

# The infinitival particle and phrase in Italian and English

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## Introduction

The following thesis aims to offer an analysis of infinitival phrases in English and Italian. In order to develop an analysis on this subject, I will mostly focus on the infinitival complementizer and its role within the infinitival phrase. I believe the infinitival particle to be a key element when it comes to gaining a better understanding of the infinitival phrase. Equally crucial in the following study are the contrasts that emerge between English and Italian infinitival phrases and the prepositions they use as complementizers.

The first distinction that I encountered between the two languages, is related to the compatibility that English and Italian infinitival prepositions have: in the first part of the thesis I will describe some similarities and differences between the Italian prepositions functioning as infinitival complementizers and the English *to*. For instance, I will consider which one, among Italian *di* and *a*, comes closer to the English *to* in terms of its meaning. This investigation consequently leads me to the basic question of this analysis: how much does the Italian infinitival phrase have in common with the English one? The first chapter will start out by introducing the prepositions that combine with infinitives and the structure of the infinitival phrase in Italian and English. The second chapter is dedicated to a more detailed comparison between English and Italian infinitival phrases and also introduces some specific analytical issues that I consider crucial in order to start out on an analysis of constructions such as ECM (Exceptional case marking) and Raising constructions with respect to which English and Italian differ when it comes to infinitival clauses. An example of the questions I started out with and which I regard as being of central importance to the English /Italian infinitival clause contrast, is the reason why English allows “John seems *to* be the best candidate” while Italian disallows the infinitival preposition in Raising sentences: “Gianni sembra \*(di) essere il candidato migliore” (“Gianni seems (\*of) be the best candidate”). Such contrasts are a recurring theme in the third and ultimately also the fourth chapter, in which most of the focus will be on infinitival ECM constructions, from which I believe it is possible to extract a more detailed analysis of the structural difference between English and Italian. From Chapter 2 on, I mostly base my analysis on Kayne’s (1989, 2000) proposals and Chomsky (1995, 2008). As the basis of my analysis, I

chose to adopt Kayne's concept of the infinitival phrase (IP) as "carrying" a nominal feature, which in Italian is attributed to the whole infinitival IP and which in English is confined to the infinitival phrase's VP. From Chomsky (2012), I for instance chose to adopt his labeling algorithm as the basis for analysing the structural and crucial differences between Raising and ECM constructions on the one hand and Control constructions on the other.

# Chapter 1

## Prepositions as infinitival complementizers in English and Italian

The first chapter aims to offer an initial outline and introduction to the issue related to infinitival phrases and prepositions used as complementizers in Italian and English. The first section is dedicated to a short presentation of Italian and English prepositions in noun phrases. The second section will focus on an analysis of these prepositions as complementizers: namely, I will briefly introduce the Italian *di* and *a* as infinitival complementizers and then look at some differences between the Italian infinitival complementizers and English *to*.

### 1. Prepositions as infinitival complementizers in Italian

After a brief look at Italian prepositions combining with noun phrases, I turn to prepositions combining with infinitival phrases in Italian, focusing primarily on the Italian preposition *a* ‘to’ and its grammatical roles, and the difference between *di* ‘of’ and *a*.

#### 1.1. Italian prepositions combining with noun phrases

Before approaching an analysis of prepositions within the infinitival phrase, it is useful to first look at prepositions combining with noun phrases. Here are some examples:

(1) Il vino **di** mio padre non mi è mai piaciuto.

The wine **of** my father not it is never I.liked.

‘I never liked my father’s wine’.

(2) Vado **a** Roma.

I.go **to** Rome.

‘I go to Rome’.

(3) Ho rifiutato il permesso **a** lui.

I.have refused the permission **to** him.

‘I refused to give him the permission’.

(4) Detto **da** te, non è convincente.

Said **from** you, not is convincing.

‘If you say that, it is not convincing’.

(5) Sono partito **per** il concerto.

I am left **for** the concert.

‘I have left for the concert’.

In the following sections, I will only discuss *a* and *di*, since these are the ones that combine productively with infinitives as well. Therefore, we will now take a closer look at *a* and *di* combining with noun phrases.

In (1) the preposition *di* seems to have a purely grammatical role akin to genitive case, linking the possessor and the possessum. In its role as a “linker”, *di* is rather versatile like English *of*. But, unlike *a* it is never used as a locative preposition.

The preposition *a* in (2) expresses movement towards something (Roma) and therefore represents a locative preposition. In (3) instead, *a* is in a double object construction introducing the second of the two objects (*il permesso* and *lui*) like English *to* as seen in the English translation. In this role, *a* might be viewed as a purely functional preposition, i.e. as an exponent of dative case in the same way *di* might be seen as an exponent of genitive case in (1). Thus, *a* may have double-faced nature, being a semantically loaded locative preposition in (2), but only a case-marking functional preposition in (3).

