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Prepositional Particles and the Portuguese Personal Infinitive

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0. Introduction

In Benucci (1991) we proposed an analysis of Romance prepositional infinitival particles as base generated Specifiers of CP, arguing that they can be incorporated, in relevant cases, into the governing and selecting Verb. That analysis developed an idea originally due to Kayne (1989, fn. 26), fleshing it out and trying to motivate it theoretically; the original assumption was taken up again by Kayne (1991, 668-9), who complementarily argued for the SPEC-C status of the Prepositions introducing Infinitives in Romance languages and possibly in Dutch.

The discussion so far has mainly concentrated on Italian and French data. We would like to consider here the prepositional particles from a different point of view, analyzing their behaviour in Portuguese "Personal Infinitive" constructions, which were studied from a general point of view in Benucci/Poletto (1992). The phenomena we are to observe will confirm the assumption of Kayne's and our previous works about the position of those particles.

Crucial to the present analysis are the definitions of Government in (A), of Barrier in (B) and of Closer Governor in (C), originally proposed by Uriagerea (1991), which we assume here without further discussion:

(A) A governs B iff
   (i) A is a sister of B; or
   (ii) A governs M; there is no G, G a barrier for B, such that G excludes M; and there is no D; D a closer governor of B than A.

(B) G is a barrier for B only if G is a maximal projection with an agreeing Specifier and G dominates B.

(C) D is a closer governor of B than A iff D governs B by fewer steps [in the definition of Government] than A does.
By (B), the crucial element for a maximal projection to be a barrier is the presence of an agreeing Specifier: only full fledged functional XP’s may count as barriers.

The definition in (A) introduces a distinction between Government by the base step (i) and Government by the induction step (ii). Given the principled (as opposed to a "visual") definition of closeness of a potential governor in (C), in the absence of a (directly governing) sister an item may govern an XP and void its barrierhood (then govern inside it) by induction, from a higher position in the tree.

Finally, the notion of barrier is relativized to a particular relation between (an item in) a full fledged XP and a potential governor outside it.

1. **Infinitivo Pessoal and Prepositions**

As is well known, contemporary Portuguese has a full paradigm of personally inflected Infinitive (traditionally called *Infinitivo Pessoal*) that is currently used both as a sentential Subject in larger constructions and in complement or adverbial constructions. We will not analyse the full range of phenomena relating to personal Infinitive, for which we refer to Raposo (1987) and to Benucci/Poletto (1992), and will concentrate on the cases of infinitival sentences introduced by a P, trying to establish the syntactic position of the Preposition.

Prepositionally introduced inflected Infinitive constructions are to be found both as adverbial or circumstantial adjuncts (in absolute construction as in (1.a,b) or depending on another Preposition as in (1.c)) and as arguments (in dependence on a Verb as in (2.c), on an Adjective as in (2.a) or on a Noun as in (2.b)):

1. (1) a. Eu entrei em casa *sem* os meninos *verem*
   I entered in home without the children (to) see+infl

   b. *A* beberes assim, acabarás abafando
   At (you to) drink+infl so, (you) will-finish suffocating

   c. Eles entraram depois *de* chegarmos do escritório
   They entered after of (we to) arrive+infl from the office

2. (2) a. Eles estão ansiosos *por* votarem *a* proposta    (Raposo 81)
   They are anxious by (they to) vote+infl the proposal

   b. A estrutura é muito mais complexa em virtude *de* a mesma *ser* mais longa
   The structure is much more complex in virtue of the same (to)be+infl more long

   (Ortiz da Fonseca (s.d., 8))

   c. O meu amigo concorda *em* o Manel *vir* à feira
   The my friend agrees in the Manel (to) come+infl to the fair

As we can see, all the contexts are possible, but we will see that they have different morphosyntactic properties, corresponding to different syntactic structures.

1.1 As noticed by Rizzi (1990, I.II.7) (and by traditional grammars), the contraction of a Preposition with the Article of the following NP is mandatory in Portuguese inside a PP, while it is blocked when the articulated NP is not the Object of the Preposition but the preverbal Subject of a personal Infinitive sentence:
(3)  a. Estou contente *por o João
   (I am happy by-the João)
   b. Estou contente por o *pelo João estar melhor
   (I am happy by the João (to) be+infl better)

Analogously, the cases exemplified in (2.a) (had it an expressed nominal Subject) and (2.b) don't admit the formation of an articulated Preposition (*pelos deputados, *da mesma). Rizzi (1990) accounts for this phenomenon assuming for (3.b) a structure like (4), where "la formazione della forma sintetica pelo è bloccata dai due nodi limitanti che intervengono" (we adopt here and farther on Rizzi's simplified structure, slightly adapting it to fit recent analyses of the structure of NP, the so-called "DP Hypothesis"):

(4) ...[PPPpor [CP[DPO João] ...]] (Rizzi 81)

This account in terms of Subjacency seems then to be in favour of a [ppP CP] structure for the infinitival sentence: the Preposition here would be a "true" one, heading the PP whose complement is the infinitival CP, and perhaps Case-marking the latter (cfr. Raposo (1987)).

