The analysis of the passé surcomposé : a hypothesis on sentence structure formation

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Cecilia Poletto

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on Sentence Structure Formation

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THE ANALYSIS OF THE *PASSE' SURCOMPOSE'*: A HYPOTHESIS ON SENTENCE STRUCTURE FORMATION

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1. INTRODUCTION*

Recent studies in generative Syntax have developed a complex system of functional projections within both the verbal and the nominal structure. The current trend is to interpret Baker's Mirror Principle regarding the symmetry between the syntactic and the morphological component of the grammar in its strongest form, namely as a strict correspondence that can be formulated as follows: for each inflectional morpheme there is a corresponding syntactic projection.

Such a working hypothesis raises a number of problems regarding the sequence of Functional projections: in particular it could be asked whether all natural languages have the same set of Functional projections or if there are common principles that rule their distribution.

This work proposes a tentative hypothesis expressed in terms of a general condition that rules the occurrence and the respective order of inflectional projections. This will be done on the basis of some particularly complex structures in some Romance varieties known as "passe' surcompose" in the descriptive grammars.

Looking at the order of inflectional morphemes in these structures it is possible to note that every verbal root has an Agreement morpheme as its rightmost component and that Functional heads such as Tense, Aspect and Voice alternate with Agreement projections.

On this basis we will formulate a principle concerning the form of Romance inflected verbs, which are always saturated by an Agreement morpheme.
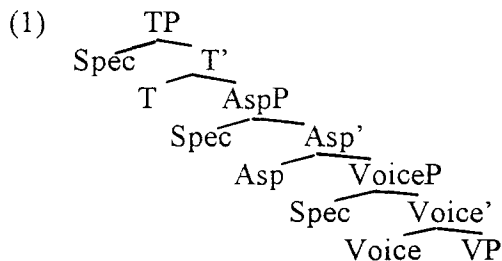
A second observation regarding the order of the inflectional morphemes attached to the verb will be formalized as a universal condition that applies whenever a language activates Agreement and Functional projections. It seems that Agreement and Functional projections such as Tense, Voice, Aspect, appear in a one to one relation within the structure of the sentence. This phenomenon, noted in Romance languages, can also be found in other languages such as Basque, Polish and Finnish.

Section one considers recent analyses of sentence structure and in particular the mechanism that rules the suffixion of inflectional morphemes to the verbal root.

In section 2 we will examine the "passe' surcompose" structure, showing that, even in a quite complex structure with three auxiliary verbs, only some sequences of inflectional morphemes are found and that not all possible combinations are realized. Section three formalizes the two conditions ordering Agreement and Functional projections and applies one of them to other languages.

1.2 INFLECTIONAL MORPHEMES AS HEADS

Since Pollock's seminal work showing the necessity of splitting the inflection projection, IP, into at least two distinct syntactic projections, it has been claimed that not only should Tense and Agreement have their own maximal category, but so should Mood, Aspect and Voice. The existence of an aspectual syntactic projection has been proposed by various authors on the basis of languages that show morphological aspect distinctions. Rivero (1990), for instance, looking at the order of the inflectional morphemes in Macedonian and Albanian, postulates that in these languages the Aspect projection is placed below Tense but above Voice, as illustrated in (1):

```
(1)        TP
       Spec    T'
        T   AspP
         Spec    Asp'
          Asp    VoiceP
           Spec    Voice'
            Voice    VP
```

The Voice morpheme, which is the first morpheme after the verbal root, is the head of the first inflectional projection above the VP. The Aspect morpheme, which is realized after the Voice morpheme, constitutes the head of the Aspect projection, which is placed above the VoiceP. Tense and Agreement are projected higher up in the structure, and they are realized in an auxiliary verb.

This line of reasoning, followed by Rivero in order to determine the position of the various Functional projections, relies on the assumption of Baker's Mirror Principle, (cf. Baker (1985)) which states a strict parallelism between Morphology and Syntax: the order of the inflectional morphemes attached to the verb reflects the hierarchical order of their syntactic projections. This explanation of the symmetry between Syntax and Morphology is purely structural: every inflectional morpheme constitutes the head of an independent projection in the Syntax, but it does not always constitute an independent word in the morphological component.

In the cases in which the inflectional morpheme is not an independent word, it has to be incorporated into the verb. Hence, the verb moves up to the head of the inflectional projection in the Syntax in order to incorporate the bound morpheme and constitute with it an independent word. If more then one inflectional head is filled by a bound morpheme, as happens for instance, with both the Tense and Agreement morphemes in Romance, the theory predicts that the verb must move cyclically, first to the head of TP in order to incorporate the Tense morpheme and then to the head of AgrP where it incorporates the Agreement morpheme.

In this way, the successive head to head movement of the verb into every inflectional head that contains a bound morpheme yields the order that the morphemes show with respect to the verbal head. For instance, if the Tense morpheme is closer to the verbal root than the Agreement morpheme, this means that it has been incorporated before the Agreement morpheme, namely that TP is lower than AgrP in the structure of the sentence (cfr Belletti (1990)).

Belletti proposes for Italian (but the proposal can be extended to Romance in general) that the order of the Tense and Agreement projections is the one illustrated in (2):

(2)   AgrP
       Spec   Agr'
          Agr   TP
            Spec   T'
              T   VP
               Spec   V'
                 V
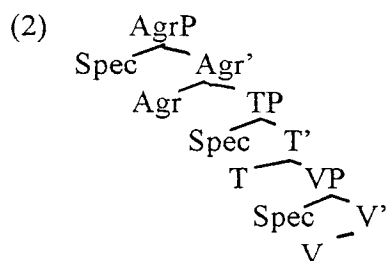
In her system, the verb moves to Tense and incorporates the Tense bound morpheme and then the whole complex V+T moves to Agr where it incorporates the Agreement morpheme. In this way it is possible to account for the order of the inflectional morphemes deriving it directly from Baker's Mirror principle.

Both Rivero's and Belletti's proposals exploit this principle in order to infer the hierarchical order of the Functional projections by simply looking at the linear order of the morphemes with respect to the verbal root.

The claim that every morpheme corresponds to a complete syntactic projection is a strong one, because it predicts that for every visible morpheme there is not only a syntactic head but also a specifier and a complement position in the Syntax.

As for the specifier position, at first sight things seem to be unclear. It has been recently proposed that specifiers are projected only when they are needed. Trying to maintain a more conservative view, one could ask if specifier positions of FPs are always empty or if there is some element that can occupy them. In Belletti's (1990) theory the Spec of the AgrP is assumed to be the position of the preverbal subject. But what about the specifiers of the other inflectional projections such as Tense or Aspect?

We could assume that these are precisely the positions that adverbs occupy (apart from negation which probably has a projection of its own). If this is true, the fact that every inflectional projection has a specifier position does not represent a problem. On the contrary the presence of these specifier positions explains the restrictions against the free occurrence of adverbs in every position of the sentence and the fact that some classes of adverbs are in a complementary distribution: only if there is a specifier available can an appropriate adverb occur, thus yielding a grammatical sentence.

As for the complement position of FPs, it is saturated by the lower Functional projection as (2) shows: AspP is the complement of T, VoiceP is the complement of Asp, and so on. This fact is normally expressed as a relation of selection that the higher head performs on the lower one.

At first sight, it seems strange to apply the mechanism of selection, which has been developed to account for the relation between a lexical head (as the verb or the noun) and its

arguments, to functional projections. As functional heads do not have arguments, it seems more reasonable to account for the respective order of FPs in Grimshaw's (1991) terms: she proposes that functional projections constitute the "perfect projection" of a lexical head. The functional projections up to AgrP constitute for instance the perfect projection of the verb, the DP (or even QP following Giusti (1992)) is the perfect projection of the head N.