As we will see in the next sections, this double-faced nature of *a* is also seen with infinitival phrases.

## 1.2. Italian prepositions combining with infinitives

In Italian, many of the prepositions that combine with noun phrases, also introduce infinitival clauses, e.g. *di*, *a*, *da* and *per*. The following examples are representative:

(6) Ho pensato **di** partire a Dicembre.

I have thought **of** leave in December.

‘I thought to leave in December’.

(7) Ho costretto Piero a partire

I have forced Piero to leave.

‘I forced Piero to leave’.

(8) Devo andare **a** prendere mio padre.

I have go **to** pick up my father.

‘I have to pick up my father’.

(9) Angelo ha qualcosa **da** fare.

Angelo has something to do.

‘Angelo has something to do’.

(10) Oggi ho bisogno di caffè **per** continuare a studiare.

Today I have need of coffee for continue to study.

‘Today I need coffee in order to keep studying’.

The prepositions in (9)-(10) seem to be connected with some kind of modal meaning. The *da* in (9) typically occurs in Tough Movement constructions and certain infinitival relatives and add a flavour of obligation, while *per* typically introduces purposive clauses.

When considering (6) and (7) we can again observe the two different roles of some prepositions. The *di* in (6) does not seem to make any semantic contribution and is comparable in this respect to the “linking” *di* in (1). The same may be said about *a* in (7), which seems comparable to the “dative” *a* in (3), while the *a* in (8) may be similar to the directional locative *a* in (2).

In the following subsections, I will concentrate on *a* ‘to’ and *di* ‘of’.

### 1.3. The Infinitival particle *a* and its grammatical roles

In (8) the particle *a* seems to suggest the idea of movement towards something (‘andare a prendere’/ ‘go to pick up’) in an extended sense. On this assumption it is like the directional locative preposition following the infinitival verb in sentences such as:



(11) Voglio andare **a** Roma

I want to go **to** Rome

'I want to go to Rome'.

In (11) *a* behaves like a preposition implying movement towards Rome. In this regard, (8) and (11) seem to share the role of *a* as an indicator of directionality rather than being a functional case-related preposition. Thus, there may be a difference between the status of *a* in (11) and its status in (7), where it might be analysed as functional dative-marking element as in regular double object constructions:

(7) Ho costretto Piero a partire

I have forced Piero to leave.

'I forced Piero to leave'.

I should point out, though, that the contrast between (12) and (13) may throw some doubt on the assumption that the *a* preceding the infinitive in (8) is to be equated:

(12) Vado all'aeroporto a prendere mio padre.

I go to the airport to pick up my father

'I'm going to the airport to pick up my father.'

(13)? Vado a Roma all'aeroporto.

I go to Roma to the airport

I'm going to Rome to the airport.'

The much less than perfect grammaticality of (13) suggests that a sentence may not contain two independent directional locative phrases. But then the grammaticality of (12) suggests that *a prendere mio padre* 'to pick up my father' is not a directional phrase, and therefore the *a* preceding the infinitive may not be the directional locative *a* even in (12) or (8).

#### 1.4. Case patterns and the relative distribution of *di* and *a*

The following examples also suggest that *a* is never directly connected with the notion of directionality:

(14) Non mi è riuscito **di** salvarli.

Not it is I.managed **of** save them.

‘I did not manage to save them’.

(15) Non sono riuscito **a** salvarli.

Not I.am managed **to** save them.

‘I did not manage to save them’.

The verb ‘riuscire’ ‘to manage’ is formed from the verb ‘uscire’ ‘to go out’ by adding the prefix ‘ri’, and one might think that somehow *riuscire* inherits a component of directionality from the movement verb *uscire*, although the semantic relation between the two is not transparent. Then, the *a* in (15) might be seen as the directional *a* of (2):

(2) Vado **a** Roma.

I.go **to** Rome.

‘I go to Rome’.

But *riuscire* has the same meaning in (14) and (15). Yet the preposition introducing the infinitive is not *a* in (14), but *di*. This shows that the choice of preposition is not determined by the meaning of the main verb.

Rather, the choice between *di* and *a* seems to reflect a pattern similar to case marking. Like *uscire* ‘go out’, *riuscire* ‘manage’ is an unaccusative verb. In the compound past tenses, both select the auxiliary *essere* ‘be’ rather than *avere* ‘have’. With unaccusative verbs, the surface subject starts out as the direct object of the verb and moves to the subject position (Spec-IP). (15) has the derived structure in (16):

(16) [IP pro [<sub>i</sub> sono [<sub>VP</sub> riuscito <pro> [<sub>PP</sub> a [<sub>IP</sub> salvarli ]]]]]

This means that (16) is a double object construction where the direct object has raised to Spec-IP. Correspondingly, we may analyse the *a* preceding the infinitive as the dative-marking *a* that generally occurs in double object constructions.

