event, note that obligatory control relations have been argued to involve the left periphery of the clause as well (see Landau 2000); hence, it is possible that the proposal in § 3 might be rephrased in terms of control.

(7) $[_{TP}\,ZP_4\,[PRES\,[_{ZP3}\,Zeit\,[_{VP}\,V\quad[_{CP}\,ZP_2\,\,di\,[_{T(aspP}\,t_{ZP2}\,[T/Asp_{inf}\,[_{ZP1}\,Zeit\,VP$

Speech Time	matrix Event Time	Eval.Time	>	Event Time

With this minimal syntactic characterisation of anaphoric tense, we can return to our initial problem, namely, its incompatibility with local wh-movement in (2). At this point the reader can easily imagine what the solution is going to be: if anaphoric tense involves another instance of (invisible) wh-movement, this incompatibility can be attributed to an interference between the two movement paths.

3. ZP movement and locality effects

An adequate account of this interference requires a more refined view of the left periphery of the clause. In the standard minimalist framework, the left edge of the clausal (CP) phase includes several undifferentiated positions where moved phrases can land. Contrary to this view, in the so called "cartographic" approach proposed by Rizzi (1997) and Cinque (1999), the left periphery of the clause is constituted by a sequence of functional projections, each one devoted to a specific function and hosting a specific type of movement in its Specifier.

In a detailed study of the left periphery of the clause in Italian, Benincà & Poletto (2004) propose that this is structured in two fields, i.e. sequences of continuous and semantically related projections: a higher Topic field, further divided into a "frame" subfield and a "theme" subfield, and a lower Focus field. From this perspective, it is necessary to establish which positions host the moved wh-phrase and the anaphoric ZP in the derivation of (2).

Since the anaphoric ZP is phonetically empty, of course we cannot "see" its landing site. However, we can try to answer the question by looking at the distribution of overt time adverbials which, according to Stowell (1996), are restrictive modifiers of the Zeit Phrases.

Non-focussed time adverbials are licensed in a topic-like position, which plausibly belongs in the highest Frame subfield of Benincà & Poletto (2004), corresponding to their "Scene Setting" projection.[4] Crucially, this position is higher than the landing site of interrogative phrases, which belongs in the lower Focus field (reserved for operators). This distribution is confirmed by the contrast

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[4] In their terms, this projection gives information about the "where and when" of the sentence (Benincà & Poletto 2004, 71).
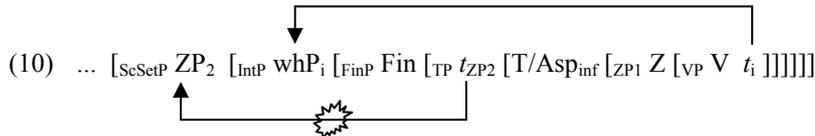
in (8): the time adverbial "yesterday at five", denoting the Reference Point, must precede the wh-phrase, as in (8a); the reverse order is deviant (8b):[5]

(8)   a.   (Mi chiedo) [ieri alle 5, [quanti studenti$_i$ avevi già interrogato t$_i$]]
              (I wonder) yesterday at 5 how-many students you-had already examined
        b.   ?* (Mi chiedo) [quanti studenti$_i$ [ieri alle 5 [avevi già interrogato t$_i$]]
              (I wonder) how-many students yesterday at 5 you-had already examined

For my present purposes, the exact labels of these positions are immaterial; what is relevant is their relative ordering. For the sake of concreteness, I will dub the projection hosting the time adverbial "Scene Setting Phrase", following Benincà & Poletto (2004), and the projection hosting the wh-phrase "Interrogative Phrase", following Rizzi (1999):

(9)   ... [$_{ScSetP}$ ieri alle 5 [$_{IntP}$ quanti studenti [$_{FinP}$ Fin IP]]]

Let us assume that that the covert anaphoric ZP of (7) moves to the same dedicated adverbial position as overt time adverbials. This implies that in the examples (2), the anaphoric ZP has to move across the landing site of the wh-phrase, as shown in (10):

(10)   ... [$_{ScSetP}$ ZP$_2$ [$_{IntP}$ whP$_i$ [$_{FinP}$ Fin [$_{TP}$ t$_{ZP2}$ [T/Asp$_{inf}$ [$_{ZP1}$ Z [$_{VP}$ V t$_i$]]]]]]]