Whatever device is used to explain the fixed order of the functional projections, this must be a consequence of very general syntactic and semantic principles: for instance, the dominance relation between Tense and Aspect is connected with the interpretation of the sentence. This entails that Tense and Aspect are always in the same position in every language, so, we expect that every time it is possible to isolate a functional projection through syntactic tests in a given language, this FP occupies the same position which has been observed in other languages. Note that we are not saying that every language has the same inventory of functional categories, our claim is much weaker: our hypothesis concerns only the position in which FPs are realized. It says that every time an FP is present in the syntactic structure of the sentence in a language, its place is fixed: so AspP is always below TP, CP is always above TP and so on.

In section two we will try to prove that in Romance languages there is evidence for the existence of a complete Aspect phrase with a head, a complement and a specifier position, and that its position is the same as that postulated by Rivero (1990) for the Balkan languages (cfr. (2)).

Moreover, on the basis of a structure known in traditional grammar as the "passe' surcompose" (PSC), it will be shown that we have to impose some general conditions on structure formation regarding the association of inflectional projections and that only some sequences of inflectional projections are possible.
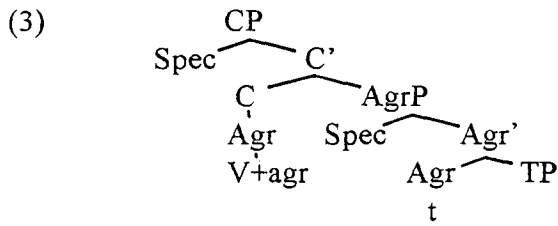
We will use examples from two Northern Italian dialects, Alto Vicentino (VI.) and Friulian (FR.), but the data are the same in some varieties of French and in other Northern Italian Dialects as well.

1.3 INCORPORATION THEORY

Before we discuss the distribution and the features of the PSC construction, it is necessary to consider how the theory of incorporation has been developed in relation to inflectional bound morphemes. In particular Roberts (1991) has proposed an articulated analysis of incorporation in three different mechanisms, which are essentially parallel to XP movement.

Incorporation exploits the three mechanisms of a)substitution b) adjunction and c)selection.

A head can move in one of these three ways. Substitution is movement of a head into an empty head. This is for instance the case of verb movement to C in non-verb second languages. The inflected verb moves into the empty head C and fills it totally (see Roberts (1991) for details). The structure that this type of movement builds is the following:

(3)

```
              CP
        Spec      C'
              C      AgrP
              Agr    Spec      Agr'
              V+agr         Agr    TP
                                t
```

The second type of movement is adjunction. A head adjoins next to another head which is already filled by some material. Following Roberts (1991), this is the case of clitics, which adjoin to the Agreement head occupied by the inflected verb as illustrated in (4):

(4)

```
              AgrP
        Spec          Agr'
                  Agr      TP
                cl  Agr
                  V+agr
```
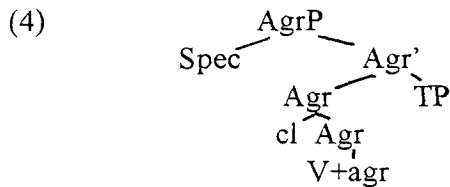
The third type of incorporation involves verb movement to inflectional projections. It applies through a mechanism of selection, as the bound morpheme in the inflectional head position opens a slot for the verb.

(5)

```
              TP
        Spec       T'
                T
              [_ +V ] tense morph.
```
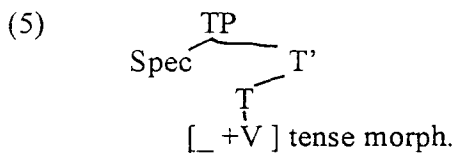
Another way to formulate structure (5) has been proposed by Roberts (1991a). Using negative projections, it is also possible to apply X'-theory to this level of representation.

Hence, structure (5) can be rewritten as in (6), where the movement applies at the morphological level, but follows a syntactic procedure of movement:

(6)

```
           TP
        Spec     T'
              T
           [_ +V]    T-1
```
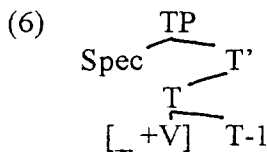
In (6) the tense morpheme is inserted under T-1, while the selected verbal root is in its complement position.

Keeping in mind that selected incorporation applies under the level of heads, namely at the X-1 level, we will now consider the order of inflectional projections and how they are arranged in the structure of a specific complex construction such as the PSC.

2.1 THE SYNTACTIC REFLECTION OF ASPECT

In a recent article by Marcato (1986) it has been noted that some Northern Italian dialects present a sort of reduplication of the auxiliary verb *have* in compound tenses, as is shown in (7):

(7)   I dise che el ze morto parche' el ga *bio* dito massa busie
         They say that he has died because he has had told too many lies

(7) illustrates a case of PSC, in which the auxiliary inflected for Tense and Agreement is followed by the past participle of the auxiliary *have*, underlined in the example, which precedes the main past participle.

Marcato notes that the translation of this particular construction into Standard Italian should include an adverb, because there is no way to express it simply with a verbal form. The fact that the corresponding Italian verbal form does not exist shows that the auxiliary *bio* is not purely redundant but contributes to the meaning of the sentence. She states that the auxiliary *bio*, which appears in (7), has an Aspect function in the sentence.

We are not in a position here to examine the semantics of this aspectual auxiliary we refer to Marcato (1986) and Beninca' (1990) for a detailed discussion of this point. We will concentrate on the Syntax of the PSC, describing first its distribution.

The occurrence of the aspectual auxiliary does not depend on the main versus embedded character of the sentence. It can appear both in main and embedded clauses as is shown in (8):

(8)   a   Stamatina go bio stira'
          This morning (I) have had ironed
      b   Co go bio stira' so nda' fora
          When (I) have had ironed (I) have gone out
      c   Go bio visto el papa
          I have had seen the Pope

In order to reinforce the claim that the auxiliary *bio* is really an aspectual form, it is interesting to note that the examples in (8) have a particular interpretation, that entails the idea that the action is completely over, and that it has no relation with the present.

This type of double auxiliary is not confined to the past perfect. It can appear in all compound tenses, in indicative as well as in subjunctive and conditional verbal forms, as indicated by the schema in (9):

(9)   pres. perf.   go bio
      past perf.   gavevo bio
      fut. perf.   gavaro' bio
      subj. pres. perf.   gabia bio
      subj. past perf.   gavesse bio
      conditional   gavaria bio

This additional auxiliary can also appear in questions as illustrated in (10):

(10)   Cossa galo bio fato?
         What has+he had done?

It seems that the occurrence of the PSC is restricted neither by the main versus embedded character of the sentence nor by the verbal mood nor by the presence of an interrogative operator.

This pattern is valid not only for VI., but also for the varieties of French that permit the PSC and for Friulian.

We will thus assume that this double auxiliary form expresses an Aspect category for which there is no correspondent verbal form in Standard Italian nor in other Romance languages.
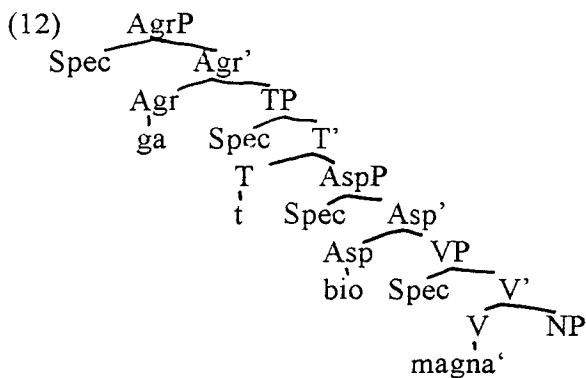
It is interesting to ask how the structure of a sentence like (7) (here repeated as (11)) could be represented and in particular whether the auxiliary *bio* constitutes the realization of an independent Aspect projection, which lies above the VP but below Tense:

(11)   I dise che el ze morto parche' el ga *bio* dito massa busie
         They say that he has died because he has had told too many lies

In (11) the auxiliary inflected for Tense and Agreement is infact not *bio* but another auxiliary above it.

