What is the Locus of Location? Testing Base Word Order in Italian

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Abstract

In this study we show that a base word order for the constituents expressing the thematic roles of Theme and Location in Italian can be detected using different tests. After presenting the theoretical framework in which we operate, we identify the base order of Theme and Location with the question-answer test, the results of which are supported by syntactic tests involving quantifiers and possessive adjectives. All these tests point to the existence of a single hierarchical structure of thematic roles which orders verbal complements independently of their argument or adjunct status.

Keywords: Italian Syntax, Scope Ambiguities, Scrambling, Verbal Complements, WCO Effects

Introduction

Different linear orders of verbal arguments and adjuncts are possible in Italian, but not all of them are felicitous in any context. In fact, there are orders which result unacceptable in a certain situation, whereas others are fine in both a general and a more specific context.

(1)   *Che cosa hai fatto?*
   a.   *Ho regalato un libro a Giulia.*
   b.   ?*Ho regalato a Giulia un libro.*

(2)   *Che cosa hai regalato a Giulia?*
   a.   **Ho regalato un libro a Giulia.*
   b.   *Ho regalato a Giulia un libro.*

In (1a) the order in which a Direct Object (henceforth DO, or Theme) precedes the Indirect Object (IO) is fine if it answers a general question without any previous pragmatic references, whereas the reverse order, i.e. IO > DO, is unacceptable in the

same context (1b) with the same neutral intonation. On the other hand, the order DO > IO cannot be used after a *wh*-question like *Che cosa hai regalato a Giulia?* "What have you gifted to Giulia?" (2a), which requires an answer displaying the linear order IO > DO (2b).

Similarly, an order in which Theme precedes a constituent expressing the thematic role of Location (Loc) is fine after a general question (3a), but not after a *wh*-question like *Chi hai incontrato in un bar?* "Whom have you met in a bar?" (4a). On the other hand, Loc > Theme fits a specific context asking for Theme (4b) – in which case only the constituent expressing Theme would normally be uttered –, but not a general one (3b).

(3)   *Che cosa è successo?*
    a.   *Gianni ha incontrato una ragazza in un bar.*
    b.   ?*Gianni ha incontrato in un bar una ragazza.*

(4)   *Chi hai incontrato in un bar?*
    a.   **Ho incontrato una ragazza in un bar.*
    b.   *(Ho incontrato in un bar) una ragazza.*

Within the framework of Generative Grammar, that the order of the verbal complements can be manipulated according to the discourse context by an operation referred to as scrambling has been observed by several authors in different languages (Holmberg 1986; Belletti and Shlonsky 1995; Meinunger 1995; Ishihara 2001; Hinterhölzl 2012), including Italian (Benincà, Salvi and Frison 1988; Cinque 2006), and has been motivated by Information Structure requirements. Following Benincà, Salvi, and Frison (1988), Gundel (1988) and Prince (1992), a sentence can be divided into two parts, one containing given information and one new information: the former consists of elements that are already part of the discourse at the time of the utterance (whether overtly mentioned before or implicitly present in the mind of the interlocutors) and precedes the latter, which introduces a new element in the discourse. This new element is said to carry the Informational (or Presentational) Focus (IF) of the whole clause and in languages like Italian it is typically located at the right edge of the clause (Büring 2009; Leonetti 2017).

Among the possible orders of constituents, only one displays broad focus (BF), that is the possibility to present the whole clause as new (Kiss 1998; Frey 2000; Maienborn 2001; Pittner 2004). A sentence like (3a), repeated in (5a), can be used in a general context, but may also be a felicitous answer to a *wh*-question like *Dove ha incontrato una ragazza Gianni?* "Where has Gianni met a girl?", in which case the informational focus only lies on the rightmost element, which thus has narrow focus, or NF, v. Zubizarreta (1998).

(5)   a. *Gianni ha incontrato una ragazza in un bar.*
            - Che cosa è successo? Che cosa ha fatto Gianni?
            - Dove ha incontrato una ragazza Gianni?
      b. *Gianni ha incontrato in un bar una ragazza.*
            - Chi ha incontrato Gianni in un bar?

The reverse order Loc > Theme in (5b) can only present *una ragazza* as the carrier of IF, so we see that a certain order of constituents, e.g. Theme > Loc in (5a), is informationally ambiguous, since it can present as new information either the clause-final constituent *in un bar* alone (with NF) after a *wh*-question, or the whole proposition (with BP) after a general question.

