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Some notes on Unstable Structures[1]

I. Instability in copular sentences

In this paper I would like to concentrate on the nature and the consequences of a simple fact that pertains to clause structure. Although this fact is detectable across languages, Italian offers a particularly direct way to illustrate it. It is generally assumed that in Italian DP-movement from the VP in unaccusatives or passives is optional, as an alternative to pro-insertion in spec-TP. For example, consider the following contrasts:

(1)a   Gianni [arriva t]
         (Gianni arrives)
   b   pro [arriva Gianni]
         (pro arrives Gianni)

   c   Gianni è stato [ucciso t]
         (Gianni was killed)
   d   pro è stato [ucciso Gianni]
         (pro was killed Gianni)

Copular sentences provide a surprising anomaly with respect to this general pattern. Consider a copular sentence generated by merging two DPs: *[una foto del muro]* (a picture of the wall) and [la causa della rivolta] *(the cause of the riot)*. Copular sentences force movement of either DP from the VP as shown in (2)a-b; pro-insertion just yields a sharp ungrammatical sentence as in (2)c:

(2)a   molte foto del muro sono [t la causa della rivolta]
         (many pictures of the wall are the cause of the riot)
   b   la causa della rivolta sono [molte foto del muro t]
         (the cause of the riot are many pictures of the wall)

c * pro sono [molte foto del muro la causa della rivolta]
      (pro are many pictures of the wall the cause of the riot)

Notice that there is no idiosyncratic incompatibility between the copula and pro in spec-TP, provided that pro is the head of a chain starting within the postverbal constituent:

(3)   pro è [t la causa della rivolta]
        (pro is the cause of the riot)

This simple fact can be synthetically represented by the following generalization:

(4)   * pro copula [DP DP]

The hypothesis that either DP must raise can be proved on the basis of several different empirical tests showing that the resulting sequence DP V DP embodies very different properties depending on which DP is raised. I will henceforth refer to the theory of copular sentences that captures these data as the "unified theory of copular sentences" (UTCS). I will not reproduce here the complex argument given to support the UTCS but just report one representative fact; I will refer to Moro (1988) for the original proposal and Moro (1997) and (2000) for a detailed analysis and a brief history of the notion of copula). [2]
        One of the basic results of UTCS is that it uncovers many surprising asymmetries, despite the superficial similarity of the sequence DP V DP. For example, wh-movement yields sharp contrasts such as in the following case:

(5)a   di quale rivolta pensi che una foto del muro fosse [la causa t]?
        (of which riot do you think that a picture of the wall was the cause)
   b * di quale muro pensi che la causa della rivolta fosse [una foto t]?
        (of which wall do you think that the cause of the riot was a picture)

In (5)a, where the subject has been raised, wh-movement can take place from the postverbal predicative DP;[3] in (5)b, instead, where the predicate has been raised, wh-movement cannot take place from within the postverbal subject DP. Following the terminology proposed in Moro (1988), we could dub the first type of sentence "canonical copular sentence" and the second type "inverse copular sentence." In fact, wh-movement from the very same DP as in (5)b in postverbal position would be possible, were the sentence a canonical copular sentence such as in (6):

(6)   di quale muro pensi che questa fosse [una foto t]?
        (of which wall do you think that this is a picture)

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[2] Not only DP V DP copular sentences require movement. In fact, all copular sentences of the kind DP V XP do, such as *è Gianni alto (is Gianni tall), *è Gianni in giardino (is Gianni in the garden), etc. The reason why DP V DP sentences are most interesting is that since both the subject and the predicate are implemented by the same lexical category more combinations are available, in particular, the predicate can be moved to the position canonically reserved to subjects and the subject can stay in situ within the VP providing new perspectives on clause structure.

[3] Notice that the structure is not grammatical when a DP is moved *from within* a DP, yielding for example a sentence like: *questa rivolta è una foto del muro [la causa t] (this riot is a picture of the wall the cause). This again, shows that it is not the type of element that reaches the preverbal position that matters: rather, it is the structure of the postverbal constituent.

Disregarding now the various empirical reason that led to the UTCS – including the locality conditions that explain the asymmetry in movement,[4] there is one major question that I would like to address here: why is the constituent formed by DP-DP unstable? What forces movement of either DP to the preverbal position? An EPP-based solution is out of question, because in Italian this should be satisfyed by pro insertion as in (1)a-d.

This paper is organized as follows. In the next two sections, I will briefly summarize two facts concerning copular constructions that I have extensively explored in Moro (1997) aiming at exploring the internal structure of the unstable DP-DP sequence following the copula and distinguish it from other apparently similar structures. In particular, in section II, I will focus on the phrasal architecture of DP-DP constituents showing that this sequence is not the same as the one that occurs with *believe*-type verbs; in section III, I will provide evidence that the sequence of two XPs that may follow the copula in *there*-sentences is not a constituent; in section IV, instead, I will address some theoretical issues aiming at explaining movement on a principled ground; in section V, I will explore some consequences of the theory proposed here in different fields of syntax. Finally, in section VI, I will tentatively address a rather murky phenomenon related to a crucial cross-linguistics contrast between pro-drop and non pro-drop languages.