The case of (11) would thus imply that the head of a syntactic inflectional projection can be filled not only by a bound morpheme but also by an independent auxiliary head. This assumption is admitted in a number of cases by the standard theory, as for instance in the English structures with "do- support" (cf. Roberts (1991a)).

Following the hypothesis that the aspectual auxiliary occupies the head of an independent AspP, we obtain a structure of the Romance PSC which is completely parallel to the one proposed by Rivero for Albanian and Macedonian:

(12)   AgrP
       Spec   Agr'
          Agr   TP
          |
          ga   Spec   T'
                 T   AspP
                 |
                 t   Spec   Asp'
                        Asp   VP
                        |
                        bio   Spec   V'
                                 V   NP
                                 |
                              magna'

In structure (12), the head of Agr is filled by the auxiliary *ga*, which has moved from the head of T to the head Agr. The head of Asp is filled by *bio*, and it selects the VP, where the V *magna'* is found.
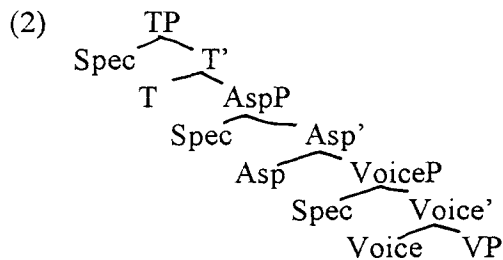
In (12) the position in which the Aspect feature is realized is the same as that in (2), namely under the Tense projection.

The only difference between VI. and Albanian regards the type of element that fills the head of the AspP: in Albanian it is a bound morpheme that forces the verb to move to Asp in order to create an independent word. In VI. it is the auxiliary that realizes the Aspect feature as independent from the main verb.

Rivero proposes furthermore that the Aspect projection can select a Voice projection, where the passive morpheme is realized. In fact, Macedonian and Albanian show that the Voice morpheme is closer to the verbal root than the Aspect morpheme, indicating that the verb has passed through Voice incorporating the Voice morpheme before raising to Aspect. The same observation can be made for the PSC construction. The auxiliary *bio* is perfectly possible even in passive sentences, and it always appears before the passive auxiliary, exactly as predicted by Rivero's analysis:

(13)   Co me sorela la ze bia sta ciama'...
        When my sister she is had been called

(14)   *Co me sorela la ze sta bia ciama'...

If the passive auxiliary is the realization of the Voice projection, then the linear order of the auxiliaries is precisely that predicted by Rivero (1990), namely Tense which selects Aspect which selects Voice. We can conclude that Rivero is right assuming that the Asp phrase directly selects the VP or a VoiceP, as in the case of (13). Hence the structure of (13) will be (2), here repeated:

(2)   TP
        Spec   T'
        T   AspP
          Spec   Asp'
            Asp   VoiceP
              Spec   Voice'
                Voice   VP

The parallelism found between the Romance PSC on one hand and Macedonian and Albanian on the other seems at first sight to satisfy the expectation that different languages have a symmetric behaviour with respect to the order of inflectional projections. Nevertheless, things seem to be more complicated in Romance, in particular with regard to the structure of the main past participle.

2.2 THE PAST PARTICIPLE AS A COMPLEX UNIT

In the last section we considered how the aspectual auxiliary *bio* present in VI. can be syntactically analyzed, assuming that it occupies the head of an inflectional Aspect projection that is placed in the same position as the one proposed by Rivero for Macedonian and Albanian.

Furthermore, we considered the main past participle as being the head of a VP projection which is the lowest projection in the structure. Nevertheless, the main past participle looks like a complex form both in VI. and in Standard Italian. Consider for instance (7), here repeated as (15):

(15)   I dise che el ze morto parche' el ga *bio* dito massa busie
           They say that he has died because he has had told too many lies

If it is true that for every bound morpheme there is a corresponding inflectional projection to which the verbal head moves, we might expect that the past participle would appear in its bare form, as it is the head of a lexical projection such as the VP, and does not raise to any inflectional projection. This is simply not true, because the form of the main verb, *dito* is not a bare stem, but it consists of the verbal root, a *t* morpheme and a vowel, *o*. This fact has already been noted in the literature. In fact, the past participle has been analyzed in Kayne (1989) and Belletti (1990) as a complex form consisting of an Aspect morpheme, namely the *t*, and of an Agreement morpheme, the vowel, each of which corresponds to a complete projection. The syntactic structure of a past participle will thus be (16):

(16)
```
            AgrP
       Spec      Agr'
           Agr      AspP
         di+t+o   Spec      Asp'
                       Asp      VP
                        t    Spec      V'
                                   V      NP
                                   t
```

In (16) the verbal root moves from the V position to the Asp position in order to incorporate the Aspect morpheme and then to Agr, where it incorporates the Agreement morpheme.

Kayne (1989) proposes furthermore that the cases of Agreement of the past participial form with an object clitic or with the superficial subject in a passive sentence are instances of Spec-head Agreement, where the NP bound by the clitic has passed through the specifier position of the Agreement projection of the past participle, inducing the Agreement vowel to match its features in number and gender, as in a sentence like (17):

(17) a   I la ga vist*a*
           They her have seen+agr (feminine, singular)

     b
```
             AgrP
        Spec      Agr'
      NPj    Agr       AspP
          vis+t+aj  Spec      Asp'
                         Asp      VP
                          t    Spec      V'
                                     V      NP
                                     t
```

On this basis we cannot consider the main past participle in VI. and Standard Italian as a lexical head, but rather as an inflectional Agreement head resulting from the movement of the past participle to object Agreement passing through an Aspect head. If we want to maintain Kayne's analysis of the past participle, which accounts for the Agreement facts in an interesting way, and we compare it with the structure proposed in (12) for the PSC in Vicentino, we are faced with a potential problem. In (12) the past participle does not have any Functional projection, the first Functional projection being AspP, occupied by the auxiliary *bio* or a VoiceP occupied by the passive auxiliary (when there is one as in (13)). Following Kayne's and Belletti's analysis, we could assume that the symbol VP in (12) is to be substituted with the Agr of (16), yielding a more complex structure like (18):