The structure of (14) is different. Here, the verb has no direct object and correspondingly nothing raises to the subject position. In fact, (14) is an impersonal sentence, possible with a null expletive subject. The main verb is invariant third person singular, and the *mi* is a dative masked by syncretism with the accusative with 1<sup>st</sup> and 2<sup>nd</sup> person pronouns and the reflexive *si*, but not with 3<sup>rd</sup> person pronouns. The *gli* in (17) is unambiguously dative:

(17) Non gli è riuscito **di** salvarli.

Not him.Dat it.is managed **of** save them.

‘He did not manage to save them’.

This dative should be seen as a kind of experiencer argument distinct from the direct object that occurs with *riuscire* in (16). Therefore the infinitival clause may be analysed as the direct object of the main verb in (14) and (17):

(18) [IP pro<sub>expl</sub> [<sub>I</sub> mi+ è [<sub>AppIP</sub> <mi> [<sub>AppI</sub> Appl [<sub>VP</sub> riuscito [<sub>PP</sub> di [<sub>IP</sub> salvarli ]]]]]]]]]

So we can account for the choice of *di* vs. *a* in (14)-(15) by saying that *di* combines with infinitival clauses that are direct objects, while *a* is used with infinitival clauses that occur as the second object in a double object constructions. This is similar to the rules for assignment of accusative and dative case in case-marking languages.

Sentences such as the following also support the assumption of *di* and *a* reflecting an underlying case pattern:

(19) a Ho deciso **di** partire

I.have decided of leave.

‘I have decided to leave’.

b \*Ho deciso **a** partire

I.have decided to leave.

‘I have decided to leave’.

(20) a Mi sono deciso **a** partire

I.it am decided to leave.

‘I decided to leave’.

b \*Mi sono deciso **di** partire

I.it am decided of leave.

‘I decided to leave’.

Here, the reflexive ‘mi’ in (20 a and b) would be the first of two objects of ‘deciso’ and the second one would be the infinitival clause ‘partire’. Therefore, the only preposition that can introduce the infinitive is *a* (dative), which explains the ungrammaticality of (20 b). The infinitive has *di* (accusative) only when ‘deciso’ has a single object as in (19) and then *a* cannot be used. The same is seen in the following examples:

(21) a Non lo voglio costringere **a** partire

I.not it want to force to leave.

‘I don’t want to force him to leave’.

b \*Non lo voglio costringere **di** partire

I.not it want to force of leave.

‘I don’t want to force him to leave’.

(22) a Non gli permetto **di** partire

I.not him allow of leave.

‘I don’t allow him to leave’.

b \*Non gli permetto **a** partire

I.not him allow to leave.

‘I don’t allow him to leave’.

(21) a - b are like (20) a and b. Since the pronoun has the accusative form, the infinitival clause must be the second object and then only *a* is possible. In (22), however, the pronoun is a dative and therefore the direct object must be the infinitival clause. Therefore only *di* is possible.

Summing up, we might say that *a* combining with an infinitive is always like the dative-marking *a* that appears on a noun phrase occurring as the second object, while *di* would be an accusative-marking preposition with infinitives, although it never appears as such with noun phrases.

## 2. Italian vs. English

In English, infinitives generally co-occur with *to*, which is also used as a directional preposition with noun phrases and marks the second object when it follows the direct object. This suggests that *to* might be similar to the Italian *a* combining with infinitives. But the English “infinitival marker” *to* is different from the Italian *a* (and *di*) in certain ways that I discuss in the following subsections.

### 2.1. Word order

In English, *to* is not necessarily clause-initial. In particular, it can follow the negation *not*:

(23) I would prefer not to see him anymore.

In Italian, both *a* and *di* must precede the negation *non*:

(24)a Mi sono deciso a non vederlo più.

I.it am decided to not see him anymore.

‘I decided not to see him anymore’.

b \*Mi sono deciso non a vederlo più.

I.it am decided not to see him anymore.

‘I decided not to see him anymore’.

(25) a Ho deciso di non vederlo più.

I.have decided of not see him anymore.

‘I decided not to see him anymore’.

b\*Ho deciso non di vederlo più.

I.have decided not of see him anymore.

‘I decided not to see him anymore’.

While Romance languages are like Italian, some other Germanic languages pattern with English. For example, the Norwegian infinitival marker *å* can follow the negation:

(26) Jeg har besluttet ikke å se ham mer. (Norwegian)

I have decided not to see him anymore  
'I decided not to see him anymore'.

German and Dutch are even more radical. Here, the infinitival marker *zu/te* 'to' always immediately precedes the verb and therefore follows all other constituents of the infinitival clause:

(27) Ich habe beschlossen ihn nie mehr zu sehen (German)

I have decided him never more to see  
'I decided not to see him anymore'.