Following Hinterhölzl (2000), Schweikert (2005), and Cinque (2006), we assume that the linear order that is characterised by BP is the base (or canonical) order, i.e. the one that reflects the base generated syntactic order of constituents, whereas the reverse surface order (which is only compatible with IF), is derived from the base one through syntactic movement, and is referred to as marked or scrambled (Hinterhölzl 2000). The base order is characterised by the highest frequency and the compatibility with the greatest variety of contexts, whereas the marked order is pragmatically restricted to a single discourse environment (Leonetti 2017).

Many authors claim that the base order of verbal complements in the clause reflects a fixed syntactic hierarchy (Larson 1988; Bresnan and Kanerva 1989; Hale and Keyser 1993; Belletti and Shlonsky 1995). Following Carrier-Duncan (1985), Larson suggests that complements are organised according to their thematic relation with the matrix verb, in a so-called Thematic Hierarchy, as shown in (6), adapted from Larson (1988, 382).

(6)   Agent > Theme > Goal > Obliques (locative, instrumental, manner, etc.)

On the basis of Baker's (1985) "Uniformity of Theta-Assignment Hypothesis" (by which a given thematic relation between the verb and one of its arguments is established by a structural relation at the syntactic level) and of Larson's (1988) VP-shell hypothesis, the assignment of a certain thematic role would take place in a specific slot within the VP's extended projection. By raising from its base generated position to specific head positions, the matrix verb assigns a theta-role to a constituent selected from the lexicon in a Spec-Head configuration, so that, accordingly, (6) can be partially represented as in (7). V has been copied from its original position in the lowest V°, where it assigns the role of Goal to ZP, up to the highest V°, where it assigns the role of Agent to XP. The silent copies of V are written between angled brackets.

(7) $[_{VP}$ XP$_{AGENT}$ $[_{V°}$ V $[_{VP}$ YP$_{THEME}$ $[_{V°}$ <V> $[_{VP}$ ZP$_{GOAL}$ $[_{V°}$ <V> $]]]]]]$

It is clear that these ideas challenge the traditional distinction between verbal arguments and verbal adjuncts or modifiers, by which the former are obligatory and have a fixed position in the clause, whereas the latter are optional and unordered, but, as observed by McInnerney (2022), a neat contrast between the two categories is hard to find and the tests that have been proposed to distinguish them are often not decisive.

In this regard, Larson (1988, 383) assumes that the assignment of theta-roles is blind with respect to the argument or adjunct status of a given constituent, being largely due to the matrix verb's semantics. As noted by Cinque (2006, 148), Baker's (1985) and Larson's (1988) conclusions may indicate that a syntactic hierarchy of thematic roles is present also for modifiers, as discussed by Schweikert (2005), and Takamine (2010). If adjuncts too have a fixed position in the structure, that is, if any thematic roles occupy the same relative position in the complemental space independently of their argument or adjunct status, we might have to abandon the notion of adjunction and assume that all verbal complements are merged in the Spec of a corresponding projection, thus adopting a strict version of Kayne's (1994) antisymmetric syntax.

As for the syntactic derivation of the marked order, there are two possibilities. Under a topic-focus approach (Belletti and Shlonsky 1995) a marked order B > A is derived from a base order A > B by the movement of B for IS requirements to the Spec of a topic phrase, and by the movement of A to the Spec of a focus phrase (8), which reverse the original order.

(8) $[_{\text{TopP}} \ B_j \ [_{\text{Top°}} \ [_{\text{FocP}} \ A_i \ [_{\text{Foc°}} \ \ldots \ t_i \ t_j]]]]$

Alternatively, one can posit the sole movement of B to Spec,TopP, so that IF would be automatically assigned to the rightmost overtly realised element, i.e. A in situ (9), in a way similar to what is proposed by Cinque (1993) for the assignment of the sentence main stress. We leave for further research which of the two options is better, limiting ourselves to assume that the marked order is derived from the base one through (at least one) syntactic movement triggered by IS requirements.