(18)　AgrSP
　　Spec　　AgrS'
　　　AgrS　　TP
　　　ga　Spec　　T'
　　　　　T　AspP
　　　　　t　Spec　Asp'
　　　　　　　Asp　　AgrOP
　　　　　　　bio　Spec　　AgrO'
　　　　　　　　　AgrO　　AspP
　　　　　　　　di+t+o　Spec　Asp'
　　　　　　　　　　Asp　VP
　　　　　　　　　　t　Spec　V'
　　　　　　　　　　　　V　NP
　　　　　　　　　　　　t
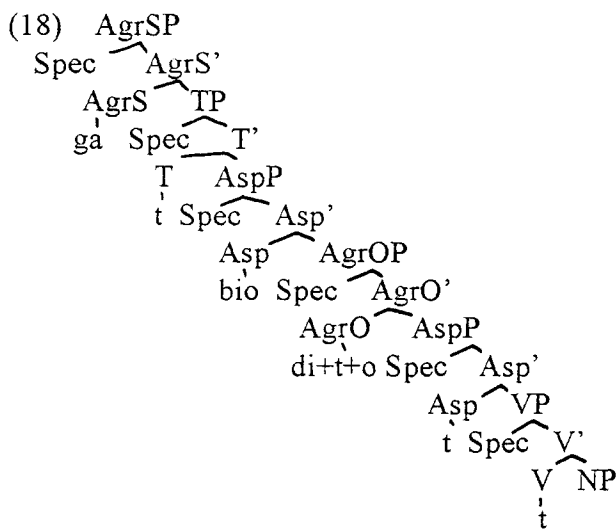
In (18) the higher Agreement head is occupied by an auxiliary which is also inflected for Tense and which has moved from the head of T, as the trace in that position indicates. The Asp selected by Tense is occupied by the auxiliary *bio*, which selects an Agreement projection, corresponding to the Object Agreement projection. The main verb has moved into this position from its base position inside the VP passing through the Aspect selected by the Object Agreement projection.
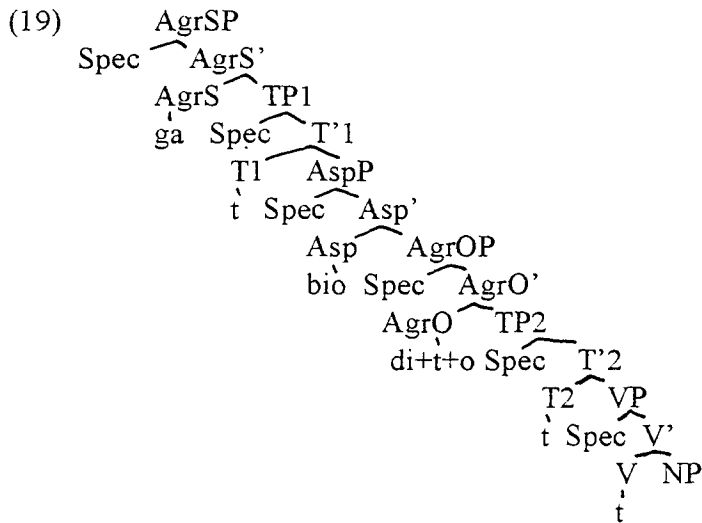
At first sight such a structure seems quite complicated and redundant. However, the fact that there are two Agreement projections does not constitute a problem, because they are Agreement with different arguments. This fact, on the contrary, is predicted by the theory (cf. Chomsky (1991)).

Nevertheless, structure (18) may constitute a problem because it contains two Aspect projections, one occupied by the Aspect auxiliary *bio* and the other occupied by the trace of the main verb which has been moved to the Object Agreement projection.

It has recently been proposed by Giorgi and Pianesi (1991) that the *t* morpheme of the past participle, which is treated as aspectual by Kayne (1989) and Belletti (1990), can be analyzed as a tense morpheme. Giorgi and Pianesi propose an interesting syntactic implementation of the Reichenbachian theory on Tense: they assume that there are two tense heads, T1 and T2, which can be projected in the sentence structure, T1 being the syntactic realization of the relation

between the speech time and the reference time, while T2 instantiates the relation between the event time and the reference time.

T1 is projected in the position of the usual TP, while T2 is the functional projection realized by past participles, which incorporate the *t* morpheme in Romance. A structure like (18) can thus be rewritten as (19), where the aspectual projection occupied by the auxiliary *bio* is placed below T1 but above T2:

(19)　　　AgrSP
　　　Spec　AgrS'
　　　　　AgrS　TP1
　　　　　ga　Spec　T'1
　　　　　　　T1　AspP
　　　　　　　t　Spec　Asp'
　　　　　　　　　Asp　AgrOP
　　　　　　　　　bio　Spec　AgrO'
　　　　　　　　　　　AgrO　TP2
　　　　　　　　　　di+t+o　Spec　T'2
　　　　　　　　　　　　　T2　VP
　　　　　　　　　　　　　t　Spec　V'
　　　　　　　　　　　　　　　V　NP
　　　　　　　　　　　　　　　t

But is this really unavoidable to postulate an independent aspectual projection to host the auxiliary *bio*? In the next section we will see that there are purely syntactic reasons to assume that *bio* constitutes the head of an independent inflectional position.
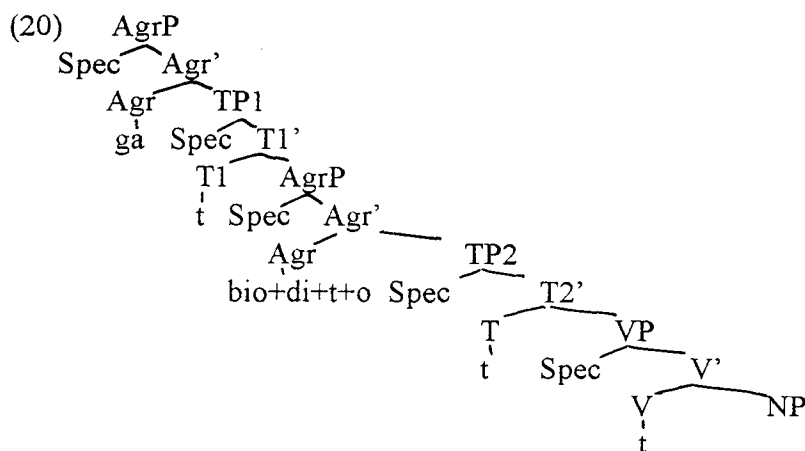
2.3 bio AS AN INDEPENDENT HEAD

In section 2.1 we considered the hypothesis that for every inflectional morpheme there is a corresponding syntactic projection, and we applied this assumption to the analysis of the PSC.
Let's now consider all the possible ways of analyzing a sentence like (7) and the predictions that each hypothesis makes to see if it is really necessary to assume a complex structure such as the one in (19). The problem is to determine the position that *bio* occupies in the Syntax: is it an independent head or is it adjoined to another Functional head and if so to which one?

There are at least three possible hypotheses that can be explored. The auxiliary *bio* can be adjoined to the higher auxiliary inflected for Tense and Subject Agreement, forming a syntactic unit with it. In this case the higher auxiliary and *bio* should behave as a single head in the Syntax.

Otherwise, we can imagine that *bio* is adjoined to the main past participle and that in this case it forms a unit with the main past participle and not with the higher auxiliary.
The third possibility is of course the one mentioned above, namely that *bio* constitutes the head of an independent Functional projection as already illustrated in (18) in the preceding section. In other words, assuming that *bio* is the head of an independent projection means that we have to exclude that it is adjoined either to the higher verb or to the lower one.

Let's first admit that *bio* is not syntactically independent, but parasitic on the main past participle as illustrated in (20):

(20) AgrP
```
        AgrP
     Spec   Agr'
        Agr    TP1
        ga   Spec   T1'
              T1    AgrP
              t   Spec   Agr'
                    Agr        TP2
              bio+di+t+o  Spec      T2'
                            T        VP
                            t    Spec    V'
                                   V        NP
                                   t
```

A structure like (20) illustrates the idea that there is no aspect projection in the sentence, but only the two Tense projections TP1 and TP2 (in Giorgi and Pianesi (1991) T1 is not even realized in the present perfect, but this is irrelevant for the present discussion) which are associated to an AgrP each.

The aspectual auxiliary is contained in the T2 head as a sort of prefix. This head must also contain the *t* morpheme, which appears on the main verb. The main verb moves to T2, where it incorporates the *t* morpheme at the right and the *bio* prefix at the left. Then the whole complex moves up to the head of the Object Agreement, where the Agreement morpheme subcategorizes for T20. Being a suffix, the object Agreement morpheme adjoins to the right of the complex.