II. Headless constituents

The instability of DP-DP with copular constructions sharply contrasts with another structure that has been traditionally associated with it, namely the so-called "small clause" construction that follows *believe*-type verbs. In (7)a nothing is forced to move as opposed to (7)b:

(7)a   Maria considera [Gianni la causa]
        (Maria considers Gianni the cause)
   b * pro è [Gianni la causa]
        (Gianni is the cause)

A closer inspection to these two types of small clauses proves that in fact these are two different types of constructions. More specifically, it can be shown that in the complement of *believe*-type verbs a (functional) head of some kind is intervening between the two DPs. There are at least three different empirical tests to prove this. One is based on the occurrence of overt predicative markers, that we can take as overt spell-out of the functional head, such as *come* (as) in (8)a-b:

(8)a   Maria considera [Gianni (come) la causa]
        (Maria considers Gianni as the cause)
   b   Gianni è [t (*come) la causa]
        (Gianni is as the cause)

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[4] Copular sentences provide evidence that there are at least two distinct locality conditions in syntax: one based on selectional properties of heads (Subjacency) and one based on agreement features (ECP) in the sense of Rizzi (1990), Moro (1993): this can be easily shown by including sentences with prevebal elements like *ci* (there); see Moro (1997) and the appendix of Moro (2000) for detailed proposal and references.

This contrast shows that a predicative head marker can only occur with *believe*-type verbs. The other test is the impossibility to cliticize the predicative DP with *believe*-type verbs as opposed to copular sentences, a fact that has been noticed at least since Burzio (1986). A natural way to interpret this ungrammaticality is to assume that there has been a head-movement constraint violation (in the sense of Travis (1984)) in the small clause selected by the *believe*-type verb as opposed to the one selected by the copula:

(9)a * Maria lo considera [Gianni H° t]
      (Maria *lo* considers Gianni)
      "Maria considers him so"
  b Gianni lo è [t t]
      (Gianni *lo* is)
      "Gianni is so"

A third type of evidence is provided by the occorrence of adverbials. Following Cinque (1995) among others, we can assume that adverbials are hosted in the spec-position of a dedicated head. What happens if we insert an adverb between two DPs in the constructions under discussion?
      Consider for example an adverb like *necessariamente* (necessarily): this adverb can occur in between the two DPs following a *believe*-type verb such as in (10):

(10)   Maria non considera [Gianni [necessariamente [F° la causa]]]
      (Maria not considers Gianni necessarily the cause)

This is not surprising since we already have independent evidence that there can be functional heads between these two DPs. Testing the occurrence of this adverb with the copula requires some attention. This adverb can in fact occur between the two DPs in a canonical sentence ((11)a), but since the subject – which marks the left boundary of the constituent - has been raised we cannot infer anything as to whether the adverb has originated between the two or outside the constituent; on the other hand, if we test inverse copular sentences, we immediately get that the adverb can only precede the postverbal DP, which marks the left boundary of the BSC, showing that it could not have originated within it ((11)b-c):

(11)a Gianni non è necessariamente la causa
      (Gianni not is necessarily the cause)
  b   la causa non è necessariamente [Gianni t]
      (the cause not is necessarily Gianni)
  c * la causa non è [Gianni necessariamente t]
      (the cause not is Gianni necessarily)

We can conclude this section by observing that the DP-DP constituent following the copula appears to be a headless constituent, contrasting with the complement of *believe*-type verbs where functional heads appear between the two DPs.
      The standard view that assimilates the two postverbal sequences in (7), then, is empirically inadequate. For the sake of clarity, we must refine the traditional notion of "Small Clause" by distinguishing (at least) two subtypes: the DP-DP constituent that cooccurs with the copula - a "Bare Small Clause" (BSC) - vs. the DP-DP constituent that follows a *believe*-type verb - a "Rich Small Clause" (RSC).

III. An apparent counterexample: *there*-sentences as inverse copular sentences

The hypothesis that the constituent following the copula is unstable contrasts with another hypothesis – which is standardly assumed in formal linguistics – namely that in copular sentences raising can be alternative to expletive insertion, such as in the following pair:

(12)a   un uomo è [t in giardino]
      (a man is in the garden)
    b   c'è [un uomo in giardino]
      (there is a man in the garden)

If this analysis were correct, we should either abandon the idea that the constituent following the copula is unstable or add some ad hoc condition for the case of expletive. Alternatively, we could try to show that this constituent is a RSC on a par with the case of *believe*-type verbs. It would be easy to prove that the latter idea would be inconsistent: for example, insertion of a predicative marker such as *come* (as) between *un uomo* (a man) and *in giardino* (in the garden) would yield a sharp ungrammatical result: **c'è un uomo come in giardino* (there is a man as in the garden).

    In fact, for independent reasons I have suggested that the analogy in (12)a-b is untenable on empirical grounds (Moro (1997)). The alternative analysis is to consider the expletive not as a *prosubject* but rather as a *propredicate* element raised from the BSC following the copula; the PP, on the other hand, is to be considered as an adjunct (of the VP or of the DP; for the sake of simplicity I will disregard here the latter case). In other words, the correct representation for *there*-sentences would be (13)b rather then (13)a, that is *there*-sentences are inverse copular sentences:

(13)a   expl. copula [DP PP]
    b   expl. copula [[DP t] (PP)]

Many properties of *there*-sentences would immediately follow which would otherwise be quite hard to capture from the traditional analysis. For example, if the expletive were a prosubject why would (14)b - the raising counterpart of (14)a - be ungrammatical? Or why would (14)c be impossible since (14)d is not? And finally why can the expletive be inserted when the External argument is absent only if the object precedes the verb (14)e-f?