This gives rise to a locality effect: an intervention effect (in the sense of Chomsky 1995), or a violation of Relativized Minimality (in the sense of Rizzi 1990, 2002). Specifically, Rizzi (2002) argues that each moved element is endowed with a specific feature triggering movement; however, features are grouped in macro-classes (in particular, Rizzi distinguishes the macro-class of "quantificational features", like [interrogative] or [relative], from the macro-classes of "argumental", "modifier" and "topic" features). For the purposes of Relativized Minimality, any element belonging in the same macro-class as the moved phrase and structurally intervening between the base position and the

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[5] The order in (8b) is acceptable if the wh-phrase is the subject:
(i) Mi chiedo quanti studenti ieri alle 5 avevano già consegnato il compito
    I wonder how-many students yesterday at 5 had already given their examination paper
The wh-subject probably exploits a higher position reserved for specific subjects (Kiss 1996): in fact, this order is unacceptable if the wh-subject has a non-specific interpretation:
(ii) ?* Mi chiedo quanti studenti in più ieri alle 5 avevano già consegnato il compito
    I wonder how-any more students yesterday at 5 had already given their examination paper

landing site constitutes an intervener and blocks movement. The configuration (10) violates Relativized Minimality if the anaphoric ZP is endowed with an operator feature, like the intervening wh-phrase. This is quite plausible, since the anaphoric ZP is for all intent and purposes an empty operator.[6]

In the configuration (9), instead, no intervention effect arises: note that here the time adverbial is overt and non-anaphoric, and it is endowed with a [topic] feature, which does not interact with the operator feature of the wh-phrase for the purposes of Relativized Minimality.

In conclusion, the interference between local wh-movement and the temporal (or aspectual) interpretation of the compound infinitive arises from the minimality constraint on wh-movement.

Let us now go back to the quasi-modal interpretation of the simple infinitive in (3). Note that this is not merely an irrealis tense (whereby the event of the infinitive is not yet realized at the Evaluation Time of the infinitive, as in the infinitival complements to verbs such as *promise* or *decide*), but it carries a specifically modal flavour. In the examples in (3), repeated here, the modal flavour is possibility:

(3)   a .   Non so [dove mettere il portafoglio].
              not know- PRES.1.SG. where put-INF the wallet
              'I don't know where I could put my wallet'
       b.   Cerco un posto [dove mettere il portafoglio].
              look-for-PRES.1.SG. a place where put-INF the wallet
              'I'm looking for a place where I could put my wallet'

In the following examples, instead, the modal value is necessity:

(11)   a.   Dimmi [dove mettere il portafoglio].
              tell- PRES.2.SG. ME where put-INF the wallet
              'Tell me where I should put the wallet'
       b.   Ho comprato il/ogni libro [da leggere per l'esame]
              (I) have bought the/each book to read for the exam
              'I bought the/each book I must read for the exam.'

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[6] This accounts for the infinitival interrogative in (2a). As for the infinitval relative clause in (2b), a slighly different analysis might be required: in fact, Rizzi (1997) argues that in finite relative clauses, the relative wh-phrase targets the highest projection of the Complementizer field, i.e. the Force Phrase, in order to be immediately adjacent to the nominal "head" of the relative clause. Under this hypothesis, in (2b) the wh-phrase would be higher than the landing site of the ZP operator. However, infinitival relatives have an impoverished Complementizer field, plausibly lacking the Topic subfield (cf. Cinque 1988):
    (i) Cerco una baby sitter a cui (?? nei prossimi giorni) affidare mio figlio.
        I'm looking for a baby-sitter with whom (in the next days) to leave my child
    We can hypothesize that in (2b) there is no possible landing site for the ZP operator at all, since the Topic subfield is missing.