But Swedish and Icelandic are more like Romance. In these languages, the infinitival marker (*att* in Swedish and *að* in Icelandic) must precede the negation and everything else inside the infinitival clause (here an example from Swedish):

(28)a Jag har beslutat att inte se honom mera (Swedish)

I have decided *att* not see him anymore  
'I decided not to see him anymore'.

b \*Jag har beslutat inte att se honom mera

I have decided not *att* see him anymore.  
'I decided not to see him anymore'.

In the next subsection, we will see that this property may correlate with another property of infinitival markers.

## 2.2 Italian *di* is incompatible with Raising and ECM, but English *to* isn't

In English, infinitival clauses have *to* in Raising and ECM constructions as well as in control constructions:

(29)a I want \*(to) see her immediately (Control)

b She seems \*(to) get the point (Raising)

c We believe her \*(to) have solved our problem (ECM)

But in Italian (and other Romance languages), the infinitive is only introduced by a preposition in control structures:

(30)a Desidero \*(di) vederla subito

I.want (of) see her immediately

‘I want to see her immediately’.

b Maria sembra (\*di/a) aver capito

Maria seems (of/to) have understood

‘It seems Maria understood’.

c Chi credi (\*di/a) aver risolto il problema?

Who you.believe (of/to) have solved the problem.

‘Who do you believe has solved the problem?’

Before proceeding, I should note that Italian (and other Romance languages) only allows ECM constructions when the subject of the infinitive undergoes wh-movement, as in (30)c and the corresponding relative construction in (31):

(31) Ecco la ragazza che crediamo (\*di/a) aver risolto il problema

Here the girl that we.think (of/to) have solved to problem

‘Here is the girl who we think has solved the problem’.

(32) is ungrammatical:

(32)a\* Crediamo Maria (di/a) aver risolto il problema

We.believe Maria (of/to) have solved the problem

‘We believe Maria solved the problem’.

b\*La crediamo (di/a) aver risolto il problema

Her we.believe (of/to) have solved the problem

‘We believe she solved the problem’.

I will return to this issue in Chapter 4.

It should also be noted that the other Germanic languages where the infinitival marker can follow the negation behave like English except that they don't seem to allow ECM (even in conjunction with *wh*-movement):

(33)a Jeg ønsker \*(å) se henne umiddelbart (Norwegian)

I wish to see her immediately

'I wish to see her immediately'.

b Maria synes \*(å) forstå spørsmålet

Maria seems to understand the question

'Maria seems to understand the question'.

(34)a Ich wünsche sie sofort \*(zu) sehen (German)

I want her immediately to see

'I want to see her immediately'.

b Maria scheint die Frage \*(zu) verstehen

Maria seems the question to understand

'Maria seems to understand the question'.

But those Germanic languages that must have the infinitival marker preceding the negation, also disallow the infinitival marker in Raising and ECM constructions:

(35)a Jag önskar \*(at) se henna med det samma. (Swedish)

I wish at see her at once

'I wish to see her immediately'.

b Maria värkar (\*att) förstå frågan

Maria seems at understand the question

'Maria seems to understand the question'.

(36)a María vonast til að sjá honum (Icelandic)



Maria hopes *to* see him

‘Maria hopes to see him’.

b María virðist (\*að) elska hann

Maria seems *to* love him

‘Maria seems to love him’.

c Ég tel Maríu (\*að) vera gáfaða

I believe Maria *to* be gifted

‘I believe Maria to be gifted’.

This correlation invites the hypothesis that the infinitival marker is a complementizer (C) in those languages where it must precede the negation, and that its obligatory absence in Raising and ECM sentences may be related to the famous *\*that-trace* effect which I discuss briefly in the next subsection:

(37)a ... want [<sub>CP</sub> C [<sub>IP</sub> PRO ... (Control)

b ... seem [<sub>IP</sub> t ... /\* ... seem [<sub>CP</sub> C [<sub>IP</sub> t ... (Raising)

c ... believe [<sub>IP</sub> t --- /\* ... believe [<sub>CP</sub> C [<sub>IP</sub> t... (ECM as raising-to-object)

Notice that in any event, the impossibility of combining the infinitive with *di/a* in Raising and ECM constructions in Italian cannot be explained by saying that the matrix verb (*sembrare* ‘seem’, *credere* ‘believe’) doesn’t select a CP complement. In fact, the infinitive must be preceded by *di* in the following:

(38)a Mi sembra \*(di) aver capito.

I.it seems (of) have understood

‘It seems to me that I understood’.

b Credo \*(di) aver ragione

I.believe (of) have right

‘I believe to be right’.

These are control constructions. In (38)a, the PRO subject of the infinitive is controlled by a dative experiencer argument (*mi*) of the matrix verb as in (14) (discussed above):

(14) Non mi è riuscito **di** salvarli.

I.not it is managed **of** save them.

‘I did not manage to save them’.