Yet, we must point out some cases where Rizzi's (1990) analysis is not applicable, since it is falsified by the facts. Namely, the contraction of Preposition and Article takes obligatorily place in (adverbial) infinitival constructions of the kind of (1.c), introduced by a so called "complex Preposition":

(5)  a. Antes da (*de a) chuvada estalar no pavimento, entrou pela vila [...] uma charrete  
     (Carlos de Oliveira Uma abelha na chuva 12)
     Before of-the downpour (to) rattle+infl in the soil, (there)entered by the village a barrow
b. Eu entrei depois do (*de o) meu pai chegar do escritório  
     (Ortíz da Fonseca (s.d., 71))
     I entered after of-the my father arrive from the office

The contraction may also take place when a prepositionally governing Verb occurs with an Adverb placed between the Verb and the particle, as in (6.a). This case is particularly significant, since it coexists with an uncontracted construction, as in (6.b):

(6)  a. Penso sempre no Manel ter casado com a Maria apesar dos anos de noivado com a minha irmã
b. Penso sempre em o Manel ter casado com a Maria ...
   (I think always in the Manel (to) have+infl married with the Maria in-spite of the years of engagement with the my sister

On the contrary, when no sentential Adverb appears, the only possible construction is the uncontracted one, as in (7) (cfr. 2.c)):
(7)  a. *O meu amigo concorda no Manel vir à feira  
    b. O meu amigo concorda em o Manel vir à feira  
       The my friend agrees in the Manel (to) come+infl to the fair

If Rizzi’s (1990) analysis of cases like (2.a,b) and (3) is correct (and could then carry over to (2.c) = (7)), we must infer that in cases like (5) and (6) the Subjacency principle is not violated and that only one bounding node intervenes between the Preposition and the Article: this is just the same as saying that the (one-syllable) Preposition is CP internal and the only intervening node is the DP one:

(5')  a. [PPantes [CPd(e) [DPA chuvada]...]]  
    b. [PDepois [CPd(e) [DPO meu pai]...]]

(6')  penso sempre [CP(e)m [DPO Manel]...]]

In both cases, the Preposition seems not to be a "true" one, heading a sentential PP, but, as we called it up to now, a simple particle, located somewhere in CP (and possibly performing Case functions, as we proposed in Benucci (1991), cfr. also Battye (1992)). The dilemma of its placing inside the CP projection crucially arises in this connection: does it occupy the head or the SPEC position? The answer to this question will also give an explanation to the somehow tricking distribution of P+Art contraction in Portuguese personal Infinitive constructions, which, as we have seen, is sometimes impossible, sometimes obligatory, and sometimes optional.

2. The structure of adverbial personal Infinitives

In order to formulate a minimal hypothesis about the structural position of the introducing P, a rapid survey of the phenomenology of personal Infinitive adverbial constructions and of the related structure is necessary.

2.1 Consider first circumstancial constructions as (1.b), which only admit a post-verbal Subject:

(8)  a. A continuarem os meninos assim, que faremos?  
        At (to) continue+infl the children so, what will-do (we)?
    b. *A os/as meninos continuarem assim, que faremos?

A sentence like (8) appears to be a standard case for the analysis of personal Infinitives proposed in Benucci/Polotto (1992). According to that analysis, at s-structure, the Infinitive normally occupies C, while SPEC-C can host any other element, not necessarily the Subject DP. When the Subject DP is promoted to SPEC-C, SPEC-Head Agreement holds in CP, which is turned in an A projection. Otherwise, when any other item fills the SPEC-C position, no SHAgr takes place in CP and this remains an A’ projection (cfr. Rizzi (1991)).

We also assumed that if the Subject is not promoted to SPEC-C (i.e. when it is in post-verbal position), it remains in SPEC-I, where it is assigned Case by the Infinitive under Government.

If that analysis is correct, the structure of (1.b) and (8.a) will be as in (9.a,b) respectively:
(9)  a.  [CP [ccontinuarem;1 ([Ipos meninos [it1]] [vpassim---])]]
    b.  [CP [cbeberesí] [ippro [it1] [vpassim ---]]]

We are assuming here that, even if it has no visible effect, due to the absence of the relevant context for contraction, P is CP internal and occupies the SPEC-C position. However, one could imagine the P to be CP external, heading a sentential PP with an empty SPEC-C, as in:

(10)  a.  *[PPa [CP [ccontinuarem;1 [Ipos meninos [it1]] [vpassim ---]]]]
    b.  *[PPa [CP [cbeberesí] [ippro [it1] [vpassim ---]]]]

The occurrence of circumstantial prepositional personal Infinitives in coordinated conditional structures, as in (11), shows that the correct analysis for sentences like (1.b) and (8.a) is the one indicated in (9):

(11)  A continuares assim e se nunca dormes, que farás?
      At (you to) continue+infl so and if (you) never sleep, what will-do (you)?

Assuming Benincà/Cinque’s (1991) analysis of coordination, according to which it is only possible to coordinate structures of the same projection level containing no higher empty position, and under the current assumption that se is a C intrinsically associated with a [wh-] operator in SPEC-C, which completely saturates the CP projection, we are forced to conclude that the infinitival clause in (11) is also a complete CP, with the structure shown in (11'), where the particle occupies SPEC-C, as we have assumed up to now:

(11')  [CP[CP [ccontinuarem;1 [ippro [it1]] [vpassim ---]]] e [CP[wh] [cse]
       [IP[nunca [ippro [idormes] [vP---]]]]]

The phenomenology of Clitic placement in structures like (1.b) further confirms the analysis of prepositional particles as occupiers of SPEC-C. The only possible construction of a sentence like (1.b) involving Clitics is in fact the proclitic one:

(12)  De nos encontrarmos/*encontrarmo-nos todos os dias ficamos amigos
      Of (we to) ourselves meet+infl all the days (we) became friends

Again, if Benucci/Poletto’s (1992) assumptions, namely that proclisis at CP level is only possible when the latter is an A’ projection (i.e. after all when SPEC-C is occupied by an element different from the Subject), are correct, then (12) is to be analyzed as in (12’), with the prepositional particle, which is non-argumental, occupying SPEC-C:

(12')  [CPde [cnos encontrarmos]; [ippro [it1] [vptodos os dias ---]]]
2.2 Consider next the adverbal constructions like (5) which, besides a canonical pre-verbal Subject triggering contraction with the introducing P, also admit a post-verbal placement of the Subject:

(13) a. Antes dessas pessoas telefonarem, o João bateu à porta
Before of-those people (to) telephone+infl, the João knocked at the door
b. Antes de telefonarem essas pessoas, as moças já tinham saído
Before of (to) telephone+infl those people, the girls already had left

In our analysis, (13.b) is a further instantiation of the normal construction of personal Infinitives, where the Verb occupies C, governing and Case-marking the Subject DP in SPEC-I, and is preceded by the particle in SPEC-C as in the following structure:

(14) [PPAntes [CPde [telefonarem]] [pessas pessoas [it][VP---]]]

On the contrary, construction (13.a), paralleling examples in (5), corresponds to the canonical structure with both Infinitive and Subject at IP level, where Nominative Case is assigned by Spec-Head Agreement. The particle acts here as "a Specifier of an empty C" (as in Kayne (1989, fn. 26)). The structures in (5') are then to be further specified as in:

(15) [PPAntes [CPd(e) [IP [DPessas pessoas] [itelefonarem][VP---]]]

where IP does not count as a bounding node for Subjacency, since the particle governs it by the induction step, and then does not prevent the contraction of the particle with the Subject (see §3.2 for a more detailed analysis).

The behaviour of adverbal constructions in cliticization contexts confirms the double structure we are assuming for such sentences. In fact, both constructions in (13) only admit proclisis:

(16) a. Antes dessas pessoas te verem, sai pela cozinha
Before of-those people (to) you see+infl, leave by the kitchen
b. Antes de te verem essas pessoas, sai pela cozinha
Before of (to) you see+infl those people, leave by the kitchen

Once again, according to the analysis in Benucci/Poletto (1992), which we briefly resume here, proclisis is possible in Portuguese only if it does not interfere in the Spec-Head relation of the Verb with its Subject DP. Proclisis will then be excluded when the Subject occupies the SPEC-C position and entertains a Spec-Head relation with the Verb (CP is then specified as an A projection and the Verb will excorporate from C and adjoin at C' level (à la Kayne (1991)), triggering enclisis to avoid Minimality effects on his Spec-Head relation with the Subject). On the contrary, proclisis will be found:

a. in any case at IP level (i.e. in a structure corresponding to (15), paralleling the canonical construction of all Romance languages), since this is an intrinsically Aprojection, where the Clitic cannot interfere in the Spec-Head relation (cfr. Benucci/Poletto (1992, fn. 8));
b. at CP level when this is specified as an A’ projection (i.e. in a structure corresponding to (14)), since there is no Spec-Head relation to interfere with.

In both cases the Subject is bound to fill the SPEC-I slot, allowing the particle to be in SPEC-C, as we are claiming.

A hypothetical analysis of sentences like (13.a) that considered the pre-verbal Subject to be in SPEC-C (then de to be CP external) would predict that in this case, CP being specified as an A projection, enclisis should be required to avoid Minimality effects in the Spec-Head relation. This prediction is completely falsified by the facts (cfr. (17.a)), thus showing that an analysis of (13.a) as in (17.b) is untenable and that the right one is (15):

(17) a.  *Antes dessas pessoas verem-te, sai pela cozinha
        Before of-those people (to) see+infl you, leave by the kitchen

b.  *[P[PAn[de d(e) [C[pessas pessoas][ctelefonarem][IPF: [It] ][VP---]]]]]

Consider finally the occurrence of adverbial personal Infinitive clauses in coordination with tensed ones, which is accepted by many Portuguese speakers, though not by all:

(18) Antes de te verem e que te falem, sai pela cozinha
    Before of (they to) you see+infl and that (they) to-you speak, leave by the kitchen

Under Benincà/Cinque’s (1991) analysis, (18) is to be considered as a coordination of two C’ constituents under the same CP and PP nodes, since the tensed clause is introduced by que and constitutes then a C’. The infinitival clause in coordinated constructions can then crucially correspond only to a configuration like (14), with the Infinitive in C (18’.a). In a situation like (15), the coordinate structure would in fact contain an empty position (namely the infinitival C) (18’.b):

(18’) a.  [P[PAn[de [C’[C’[cte verem]][IPpro [It] ][VP---]]] e [C’[C’[que]
                  [IPpro [It falem][VP---]]]]]]

b.  *[P[PAn[de [C’[C’[C’] [IPpro [It verem][VP---]]] e [C’[C’[que] [IPpro
                  [It falem][VP---]]]]]]]]

Once again, we are forced to conclude that the prepositional particle occupies the SPEC-C slot.

The basic assumption of our analysis, then, will be that at least in the adverbial and circumstantial construction analyzed so far the Prepositional particles are base generated in SPEC-C, much as in Kayne (1991).

3. Prepositional Infinitives and WH-movement

An interesting confirmation for this assumption and for the Incorporation analysis proposed in Benucci (1991) comes from the behaviour of prepositional constructions with regard
to WH-extraction from the infinitival sentence. In fact, if the particle were in C, the embedded SPEC-C should remain available for the WH-moved constituents to pass through.

Let us leave aside, for the time being, the adverbial constructions like (5), which we will return to at §4, where both long and short WH-movement are impossible. We can reasonably assume that the promotion of the WH-phrase is blocked in these cases by the higher PP node (the antes/depois one), and one could consider the surfacing of a WH-phrase in the embedded CP to be blocked (in the hypothesis that the particle were in C) by some version of the "doubly filled COMP Filter":

(19) a. *Donde; (é que) entrase [PPdepois [Cpdo teu pai chegar ti]] ?
    Whence is that (you) entered after of the your father (to) arrive+infl ?

b. *Entraste [PPdepois [Cpdonde; [Cpe]] [IpD teu pai chegar ti]] ?
    Entered (you) after whence of the your father (to) arrive+infl ?