(9) $[_{\text{TopP}} \ B_i \ [_{\text{Top°}} \ \ldots \ t_i \ A]]$

In this study we will show that a base order of verbal complements can be established for Italian, focusing on the base position (i.e. the locus) of the thematic roles of Theme and Location, regardless of the argument- or adjuncthood of the latter. To do so, we will use our judgements as native speakers with two kinds of tests: the first is the question-answer test (Q-A test), which will tell what linear order reflects the base hierarchy of constituents on the basis of BF, while the second sort involves scope and reading ambiguities of quantifiers and possessive adjectives.

1. The Q-A test

To determine the base order of two constituents one can use the question-answer test (Schweikert 2005; Takamine 2010; Leonetti 2017), for it is assumed that the base order can be used to answer a general question, e.g. *What happened?, What did X do?*, etc., while a marked order is compatible with a more restricted context, like the answer to a *wh*-question in which only one element introduces new information in the discourse.

We chose to analyse Theme and Loc because the latter is among the few thematic roles that can be clearly identified as the argument of certain verbs, for instance verbs such as *mettere* "to put", *lasciare* "to leave", etc. Since we want to determine whether the argument or adjunct status has any influence on the position of Loc, we divided the examples into two groups: the first (group 1) displays transitive verbs that do not necessarily require Loc to make sense, namely *vedere* "to see", and *colpire* "to hit", with which a locative expression would be considered as an adjunct; the second (group 2) is made of transitive verbs that must be accompanied by Loc, which is thus an argument, i.e. *mettere* "to put", and *lasciare* "to leave".

Before we test Theme and Location, it is fundamental to say something about the phenomena that may alter the results of the Q-A test. As noted by many authors (Hawkins 1994; Wasow 1997; Arnold *et al.* 2000), a syntactically heavy XP (e.g., an NP modified by a PP, by a relative clause, or by a postnominal AP, etc.) tends to occur clause-finally. This phenomenon, known as Heavy NP Shift, has been motivated phonetically, since the postponing of elements that are more complex to produce provides the speaker with the necessary time to formulate them (Arnold *et al.* 2000), but also informationally, since elements that are already known need less descriptions than those that are new (Givón 1983). The Q-A test has been felicitously used in other languages, but never in Italian, so we have to determine whether the heavy or light status of a constituent may influence its position in the clause.

On the other hand, if one considers that sentences containing old and new information are organised with the former preceding the latter, it could be expected that definite XPs have always to appear to the left of the element that carries new information, because definite constituents more easily identify referents that are known with respect to indefinite ones (Heidolph,

Fläming and Motsch 1981; Arnold *et al.* 2000). Since we want sentences utterable in a general context without previous references, they logically exclude definite constituents that indicate elements already present in the discourse.

Summing up the goals of the Q-A test, we want (i) to identify the linear order of Theme and Location that is compatible with BF, which we assume to be the base one, (ii) find out if heaviness may influence the results of the test, (iii) determine whether the relative position of Loc varies according to its argument or adjunct status.

1.1. The Examples

In the first series of examples, we test which linear order between Theme > Loc and Loc > Theme is compatible with BF for the two groups of verbs, i.e. group 1 in (10) and (11), and group 2 in (12) and (13). In all the examples the constituents expressing the thematic relations under discussion are indefinite and light, the sentences in (a) showing the reverse order of those in (b).

(10)   *Che cosa è successo? Che cosa avete fatto?*
    a.   *Abbiamo visto un professore in un bar.*
    b.   ?*Abbiamo visto in un bar un professore.*

(11)   *Che cosa è successo? Che cosa ha fatto Giulia?*
    a.   ?*Giulia ha colpito in un negozio un ladro.*
    b.   *Giulia ha colpito un ladro in un negozio.*

(12)   *Che cosa è successo? Che cosa hanno fatto?*
    a.   *Hanno messo un libro in un cassetto.*
    b.   ?*Hanno messo in un cassetto un libro.*

(13)   *Che cosa è successo? Che cosa hai fatto?*
    a.   ?*Ho lasciato su un tavolo un pacchetto.*
    b.   *Ho lasciato un pacchetto su un tavolo.*

On the basis of our introspection, the linear order that is compatible with a general question is always Theme > Loc (v. (10a), (11b), (12a), (13b)), regardless of the matrix verb involved in the sentence and of the order of presentation of the examples. The reverse order Loc > Theme is not ungrammatical, but sounds unnatural in this context, unless the speaker wants to present the rightmost element as the most prominent of the clause.