In this way structure (20) yields the right linear order of *bio+ di+t+o*.

There are at least two predictions that we can test immediatly in order to discover if (20) is correct or not. If *bio* is so strictly connected to the main past participle that together they end up occupying the same position at S structure, no other element should be able to intervene between *bio* and the main past participle.

This is clearly not true, because an adverb is perfectly grammatical in a position between *bio* and the past participle:

(21)   Nol ga bio de sicuro dito gninte
           Not+he has had for sure said anything

In (21) the adverb *de sicuro* (for sure) intervenes between *bio* and the past participle, showing that they do not form a constituent and that the Aspect auxiliary and the main past participle are not even part of the same projection, because the intervening adverb must be in the Spec position of a maximal projection (or adjoined to it).

We have already noted that *bio* can appear in a passive sentence, and that the order is *bio*-passive auxiliary-main past participle. Hence *bio* and the main past participle cannot be part of the same projection, as another head (the passive auxiliary) can intervene between the two.

Another possible way of showing that they are not so closely connected as structure (20) would predict is to look for rules that move only the past participle and leave *bio* in situ. The structure preservation principle, as formulated in Chomsky (1986) states that only heads or maximal projections can move in the Syntax. On this basis, if it is possible to move the main past participle and not *bio*, we have to assume that they are independent heads in the Syntax, given that it is not possible to move only a portion of a syntactic head (but see Roberts (1991)).

There are at least two cases in which the main past participle projection is moved, leaving *bio* in situ. The first case is topicalization, which can move the past participle to the left of the whole sentence, as in (22):

> (22) Laora' go bio stamatina, no ciacola'
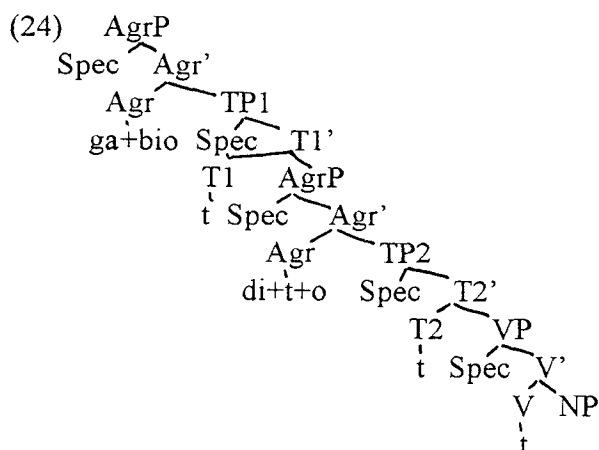>   Worked (I) have had this morning, not chattered

In example (22) the main past participle phrase has been moved to the Spec of the Comp projection while the aspectual auxiliary appears in its basic position inside the sentence. (22) shows that *bio* and the main past participle do not constitute a unique head. The second test that shows that they are not even part of the same syntactic projection is the so-called rule of VP coordination. Consider example (23):

> (23) El ze sta male parche' el ga bio bevu' massa vin e magna' massa pan
>   He has been sick, because he has had drunk too much wine and eaten too much bread

In (23) the whole VP with its internal arguments has been coordinated. The rule of VP coordination applied in (23) puts together two maximal projections, informally labelled as VP.

Given what we have said above about the Functional projections of the past participle, we should consider this rule as a case of AgrOP (Agreement with the object) coordination. What is relevant here is that this rule takes the highest projection containing the main past participle and its internal arguments, leaving the aspectual auxiliary out. (23) shows that *bio* is not part of the AgrOP projection just as the auxiliary *ga* and the subject clitic *el* are not. This test not only shows that *bio* is a distinct head from the main past participle, but also that they belong to different maximal projections. A structure like (20) cannot be the right one because it makes incorrect predictions in at least three cases: it predicts that no adverb can intervene between the aspectual auxiliary and the main past participle, but this is perfectly possible. It predicts that whenever the main past participle is moved, *bio* must be moved too, which is not the case. And finally, it predicts that *bio* has to be repeated with the VP in a coordinated structure, which is not the case.

Let's now examine the second possibility, namely that *bio* is adjoined to the higher auxiliary, as in a structure like (24):

```
(24)    AgrP
     Spec    Agr'
        Agr      TP1
       ga+bio  Spec    T1'
                 T1    AgrP
                 t  Spec    Agr'
                      Agr      TP2
                    di+t+o  Spec    T2'
                             T2    VP
                             t  Spec    V'
                                        V   NP
                                        t
```

We can repeat the same reasoning just illustrated for structure (20): if the aspectual auxiliary and the tense auxiliary constitute a unit, we predict that they can never be separated by an adverb. Consider example (25):

(25)   No i ga piu' bio dito gninte
        Not they have anymore had said anything

In (25) the two auxiliaries are separated by the adverb *piu'*, and the sentence is perfectly grammatical. Another prediction that (24) makes regards the movement rules: every time that the tensed auxiliary is moved, *bio* must be moved too. This prediction is falsified by the data, because there are at least two rules that move the tensed auxiliary but not that of Aspect.

The first one is the subject clitic interrogative inversion, which is analyzed as the movement of the verb to C in main interrogative sentences (cf. Rizzi and Roberts (1989) and Poletto (1991)). If the tense and the aspectual auxiliary were a unit, they should both move to C, in which case we would observe the order tensed aux-aspectual aux-subject clitic. This is not the correct order in main interrogatives, as (26) shows:

(26)   a   *Cossa ga bio*lo* fato?
             What has had he done?
        b   Cossa ga*lo* bio fato?
             What has he had done?

(26a), in which the order is that which is predicted by a structure like (24), is excluded. On the contrary, (26b), in which the order is tense aux-subject clitic-aspectual aux, is grammatical.

Hence, the tense auxiliary is moved to C, while *bio* remains in situ. Another fact, which is not predicted by (24) is the position of an object clitic in infinitival sentences. The order infinitival verb-object clitic in Standard Italian and in some dialects has been recently analyzed by Kayne (1991) as a derived order, in which the infinitive has adjoined to T' while the clitic adjoins to the head of TP. If the tense auxiliary and the aspectual auxiliary were a unit, they should move together to T', leaving the object clitic behind, as in (27):
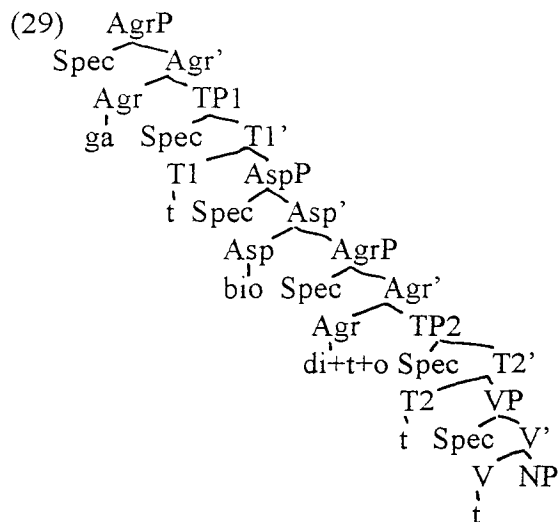
(27) *Aver bio*lo* magna', me ga fato mal
      To have had it eaten, to me has done bad

(28) Averlo bio magna', me ga fato mal
      To have it had eaten, to me has done bad

The correct order of the two auxiliaries with respect to the object clitic is the one in (28) and not the one in (27), which is predicted by a structure like (24). This means that the tensed auxiliary has been moved alone to the higher position, leaving the aspectual auxiliary in situ.