In (38)b, the controller is the matrix subject.

In other words, *sembrare* ‘seem’ and *credere* ‘believe’ allow both control complements and Raising/ECM complements, but the infinitive can only be preceded by *di* in the control construction. If *di* is a complementizer and therefore must occur in C, this means that *sembrare* and *credere* can have both CP complements and IP complements, and that Raising and ECM is only possible with IP complements.

By the same reasoning, English *to* and its counterparts in Norwegian, German and Dutch must not be a complementizer.

### 2.3. The \*that-trace effect

Instead of saying that the infinitival complement must be IP rather than CP in Raising and ECM constructions, one might think that the complement is CP in all cases, but that the C must be  $\emptyset$  in Raising and ECM constructions. This would assimilate the analysis to standard accounts of the \*that-trace effect.

The \*that-trace effect is seen in finite complement clauses. In English, the complementizer *that* must be dropped when the subject of the complement clause is extracted:

(39)a I think (that) she said yes

b Who do you think (\*that) said yes?

Different ways of understanding this effect have been proposed. The different accounts generally also try to explain why no such effect is seen in Italian and a number of other languages.

The Italian counterpart of *that* cannot be left out (except in some subjunctive complements) and is fine even when the subject of the clause is extracted:

- (40) a Penso \*(che) ha detto sì  
I.think that has (she) said yes  
'I think that she said yes'.  
b Chi pensi \*(che) ha detto sì?  
Who you.think that has said yes?  
'Who do you think that said yes?'

Whether or not the subject is extracted, *che* may only disappear in certain subjunctive clauses:

- (41) a Penso (che) abbia detto sì  
I.think that has (she) said yes  
'I think that she said yes'.  
b Chi pensi (che) abbia detto sì?  
Who you.think that has said yes?  
'Who do you think that said yes?'

This difference between English and Italian has been related to the fact that Italian, but not English, is a “pro-drop language”: in Italian, subject pronouns can be left out. A common way of interpreting this is to say that Italian allows a subject pronoun to be the unpronounced *pro*. Rizzi (2007) exploits this by saying that movement from the subject position (Spec-IP) is never allowed in a finite clause, but the “subject” can move out of the clause from a lower position provided an expletive pronoun fills Spec-IP, and in Italian this expletive pronoun would be the unpronounced *pro*:

- (42) chi pensi [<sub>CP</sub> che [<sub>IP</sub> *pro* ha [<sub>VP</sub> <chi> detto sì ]]]

English is not a pro-drop language and so (39)b with *that* cannot be analysed as in (43):

(43) who do you think [<sub>CP</sub> that [<sub>IP</sub> pro [<sub>VP</sub> <who> said yes ]]]

Instead, Rizzi and Shlonsky (2007) suggests that the C-position must be filled by a special covert element (written as  $\emptyset$  in (44)) that makes it possible for Spec-IP not to be filled by anything at all:

(44) who do you think [<sub>CP</sub>  $\emptyset$  [<sub>IP</sub> I [<sub>VP</sub> <who> said yes ]]]

One might imagine extending Rizzi's account of the \*that-trace effect in English to infinitival clauses in a way that would account for the distribution of *di* in the Italian examples discussed in the preceding subsection. Suppose it is also impossible to move from the subject position Spec-IP in infinitival complements so that the subject raised in Raising and ECM constructions (seen as raising-to-object) must move from a lower position (Spec-vP) and never fills Spec-IP. Notice that in this case Spec-IP cannot be filled by expletive *pro* either, since the null subject pronoun *pro* is generally assumed to be licensed only in finite clauses. Therefore, a covert element must appear in C (instead of *di*) as in English in order to allow the infinitival Spec-IP to remain unfilled:

(45)a Maria sembra [<sub>CP</sub>  $\emptyset$  [<sub>IP</sub> I aver <Maria> capito ]] (Raising)

b chi credi [<sub>CP</sub>  $\emptyset$  [<sub>IP</sub> I aver <chi> risolto il problema ]] (ECM)

It will still have to be the case that English *to* is not a C.

## 2.4. CP vs. IP again

Saying that the infinitival complement is a CP in all three examples in (30), but C must be  $\emptyset$  in (30)a-b, is not the mainstream account of the differences between Control and Raising/ECM:

(30)a Desidero \*(di) vederla subito (Control)

I.want (of) see her immediately

'I want to see her immediately'.

b Maria sembra (\*di/a) aver capito (Raising)

Maria seems (of/to) have understood

‘It seems Maria understood’.

c Chi credi (\*di/a) aver risolto il problema? (ECM)

Who you believe (of/to) have solved the problem?

‘Who do you think has solved the problem?’