(14)a   ci sono alcune foto del muro
      (there are some pictures of the wall)
    b * alcune foto del muro sono t
      (some pictures of the wall are)
    c * ci sono [[alcune foto del muro] [la causa della rivolta]]
      (there are some pictures of the wall the cause of the riot)
    d   alcune foto del muro sono [t [la causa della rivolta]]
      (some pictures of the wall are the cause of the riot)
    e * ci furono [bruciate [molte foto del muro]]
      (there were burned many pictures of the wall)
    f   ci furono [molte foto del muro [bruciate]]
      (there were many pictures of the wall burned)

If we assume that the expletive is a propredicate, none of these facts would constitute a problem. The sentence in (14)b is ungrammatical because it lacks a predicate whereas (14)a has it; the sentence in (14)c, on the other hand, is ungrammatical because there is one predicate too many, namely the expletive and the DP *la causa della rivolta* (the cause of the riot) as opposed to (14)d. The reason why PP/AP can follow the postverbal DP of a *there*-sentence is that they can be adjunct unlike DPs. This is why *there is a man in the garden* as opposed to say *there is a man the culprit* is impossible (cf. *a man is the culprit*). Finally, the expletive cannot occur in (14)e because there would be no subject for it to be linked to: a VP like *bruciate molte foto* (burned many pictures) cannot be a subject of predication; on the other hand, a noun phrase like *molte foto bruciate* (many pictures burned) with a reduced relative clause headed by *bruciate* can be a subject (cf. *molte foto bruciate sono in vendita*; many pictures burned are on sale), thus *ci* can occur in (14)f as a propredicate.

Finally, we can provide independent evidence that the PP/AP following the DP of a *there*-sentence is an adjunct by testing extraction from it. Extraction from a predicate in situ should yield a better result than extraction from an adjunct constituent, for standard locality reasons stemming from Huang's (1982) original proposal. This prediction is fully borne out:

(15)a   con chi sembra che molte persone che conosco siano [arrabbiate t]
        (with whom does it seem that many persons that I know are angry)
    b *con chi sembra che ci siano molte persone che conosco [arrabbiate t]
        (with whom does it seem that there are many persons that I know angry)

Thus we can conclude, that the BSC constituted by DP-DP following the copula is invariantly unstable. The apparent exception of *there*-sentences is completely reabsorbed by the hypothesis that these sentences are inverse copular sentences and that raising does take place by affecting the propredicative element *there*.[5]

IV. On the reason of instability

Why are BSCs unstable? We have just observed two definitory properties of these syntactic objects: they are headless and they are constituted by two symmetrical categories, more specifically they result from External Merging of two DPs.[6] I would like to pursue the hypothesis that these structural facts combined with the ongoing project of research known as "Probe-Goal framework" proposed in Chomsky (2005), (2007) provide an explanation for instability.

A Probe-Goal relation (PGR) is a core mechanism of grammar relating (a feature contained in) a head P with (a feature contained in) a syntactic object G in its domain (essentially, its c-domain), provided that no intervention effect takes place and that phase conditions are respected: [… P … [… G …]]. PGRs are with Merge the basic operations of syntax: without them there would be no derivations at all, beside trivial ones. They

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[5] Incidentally, the hypothesis that *there*-sentences are inverse copular sentences would immediately explain a recalcitrating case: * *there seems a man to be (in the room)* (see for example Chomsky (1995)). This case can be easily explained if we assume that *there* has been raised: this case would amount to raising both *a man* and *there* from the same BSC, paralleling *the cause of the riot seems a picture of the wall to be*.

[6] Notice that not all headless syntactic objects are symmetrical: specifiers are merged to an XP but this XP further projects. In fact, in this case there is no symmetry since only one category is not excluded by the other in terms of segments (cf. Kayne (1994)). I will not consider the case of merging of two heads (see Moro (2000) for some considerations in a different framework).

correspond to two conceptually distinct and virtually necessary requirements for the syntax of natural languages: Merge essentially grants for the combination of syntactic objects (more specifically, for recursion) whereas PGRs capture the morphosyntactic effects among words (via some matching algorithm), such as - prototypically - agreement. In principle, they are separate although obviously they interact in a profound and entangled way. For example, it is not unreasonable to assume that for two syntactic objects to Merge some feature matching process must also take place, such as, in certain cases, φ-feature inheritance, but obviously not all PGRs involve Merge.[7]

PGRs – which in fact represent a generalized dependency, since they include feature checking as involved in Case assignment, φ-feature inheritance, etc. along with binding theoretical phenomena – must be restricted by some structural requirement including those that come from phase conditions. In particular, it is not unreasonable to assume that a PGR must be unambiguously identified by the structure, for example by avoiding to mutually c-commanding Goals (ambiguous goal violation). This does not imply a criterial relation between a Probe and a Goal: in fact, there can be more than one Goal for one Probe. This condition is just meant to exclude ambiguities. Thus, for example, assuming that (Accusative) case assignment is a PGR in cases like *I met him*, there is obviously the possibility for the same PGR to be extended to other Goals then *him*, such as in the simple case: *I met him and her*. In this case, it is natural to assume that the PGR is involving two Goals, namely *him* and *her*, perhaps derivatively as mediated by the head of the conjunction Phrase (*and*).[8]

Another condition that it is quite natural to assume is that for any syntactic object to be a Goal of a Probe, the Goal must not be discontinuous, that is the Goal must not undergo Internal Merge to a higher (c-commanding) position than the Probe (discontinuous Goal violation). The rationale behind this condition is that the features of a Goal are not accessible to a Probe if a higher copy of the Goal contains the same features, for some PGR; in fact, only the highest copy of a chain can be accessible to a higher Probe. In a sense, this second condition could also be regarded as a way to reduce ambiguities in grammar within a copy theory of movement: whenever a PGR takes place, grammar should provide a specific instruction as to what happens to the instances of the features that have been probed in the lower copy and are now repeated in a higher copy of the moved element outside the c-domain of the Probe. Assuming that what happens to a copy of a moved element is transcribed in all copies of a chain would undermine the structure dependence explanation that is embodied in the PGR itself.