On the basis of these arguments, we exclude that (24) is the right structure for a sentence with an aspectual auxiliary.

The third possibility mentioned above is to admit that a structure like (19) (here repeated as (29)) is correct, and that *bio* is the head of an independent syntactic projection, which has a specifier and a complement position:

```
(29)    AgrP
      Spec   Agr'
          Agr   TP1
          ga  Spec   T1'
               T1   AspP
               t  Spec   Asp'
                     Asp    AgrP
                     bio  Spec   Agr'
                           Agr   TP2
                        di+t+o  Spec   T2'
                                T2   VP
                                t  Spec   V'
                                      V   NP
                                      t
```

The specifier position can be occupied by adverbs and the complement position is filled by the Agreement with the object selected by the aspectual auxiliary, as in (30):

```
(30) a      TP1
         Spec   T1'
             T1   AspP
             Spec   Asp'
             Adv   Asp     AgrP
                   bio  Spec   Agr'
                        Adv  Agr   TP2
                             dit+o
```

b   Nol ga piu' bio de sicuro dito gninte
    Not+he has anymore had for sure sayd anything

(30a) seems to be the correct structural analysis of the syntactic representation of the PSC. On the basis of (30a) we predict that an adverb can intervene between *bio* and the higher tensed auxiliary or between *bio* and the past participle, as (30b) shows.

Furthermore, (30a) correctly predicts that *bio* is syntactically independent both from the higher auxiliary which bears the tense features of T1 and from the past participle which bears the T2 *t* morpheme and the agreement with the object morpheme.

At this point we have to accept the hypothesis that *bio* is really the head of an independent projection, and that in VI. there is an Aspect projection, which is realized below TP1 but above TP2 and which is occupied by an auxiliary head, namely *bio*. We will thus assume that the analysis presented in (29) is essentially correct as far as the position of the Aspect auxiliary is concerned. In the next section we will discuss some facts regarding the position of Agreement projections.

3. AGREEMENT PROJECTIONS AND FUNCTIONAL PROJECTIONS

Consider now sentence (31):

(31)   El li ga bi*i* fini*i* ieri
        He them has had+agr finished+agr yesterday

It is interesting to note that the Agreement morpheme *i* with the object clitic *li* is not only present in the main past participle, but also in the Aspect auxiliary *bio*.
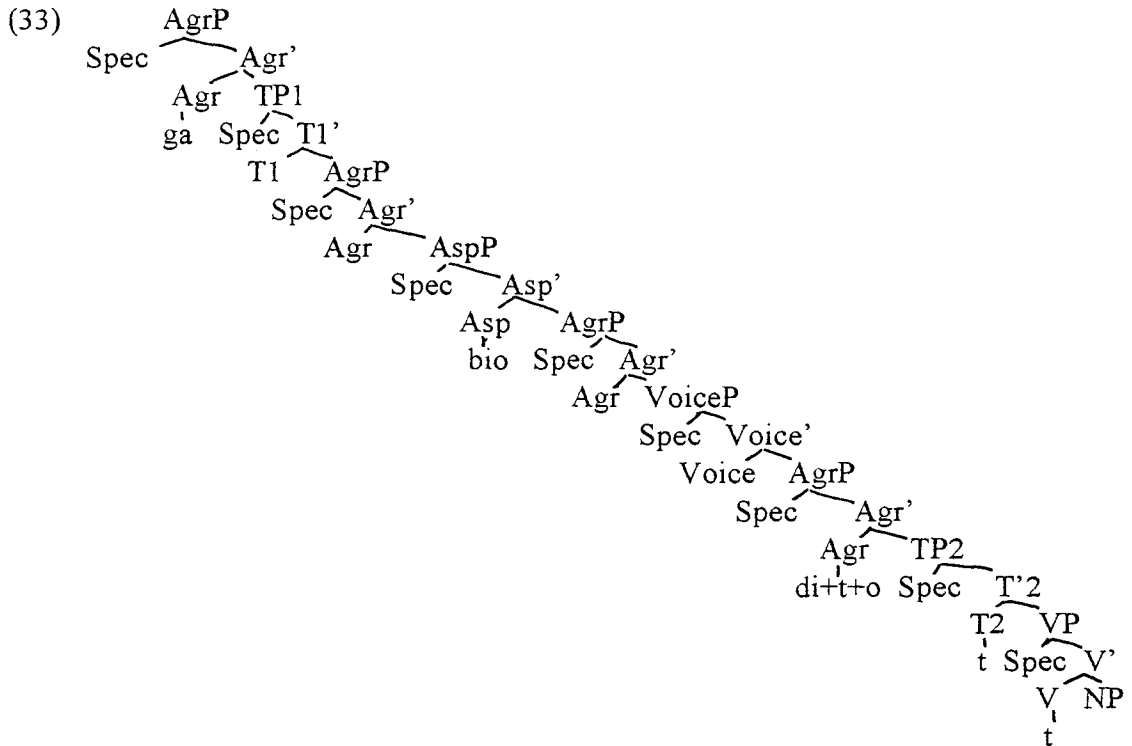
If we insert another auxiliary, such as the passive auxiliary, we obtain the following result:

(32)   O sin bud*is* stad*is* viodud*is*
        We are had+agr been+agr seen+agr

In (32) the Agreement with the object morpheme (which has been underlined in the example) is multiplied once more: it appears on the aspectual auxiliary, on the passive auxiliary and on the main past participle.

In section 2.2 we briefly discussed Kayne's proposal for treating the object Agreement phenomenon in Romance. He proposes that only when the object passes through the SpecAgrO position is it in a Spec-head configuration with the past participle and can be coindexed with it, triggering morphological Agreement. On the contrary, when the object remains in its basic position inside the VP, the Spec-head configuration is not present, and no matching between the features of the object and the past participle is possible.

Following this analysis we have to admit that for every past participle, aspectual auxiliary *bio*, passive auxiliary and main past participle there is an Agreement projection, through which the object clitic passes, triggering morphological Agreement through the Spec-head configuration. The corresponding structure would be as in (33):

(33) AgrP

```
(33)           AgrP
          Spec ╱──╲Agr'
              Agr  TP1
              ga  Spec  T1'
                      T1   AgrP
                      Spec ╱─╲Agr'
                          Agr ╱──╲AspP
                              Spec ╱─╲Asp'
                                  Asp   AgrP
                                  bio  Spec  Agr'
                                           Agr  VoiceP
                                           Spec  Voice'
                                               Voice   AgrP
                                               Spec ╱──╲Agr'
                                                   Agr   TP2
                                                  di+t+o  Spec   T'2
                                                              T2   VP
                                                              t   Spec  V'
                                                                      V   NP
                                                                      t
```

Note that a structure like (33) shows a peculiar property: for each of the four verbal roots there is an Agreement projection and Agreement projections are always the last stop of every verb movement. Once a verb meets an Agreement morpheme it does not move anymore.

At this point we can ask two basic questions. First, why is it so that every verbal head, be it a main verb or an auxiliary, must have an Agreement projection as its final morpheme?

Second, why is the Agreement with the object morpheme present only in compound tenses and not in simple tenses? In other words, why don't we find two different Agreement morphemes on the same verbal head?

This fact does not follow from our theory of Functional projections, because we would expect that the simple verb of the present tense, for instance, moves first to the object Agreement projection, taking up the object Agreement morpheme, then moves to T and finally to the Agreement of the subject. There is nothing in the theory of Functional projections or movement that prevents such a case, which is not realized (to my knowledge) in any of the Romance languages. On the contrary, if the Past Participle Agreement in Romance corresponds to the Agreement with the object of Chomsky (1991), it should be realized in simple tenses too.