We will also leave aside for a moment the absolute circumstantial constructions (1. b), (12), which also exclude WH-extraction:

(20) *Onde é que de encontrarem-se todos os dias ficaram amigos ?
    Where is that of (they to) meet+infl themselves all the days (they) became friends ?

Opacity of adjuncts to WH-extraction, in fact, has often been observed.

3.1 We will rather concentrate on prepositional completives like (6) and (7), which are easily testable as to the transparency to extraction. Their behaviour is very clear and significant: the construction with articulated Preposition (6.a) doesn’t allow any extraction from the complement sentence, while extraction is possible in (6.b) and (7.b), where the Preposition and the Article remain separated:

(21) a. *Com quem é que pensas sempre no Manel ter casado ?

b. Com quem é que pensas sempre o Manel ter casado?
   With whom is that (you) think always in the Manel (to) have+infl married ?

c. Onde é que o teu amigo concorda em o Manel vir ?
   Where is that the your friend agrees in the Manel (to) come+infl ?

We draw from this the conclusion that also in compleventive personal Infinitive constructions introduced by a Preposition, P is base generated in the SPEC-C position, whence it can contract with the (Article of the) pre-infinitival Subject DP. Its presence in this position makes the SPEC node unavailable for the WH-moved constituents to pass through, and determines thus the opacity of the prepositional complement clause.

Let us see why this should be so, given the technical framework of definitions (A)-(C) at section 0. The (simplified) structure of an ungrammatical clefted question like (21.a) is something like the following (cfr. Benucci/Polletto (1992, 5)):
In this configuration, since the head of CP1 is empty, it cannot count as a base governor for IP1; on the other hand, the base generated particle blocks the SPEC position, thus preventing the WH-phrase from landing there and from becoming a governor for IP1 by the induction step. IP1 is then a non governed full fledged functional XP and counts as a first barrier for the moved WH-phrase. The latter continues its movement up to the Specifier of CP2, which is free and can host it. But the head of CP2 is lexical and counts as a closer governor for IP2, so that the WH-phrase cannot inductively govern it. IP2 counts then as a second barrier for the WH-phrase. Two barriers are crossed and the whole sentence is ungrammatical, since both Subjacency and antecedent Government of the WH-trace are violated.

Yet, if the infinitival clause (IP1) is governed by a lexical head which is able to incorporate the Preposition (i.e. a matrix Verb, when the particle is subcategorized for and governs "in the same way" as the Verb does (in Kayne’s (1981) terms)), P is incorporated into it: the governing head becomes thus "complex" and, by Baker’s (1988, 64) Government Transparency Corollary, can govern the whole infinitival structure once governed by P.

When the Preposition moves out of the CP1 projection, it loses the possibility of contracting with the (Article of the) infinitival Subject DP and clears the Specifier of CP1 for the WH-phrase to pass through. From that SPEC position, the WH-phrase can act as an inductive governor for IP1, so that the latter does not count as a barrier and allows antecedent Government of the WH-trace.
The WH-phrase, in its way up, crosses only one barrier (IP2): no Subjacency violation occurs and the grammatical results (21.b,c) are obtained.

3.2 A brief survey of the Preposition+Article contraction at issue is now necessary, in order to understand our analysis of WH-extraction. It appears that this kind of contraction is phenomenologically and structurally different both from the Determiner Cliticization (i.e. Incorporation into a governing head) proposed for Galician by Uriagereka (1991) and from the Coalescence of Definite Article and (Functional) Preposition in Italian analyzed in Poletto/Tomaselli (1992).

First of all, both in Galician and in Italian, Cliticization of the Article is only possible from a Direct Object (and assimilated, i.e. postverbal Subjects in unaccusative, ECM and Restructuring contexts, etc.) position onto the governing item, within a Head-to-Head Movement frame, while in the case at issue we are dealing with contraction from a left-branch (the Determiner of the embedded Subject NP) onto an (argued) SPEC position.

Secondly, contraction in Portuguese differs both from Galician and Italian ones with regard to the involved items: the simplest case is represented by Italian, where one can only contract (most) one-syllable Prepositions with Definite Articles; in Galician, on the other hand, Definite Articles can cliticize onto any governing head (P, V, Q) provided that the mentioned configuration occurs. In Portuguese, on the contrary, contraction is again triggered by one-syllable Prepositions only (even if in a different inventory than in Italian), but it involves Subject Pronouns and Demonstratives, as well as Definite and Indefinite Articles. The case of Demonstratives is crucial, as in Uriagereka’s analysis they should occupy a SPEC position, inaccessible to Head Incorporation (cfr. ex. (13.a))

While it is conceivable that what looks like a unitary phenomenon is in fact but the surface convergence of different syntactic processes, we can possibly consider the P+Art contraction observed in (5) and (6.a) (as well as the P+Dem contraction in (13.a)) as a two-steps process: first a D-to-C raising of the Article/Pronoun/Demonstrative (as the most prominent head of the (agreeing) Specifier of the Infinitival IP selected by the "empty C"), second a mere phonological cliticization of the element in C to the P in SPEC-C\(^+\). The Incorporation of the Preposition into the governing head would then simply destroy the context for phonological cliticization to occur, since the two elements would be too far away from each other.

The proposed analysis raises in this connection a major technical problem: if it is true that Incorporation leaves a trace of the Incorporee in its original position, as proposed by Baker (1988), SPEC-C should not be free for WH-movement even after the Incorporation of P, and (21.b,c) should be ruled out on a par with (21.a), which of course is an undesirable result.

A possible way to deal with this\(^5\) is to consider the impossibility of WH-extraction from (6.a) (i.e. (21.a)) not simply as a mechanic consequence of the base generated Preposition occupying the SPEC-C position, as we have done up to now, but rather as a consequence of the intrinsic non-operator features of that P, then of the whole SPEC-C position.