Rather, the standard view seems to be that Raising and ECM complements must be IP, while Control complements are CP as in (37):

(37)a ... want [<sub>CP</sub> C [<sub>IP</sub> PRO ... (Control)

b ... seem [<sub>IP</sub> t ... /\* ... seem [<sub>CP</sub> C [<sub>IP</sub> t ... (Raising)

c ... believe [<sub>IP</sub> t --- /\* ... believe [<sub>CP</sub> C [<sub>IP</sub> t... (ECM as raising-to-object)

According to Chomsky (1981), the complement clause in (37)a must be a CP, because otherwise the matrix verb would govern PRO, and PRO cannot be governed. Conversely, the complement clause must be IP in (37)b-c because the trace in the subject position must be governed by the matrix verb, and the presence of a CP-layer would prevent this. In more recent analyses, phasehood would be relevant: since C is a phase head, and movement cannot apply to elements remaining inside the complement of a phase head once the phase has been completed, (37)b-c couldn't be derived with a C on top of the IP. Why the control complement in (37)a must be a CP rather than just an IP, however, is a question that doesn't have an immediate answer in these terms.

For present purposes, I only note again that if these mainstream accounts are correct, *to* as well as its counterparts in Norwegian, Dutch and German cannot be a C.

### 3. English *to* is a preposition

An observation that argues against both the account in 2.3. and the ones sketched in 2.4. is that English *to* looks like a preposition just like Italian *a* and *di*. This is also true for the German *zu*, though not for the Norwegian *å*. If we take this at face value rather than appeal to accidental

homonymy, we would like the distribution of *to* to follow from a general theory of prepositions that is also capable of accounting for the distribution of Italian *a* and *di*.

Such a theory should in particular be able to account for the word order difference between *to* and *a/di* noted in subsection 2.1.: while *to* can follow the negation, *di* and *a* cannot. It must also provide a link between this fact and the contrasts mentioned in subsection 2.2.

There is a third relevant fact. In Italian, a number of prepositions other than *a* and *di* can combine with infinitives as already mentioned in section 2.1., e.g. the purposive *per* ‘for’ in (10):

(10) Oggi ho bisogno di caffè **per** continuare a studiare.

Today I have need of coffee for continue to study.

‘Today I need coffee in order to keep studying’.

Although English too can combine *for* with a noun phrase, as in (46)a, it doesn’t allow *for* to combine with an infinitive:

(46)a I need some coffee for my afternoon study session.

b\*I need some coffee for (to) continue studying.

More generally, English never allows a preposition preceding an infinitival clause, but Italian does. If prepositions only combine with nominal constituents, this suggests that while the entire infinitival clause (IP) can be nominal in Italian, English doesn’t allow this. But a subconstituent of the infinitival IP, e.g. vP or VP, may still be nominal in English – in particular the subconstituent that must directly follow *to* seen as a preposition. This is the hypothesis that will develop more fully in the following chapters.

This hypothesis will be built into an analysis that takes infinitival complementizers to be prepositions and at the same time takes phrases to combine with prepositions via movement at a fairly late stage of the derivation. That is, PPs will not be merged into the clause they appear in as preassembled constituents. This assumption will be shown to have important

consequences for the account of the facts discussed in subsection 2.2. – 2.4. in that none of the analyses in 2.3. – 2.4. is consistent with it.

### 3.1. No infinitival marker *of* in English

Before turning to the analysis just mentioned, I must point out that there is a difference between English and Italian that will remain unaccounted for. As we have seen, Italian uses both *a* ‘to’ and *di* ‘of’ with infinitives, but while English has a counterpart of *a*, i.e. *to*, as an “infinitival marker”, it has no counterpart of *di*, i.e. *of*, with these function.

I will not make any proposal as to why that is so, but would like to mention that Kayne (1997) actually proposes that *of* does occur as a complementizer-like element even in English, but only with past participles. According to him, the *a* (pronounced as schwa) in (47) is a reduced form of *of* rather than a reduced form of *have*:

(47) I shoulda done it before

The empirical basis for this claim is the contrast between (47) and (48), which mirrors the contrast between the two Norwegian sentences in (49):

(48)\*I shalla done it by the time you return

(49)a Jeg skulle (ha) gjort det før

I should (have) done it before

‘I should have done it before’.

b Jeg skal \*(ha) gjort det innen du kommer tilbake

I shall \*(have) done it by the time you return

I shall have done it by the time you return’.

As (49) shows, the auxiliary *ha* ‘have’ can be omitted in Norwegian following a modal in the past tense, but not following a modal in the present tense. Kayne argues that English is similar: In (47), the auxiliary *have* is omitted, as in Norwegian, and this allows (a reduced form of) *of*

associated with the participle projection to emerge, but in (48) *have* cannot be omitted, as in Norwegian, and *of* remains silent.

If this analysis of (47)-(48) is correct, *of*, like *di*, does combine with projections that seem verbal (but will be analysed as nominal in the following chapters), although it does not combine with infinitival clauses, unlike Italian *di*, or any subconstituent of an infinitival clause (like *to*).