As stated, though, this condition is too strong. It would block any PGR between say V and the object in passive and unaccusatives in those languages where the object must raise, like English. This could be a welcome result when it comes to Case assignment, because it would capture the fact that V is inert, i.e. cannot assing Accusative to the object, but on the other hand it would force us to reconsider either the notion of Merge itself or the canonical structure assigned to these constructs. In fact, if Merge is considered to be a PGR V could never be Merged with a DP in these constructs, because it is part of a chain. There could be different ways to amend this unwanted result. One possibility is simply to assume that Merge is not a PGR, keeping recursion and morphosyntactic effects apart. Then V could be Merged to a DP which undergoes Internal Merge and be accessible to a higher Probe, essentially the

C-T system, since unaccusatives (and arguably passives) lack v*P which is needed for Merging the External Argument only. Another, less radical alternative is to maintain the hypothesis that Merge is a PGR and assume that the object in passives and unaccusatives is not immediately Merged with V. On the one hand, this would force us to analyze passives essentially as copular sentences with an adjectival predicate; on the other, to assume that in unaccusatives V is Merged with a propredicative element which can be either phonologically null or overt, like *there* (much in the sense proposed in Moro (1997) and expanded in a much broader framework in Hale-Keyser (2002)) and then this complex would be Merged with V. The structure would then involve a BSC, as in … V [DP there] … In this case, either the propredicate raises allowing a PGR to be established between V and the DP in situ or the DP raises allowing a PGR to be established between V and a phonologically null propredicate. Either solution appears to be quite premature at this stage of development of the Probe-Goal framework; nevertheless, I will assume that this system based on two independent conditions is tenable and explore its consequences on the specific problem raised by the instability of copular sentences.

Technically, we could formalize the two conditions on PGRs in the following way (where "G G" with no intervening dots is intended to mean that the two Goals c-command each other):

(16) ∀ probe P and goal G (within a phase Φ):
      i. * … P… G G …   (Ambiguous Goal Violation)
      ii. * … G … P … G …   (Discontinuous Goal Violation)

These two conditions allow us to explain both the instability of BSCs and the reason why movement is involved (without any recourse to EPP-based explanations). The copula is a Probe that seeks for a goal within its domain: [9] inside the BSC there are two potential goals, the two DPs. This would constitute an ambiguous Goal violation, since the two DPs stand in a symmetrical relation and the PGR cannot be unambiguously established. If nothing happens the derivation would crash at this point. If either DP – a potential Goal – undergoes Internal Merge, instead, displacing it to a higher position, the lower copy of that DP could not be a possible Goal, to avoid a discontinuous Goal violation. The residual DP in situ can then be the Goal of the relevant features contained in the copula, and it can be spelled out at the phase level.[10] No recourse to any EPP-like features has been necessary throughout the derivation, suggesting that this is at best an artifact. I will sketchily approach the rather murky question concerning the trigger for Internal Merge later in the last section. As for

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[9] I will assume that a label is required for a syntactic object only if the syntactic object is the probe of a goal. This would let Merge apply to two objects like DP-DP without yielding a label until the newly formed constituent is selected by the copula. Incidentally, this would also imply that the highest node of a derivation need not have a label.

[10] I will assume that copular sentences do not involve v*, on a par with unaccusatives as suggested by Chomsky (2005), since there is no external argument to be merged to VP. Rather, the external argument is Merged to the predicative DP. If this is tenable, and if the only two phase heads are C and v* (T being a phase only indirectly from C) then copular sentences would be monophasal clauses. In Moro (1988) I assumed that the copula is a direct spell-out of T, AgrP being the structure of small clauses (suggesting a version of the split-infl hypothesis independently from the seminal work by Pollock (1989)). If this is so the existence of T might be just to allow the neutralization of instability, much in the sense as *of* is in the examples discussed later in the text involving complex noun phrases.

linearization, notice that the BSC is unlinearized: after movement, when the Probe-Goal relation can be successfully established, linearization can be established.[11]

This computational mechanism based on the two conditions in (16), then, allows to derive instability and movement. A proper evaluation of this two condition system can only be made on global grounds, an option that cannot be pursued in this paper. Nevertheless, there are at least two issues that can be raised with respect to it, on the theoretical and empirical side respectively. As for the theoretical grounds, the format of this mechanism may not qualify as totally satisfactory. The very fact that it is expressed as a disjunction reveals its tentative nature. Similar to what happened with the ECP (see Rizzi (1990) and references cited there), there has always been a general disfavor toward disjunctive formulations of syntactic conditions but at certain stages of development these might just be unavoidable. It could well be that the first condition (unambiguous Goal violation) - conceptually related to the ease of computation - might be reabsorbed within a broader condition on non-ambiguous structures, much in the sense of Pesetsky (1982) and Kayne (1984). In fact, other conditions may limit PGR, such as intervention factors or the conditions on phase impenetrability.[12] However, by now, I will just assume this disjunctive formulation to be acceptable and explore its empirical and theoretical advantages.