The fact that not all possible morpheme combinations are realized shows that there must be some restriction on the sequence of non- lexical projections. Moreover, we expect some conditions to be universal and others to be a specific choice of some languages.

Let's now examine all the possible orders of non-lexical projections that a language like Italian presents:

(34) a   V-Functional morpheme- Agreement morpheme
     b   *V-Agreement morpheme-Functional morpheme
     c   *V
     d   *V-Functional morpheme
     e   V-Agreement morpheme
     f   *V-(Functional morpheme)-Agreement morpheme-Agreement morpheme
     g   *V-Functional morpheme-Functional morpheme-Agreement morpheme
     h   *V-Functional morpheme-Agreement morpheme-Functional morpheme-
          Agreement morpheme

(34) shows the possible combinations of verbal root, Functional morphemes and Agreement morphemes.

Note that there are only two possible combinations that can be found in Standard Italian: (34a) and (34e).

All other cases are excluded: a verbal root by itself can never appear as a complete word nor can a verbal root plus a Functional morpheme. In order to form a complete word it is necessary to incorporate an Agreement morpheme to the verbal root.

Moreover, it must be noted that no more that one Agreement is tolerated on each verb. In fact, there is no agreement with the object in simple tenses and no Agreement with the subject on past participles. On this basis we can formulate the following condition:

(35)   Agreement saturates a word

Condition (35) has already been proposed in Li (1990) and Giorgi and Pianesi (1991). It states that once an Agreement morpheme has been incorporated into the verbal root, the item represents an independent word.

The impossibility of verbal forms as (34b/f/h), is thus derived from condition (35) if we admit that once a word has been completed it is impossible to go on incorporating new items (cf. Roberts (1991) and section 2.1 for the discussion on incorporation).

Once the verbal root incorporates an Agreement morpheme, it cannot move any further by exploiting the mechanism of incorporation. This approach presupposes that the complete word can move out of an Agreement projection, but that it must substitute within a totally empty head and not move into the slot opened by a bound morpheme.

A verbal root that has already incorporated one Agreement morpheme can move only by means of adjunction or substitution, but not through selection.

On the basis of (35) it is also possible to derive the impossibility of (34c/d), because in both cases no Agreement is present, hence the verbal form does not constitute an independent word.

We can thus state that condition (35) captures an interesting fact about standard Italian verbal forms: the fact that one Agreement morpheme is always present but no more than one Agreement morpheme can be realized.

Condition (35) explains the impossibility of (34b/c/d/f/h) because in all these sequences there is more than one Agreement or no Agreement morpheme at all.

(34a/e/g) on the contrary satisfy condition (35) because in these sequences only one Agreement morpheme is realized.

Nevertheless, (34a) and (34e) are attested, while (34g) is never found in Standard Italian.

Condition (35) is clearly not a universal condition on verbal forms, but it applies only in some languages. There are languages in fact in which no Agreement morpheme is realized or languages in which it is possible to stack several Agreement morphemes onto the verbal root.

English for instance seems to have a more restrictive condition on word formation: in English not only an Agreement morpheme, but every functional morpheme (as for instance the tense *ed* morpheme, used for both T1 and T2) saturates a word. We will come back to this in the next section. Let's now turn our attention to another condition ruling the order of FPs.

3.2 CONDITIONS ON STRUCTURE FORMATION

Structure (33) presents another peculiarity which has not been discussed so far.

Looking at the distribution of non-lexical heads in (33), it seems that Functional morphemes and Agreement morphemes are ordered with respect to the verbal root: Functional morphemes always precede Agreement morphemes. Moreover, in Italian there cannot be more than one Functional morpheme on each verbal root (cf. (34g)). We can formalize this observation as follows:

> (36)   Functional morphemes and Agreement morphemes alternate in a one-to-one proportion

It is interesting to note that this restriction regarding the order in which Functional projections combine with Agreement projections can also be found in other languages. We will examine here three languages: Basque, Finnish and Polish, in which restriction (36) is active.

It has been noted by Laka (1991) for Basque, that when a verbal root has more than one Agreement morpheme, as for instance absolutive Agreement, ergative Agreement and dative Agreement, they dispose in the structure in a one-to-one proportion with respect to Functional heads. She gives the schema in (37) (Laka (1991:22)):

(37)	absolutive Agreement	verb root	dative Agreement	modal marker	ergative Agreement	tense marker

Laka notes that Agreement morphemes seem to behave as parasitic elements on Functional morphemes and proposes the structure in (38):

(38)
```
            TP
      ERG       T'
          MP       ERG+T
      DAT    M'
          IP       DAT+M
      ABS    I'
          VP       I+AUX
```

In (38) the ergative Agreement morpheme is parasitic on the Tense projection, dative Agreement clusters with the head of a Modal phrase and absolutive Agreeement is adjoined to the I head.

The successive movement of the verb from the position inside the VP to the heads of the Functional positions yields the order illustrated in (37). Basque does not show anything comparable to condition (35), which is operative in Standard Italian. In fact more than one Agreement morpheme can be realized in a unique verbal head. Nevertheless, Basque follows condition (36), because Agreement morphemes and Functional morphemes dispose in a one-to-one proportion.

Another case in which we can observe the same phenomenon is the compound past tense in Finnish (cf. Mitchell (1991)).

When there is more than one past participle in the structure, as in the negated past tense, every participial form shows an Agreement with the subject morpheme similar to that of Romance PSC:

(39)   Mina e-n ol-lut tul-lut
          I-Nom no-1sg be pst.ptc/sg come-pst.ptc/sg

In (39) both past participles (*ol-lut* and *tul-lut*) are marked with an Agreement singular morpheme. Hence also Finnish seems to obey condition (36), following which Agreement and Functional projections alternate (cf. again Mitchell (1991) for an analysis of past participles as including a Functional Aspect head). Condition (36) is active in other languages too. Polish, for instance, (and probably other languages genetically related to it) represents such a case. The form for the conditional shows that Polish does not obey condition (35), because there is more than one Agreement morpheme on the same verbal root, but Agreement morphemes and Functional morphemes alternate as predicted by (36):

(40)   Czytalbym
          (I) read+agr+mood+agr

In (40) there are two Agreement morphemes, the first *l* is a participial Agreement: it expresses the gender and number of the subject, the second, *m* is similar to the Agreement with the subject of Romance languages, because it contains a feature of first person singular. These two Agreement morphemes are separated by the mood morpheme which expresses a conditional feature.

On the basis of these three examples we could tentatively conclude that (36) is a general condition on structure formation. It seems that condition (36) captures a very general fact, namely that when Agreement and fuctional projections are activated in a language they are disposed following a precise order, which corresponds to a one-to-one alternation.

However, (36) looks like a purely descriptive generalization and does not explain the reason why inflectional projections are disposed in such a way. The general principle underlying (36) is still mysterious, but it must be something very general that also has a semantic reflection. In fact, if we consider Functional projections as the structural equivalent to predicates and agreeement projections as arguments (recall the numerous proposals that consider Agreement as

pronominal and/or anaphoric, a feature typical of NPs, hence of arguments), we obtain a one- to-one relationship between arguments and predicates, which correspond to a very general semantic principle, as proposed in Larson (1988).

If this is true, condition (36) on the alternation between Functional phrases and Agreement phrases turns out to be the syntactic correlate of a general semantic principle, and as such confirms the symmetry between the different modules of the grammar.

Let's now briefly consider how (36) is active in standard Italian and how it interacts with condition (35).