To see if heaviness can alter the results of the test, we modify the sentences in (10), (11), (12) and (13) so that the rightmost element is heavy, followed either by a postnominal PP in (14a), (15b), (16a, b), and (17a, b), or by a relative clause in (14b) and (15a).

(14)   *Che cosa è successo? Che cosa avete fatto?*
    a.   *Abbiamo visto un professore in un bar di Roma.*
    b.   *Abbiamo visto in un bar un professore che conosciamo.*

(15)   *Che cosa è successo? Che cosa ha fatto Giulia?*
    a.   *Giulia ha colpito in un negozio un ladro che stava scappando.*
    b.   *Giulia ha colpito un ladro in un negozio del centro.*

(16)   *Che cosa è successo? Che cosa hanno fatto?*
 a.   *Hanno messo un libro in un cassetto del comodino.*
 b.   *Hanno messo in un cassetto un libro di esercizi.*

(17)   *Che cosa è successo? Che cosa hai fatto?*
 a.   *Ho lasciato su un tavolo un pacchetto di caramelle.*
 b.   *Ho lasciato un pacchetto su un tavolo della cucina.*

On the basis of our judgements as native speakers, all the sentences above are compatible with a general question and with an interpretation by which the rightmost element carries the IF, regardless of the thematic role it expresses, hence heaviness can indeed influence the Q-A test.

In the following sentences, we modify (10), (11), (12) and (13) so that the penultimate constituent is heavy.

(18)   *Che cosa è successo? Che cosa avete fatto?*
 a.   *Abbiamo visto un professore che conosciamo in un bar.*
 b.   ?*Abbiamo visto in un bar di Roma un professore.*

(19)   *Che cosa è successo? Che cosa ha fatto Giulia?*
 a.   ?*Giulia ha colpito in un negozio del centro un ladro.*
 b.   *Giulia ha colpito un ladro che stava scappando in un negozio.*

(20)   *Che cosa è successo? Che cosa hanno fatto?*
 a.   *Hanno messo un libro di esercizi in un cassetto.*
 b.   ?*Hanno messo in un cassetto del comodino un libro.*

(21)   *Che cosa è successo? Che cosa hai fatto?*
 a.   ?*Ho lasciato su un tavolo della cucina un pacchetto.*
 b.   *Ho lasciato un pacchetto di caramelle su un tavolo.*

Differently from (14), (15), (16) and (17), only one linear order is compatible with a general question, the same that we have identified in (10), (11), (12) and (13), namely Theme > Loc. Therefore, the base order cannot be detected with certainty by the Q-A test when the rightmost constituent is heavy and in fact the same uncertainty of judgement of (14), (15), (16) and (17) is found for (22), (23), (24) and (25), where both Theme and Loc are heavy.

(22)   *Che cosa è successo? Che cosa avete fatto?*
 a.   *Abbiamo visto un professore che conosciamo in un bar di Roma.*
 b.   *Abbiamo visto in un bar di Roma un professore che conosciamo.*

(23)   *Che cosa è successo? Che cosa ha fatto Giulia?*
 a.   *Giulia ha colpito in un negozio del centro un ladro che stava scappando.*
 b.   *Giulia ha colpito un ladro che stava scappando in un negozio del centro.*

(24)   *Che cosa è successo? Che cosa hanno fatto?*
 a.   *Hanno messo un libro di esercizi in un cassetto del comodino.*
 b.   *Hanno messo in un cassetto del comodino un libro di esercizi.*

(25)   *Che cosa è successo? Che cosa hai fatto?*
       a. *Ho lasciato su un tavolo della cucina un pacchetto di caramelle.*
       b. *Ho lasciato un pacchetto di caramelle su un tavolo della cucina.*

In sum, we observe that the linear order compatible with a general question is Theme > Loc in all the two groups of verbs we selected, which we take to reflect the base order at the syntactic level. Note that this order can also be used to answer a *wh*-question asking for Theme, while Loc > Theme is felicitous only with a *wh*-question asking for Location. Our judgements can be altered by the heaviness of the rightmost constituent (which triggers Heavy NP Shift), but not by the argument- or adjuncthood of Loc, which suggests that, from the syntactic point of view, the locus of Location is lower than the locus of Theme regardless of the obligatory (argument) or optional (adjunct) selection of the former.