As for the empirical grounds, one would like to find other examples of neutralization of instability via movement to avoid ad-hoc solutions. Within the field of copular sentences, indirect support comes from the interaction of instability with focus. I will assume the hypothesis that focus is assigned in a dedicated syntactic position, i.e. spec-Foc°, in the sense suggested by Rizzi (1997) for the left periphery; see also Belletti (1999) and Longobardi (2000) for other focus positions then those in the left periphery). In other words, I assume that for a DP to be focused it must be displaced to a spec-Foc° position.[13] To simplify the discussion, I will further assume that when a DP has undergone focus it is also signaled at the PF-level by an increase pitch in the intonation, marked in the following examples by capital letters. Now, the prediction is that if either DP could be focused in a copular sentence, the instability could be solved in a different way, i.e. without involving displacement to preverbal position. This is in fact the case:

(17)a   pro è [GIANNI Foc t la causa della rivolta]
         (pro is Gianni the cause of the riot)
    b   pro è [LA CAUSA DELLA RIVOLTA Foc Gianni t]
         (pro is the cause of the riot, I think, Gianni)

    c   pro è [[il figlio di GIANNI] Foc t la causa della rivolta]
         (pro is the son of Gianni the cause of the riot)
    d   pro è [la causa della RIVOLTA Foc Gianni t]
         (pro is the cause of the riot, I think, Gianni)

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[11] Within a Dynamic Antisymmetry framework (Moro (2000)), deletion of phonological features after Merge is considered the *raison d'être* of movement. I will not consider this analysis here, although in principle I see no reason why the two could not be unified, taking advantage of the Dynamic Antisymmetry account for deletion of phonological features.

[12] Other conditions, on the morphological side, may prevent NPs to be targeted by the copula to avoid inversion of the canonical order in the D-N complex, paralleling the case of v*-V and C-T.

[13] Notice that Foc° is in the same configuaration as the copula, i.e. it takes an unstable structure as a complement. After movement, the raised DP would not be accessible to PGR to avoid a discontinuous Goal violation. Technically, this means that, if in a PGR G must be c-commanded by P, one should rather assume that focus results from some form of reduction on the constituent in situ rather than emphasis on the moved constituent. This is empirically irrelevant though, since Focus is - after all - a contrastive two place relation.

Either DP as in (17)a-b – or even a subpart of them as in (17)c-d – is focalized. Thus, either DP moves to spec-Foc° preventing the ambiguous Goal violation and the copula can be followed by two DPs.[14] Crucially, no intonationally marked focus can be performed without movement – say, as a form of Agree at a distance – i.e. the following sentence is ungrammatical:[15]

(18) * pro è [Foc Gianni LA CAUSA DELLA RIVOLTA]
         (pro is Gianni the cause of the riot)

Summarizing, copular sentences show that there exist unstable structures constituted by External Merge of two DPs, i.e. BSCs. The reason of instability is related to the mechanism of Probe-Goal relation and the conditions imposed on it. In particular, the symmetry embodied in the BSC makes it impossible to establish such a relation. Internal Merge of either DP disambiguates this structure, letting the computation proceed further. This can be either tested via movement to preverbal position or via movement to a dedicated postverbal functional projection such as Foc.

The hypothesis of unstable structures can be further pursued in various directions, indepedently from copular sentences. One possibility, for example, would be to explore whether unstable structures can be realized by Internal Merge along with the case of External Merge explored here, the two logically possible ways to compose syntactic objects. Another would be to see if there are other instances of unstable structures yielded by External Merge. In the next section, I will provide evidence for both cases, by referring to two constructions that I have analyzed elsewhere, namely *do*-support phenomena and some complex noun phrases. As for the existence of unstable structures created by Internal Merge, independent evidence for these structures has been provided by Mayr (2007) who originally extends this hypothesis to other domains by exploring other sentences than copular ones and focusing on symmetries created by head-movement.

V. Sources of instability

Do-support phenomena yield a sharp partition between subjects and other arguments such as in the well-known subject-object contrast:

(19)a   who (*does) read the book?
     b   what *(does) John read?

Besides the presence of an auxiliary, the question has been raised whether or not the subject moves from spec-TP to reach the left periphery. The so-called "Vacuous Movement Hypothesis," discussed in Chomsky (1986), suggests that wh-subjects do not move, witness a contrast like the following:

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[14] It is tempting to see these focused copular sentences as reduced cleft-sentences, cf. *è Gianni che è la causa della rivolta* (it's Gianni that is the cause of the riot). The only difference is that no complementizer appears: however, since Foc° is one of the syncretic features of complementizers, it is not unreasonable to think of these structures in this way.

[15] I will not consider here the cases where focus does not involve intonational mark. In this case, it is not clear to me whether movement to a Foc° has to take place or not. Simple cases, would, be the postverbal subject of inverse copular sentences.

(20)a   what book do you wonder [t C [who read t]]
    b * who do you wonder [what book C [t read t]]

I would like to suggest that these two facts illustrated in (19) and (20) are amenable to the same principle once we regard them as unstable structures. Consider the following abstract representations, which focus on the C-T space - C being possibly scattered as suggested in Rizzi (1997) depending on the morphosyntactic needs of the elements involved:

(21)a   … $C_{-wh, T}$ [$Subj_{-wh}$ T_T …
    b * … $C_{-wh, T}$ [Obj_{-wh} [Subj T_T …
    c   … C_{-wh} [Obj_{-wh} C_T t [$Subj_T$ T_T …

In the first case ((21)a), the subject can undergo a PGR relation with the Comp-field and (derivatively with T, as suggested in Chomsky (2005))): both the wh-features and the Case features are successfully probed by one single C head syncretically endowed with wh- and T features yielding *who reads a book*. In the second case ((21)b), instead, assuming that the wh-object has undergone Internal Merge to TP in a multiple spec-configuration, the PGR cannot be established, because C has now two potential Goals in its domain which mutually c-command each other (adopting Kayne (1994)'s definition of c-command based on the distinction between segments and categories).[16] The resulting sentence would be: **what book who reads*. In the last example (21)c, the object is raised to a spec-position in the Comp-field as signaled by *do*-support in matrix clauses. In this new configuration, the lower C endowed with T features can search within the subject left in situ and assign it the proper case via T, while the object probes its wh-features with the proper wh-marked head of the Comp-field: the correct solution is: *what does who read*.