The reason for these different modal flavours is unclear,[7] but they definitely show that the infinitive does not carry a purely temporal value. Therefore, I propose that the simple infinitive in wh-infinitives such as (3) and (11) has a functional structure different from (6), one which does not involve a Tense/aspect head, but rather a phonetically empty Modal head:

(12) $[_{TP}$ PRES $[_{VP}\ e_1$ V $[_{IntP}$ whP $[_{FinP}$ Fin $[_{ModP}$ $\lozenge/\square$ $[_{VP}\ e_2$ V$]]]]]]$

This hypothesis is supported by the observation that it is possible to realize an overt modal, at least in infinitival relatives (though this is more marginal in interrogatives):

(13)   a .   ? Non so [dove poter mettere il portafoglio].
                    not know- PRES.1.SG. where can-INF put-INF the wallet
                    'I don't know where I could put my wallet'
            b.   Cerco un posto [dove poter mettere il portafoglio].
                    look-for-PRES.1.SG. a place where can-INF put-INF the wallet
                    'I'm looking for a place where I could put my wallet'

Note that the infinitival modal in (13) obligatorily requires clitic climbing:

(14)   a.   Cerco un libro da potergli regalare.
                    look-for-PRES.1.SG. a book PTC can-INF+CL give-as-a-present
            b. * Cerco un libro da poter regalargli.
                    look-for-PRES.1.SG. a book PTC can-INF+CL give-as-a-present
                    'I'm looking for a book to present him with'

According to Cinque (2001), restructuring modals are not lexical verbs, but inflectional heads in the clausal functional hierarchy. The obligatory restructuring behaviour in (14) thus corroborates the hypothesis that this is the spell-out of a Modal head.

Note now that the Modal head in (12) acts as a modal predicate applying to its complement, but it does not require an Evaluation Time, hence crucially, it does

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[7] There seems to be a correlation with the quantificational force of the structure embedding the infinitive: a weak/existential context corresponds to a possibility interpretation, whereas a definite/strong context corresponds to a necessity interpretation (11). Note that the wh-infinitive in (11a) has a definite interpretation, which can be paraphrased as: "tell me *the* place where I should put the wallet"; in (11b), the head of the infinitival relative clause is definite or strong. On the contrary, the wh-infinitive in (10a) has existential force, and in (10b), the infinitival relative clause has an indefinite head. I have no explanation for this correlation, and I leave the problem for future research.

not involve ZP-movement to the left periphery.[8] This is why the modal interpretation of the infinitive is fully compatible with local wh-movement to the left edge of the infinitival clause.[9]

4. Successive cyclic wh-movement

Let us now go back to successive cyclic wh-movement, exemplified in (4) above and repeated here:

(4)   b.   Che cosa ricordi [t' di aver messo t nel cassetto]?
               what remember- PRES.2.SG. di have put in the drawer
               'What do you remember that you put in the drawer?'

The compatibility of the "anaphoric tense" interpretation of the compound infinitive with successive cyclic wh-movement through the left periphery implies that wh-operators in a final vs. intermediate landing site have a different status for locality effects.

If we assume the copy theory of traces (revived by Chomsky 1995), a fuller representation of the wh-chain of (4b) would be as in (15):[10]

(15)   [Che cosa] ricordi [<[che cosa]> di [aver messo <[che cosa]> nel cassetto]]

From a purely representational perspective, it is possible to assume that a wh-trace, contrary to a full wh-operator, is irrelevant for minimality effects; hence it does not interfere with the chain of the anaphoric ZP, even though it structurally intervenes between its base position and its landing site:
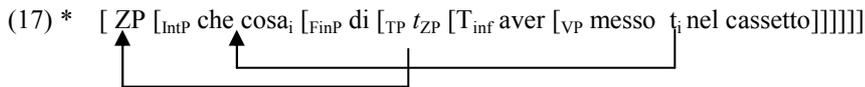
(16) ...[$_{ScSetP}$ ZP [$_{IntP}$<[che cosa]> [$_{FinP}$ di [$_{T/AspP}$<ZP> aver messo <[che cosa]>

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[8] This is not to say that the modality expressed is atemporal. The crucial point is that the Modal head does not syntactically express a binary relation between two eventive/temporal arguments: hence, there is no need for an anaphoric ZP in its Specifier.

[9] An interesting question to ask is why the simple infinitive can take on a modal interpretation, with a distinct functional structure. Giuseppe Longobardi (p.c.) reminds me that in Latin the infinitive could only express a temporal (i.e., anaphoric tense) interpretation, and wh-infinitives were completely excluded, as the present analysis predicts. A possible guess is that in the re-shaping of the verbal system that occurred in the evolution from Latin to Romance, the simple infinitive took over a modal value which was originally expressed by the gerundive in Latin. I leave this problem open here.

[10] In (15) and in the following examples, the copy-traces are included in angled brackets.