2. Tests with Quantifiers and Possessives

In this section we want to see if the syntactic tests that have been proposed to distinguish between a base and a marked order involving quantifiers point in the same direction of the Q-A test. We chose one sentence for each type of verbs from the set of examples where both Theme and Loc are indefinite and light: the sentences in (26) correspond to group 1, where Loc is optional, while those in (27) are representative of group 2, where it is obligatory.

(26)   *Che cosa è successo? Che cosa avete fatto?*
       a. *Abbiamo visto un professore in un bar.*
       b. *Abbiamo visto in un bar un professore.*

(27)   *Che cosa è successo? Che cosa hanno fatto?*
       a. *Hanno messo un libro *(in un cassetto).*
       b. *Hanno messo *(in un cassetto) un libro.*

As noted by Schweikert (2005, 63) for German, not all the tests used to determine the relative order of constituents have the same strength, because sometimes the sentences that have to be created are not easily interpretable.

We thus only focus on tests that are easily replicable in Italian, namely (i) one involving the interaction between an existential and a universal quantifier (henceforth, the Q-Q test), (ii) one involving the interaction between a whP and a quantifier (the Wh-Quantifier Interaction test, or Wh-Q test), and (iii) one with a possessive adjective that serves to detect Weak cross over effects (the Co-referentiality test).

2.1. The Q-Q Test

Assuming that scope is determined by c-command, Frey (2000), Schweikert (2005, 66ff.) and Boneh and Nash (2017) argue that, when a Q is base generated in a position that c-commands (i.e. structurally precedes) another Q, only one interpretation of their relation is possible, namely one in which the higher Q (Q_1) takes scope over the lower Q (Q_2). On the other hand, if Q_2 raises past Q_1, scope ambiguities are expected, since Q_2 can now c-command Q_1, but the previous c-command relation is always available thanks to the trace produced by Q-raising (Frey 1993; Maienborn 2001). Therefore, scope ambiguity

could be used to detect if a syntactic movement has taken place, while a single interpretation would point to a base order of the constituents modified by Q.

The examples that Schweikert presents as indicative of this behaviour involve the DO and the IO, as in (28), taken from Schweikert (2005, 66), with x ⊡ X=friend, and y ⊡ Y=picture.

(28) a. *Ich habe mindestens einem Freund alle Fotos gezeigt.*
          - ∃x∀y, i.e. there is at least one x for all y (OTM)
     b. *Ich habe alle Fotos mindestens einem Freund gezeigt.*
          - ∃x∀y, i.e. for all y there is at least one x (MTO)
          - ∀y∃x, i.e. for each y there is at least one x (OTO)

The sense of (28a) is that there is at least one specific friend to whom all the pictures have been shown. Since one and the same item of the set of friends corresponds to all of the items in the set of pictures, we will call this a one-to-many reading (OTM). This is the case where ∃ linearly precedes and thus takes scope over ∀.

The reverse order in (28b) produces a relation that mirrors the OTM reading (say, a many-to-one reading, or MTO), plus a reading where ∀ has a distributive function and by which for each item of the set of pictures there is at least a distinct item of the set of friends (henceforth a one-to-one reading, i.e. OTO). In the latter case, ∀ takes scope over ∃, and the presence of two readings points to a marked order of constituents.

Let us observe if the same situation is found in Italian. The base order between DO and IO in this language is DO > IO, as can be seen from the Q-A test in (29).

(29) a. *Ho mostrato una foto ad una ragazza.*
          - *Che cosa è successo? Che cosa hai fatto?*
          - *A chi hai mostrato una foto?*
     b. *Ho mostrato ad una ragazza una foto.*
          - ?*Che cosa è successo? Che cosa hai fatto?*
          - *Che cosa hai mostrato ad una ragazza?*

If we compare the base order in which the DO containing *ogni* precedes the IO containing *qualche* to the reverse (marked) order IO > DO for scope ambiguities, we find that two readings are always possible (30). Let us have $x \in$ X=picture, and $y \in$ Y=girl.