　　Another case of ambiguous Goal violation is the case where both the object and the subject are endowed with wh-features. In this case the relevant fragment in the C-T space will be the following (cf. (21)b):

(22)   … $C_{-wh, T}$ [Obj_{-wh} [$Subj_{-wh,T}$, T_T …

This fragment contains an unstable structure, due to an ambiguous Goal violation: both the object and the subject are in the c-domain of C and c-command each other. In this case, raising the object to the spec of C to yield something like **what does who read* is not a successful strategy. The subject is also endowed with wh-features and it would not be able to check them on a proper C head:

(23) * … C_{-wh} Obj_{-wh} C_T t [$Subj_{-wh, T}$ T_T …

It is not unreasonable, to hypothesis that to solve this unstable structure the following alternative option is taken. The subject endowed with wh-features is raised from its position in (22) to a functional head F° position pied piping the entire TP – thus preserving T within the immediate c-domain of C - while the object is not further moved:[17]

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[16] For the sake of clarity, let me repeat the definition of c-command given in Kayne (1994): X c-commands Y if and only if: i. X and Y are categories; ii. no segments of X dominate Y; iii. every category that dominates X dominates Y (see Kayne (1994): 16).

[17] I am assuming that a necessary condition for T to be interpeted is to be in the c-domain of C with no intervenors in between. There is independent evidence that TP may be moved to the spec of functional heads

(24) … C_{-wh} [[$Subj_{-wh}$ T_T …] $F°_{-wh}$ [Obj_{-wh} t …

In other words, the resulting sentence would be *who reads what*, a prototypical example (descriptively) referred to as wh-in situ. Notice that the requirement for T to be in the immediate domain of C to be interpretable (cf. Chomsky (2006)) is respected in (24); in fact, the alternative strategy of raising the object to the spec of the functional projection would result in an intervening effect of F° between C and T, yielding an ungrammatical sentences (*what who reads*).

Interestingly, in Italian, normative grammars have often prescribed to avoid wh-in situ, as in the equivalent of the English example **chi legge cosa* (who reads what), unless a conjunction is spelled out between the last wh-phrase and the rest of the sentence: *chi legge e cosa*. Similar cases occur with adjuncts such as in *chi legge un libro e quando* (who reads a book and when), *chi legge un libro e dove* (who reads a book and where). On the other hands, if the subject is not endowed with wh-features, this type of coordination cannot take place: **Gianni legge un libro e quando?* (Gianni reads a book and when) but it can again when the clause is interpreted as a question – i.e. it has a yes/no interpretation - as in *mi chiedo se Gianni legge un libro e quando* (I wonder if Gianni reads a book and when). I will take this conjunction between two wh-phrases (and the material pied-piped with them) to be a spell-out version of the F° head intervening between TP and the object in (24).[18]

As we noticed, the hypothesis that a conjunction head is able to spread features to its spec position (and its complement) must be somehow adopted anyway to account for Case assignment to multiple DP subjects or objects, such as *I met [her [and him]]*. Interestingly, the spell out of conjunction is required only once, such as in for example *chi legge (* e) cosa e quando* (who reads what and when), paralleling again the case of conjunction in cases such as *Gianni legge (*e) un libro (*e) una rivista e un giornale* (Gianni reads a book, a magazine and a newspaper). In fact, the intervention of a conjunction in wh-in situ constructions is not an idiosyncratic feature of Italian. In Polish and Russian, for example, a similar conjunction-like element occurs: *kto kupil i co* (who bought and what) and *kto pokupal/kupil i cto* (who bought and what).[19] In languages like English I will just assume that F° is phonetically null.

If this analysis is on the right track we can conclude that there exist unstable structures generated by Internal Merge on a par with those generated by External Merge, suggesting that this phenomenon may not be just restricted to one type of Merge, a welcome result indeed from the minimalist point of view.

Turning now to an example of unstable structures generated by External Merge that do not pertain to the clausal domain, I would consider a paradigm like the following:

(25)a   John read [books]
    b   John read [books of these types]
    c   John read [these types of books]

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yet within the domain of some heads of the Comp-Field. One example, are constructions in Italian varieties like Marchigiano: *la macchina, l'hai portata là, perché?* (the car, you took it there why?) combining Topic construcions with clitic left dislocation a la Cinque (1990) and TP movement to the left of the interrogative phrase *perché* (why).

[18] I have not discussed here the issues concerning movement of V-to-C in Italian and its relation with *do-* support phenomena: see Rizzi (1996) for a detailed analysis of residual verb second phenomena in Italian.

[19] I am very grateful to Adam Szczegielniak and Clemens Mayr for these examples and interesting discussion on these data. For a survey of cross-linguistics strategies with multiple wh-fronting see Boeck-Grohmann (2003).

Intuitively, we want to give a unified analysis of these three examples, in particular, despite the different linear order of the two noun phrases following the verb, namely *books* and *these types*, we want (25)b and (25)c to be generated by the same underlying structure, where *books* is the object and *these types* is the predicate of the object.