If we analyze WH-extraction from a clause whose SPEC-C is already occupied as WH-adjunction to that SPEC-C (and final substitution into a free (matrix) SPEC-C) (see Adams (1984), Rudin (1988)), it seems plausible that this process is only possible when the embedded SPEC-C is transformationally occupied by a WH-phrase and configures then as an operator
position which can host the adjunction of an other operator, much as in the WH-island violations of Italian, first studied by Rizzi (1982, Ch. 2).

On the contrary, such an adjunction would not be possible when SPEC-C is occupied, already at D-structure, by an intrinsically non-operator item such as our prepositional particles. We will then assume that WH-extraction from a prepositional infinitival construction is barred when P remains in its basic SPEC-C position, due to the non-operator features it assigns to that position.

On the other hand, it also seems reasonable to think that when the Preposition is incorporated into the governing Verb, its trace is underspecified and not strong enough to characterize the SPEC-C as a non-operator position: the adjunction of an extracted WH-phrase is then possible, yielding (21.b,c).

3.3 As we have seen in (6) and (21.a,b), the presence of an Adverb between the governing Verb and P makes the Incorporation optional, giving rise in both cases to the expected consequences in terms of transparency of the completive and of formation of an articulated Preposition.

Besides Portuguese examples in (21), the transparency of sentential Adverbs to Incorporation phenomena is to be noticed in constructions like the following\(^6\):

\[
(22) \begin{align*}
\text{a. } & \text{Il modo in cui penso sempre di comportarmi} \\
\text{(pointed out to me by Paolo Acquaviva)} \\
\text{The way in which (I) think always of (to) behave me} \\
\text{b. } & \text{?Who did you speak briefly to ?} \\
\text{(pointed out to me by Adrian Battye)}
\end{align*}
\]

The transparency of Adverbs in the case at issue is on the other hand analogous to the one they exhibit in the contexts analyzed and recalled by Longobardi (1980, 105-6), who concludes that "neither of the four major categories ([... ] N, V, A, P) nor their projections [...] can occur [...], but some particular categories such as Adverbs [... ] never produce, in the same position, ungrammatical output [...], as if they were on a different dimension with respect to the major ones."

The transparency of matrix Adverbs, triggering facultativity of P Incorporation into the main Verb, may possibly be analyzed as a case of (optional) Adverb Incorporation, analogous to what Rivero (1992) observes in Modern Greek and Nahuatl. This hypothesis is supported by the fact that in all the cases we are analyzing, as in Rivero’s ones, the involved Adverbs are Manner and \textit{Aktionart} ones, which "should be syntactically represented as heads of complements in the VP, attached under V" (Rivero (1992, 329))\(^7\).

Rivero’s assumption is consistent with the indirect (prepositional) character of the (nominal as well as sentential) objects of Verbs like \textit{pensare} ("think"), \textit{speak}, etc.: if we assume that a single head cannot incorporate more than one item at the same time, but that in the relevant cases a choice between the most internal argument and the selected particle (as for the item to be incorporated) is available, we can possibly explain in a principled way the alternation in (6.a,b).
The proposed uniqueness of Incorporation, in fact, is only a further instantiation of the general impossibility for a single head to enter more than one relation or syntactic mechanism of the same kind at a time, which we already pointed out in Benucci/Poletto (1992, §5) and which we can formulate in even more general terms as follows:

(23) *Extended Uniqueness Condition on Licensing*

A head can license one and only one XP through one and the same syntactic mechanism.

3.4 The possibility of Incorporation is then a function, secondarily of phonological and structural adjacency between Incorporator and Incorporee (cfr. Rizzi (1982) and Hornstein/Weinberg (1981)), some categories as sentential Adverbs being somehow "transparent" (in the sense of 3.3) to this kind of operations, but chiefly of selection requirements of the incorporating head.

In particular, the Incorporation of a P into another P is impossible (cfr. Baker (1988, Ch. 7 fn. 20, cfr. also 384 and Ch. 8 fn. 4)), probably due to the incompatibility of the respective Case Assignment characteristics, which would induce a violation of the Case Frame Preservation Principle (Baker (1988, 122)). That is why the Incorporation of the prepositional particle is blocked in the case of adverbial infinitival sentences embedded in a PP, as in (5).

The traditional label of "complex Prepositions" attributed to locutions as antes/depois de is then completely improper: the two prepositional elements occupy in fact distinct positions in the structure of sentences like (5) and cannot be considered at any level as parts of one and the same complex item.

4. Prepositional particles and Parasitic Gaps

A specific argument in favour of the structure indicated in (5') comes, for that kind of adverbial constructions, from their behaviour with respect to Parasitic Gaps.

According to the standard analysis of these constructions (cfr. Chomsky (1986, §10)) the parasitic gap is in a chain with a null operator occupying the SPEC position of the adverbial CP (i.e. the CP embedded in the adverbial PP), which is in turn in "chain composition" with the real gap chain.

This accounts for the island nature of parasitic gap constructions with regard to WH-extraction: the presence of a null operator in SPEC-C makes in fact this position unavailable for an eventually extracted constituent to pass through, thus determining the ungrammaticality of a sentence like (24.b), which is derived from the (marginally) acceptable parasitic gapping construction (24.a) (see in (24.c) the contrast with a construction where the parasitic gap is "filled" by a resumptive Clitic and WH-extraction is allowed):

(24) a. (??) Questa è la ragazza alla quale ti hai consegnato il libro senza supporre che interessasse $\Omega_i$

This is the girl to whom you have given the book without (to) imagine that interested

b. *Questa è la ragazza alla quale ti hai consegnato il libro ti senza supporre cosa interessasse $\Omega_i$
c. Questa è la ragazza alla quale hai consegnato il libro; ti senza supporre cosa lei interessasse \( \Omega \)
   This is the girl to whom you have given the book without (to) imagine what *(to-her) interested

Sentences like (24 b,c) show that when the SPEC-C position is occupied by a WH-phrase the parasitic gap is not admitted, and vice versa. We would then expect an analogous behaviour if that position is occupied by other elements, like (as we are claiming) the prepositional particles.