(30) a. *Ho mostrato ogni foto a qualche ragazza.*
          - for each x there is at least one y (OTO)
          - ?for all x there is at least one y (MTO)
     b. *Ho mostrato a qualche ragazza ogni foto.*
          - there is at least one y for all x (OTM)
          - ?there is at least one y for each x (OTO)

The base order DO > IO in (30a) is compatible with a situation in which for each picture there is at least a distinct corresponding girl (a distributive/OTO reading, i.e. $x_1 \rightarrow y_1$; $x_2 \rightarrow y_2$), but also, though marginally, with a situation in which all pictures taken together correspond to at least one girl (a set/MTO reading, i.e. $x_1, x_2 \rightarrow y_1; y_2$). With the reverse order IO > DO, we find the opposite situation: (30b) is primarily compatible with a set/OTM

reading (which mirrors the set reading of (30a), i.e. $y_1 \rightarrow x_1, x_2; y_2$), and, secondarily, with a distributive/OTO reading (reversing the distributive reading of (30a), i.e. $y_1 \rightarrow x_1; y_2 \rightarrow x_2$).

A distributive reading of the linear order *ogni* > *qualche* is preferred, and this is expected if the relation between the two quantifiers is analysed in terms of scope, with the former Q c-commanding the latter, i.e. $\forall x > \exists y$, but a set interpretation of the interaction between $\forall$ and $\exists$ is also present, though less accessible. If the order of quantifiers is reversed, as in (30b), the preferred interpretation becomes the set reading, since $\exists$ has now scope over $\forall$ (i.e. $\exists y > \forall x$), though the raising of the constituent containing *qualche* past the constituent containing *ogni* does not make the previously preferred distributive reading unavailable, but only marginal.

The presence of two possible readings with any word order, though different in terms of accessibility, derives from the fact that quantifiers are semantically ambiguous taken independently, since *ogni* can refer to an individual in the set (meaning "each"), or to the totality of the set (meaning "all, whole"), and *qualche* can refer to an individual (meaning "at least one"), or to a subset of the set (meaning "more than one, some"). That quantifiers are interpretively ambiguous has been noticed by many scholars (Szabolcsi 2011; Kiss and Pafel 2017) and we see that, in Italian, reversing the base order does not simply create ambiguities or restrict interpretations, since two readings are already available in what we have determined to be the base order, cf. (29a) and (30a).

Despite these ambiguities, the Q-Q test can confirm the results of the Q-A test. Imagine that the latter points to a base order A > B. If we associate the constituent A with $\forall$ and the constituent B with $\exists$, we expect the base order to be primarily compatible with a distributive reading (and marginally with a set reading, v. (31a)), whereas the marked order B > A should be primarily compatible with a set reading (and only marginally with a distributive reading, v. (31b)). The higher c-commanding Q determines the reading that is primarily accessible, and the preferred reading produced in the base order becomes marginal in the scrambled one.

(31) a. $A_\forall > B_\exists$ distributive reading; ?set reading
       b. $B_\exists > A_\forall > <B_\exists>$?distributive reading; set reading

Let us now test the relative order of Theme and Loc in Italian, modifying the sentences in (10) and (12) with the insertion of *ogni* 'each, every' in the constituent expressing Theme and of *qualche* in that expressing Location. In (32) we have $x \in X$=man and $y \in Y$=bar, whereas in (33) we have $x \in X$=book and $y \in Y$=drawer.

(32) a.   *Abbiamo visto ogni professore in qualche bar.*
       - there is at least one *x* for each *y*   (OTO)
       - ?there are some *x* for each *y*   (MTO)
    b.   *Abbiamo visto in qualche bar ogni professore.*
       - ?there is at least one *x* for each *y*   (OTO)
       - for each *y* there are some *x*   (OTM)

(33) a.   *Hanno messo ogni libro in qualche cassetto.*
       - there is at least one *x* for each *y*   (OTO)
       - ?there are some *x* for each *y*
    b.   *Hanno messo in qualche cassetto ogni libro.*
       - ?there is at least one *x* for each *y*   (OTO)
       - for each *y* there are some *x*   (OTM)

If a structurally higher constituent expressing Theme is modified by ∀ and a structurally lower Loc is modified by ∃, a distributive interpretation of the interaction between the two quantifiers is preferred, while a set reading is marginal, independently of the argument or adjunct status of Loc. In the reverse order Loc > Theme, a set reading prevails over a distributive reading, which is nevertheless present.

Based on our judgements, scope ambiguities between quantifiers are found with all linear orders in Italian, but these follow the scheme in (31), which is accounted for in terms of scope if we start from the base order of constituents that is indicated by the Q-A test.