In (34) we have seen that the order corresponding to (34g), namely the order verbal root+Functional morpheme+Functional morpheme+Agreement morpheme, is never realized in standard Italian. This sequence is not excluded by (35), because in (34g) there is only one Agreement morpheme that saturates the word. The fact that when there are two Functional morphemes and one Agreement morpheme the order must be Functional morpheme+Agreement morpheme+fuctional morpheme is a consequence of (36), following which Functional and Agreement morphemes must alternate. Nevertheless, condition (35) blocks this order in standard Italian, because it states that an Agreement morpheme is always the last to be incorporated, and after it has been adjoined to the verb, the complex will constitute a complete word and no other morpheme can be incorporated. We can thus conclude that the combination between (35) and (36) in Standard Italian excludes the possibility of having more than one Functional and one Agreement morpheme on the verbal root.

3.3 ON THE DIFFERENCE BETWEEN AGRP AND FP

Let's now consider briefly the general picture which emerges from condition (35) and condition (36) repeated here in (41):

(41) a   Agreement saturates a word
     b   Functional morphemes and Agreement morphemes alternate in a one to
          one proportion

As discussed above, (41a) is a language specific condition which can be reformulated as a parameter defining word boundaries:

(42)   @ defines X° elements

In Standard Italian @ is an Agreement morphemes which is the only marker able to create an X° element.

In English on the contrary @ can be a Functional morpheme as *ed*, an Agreement morpheme as the *s* which appears on the third person singular in the simple present or even O when the bare stem is realized.

If (41a) can be the consequence of a specific parametric choice, (41b) is a general condition expressing the way in which the structure of a sentence is formed. It states that once FPs and AgrPs are activated in a given language they must be disposed in a precise order. Note that both conditions treat Agreement as different from other non-lexical heads. In (41a) Agr is the only element which is able to mark an X° element in standard Italian (while Functional

morphemes are not). Moreover, (41b) implicitely defines AgrPs and FPs as two different kinds of non-lexical projections. FPs are not lexical in the sense that their heads are not nouns, verbs etc. Nevertheless they bear some semantic content related to the predicate: Tense, Mood, Aspect.

Also C has some content of this kind as it is the place where the nature of a sentence is determined, namely if it is an assertion or a question (and in some languages a negation). AgrPs on the contrary bear only structural information: they connect a certain argument to a predicate.

One could also express this fact considering AgrPs the only true functional projections and assimilating FPs to lexical projections. I do not think that this move is correct, as FPs never constitute the lowest projection of the sentence as it is the case of lexical XPs.

If it is necessary to distinguish Mood, Tense, Aspect, C and so on from AgrPs and on the other side it is not possible to assimilate FPs to lexical projections, we are left with three types of syntactic objects, which show different properties:

a) lexical projections, which are the starting point of the "perfect projection" in Grimshaw's (1991) sense,

b) FPs, which bear some semantic content but can never start a "perfect projection"

c) AgrPs which bear only relational information between an argument and a predicate

It is possible to implement this observation in terms of [+/-V] and [+/-N] features, where V is a symbol for "predicate" and N for "argument": AgrPs are always [+N] and can be specified for [+ or -V], while FPs are always [+V] and can be specified for [+ or -N].

In this way it is possible to derive the difference between two types of Agreement, already noted in Romance by many authors: subject Agreement is [+N +V] and it bears a person feature (which is probably responsible for case marking). Object Agreement is [+N-V] and it does not bear a person feature.

Moreover, it is also possible to derive the difference between T1 and T2 whithin Giorgi and Pianesi's theory that we discussed about structure (19): T1 is [+V-N] while T2 is [+V+N].

The hypothesis that FPs are always [+V] while AgrPs are always [+N] corresponds to the observation made in the previous section about condition (41b), namely that the order between AgrPs and FPs must correspond to a very general semantic principle which can be states, following Larson (1988) as: for every predicate there is an argument. FPs are intrisecally predicates, while AgrPs are intrisecally arguments: FPs are thus endowed with the feature [+V] while AgrPs with the feature [+N].

4. CONCLUSION

On the basis of a complex structure such as the Romance PSC, we have shown that there are restrictions on the order of the Functional projections.

The conditions on structure formation which may be found by looking at the order of inflectional projections may be peculiar to one language or to a group of languages. This is the case of condition (35), which states the blocking capacity of an Agreement morpheme in Romance: after an Agreement morpheme has incorporated, the word is complete and no other morpheme can be incorporated into it. Note that the reformulation of condition (35) as a parameter (cfr. (42)) can prove a fruitful means to account for the traditional division between inflected and agglutinating languages. Further research is needed in this direction, as the value of @ in (42) is not defined by means of a bynary choice, which suggests the possible split in more than one parameter.

Conditions on sentence structure formation can also be seen as general principles.

A general restriction which can be observed in various languages is the one formalized in (36) which states the order in which Agreement and Functional projections have to be disposed in the structure. Looking at the formulation of such a condition, it seems plausible to assume that this is only a descriptive generalization and that it is not a primitive but derives from a general principle, as for instance the one proposed by Larson (1988). Moreover, the fact that sentence structure must follow such an order confirms the exceptional nature of Agreement with respect to other Functional projections. Agreement constitutes, informally speaking, a sort of "glue" which keeps sentence structure together.

We can conclude that the order of inflectional projections is not exceptional with respect to other fields of the grammar in general and of the Syntax in particular, because it is possible to find both general conditions that apply to all languages and parametrized choices which are a peculiar feature of a language.

FOOTNOTES

* I have to thank P. Beninca', G. Cinque, R. Kayne, Laura Vanelli for their helpful comments and Maria Teresa Vigolo for her precious work as informant. All errors are naturally my own.

1. The item *bio* is a specialized form of the past participle of the verb *ver* (have), which is nowadays used only in this context.

2. As Beninca' (1990) notes, when *bio* is present in main clauses, it indicates that the action is completed or very rapid and that it happened only once, as the translation of (8c) suggests.

3. The distribution of *bio* suggests that this additional auxiliary contributes to the meaning of the sentence denoting the perfect/non-perfect aspect, namely the relevance of the action with respect to the specified time frame. This Aspect feature is different from the perfective/imperfective distinction which is normally expressed by the past participle of the main verb in all Romance. The distinction between two kinds of Aspect features is not unknown in the literature.
    Finnish, for instance, (cf. Mitchell (1991)) marks the perfective/imperfective feature on the main past participle, while the perfect/non-perfect feature is coded onto the auxiliary *olla* (be), which is placed below Tense, exactly as in the Romance PSC. This may be a problem is Giorgi and Planesi's theory, as they admit that the perfect/non-perfect distinction is connected to T2 and is not aspectual.

4. The Agreement of the past participle in Romance would correspond to the Agreement with the object of Chomsky (1991), which must be present in all sentences.

5. Maybe the infinitive represents a case in which the verbal form only contains the verbal root plus a Functional morpheme and no Agreement. It depends on how the inflectional morpheme *re* and the thematic vowel, which varies depending on the class of the verb, are analyzed. Note however that in Standard Italian every words which does not have an overt Agreement morpheme ends with the word marker *e*, not only the infinitival form of the verb, but also adverbs and some nouns or adjectives. It could be possible to maintain the hypothesis that every word in Standard Italian has an Agreement marker considering the morpheme *e* as a sort of "expletive" Agr-1.

6. This incidentally shows that a verbal root is to be considered as a V-1 and not as a Vo component, as has been proposed by Guasti (1991)

7. Note that the choice of the parameter is not a bynary one which may suggest that it is derivable from some other principle.

8. Our proposal differs from Rizzi (1991) who considers AgrP and FPs as functional categories defined by the feature +F.

9. The idea that the past participle may have a nominal feature has a long tradition and has been exploited in a number of recent work in generative Syntax (see among others Baker, Johnson and Roberts (1989))

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