One possible solution is to treat this case as an unstable structure in the nominal domain (as suggested in Kayne (1994), Den Dikken (1997), Moro (2006)). The underlying relevant fragment would contain a syntactic object resulting from External Merge of two DPs that must undergo a PGR with the verb as in (26):

(26) … V [[books] [these types]]

To avoid an ambiguous Goal violation, a functional head – a nominal copula (*of*) – is inserted providing the proper configuration to let the PGR proceed. In fact, either DP can undergo Internal Merge, paralleling the case of canonical and inverse copular sentences, yielding the following two structures:

(27)a … V [[books] of [t [these types]]]
    b … V [[these types] of [[books] t]]

Interestingly, agreement between *books* and *types* appears to be obligatory (at least in English) when *type* precedes *books*. So that **I read this type of books* is ungrammatical on a par with **I read these types of book*. Agreement between two DPs can in general only occur in copular sentences, although not in all copular sentences. So, for example **John is the culprits* is impossible vs. *John is the culprit* but *Beatrix and Mary are Dante's desire* is fully grammatical (cf Moro (1997) for the class of Nouns that allow agreement mismatch, there called "psych-nouns"). The fact that the two DPs occurring in (27) must agree in some construction can be considered then as a piece of evidence in favor of the predicative nature of these complex nominals. In fact, in general prenominal non-predicative measure-like modifiers require *not* to have morphological agreement, as in the case of time-span phrases like *a 15 minute-(*s) nap* vs. *a nap of 15 minute-*(s)*.[20]

Summarizing, in this section we have seen that the hypothesis that there are unstable structures extends beyond the domain of copular sentences and, crucially, involves both types of Merge. In fact, unstable structures can be generated by both External and Internal Merge such as in the case of copular sentences and complex noun phrases on the one hand and wh-movement on the other. Other constructions are potentially amenable to this analysis based on unstable structures, such as Romance causative constructions (along the lines suggested by Guasti – Moro (2001)) or postverbal subject constructions in Italian which are analyzed as External Argument in situ constructions (see Moro (2001), (2004)).[21] As a last

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[20] The hypothesis that this type of complex noun phrases contain an unstable structure – yielding some form of splitting - has been extended to wh-phrases in Moro (2000): the so called "*was-für* split constructions", for example, is treated as a wh-counterpart of a case like *[this type of books]*.

[21] Synthetically, causative constructions are analyzed as involving External Merge of a DP with a VP. The unstable structure resulting from this is neutralized by inserting a preposition *a* offering a landing site for the VP, much in the same sense as a preposition *of* plays the role of a nominal copula in complex noun phrases just analyzed here. For example, *Gianni fa [[lavare la macchina] a [Pietro t]]* (Gianni makes wash the car to Pietro; "Gianni makes Pietro wash the car).

As for the postverbal constructions in Italian, the central empirical fact is that these types of subjects – in transitive and unergative constructions – behave exactly like the subject of inverse copular sentences (excluding those involving ci): the subject cannot be cliticized as a whole nor can there be any extraction from

step, I will now turn to a rather murky cross-linguistic phenomenon involving verbal agreement.

VI. A comparative phenomenon and its consequences on the theory

Consider now the following contrast:

(28)a [the cause of the riot] is/*are [[these pictures] t]
    b [these pictures] are/*is [[the cause of the riot] t]

    c [la causa della rivolta] sono/*è [[queste foto] t]
      (the cause of the riot are/is these pictures)
    d [queste foto] sono/*è [t [la causa della rivolta]]
      (these pictures are/is the cause of the riot)

There is a sharp contrast here. The copula unselectively agrees with the preverbal DP in English, whereas it agrees with the subject DP in Italian, whether or not it has been displaced in the preverbal position in a canonical sentence or it stays in situ in an inverse copular sentence.

Capturing these data is quite challenging. An obvious step would be to assume that pro plays a role in here. This is in fact the analysis that was suggested in Moro (1997). It was based on two steps. The first was to recognize that pro can play the role of a propredicate;[22] the second, that the preverbal DP was in the spec-IP, lower than any head of the Comp field. This led to the general assumption that preverbal IP position in Italian has in fact two slots: one for an (empty) pronominal position, the other for a fully lexical phrase. It was also observed that copular sentences are in fact the only case where a sequence of the type DP V DP displays rightward agreement.[23] The structure of an inverse sentence was then the following (where pro binds the trace in the small clause, and the preverbal DP is adjoined to IP, witness the fact that it would be lower than any overt syntactic object occupying the Comp-field, ranging from low declarative complementizers to Vocative phrases (Moro (2003)):

(29) C [$_{IP}$ DP [$_{IP}$ pro I [V [DP t]]]]

This empirical problem is neither inherently nor exclusively related to the hypothesis of unstable structures. In fact, this has not been raised for the English cases. Moreover, it clearly bears on a parametrical distinction, thus solving it would amount to understanding how to implement the phenomena that standardly constitute the pro-drop parameter in the minimalist

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it. It is thus tempting to suggest that the postverbal subject in these cases has never been displaced, constituting an example of External Argument in situ.

[22] The simplest sentence containing a propredicative pro would be one like *pro sono io* (pro am I; "it's me". Cf. also Chomsky (1981)). That *io* is not a predicate can be proved by several tests: first, it cannot be the rightward movement version of *io sono (I am) – as in *io telefono/telefono io* (I phone/phone I) for the very fact that this sentence is ungrammatical; second, *io* (I) cannot be cliticized. To avoid confusions notice that *chi sono?* (who am; "who am I") and *lo sono* (lo am; "I am so") should not be considered as trasformational counterparts of *sono io* (in fact, copular sentences are the only sentences where *chi* (who) can cooccur with a first person verb (cf. **chi arrivo?*; who arrive-first.sing.) showing that *chi* (who) is a predicative element in *chi sono?*.

[23] In fact they should in principle constitute a strong piece of evidence for parameter setting in first language acquisition.

framework: not an immediately solvable task, as far as I can see. Notice, however, that we cannot simply restate the pro-drop parameter by assuming that agreement is on the left in English and on the right in Italian, because in canonical copular sentences agreement is on the left in Italian as well, as (28)d shows. In fact, an extra-condition had to be added saying that pro must always agree with the referential DP, i.e. the subject, both when it is a prosubject and a propredicate.