2.2. The Wh-Q Test

As discussed in May (1985), Bruening (2001), Schweikert (2005), and Boneh and Nash (2017), a question containing a whP and a quantifier may imply two answers, either one with a single constituent, or one with a pair-list. If a given linear order is compatible with both, the reverse order will only admit the single constituent interpretation, as exemplified in (34), taken from Schweikert (2005, 82).

(34)   *Which book did he give to every student?*
    a. *It was 'The Minimalist Program' that he gave to every student.*
    b. *He gave 'The Minimalist Program' to Francesco, 'The Antisymmetry of Syntax' to Soon and 'Adverbs and Functional Heads' to Luigi.*

A question like *Which book did he give to every student?*, where the DO is expressed by the fronted whP *which book* and the IO *to every student* is in situ, can be answered either by selecting a single constituent for the whP (34a), or by presenting pairs of constituents (34b).

If we look at the data from Italian, both a single constituent and a pair-list answers are possible independently of the linear order of constituents, and this depends on the semantic ambiguity of *quale*, which can refer to one item or a set of items. However, not all readings are equally accessible, and this is determined by a specific linear order.

(35) a. *Quale uomo hai visto in ogni bar?*
         - Luigi.
         - ?Luigi nel bar del centro, Carlo in quello della stazione…
     b. *In quale bar hai visto ogni uomo?*
         - ?Nel bar del centro.
         - Nel bar del centro Luigi, in quello della stazione Carlo…

(36) a. *Quale libro hai messo in ogni cassetto?*
         - Guerra e Pace.
         - ?Guerra e Pace nel cassetto più alto, Delitto e Castigo in quello di mezzo…
     b. *In quale cassetto hai messo ogni libro?*
         - ?Nel cassetto più alto.
         - Nel cassetto più alto Guerra e Pace, in quello di mezzo Delitto e Castigo…

In (35a) and (36a), a *wh*-question in which the whP corresponds to Theme is primarily compatible with a single constituent answer, while a pair-list answer is marginal. On the other

hand, in (35b) and (36b), a *wh*-question in which the whP corresponds to Loc is primarily compatible with a pair-list answer, while a single constituent answer is marginal. The fact that both readings are always available makes it impossible to use this test alone to determine the base order of two constituents, but it can still support the results of two previous tests.

In fact, if we assume that Theme > Loc is the base order as per the Q-A test, a single constituent answer will always prevail over a pair-list answer if Theme contains *quale* and Loc contains ∀, since the former will always be in a position that c-commands the latter (37a).

(37) a. $[_{XP}$ quale libro $[_{X°}$ … $[_{VP}$ <quale libro> $[_{V°}$ $[_{VP}$ in ogni bar $[_{V°}$]]]]]]
    b. $[_{XP}$ in quale bar $[_{X°}$ … $[_{VP}$ ogni libro $[_{V°}$ $[_{VP}$ <in quale bar> $[_{V°}$]]]]]]

On the other hand, a pair-list reading is preferred if the Loc containing ∀ raises to a position from where it can c-commands the Theme containing *quale*, forcing a distributive reading, as in the scrambled order of (37b).

Thus, the Wh-Q test can support our previous findings, especially the fact that a distributive interpretation (in this case, a pair-list reading) is determined by a c-commanding constituent containing ∀ (as it was in the Q-Q test). We can assume that, given a base order A > B identified through the Q-A test, a *wh*-question in which A containing *quale* is fronted and B containing ∀ remains in situ is always primarily compatible with a single constituent answer, whereas a pair-list (distributive) answer is preferred if B containing ∀ is fronted and A containing *quale* remains in situ.

2.3. The Co-referentiality Test

As suggested by Barss and Lasnik (1986), and Lasnik and Stowell (1991), a further way to detect whether a sentence displays an original or derived order involves the acceptability of a coindexed (or coreferential) reading between a possessive adjective and a constituent containing a possible referent for it. In the base order, a co-referential reading is possible if the constituent containing the referent (i.e. the possessor) linearly precedes the possessive adjective (modifying the possessee NP), while, if the latter has crossed over the former, it becomes marginal. This is known as Weak cross over (WCO) effect.