#### 4. Summary

In this chapter, I have compared the prepositions introducing infinitival clauses in Italian, in particular *a* ‘to’ and *di* ‘of’, with prepositions combining with noun phrases. I have also discussed the function of these prepositions when they introduce infinitival clauses as well as the relative distribution of *a* and *di* suggesting that these two prepositions may both be case-related when they combine with infinitives.

I have also compared the distribution of *a* and *di* with the distribution of *to* noting that whereas no preposition can introduce the infinitival complement in Raising and ECM sentences in Italian, English *to* appears (obligatorily) also in Raising and ECM complements. This contrast seems related to the fact that *to* is not strictly IP-initial, while *di* and *a* are, and I have sketched ways of relating these contrasts, but have also pointed out that the standard account of the impossibility of having *a* and *di* in Raising and ECM constructions will fail to be consistent with a general analysis of infinitival complementizers which will be presented in the next chapter.



## Chapter 2

### A new analysis of prepositions

This chapter introduces Kayne's (2000) analysis of prepositions and prepositions used as infinitival complementizers. We will see that this analysis has an interesting way of accounting for the fact mentioned in Chapter 1 that the English *to* can follow the negation, but the Italian *a* and *di* cannot.

But we will also see that some of the more obvious accounts of the contrast between English *to* and Italian *di* with respect to Raising and ECM infinitives may not fit easily into Kayne's framework.

#### 1. Kayne's (2000) analysis of prepositions

Kayne's proposals regarding how prepositions and infinitival complementizers are introduced in the syntactic derivation represent a major break with the tradition. In this section, I first present the essential elements of his analysis, and then I show how his analysis accounts for the word order differences between English *to* and Italian *a* and *di*.

##### 1.1. Combinations of a preposition and a noun phrase

The standard view of combinations of a preposition and a noun phrase is that they are constituents (PP) built in a separate work space and merged into a larger structure as prefabricated units. For example, the sequence *about John* would be built up as the PP in (50) which is subsequently merged with the verb *talk* to form the VP in (51):

(50) [PP about [NP John ]]

(51) We must [VP talk [PP about [NP John ]]]

Kayne (2000) offers a dissident view which can be summarized as in (52) (adapted from Kayne's paper):

- (52) a. The NP is merged with the main verb, not with the P.  
 b. The P enters the derivation subsequent to that.  
 c. The P attracts the NP to its Spec.  
 d. The P then raises to an immediately higher head W.  
 e. (P +) W then attracts the NP to its Spec.

On this view, (51) might be derived as in (53) (traces left out):

- (53) [VP talk John ] → [VP we [VP talk John ]] → [ModP must [VP we [VP talk John ]]] →  
 [ about [ModP must [VP we [VP talk John ]]]] → [ John about [ModP must [VP we [VP talk ]]]]  
 → [WP W [ John about [ModP must [VP we [VP talk ]]]]] →  
 [WP about+W [ John [ModP must [VP we [VP talk ]]]]] →  
 [WP [ModP must [VP we [VP talk ]]]] [WPabout+W [ John]]]

Subsequent movement to Spec-IP will then bring *we* into the subject position.

In this derivation, *about* and *John* are not put together until after they have both entered the clausal structure separately. In fact, *about John* isn't even a constituent (unless traces are disregarded).

Rather than go into Kayne's motivation for proposing this analysis, I will now look at his extension of it to prepositions combining with infinitives.

## 1.2. Prepositions as infinitival complementizers

Kayne explicitly intends the analysis just introduced to apply to combinations of prepositions and infinitival clauses in Romance. Following the procedure in (52), an Italian sentence like (54) would have the derivation described in (55):

(54) Tentano di scappare  
 They.try of escape  
 ‘They try to escape’.

- (55) a. The infinitival IP is merged with the main verb, not with di.  
 b. Di enters the derivation subsequent to that.  
 c. Di attracts the infinitival IP to its Spec.  
 d. Di then raises to an immediately higher head W.  
 e. (Di +) W then attracts VP to its Spec.  
 (Kayne 2000: 290)

The steps of the derivation might be as in (56) (leaving irrelevant details):

(56)  $[_{VP} \text{tentano } [_{IP} \text{scappare}]] \rightarrow [_{VP} \text{pro } [_{VP} \text{tentano } [_{IP} \text{scappare}]]] \rightarrow$   
 $[ \text{di } [_{VP} \text{pro } [_{VP} \text{tentano } [_{IP} \text{scappare} ]]]] \rightarrow [[_{IP} \text{scappare} ] \text{di } [_{VP} \text{pro } [_{VP} \text{tentano } ]]]$   
 $\rightarrow [_{WP} \text{W } [[_{IP} \text{scappare} ] \text{di } [_{VP} \text{pro } [_{VP} \text{tentano } ]]]] \rightarrow$   
 $[_{WP} \text{di+W } [[_{IP} \text{scappare} ] [_{VP} \text{pro } [_{VP} \text{tentano } ]]]] \rightarrow$   
 $[_{WP} [_{VP} \text{pro } [_{VP} \text{tentano } ] ] [_{WP} \text{di+W } [[_{IP} \text{scappare} ]]]]$

Other derivations would also be possible in accordance with (55), but I will only worry about that when the timing of operations becomes important.