It may be the case that (29) is a correct solution – provided that an obvious update of the formalism is given – or that it must be radically changed. Whatever the solution is, anyway, there is at least one important fact that matters for the hypothesis of unstable structures and more generally for the architecture of grammar that these contrasts show. The fact that I am referring to is that displacement (Internal Merge) and agreement must not be always associated. In fact, in Italian they are undoubtedly not so. In inverse copular sentences, the DP which undergoes Internal Merge does not trigger verbal agreement; this is rather established with the DP in situ (either via pro insertion as I suggested in (24) or as an instance of Agree, a PGR in the technical sense adopted in the minimalist framework such as in Chomksy (2006)). This implies that if (Internal) Merge is a PGR, it is not agreement that this PGR is about, but rather some other (more abstract) feature. Synthetically, we could capture these conclusions in the following way:

(30)a   the cross-linguistic agreement contrasts cannot be captured by a left-right asymmetry.
    b   Internal Merge is not always associated with Agreement.

What the possible implications for the general architecture of grammar are can at the moment be only left as a question for future research.

References

Belletti, A. (1999) "*Inversion as Focalization*", in Hulke - Pollock (1999) (eds.) *Inversion in Romance*, Oxford University press, England.

Boeck, C. – Grohmann, K. (2003) (eds.) *Multiple wh-fronting*, Benjamins, Amsterdam.

Burzio, L. (1986) *Italian Syntax,* Reidel, Dordrecht.

Chomsky, N. (1981) *Lectures on Government and Binding*, Foris, Dordrecht.

Chomsky, N. (1986) *Barriers*, LI Monograph,, MIT Press, Cambridge, Mass.

Chomsky, N. (1995) *The minimalist program*, MIT Press, Cambridge, Massachusetts.

Chomsky, N. (to appear) "On Phases," in C. P. Otero et al., eds., *Foundational Issues in Linguistic Theory* MIT Press.

Chomksy, N. (2007) *Approaching UG from below*, ms. MIT.

Cinque, G. (1990)a *Types of A-bar Dependencies*, Linguistic Inquiry Monograph Series 17, MIT Press, Cambridge, Mass.

Den Dikken, M. (1997) "Predicate Inversion in DP", in *Possessors, predicates and movement in the determiner phrase*, Alexiadou-Wilder (eds)., Benjamins, Amsterdam, p. 177-214.

Den Dikken, M. (2006) Relators and Linkers, MIT Press, Cambridge, Mass.

Guasti, T. – Moro, A. (2001) "Causative sentences and Dynamic Antisymmetry", in *Current Studies in Italian Syntax. Essays offered to Lorenzo Renzi*, Cinque, G. – Salvi, G. (eds.), North-Holland Linguistic Series: Linguistic Variations Volume 59, North-Holland 2001, Amsterdam.

Hale, K. - Keyser, J. (2002) *Prolegomena to a theory of argument structure*, MIT Press, Cambridge, Massachusetts.

Huang, C-T. J. (1982). *Logical Relations in Chinese and the Theory of Grammar*. MIT Phd dissertation.

Kayne, R. (1984) *Connectedness and Binary Branching*, Foris, Dordrecht.

Kayne, R. (1994) The Antisymmetry of syntax, LI Monograph, MIT Press, Cambridge, Mass.

Koppen, van M. (2005) *One Probe two Goals*, Ph.D. Thesis, LOT, Utrecht, Holland.

Longobardi, G. (2000) "Postverbal Subjects" and the mapping hypothesis, *Linguistic Inquiry*, 31, p. 691-702.

Mayr, C. (2007) "Stylistic inversion and VP-externalization", ms. Harvard University.

Moro, A. (1988) "Per una teoria unificata delle frasi copulari", *Rivista di Grammatica Generativa*, 13, pagg. 81-110.

Moro, A. (1993) "Heads as antecedents: a brief history of the ECP", *Lingua e Stile*, 28, pagg. 31-57.

Moro, A. (1997) *The Raising of Predicates*, Cambridge University Press, Cambridge, UK.

Moro, A. (2000) *Dynamic Antisymmetry*, MIT Press, Cambridge, Massachusetts.

Moro, A. (2003) "Notes on Vocative case: a case study in clause structure", in Josep Quer, Jan Schroten, Petra Sleeman & Els Verheugd (eds), *Romance Languages and Linguistic Theory 2001*, Amsterdam/Phildelphia: John Benjamins.

Moro, A. (2004) "Linear compression as a trigger for movement, in Riemsdijk, H. van - Breitbarth, A (ed.) *Triggers*, Mouton de Gruyter, Berlin.

Pesetsky, D. (1982) *Paths and Categories*, Ph.d. Dissertation, MIT, Cambridge, Massachusetts.

Pesetsky, D. – Torrego, E. (to appear) "Probes, Goals and Syntactic Categories", *Proceedings of the 7th annual Tokyo Conference on Psycholinguistics*, Keio University, Japan.

Pollock, J.-Y. (1989) "Verb Movement, UG and the Structure of IP", *Linguistic Inquiry*, 20, pp. 365 -424.

Rizzi, L. (1990) *Relativized Minimality*, Linguistic Inquiry Monograph Series, 16, MIT Press, Cambridge, Massachusetts.

Rizzi, L. (1996) "Residual Verb Second and the WH-criterion", in Belletti – Rizzi (eds.) *Parameters and Functional Heads*, pp. 63-90, Oxford University Press, Oxford-New York.

Rizzi, L. (1997) "The fine structure of the left periphery", in Haegeman, L. (1997) (ed.) *Elements of Grammar: Handbook of Generative Syntax*, Kluwer, pp. 281-337, Dordrecht, The Netherlands.

Travis, L. (1984) *Parameters and Effects of Word Order Variation*, Ph.D. dissertation, MIT, Cambridge, Mass.