In Italian, the possessive adjective *suo* can either index a referent contained in the clause (marked by $_i$) or one external to it (marked by $_j$). As we see from (38a) and (39a), a co-referential reading between *suo* in Loc and Theme is possible if the latter linearly precedes the former, but becomes marginal in the reverse order, v. (38b), (39b), while a clause-external reference is possible with either orders.

(38)   *Che cosa è successo? Che cosa avete fatto?*
    a.   *Abbiamo visto un uomo$_i$ nel suo$_{i/j}$ bar.*
    b.   *Abbiamo visto nel suo$_{?i/j}$ bar un uomo$_i$.*

(39)   *Che cosa è successo? Che cosa hanno fatto?*
    a.   *Hanno messo un libro$_i$ nel suo$_{i/j}$ cassetto.*
    b.   *Hanno messo nel suo$_{?i/j}$ cassetto un libro$_i$.*

A co-referential reading is made possible by the c-commanding position that the referent in Theme occupies in the base order with respect to Loc (40a), as predicted by the Q-A test,

but this scope relation becomes marginal if the latter raises to a higher position past the former, e.g. to a topic phrase. The locative PP comes out of the scope domain of Theme, so that the preferred interpretation becomes that by which *suo* is indexed with an external referent (40b).

(40) a. $[_{TopP} [_{Top°} \ldots [_{VP}$ un libro$_i [_{V°} [_{VP}$ nel suo$_{i/j}$ cassetto $[_{V°}$]]]]]]
     b. $[_{TopP} [_{Top°}$ nel suo$_{?i/j}$ cassetto $\ldots [_{VP}$ un libro$_i [_{V°} [_{VP}$ <nel suo$_{i/j}$ cassetto> $[_{V°}$]]]]]]

On the basis of WCO effects, we can assume that a linear order A > B identified as the base order by the Q-A test allows for a co-referential reading between a possessive adjective contained in B (the possessee) and a referent contained in A (the possessor).

Conclusions

In this study we showed that the constituents that express the thematic roles of Theme and Location in Italian can be considered to be base generated in a fixed relative order in the syntactic structure of the clause, one in which the former precedes the latter, as shown in (41), independently of the argument or adjunct status of Loc. This order can be reversed by Heavy NP Shift, or by IS requirements, by raising either of the two constituents to a topic and to a focus position, or by moving the lower constituent to the Spec of a topic phrase.

(41) $[_{TopP} [_{Top°} \ldots [_{VP}$ Theme $[_{V°} [_{VP}$ Location $[_{V°}$]]]]]]

The higher position of Theme with respect to Location has already been hypothesised in other languages, and we showed that we can do the same in Italian, using the question-answer test and supporting its results with syntactic tests involving quantifiers and possessive adjectives. Given two constituents A and B, we claim that the linear order A > B reflects the base order if it obeys to the following conditions:

- (i) it is compatible with a general question (with BF under the Q-A test);
- (ii) it is primarily compatible with a distributive reading if A is modified by ∀ and B is modified by ∃, and only marginally with a set reading (under the Q-Q test);
- (iii) it is primarily compatible with a single constituent answer if A containing *quale* is fronted and B containing ∀ remains in situ, but with a pair-list answer if B is fronted (under the Wh-Q test);
- (iv) it allows for a coreferential reading if B contains a possessive adjective and A contains a possible referent for it (under the Co-referentiality test).

We also pointed out that, at least for Italian, scope ambiguities or ambiguous readings do not unequivocally point to a scrambled order of constituents, since they arise with any linear order. However, we showed that each distinct order presents one reading as preferred and the other as marginal, and this directly follows from the hierarchical organisation of the constituents and from their scope relations.

On the basis of the results of our tests, the relative position of the VP projection where the thematic role of Location is assigned does not vary according to its argument or adjunct status (that is, between the examples of group 1 or group 2). The distinction between argument and adjunct would thus merely be a semantic one, and if future research will confirm our results, we can think that the matrix verb is only responsible for the selection from the lexicon of a certain number of semantically compatible complements, but not for the fundamental order in which these appear.

Obviously, one cannot detect the relative position of a single thematic role without finding the relative position of all others, but this would require much more space. For the time being, with this study we want to show that once we remove the conditions that alter the results of the above mentioned tests (e.g. heaviness, definiteness, etc.), the latter turn out to be a successful tool to determine the locus where each thematic role is assigned in Italian and can help shed light on the rich and rigid organisation of the verb's complements.

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