Notice now that parasitic gap constructions are normally admitted also in Portuguese personal Infinitive adverbial constructions:

(25) a. Este é o homem que\( \_i \) entrou em casa sem os meninos verem \( \Omega \)
   This is the man that entered in home without the children (to) see+infl
b. Quem é que\( \_i \) entrou em casa sem os meninos verem \( \Omega \)?
   Who is that entered in home without the children (to) see+infl ?

Significantly, however, parasitic gap constructions as (25) are ungrammatical when the adverbial is introduced by sequences like *antes/depois de*. In sentences like (26) the presence of a resumptive Clitic is obligatory:

(26) a. Esta é a saia que\( \_i \) já ti estava estreita antes da Maria *(a) lavar \( \Omega \)
   This is the skirt that already was narrow before of-the Maria (to) *(it) wash+infl
b. O que é que\( \_i \) já ti estava estreito antes da Maria *(o) lavar \( \Omega \)??
   What is that already was narrow before of-the Maria (to) *(it) wash+infl?

This fact confirms that the particle *de* in constructions like (5) and (26) occupies the SPEC-C position\(^8\), and allows us to attribute the opacity of the adverbial (i.e. the ungrammaticality of (19 b)) not to the "doubly filled COMP" Filter, as one could initially consider, but rather to the non-availability of SPEC-C for a WH-phrase.

An analogous analysis will also hold for the particle *a* in circumstantial constructions (1 b): here the particle in SPEC-C is the first constituent of the sentence and simply lacks a governing item to incorporate into, which explains the impossibility of voiding SPEC-C and the opacity of such constructions to WH-extraction (cfr. (20)).

5. Preposition Incorporation and Clitic placement

We will now turn to the consequences of the proposed analysis on the theory of Clitic placement in Portuguese that we have summarized in §2.

As is well known, Portuguese complement Clitics always occupy the "second position" in the sentence, being proclitic to the Verb when the relevant clause is introduced by an appropriate item counting as "first element", and enclitic when such an element is lacking and the Verb itself occupies the first position (for details and analysis cfr. Salvi (1990), Benucci/Poletto (1992)).
Our analysis of clause initial prepositional particles predicts that they shall alternate triggering of enclisis and proclisis according to whether or not they occupy the "first position" of the clause, i.e. respectively whether they remain in their SPEC-C base generation position or void it due to Incorporation into an appropriate governor. This prediction is indeed borne out as is shown by the following data: Clitics precede the Verb when the particle remains in SPEC-C, thus suitably qualifying as "first element" of the clause, due to either the lack or the inadequacy w.r.t. Incorporation of the governing item, as in (27. a, b) respectively:

(27) a. De nós encontrarmos/*encontrarmo-nos todos os dias ficamos amigos
   Of (we to) ourselves meet+infl all the days (we) became friends (= 12)
   b. Falei-lhes depois de o terem/*terem-no examinado
      (I) spoke to them after of (they to) him have+infl examined

On the other hand, when the particle is Incorporated into the governing Verb, it does not count as "first element" of the clause and enclisis is found:

(28) a. O Manel concorda em falarmos-lhe/*lhe falarmos amanhã
      The Manel agrees in (we to) speak+infl to him tomorrow
   b. A noite passada sonhei com comprarmos-ºlo/*º compramos
      The night last (I) dreamt with (we to) buy+infl it

Crucially, a sentence like (6) admits both enclisis and proclisis, as is predicted by our analysis of optional particle Incorporation (see §3.3):

(29) Penso sempre em terem-na/a terem convocado sem razão
     (I) think always in (they to) have+infl summoned her without reason

Semantically full P’s as sem in (1.a), antes/depois in (5) and para in final sentences like (30), which occupy the head position of a sentential PP, are obviously to be kept distinct from the particles we analyzed here:

(30) Dei-lhes a fruta para comerem amanhã
     (I) gave them the fruits for (they to) eat+infl tomorrow

Besides the WH-extraction facts discussed in §3, the difference in the intrinsic nature and in the structural position of true Prepositions is also shown by their behaviour with regard to Clitic placement.

Sentences introduced by a semantically full P, in fact, always exhibit proclisis, thus showing that the Preposition suitably occupies the "first position" of the clause:

(31) a. Dei-lhes a fruta para a comerem/*comerem-na amanhã
     (I) gave them the fruits for (they to) it eat+infl tomorrow
b. Entrei em casa sem me verem/*verem-me
   (I) entered in home without (they to) me see+infl

Full Prepositional constructions as (31) can then be assimilated in this respect to "normal", que-introduced, embedded sentences, which also require obligatory proclisis:

(32) A Joana diz que te falou/*falou-te ontem
    The Joana says that (she) to-you spoke yesterday

Both the Complementizer and the full Preposition count in this respect as suitable occupiers of the "first position" of the relevant clause.

6. Preposition Incorporation into Nouns and Adjectives?

In Benucci (1991) we claimed that Preposition Incorporation in contemporary Romance is a relic of a formerly much more diffused and productive situation. It is not surprising then that the above pattern of Clitic placement interacting with Preposition Incorporation is found in Portuguese, whose syntax is known to be one of the most conservative among Romance languages, particularly with regard to Clitic placement, which still obeys a variation of the so-called "Tobler-Mussafia Law".