But the same hypothesis is much more difficult to state from a derivational perspective, assuming the standard bottom-up phase by phase derivation. Note in fact that in the derivation schematically represented in (17), the wh-operator is still in the intermediate landing site in the edge of the infinitival CP phase at the point where ZP-movement applies, exactly as in (10) above:[11]

(17) * [ZP [$_{IntP}$ che cosa$_i$ [$_{FinP}$ di [$_{TP}$ t_{ZP} [T$_{inf}$ aver [$_{VP}$ messo t_i nel cassetto]]]]]]

In other terms, we are confronted with the following problem: how is it possible to capture the fact that wh-operators in a final vs. intermediate landing site have a different status *within the phase*?

Within the minimalist framework, local and successive cyclic movement steps are triggered by different features: a "real" wh-feature attracts the operator to its final landing site, whereas a "pseudo-wh-feature" attracts it to the intermediate chain positions (see especially McCloskey 2002, Rizzi 2002, 2006 for discussion of pseudo-wh-features triggering successive cyclic movement). The real wh-feature expresses the interrogative clause type, whereas pseudo-wh-features have no clause typing effect: in fact, the infinitival clause in (15)/(17) is declarative, and not interrogative.

Now, a different feature on the probe head can encode the difference between the final and the successive cyclic movement steps within the phase; however, it is not *a priori* clear why the type of the attracting feature should affect the status of the attracted wh-phrase w.r.t. minimality effects. The moved wh-phrase itself bears an interpretable wh-feature in both cases.[12]

The nature of the attracting features can be exploited in a more perspicuous way within the cartographic framework: we can assume that the different attracting features are specified on different probe heads; as a consequence, the final and the intermediate steps of wh-movement target *different landing sites* in the Complementizer field. Let me propose one specific implementation of this idea, elaborating on a recent proposal by Chomsky (2005, 17 ff.).

Chomsky proposes that merge of a lexical item with some syntactic object must be licensed by an *edge feature* (EF) on the lexical item. The edge feature on a phase head (C or v*) indiscriminately triggers any instance of A' movement, both

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[11] Following Chomsky (2005), the two operations could be driven in parallel by the same phase C head, with no intervention effects – but this would also explain away (10), and the contrast between (2) and (4) would remain unaccounted for.

[12] Chomsky (2005, 16-18) suggests that in A movement, the lower copies bear some unvalued features and do not constitute full A chains; this is why they are invisible. He notes that the same must hold of A' chains: here too, "only the full chain (equivalently, its head) is the object that intervenes". However, it is not clear which unvalued features a moved wh-phrase would bear.

in the intermediate and in the final steps. Adopting the cartographic perspective, Chomsky suggests that the proper interpretation of a moved phrase obtains when it reaches "the right position in the left periphery for interpretation", either as a topic, or as an interrogative phrase, or whatever. This does not however requires an agreement relation between the moved phrase and the probe head, contrary to Rizzi's (1996, 1997) criterial view: if a phrase reaches the wrong position for interpretation, the derivation will converge but the result will be ruled out at the C-I interface.
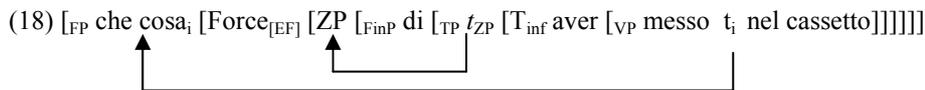
Note that, in any event, the different nature of the various complementizer heads in a cartographic structure – which determines the "right position" for each interpretation – must be encoded by a different feature content of the various functional heads. If this feature content is criterial, à la Rizzi, all converging derivations will yield an interpretable output; if it is not criterial – and movement is rather triggered by an indiscriminate edge feature, à la Chomsky – some converging derivations will yield a deviant output. Apart from this, the two formulations seem to be equivalent with regard to the final landing site of movement.

I will stick to Rizzi's criterial view for this case. As for local wh-movement (10), I have assumed above, following Rizzi (1997, 1999), that it targets a complementizer projection in the lower Operator field, the Interrogative Phrase (recall the discussion around (8) above). The same landing site can be assumed for the final step of long-distance wh-movement, as in (15): in this case as well, the landing site corresponds to a clause-typing position, which marks an interrogative clause.