The present analysis, as well as its diachronic facet just mentioned, receives further support by the fact that the same pattern is found in mediaeval languages, where the "Tobler-Mussafia Law" was much more widespread, holding for Clitic placement throughout the whole România (see Benincà (1991), Salvi (1990)). The following examples, coming from mediaeval languages geographically as far away as Portuguese and Friulian, show in fact the same dichotomy between semantically full P’s and prepositional particles w.r.t. Clitic placement, as in (28)-(31) above:

(33) a. E non mi valha Deus nen al se eu trobo por m’en pagar
    And not me grant God nothing else if I versify for myself of this (to) gratify
    (Don Dinis Senhor, dizen-vus por meu mal 4-5)

b. E cuid’i mui’, e empero non ei de fazê-la
    And (I) think of this a lot, and power not have (I) of (to) do it
    (Pai Gomez Charinho Que mui de grad’eu querria fazer 7-8)

(34) a. Uno horo in di per vo vede per la contrato passaraj
    One hour per day for you (to) see through the borough (I) will-pass
    (Biello dumlo 85-86)

b. Vigno vus di me pregiaiat di lasami in tant ardor
    Come to-you for me pity of (to) let me in so-much ardour
    (Biello dumlo 55-56)

Notice that examples (33.b) and (34.b), where enclisis is displayed, involve in our analysis Incorporation of the particle from the Specifier of the embedded CP into the governing Noun, rather than into a Verb. This can possibly be analyzed, with Baker (1988, 299), as an Incorporation due to Case requirements: namely, the prepositional particle would be
incorporated into the governing Noun in order to licence the direct assignment of an oblique Case to the embedded clause.

This analysis would lead to the expectation that a similar phenomenon of P-to-N Incorporation occurred in a conservative Romance language as contemporary Portuguese, in sentences like (2.b), where Preposition+Article contraction does not take place. However, this expectation is not satisfied, as it is made clear by the behaviour of Clitics in such sentences: proclisis shows in fact that the Preposition occupies the "first position" of the relevant clause:

(35) Não pude falar com a Maria por causa de a terem/*terem-na chamado ao telefone
(I) not could speak with the Maria by cause of (they to) her have+infl called to the telephone

We are then led to the conclusion that also in Portuguese the Incorporation of Prepositional particles into governing heads is somehow going lost with respect to the mediaeval language (as it is probably the case for Incorporation in general as well) and is by now lexically governed and limited to Prepositionally governing main Verbs.

We can assume, along the lines of Benucci (1991), that in the case of governing Nouns, the Preposition has completely "unhooked" from them and has become the head of a newly projected independent PP. The sentential structure, accounting for both the lack of P-to-N Incorporation and the impossibility of P+Art contraction in these cases, will be very similar to the one proposed by Rizzi (1990) for an Adjectival construction like (2.a), (3.b), with both a CP and an IP nodes intervening between the PP heading Preposition and the D item:

(36) a. ...em virtude [ppde [CP [IP [Dpa mesma] ...]]] (= 2.b)
   b. ...por causa [ppde [CPa terem [IP [Dppro] ...]]] (=35)

Notice that adjectival constructions like (2.a), (3.b) also require proclisis, on a par with (2.b), (35):

(37) Estamos contentes por a terem/*terem-na votado
(We) are happy by (they to) it have+infl voted

We assume for (37) a structure like (38), which fully specifies Rizzi's (1990) proposal (see here in (4)) we already adopted in (36) for nominal constructions. As in the latter case, we take the Preposition to head an independent full projection dominating both a CP and an infinitival IP nodes:

(38) ...contentes [pppor [CP [IP [Dppro] a terem votado]]]

Both in (36) and (38) we have placed the inflected Infinitive in IP: this was made for convenience and does not mean that it is the only possibility. If we observe constructions with lexical Subjects, we can see that both the pre- and the post-verbal positions are allowed:
(39) a. Não pude falar com a Maria por causa de eles a terem/a terem eles chamado ao telefone
(I) not could speak with the Maria by cause of (they) (to) her have+infl (they) called to the telephone

b. Estamos contentes por os deputados a terem/a terem os deputados votado
(We) are happy by (the deputies) (to) it have+infl (the deputies) voted

Assuming once more Benucci/Poletto's (1992) analysis of inflected Infinitives, we consider the possibility of both SV and VS linear orders in (39) as a demonstration that the infinitival clause is indeed a CP, where the Infinitive can either raise to C or remain in I.

On the other hand, we consider the obligatory proclisis as a proof that the Subject remains in all instances in Spec-I and does not raise to Spec-C: if this were the case, enclisis would be triggered as a last resort in order to avoid minimality effects in CP, which would be specified as an A projection by the Agreement holding between the Subject and the Verb.

The impossibility of contracting the Preposition with the (Article of the) embedded (pre-verbal) Subject both in nominal and adjectival constructions shows at the same time that P is not placed within CP but is rather separated from that Subject by at least two maximal projections counting as barriers, namely CP and DP, much as in Rizzi's original account we are taking up here:

(40) a. *Não pude falar com a Maria por causa deles a terem chamado ao telefone

b. *Estamos contentes pelos deputados a terem votado

7. Conclusion

The survey of both morphological and syntactic properties of prepositional personal Infinitive constructions of Portuguese has led us to splitting this class of constructions into two structurally well distinguished subgroups, depending on the nature of the matrix governing head.

Noun/Adjective governed prepositional clauses are full PP's whose P head does not undergo Incorporation into the governing head and dominates a CP clause, thus not allowing any form of P+D contraction, which would be a Subjacency violation.

On the other hand, the analysis of Verb governed prepositional constructions confirms what we proposed in Benucci (1991), namely that Romance (Verb) prepositional particles occupy at D-structure the SPEC-C position of completive and adverbial infinitival sentences, whence they can incorporate into the governing head. If such an Incorporation takes place, particles clear their original position and allow then, if not otherwise realized by an element in C, the "deletion" of the CP projection, whose effects are visible in WH-extraction and Clitic placement characteristics of these prepositional constructions.

The remaining class of prepositional Personal Infinitive constructions, namely those that are governed by another Preposition, have been shown to have the same base-generated structure as the Verb governed ones, the difference with the latter being the impossibility of incorporating a P into another P, due to Baker's (1988) Case Frame Preservation Principle: the prepositional
particle is then bound to stay in its D-structure position, where it triggers the expected consequences in terms of P+D contraction, cliticization, etc.

FOOTNOTES

* I wish to thank all the native speakers of Portuguese that assisted me with their judgements and intuitions on examples, as well as Cristina Cibelli for her help in collecting and checking the Portuguese data. I am also grateful to Xavier Villalba, Juan Uriagereka, Cecilia Polotto, Richard Kayne, Guglielmo Cinque, Adrian Battye, Paolo Acquaviva and the audience of the GISSL 1992 Workshop for their useful remarks to preliminary versions of this paper.

1. Examples in (1.a,b) are not relevant for this property as sem never contracts with an Article and (1.a) only admits post-verbal Subjects. We will return to the latter phenomenon in §2. For (1.c) see the whole discussion beneath.

2. The contraction of Preposition and Article takes also obligatorily place in nominalized infinitival constructions:

(i) a. Ao avistarest a cidad, que foi o que sentiste?
   At the (you to) see+infl the city, what was that (you) felt?

b. O Manel e o António perceberam o que é verdadeiramente a arte ao contemplarem aquele espectáculo medonho
   The Manel and the António understood what is really the art at the (they to) gaze-at+infl that spectacle frightening

This case, however, is not relevant here, as the corresponding structure must arguably be as follows:

(i') [ppa [plo [cavistares/contemplarem [appo ...]]]]

The contraction does not occur then with the Subject, but with the Article of the nominalized sentential complement of P, thus paralleling (3.a). The intervening DP node also accounts for the opacity of such sentences to WH-extraction (cfr. §3).

3. If Raposo’s (1987) and Battye’s (1992) claims that Infinitival CP’s need to be licensed by Case-marking are correct, the analysis we are proposing here is fully compatible with their assumptions: before Incorporation the Preposition Case-marks C by Spec-Head Agreement, afterwards by Government from the incorporating head. As for the Incorporation from a SPEC-C position, see Baker (1988, 61-2, 170-1, 369).

4. A similar phenomenon involving an empty C and its Specifier position, that could also be interpreted as phonological cliticization, is to be found in Bavarian, where the 2nd person inflectional morphemes -st/-ts, which are generally realized on the Complementizer, appear on the WH-phrase when C is phonologically null (dafl-st-ts > wai-st-ts (= that+infl > how+infl), etc.). I am indebted to Cecilia Polotto for having brought to my attention this data, originally pointed out by Bayer (1985, §3).

5. We will not explore here an alternative hypothesis which, if tenable, would solve from the root the problem at issue, namely Lasnik/Saito’s (1984) suggestion (as well as Chomsky’s p.c., reported by Keyser/Roeppe (1992, 103)) that non-argument traces are deletable. Prepositional particles are in fact non-argumental items: if the traces left by their Incorporation into the governing head can be freely deleted, no problem for WH-extraction from the embedded clause in (21.b,c) and analogous examples will arise.

6. It is significant that English Preposition Stranding constructions like (22.b) have an acceptability judgement largely varying from a speaker to another, as it is shown by the ?? attributed to sentences analogous to ours by Hornstein/Weinberg (1981, 71). The crucial point is that the Adverbs in (21) and (22.a) are related to the matrix: the eventual insertion of Adverbs related to the embedded sentence between V and P blocks any Incorporation possibility, as we can see in (23) (cfr. Benucci (1991, §2.3):

(ii) *Il modo in cui penso domani di comportarmi
   The way in which (I) think tomorrow of (to) behave me

7. The same is true for the "bare-NP" Adverbs of Uriagereka (1989), which admit Incorporation of the Determiner into the Verb, as in (iii):
(iii) Con ela falamo-lo Luns da Feria
With her (we) talked-the Monday of-the Market
As Uriagereka himself points out (1989, 24), these "can be seen as quasi-argumental and governed by some projection of the Verb, or perhaps the Verb itself".

8. Notice also the proclitic position of σ in (26). An elicitic construction would in fact be ungrammatical, which confirms once again the proposed analysis, with both Infinitive and Subject at IP level (cfr. §2):

(iv) *Esta é a saia que já estava estreita antes da Maria lavá-la
This is the skirt that already was narrow before of-the Maria (to) wash it

9. We are using here examples with a null pro Subject, in order to be sure of the absolute relevance of the particle as the "first (realized) element" of the clause (cfr. Benucci/Polotto, 1992, fn. 7).

10. We mark some word orders in (28) by a percentage sign (%) to mean that some speakers of Portuguese do not fully accept those constructions. Yet, to the extent that the marked sentences are accepted, they display a clear (positive or negative) difference in grammaticality judgement with respect to the competing arrangement of word order.


12. Examples (33) and (34) involve uninflcted Infinitives, due to a mere fact of availability of relevant data, but this has no consequences for the analysis proposed so far.

13. The opacity of sentences like (2. b), (35), which could also be taken for significant in this respect, is on the contrary irrelevant, as it can be attributed to the presence of a semantically full PP and of an NP nodes dominating the infinitival clause (cfr. fn. 2):

(v) *Onde é que não pudeste falar com a Maria por causa de ela não chegar um tempo?
Where is (that) you not could speak with the Maria by cause of she not (to) arrive+infl at time?

In an Adjective governed Personal Infinitive prepositional construction there is no such problem due to the intrinsic transparency to extraction of the Small Clause headed by Adjectives and a sentence like (2. a) is in fact transparent to extraction:

(vi) O que é que eles estão ansiosos por votarem?
What is that they are anxious by (they to) vote+infl ?

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