On the other hand, I would like to suggest that Chomsky's indiscriminate edge feature does play a crucial role in deriving the *intermediate* steps of successive cyclic movement. On Rizzi's view, these steps target exactly the same complementizer projection as the final step, but the attracting feature is a pseudo-wh-feature.[13] Suppose instead that the highest head of the Complementizer field, at the extreme periphery of the CP phase, provides an indiscriminate "escape hatch" position: specifically, this head encodes declarative force, but it does not provide any special interpretation for its specifier; its edge feature attracts any element with an operator feature that has not been attracted to any lower criterial position within the phase. Thus, the "escape hatch" allows the raised element to escape the Phase Impenetrability Condition and enter the computation of the next phase. With this assumption, we can reconcile Rizzi's criterial view with Chomsky's elimination of pseudo-wh-features.

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[13] Rizzi (2006) argues that this is supported by morpho-syntactic evidence: e.g. subject-auxiliary inversion in Belfast English is equally triggered by the intermediate steps of movement behave just like the final step. I cannot do justice to his arguments within the limits of the present paper.

This hypothesis implies that the intermediate steps of wh-movement target a higher position than the final step – in fact, they target the highest possible position within the CP phase. Consider now from this perspective the computation of our example (4b): ZP-movement in the anaphoric tense interpretation targets a position in the Topic subfield which is lower that the high "escape hatch", as shown in (18):

(18) [$_{FP}$ che cosa$_i$ [Force$_{[EF]}$ [ZP [$_{FinP}$ di [$_{TP}$ t_{ZP} [T$_{inf}$ aver [$_{VP}$ messo t$_i$ nel cassetto]]]]]]

It follows that in the intermediate steps of successive cyclic movement, the wh-phrase does not interfere with ZP-movement, and the anaphoric tense interpretation can be licensed.

This analysis makes a further prediction: given the assumption that the ZP-operator and the wh-phrase belong in the same class for the purposes of Relativized Minimality (in the sense of Rizzi 2002), the ZP should in turn create a minimality effect on wh-extraction out of the infinitival clause.

In (4b)/(18) the extracted wh-phrase is an argument, and it is not subject to Relativized Minimality (Rizzi 1990, 2002); but when an adjunct is extracted, we expect that a Relativized Minimality effect should emerge. This prediction seems to be correct. In (19) and (20), we observe a typical argument/adjunct asymmetry: the argument in the (a) example can be extracted without problems, whereas adjunct extraction in the (b) examples is deviant.[14]

(19)   a.   Quale problema sostiene [di aver già risolto *t*]?
                  which problem claim-PRES.3.SG. *di* have-INF already solved
           b. ?* Come sostiene [di aver già risolto il problema *t*]?
                  how claim-PRES.3.SG. *di* have-INF already solved the problem

(20)   a.   Quale collega pensi [di aver offeso *t* con la tua battuta]?
                  which colleague believe.PRES.2.SG. *di* have offended with your quip
           b.   Perché pensi [di essere stato licenziato *t*]?
                  why believe.2.SG. *di* have been fired   (* embedded construal)

Anaphoric tense infinitives create a weak island effect, due to the presence of the ZP operator in the left periphery of the infinitival clause.

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[14] (20b) is deviant on the embedded construal, with *why* modifying the infinitive and moving across the anaphoric ZP; it is obviously acceptable on the matrix construal of the adverbial, with *why* modifying the matrix verb.

5. **Summary**

In this paper I have discussed the incompatibility of the compound infinitive in Italian with local wh-movement to the edge of the infinitival clause. I have proposed an analysis based on minimality effects, which is crucially based on a syntactic representation of temporal structure along the lines of Stowell (1996).

The distribution of the compound infinitive in the anaphoric tense interpretation also suggests an asymmetry between local and successive cyclic movement – more precisely, between the intermediate and the final steps of wh-movement in the left periphery of the clause. I have sketched one way to implement this asymmetry, based on the hypothesis that the two types of chain links are triggered by different features and, crucially, target different positions within the Complementizer field.

Whether the present analysis is on the right track or not, the asymmetry itself suggests that wh-phrases targeting an intermediate vs. final landing site have a different status *within the phase* – under the assumption that minimality is computed "locally", i.e. in the course of the computation of each phase. Let me point out that any solution based on a whole long-distance A' chain, crossing distinct phases, would be essentially representational in the spirit, if not in the letter.

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