Importantly, Kayne envisages a similar derivation for the English infinitival *to*, but has only a subpart of the infinitival clause moving to Spec-*to*. A derivation of (57) is shown in (58):

(57) We try not to hurry

(58)  $[_{VP} \text{try } [_{IP} \text{not } [_{VP} \text{hurry} ]]] \rightarrow [_{VP} \text{we } [_{VP} \text{try } [_{IP} \text{not } [_{VP} \text{hurry}]]]] \rightarrow$

[ to [<sub>VP</sub> we [<sub>VP</sub> try [<sub>IP</sub> not [<sub>VP</sub> hurry]]]]] → [[<sub>VP</sub> hurry] to [<sub>VP</sub> we [<sub>VP</sub> try [<sub>IP</sub> not]]]]]  
 → [<sub>WP</sub> W [[<sub>VP</sub> hurry] to [<sub>VP</sub> we [<sub>VP</sub> try [<sub>IP</sub> not]]]]] →  
 [<sub>WP</sub> to+W [[<sub>VP</sub> hurry] [<sub>VP</sub> we [<sub>VP</sub> try [<sub>IP</sub> not]]]]] →  
 [<sub>WP</sub> [<sub>VP</sub> we [<sub>VP</sub> try [<sub>IP</sub> not]]] [<sub>WP</sub> to+W [[<sub>IP</sub> hurry]]]]

Thus, *to* can follow *not* because only the infinitival VP moves to Spec-*to*.

Notice that apart from this the English *to* and Italian *a* and *di* are assigned the same syntactic status. They are both “prepositional complementizers” in Kayne’s terms, i.e. really prepositions that combine with clauses (or subparts of clauses).

### 1.3. The importance of being nominal

The question remains why only the infinitival VP moves to Spec-*to* in English, while the whole infinitival IP moves to Spec-*a/di* in Italian. If *to* is the same type of element as *a* and *di*, this must be related to a difference between infinitival clauses in English and Italian. The following quote from Kayne’s paper points in the direction I will go:

[. . .] I will follow Raposo (1987a) in taking Romance infinitives to be nominal. More specifically, there will be an infinitival functional head (above the VP) with a nominative feature. In the terms of Chomsky (1995), the infinitive form of the verb itself will have a corresponding feature in the lexicon. Verb raising of familiar sort (to the infinitival functional head) will check this feature. Attraction of the entire infinitive phrase to Spec,*de/di* will be sensitive to the same nominal feature.

(Kayne 2000: 283)

I will assume that a preposition can only attract nominal constituents to its Spec. This is consistent with Kayne’s suggestion quoted above: The whole infinitival IP (or a constituent containing it) is nominal in Italian. Therefore, the whole infinitival IP can move to Spec-*a/di*. For English, however, I assume that only a subconstituent of the infinitival IP lower than *not* is nominal, e.g. VP or vP. This leads to derivations like (58).

It must also be the case that *a* and *di* cannot attract just the infinitival v/VP in Italian, since then *a* and *di* would still be allowed to follow the negation *non*. One way of ensuring that this cannot happen is suggested by Kayne's idea that the infinitival IP in Italian is nominalized by a functional head above the VP. This is compatible with saying that the infinitival VP (or vP) itself is never nominal in Italian. Therefore, a preposition cannot attract it.

Another possibility is to allow the infinitival VP (or vP) to be nominal in Italian as well as long as we also say that the infinitival IP is also always nominal. When the preposition is probing its c-command domain for a nominal constituent to raise to its Spec, the nominal IP will then be found before the VP contained in it, and by the usual Relativized Minimality think, it will then be the IP that is attracted.

However, in section 1.3 of Chapter 3, I'll find a reason to prefer the first of the two options.

## **2. Consequences for the analysis of Raising and ECM infinitives**

In this section, I return to the question why English *to* can combine with an infinitive in Raising and ECM constructions, but Italian *a* and *di* cannot. In particular, I show that integrating the proposals made in sections 2.3 and 2.4 in Chapter 1 into Kayne's analysis of prepositions may run up against certain problems.

### **2.1. The facts to be explained**

Recall from section 2.2. in Chapter 1 that we must try to explain the distribution of *di* across different types of infinitival complements. As seen in (59), *di* must appear with a Control infinitive, but cannot occur with a Raising or ECM infinitive.

(59)a Desidero \*(di) vederla subito  
I.want (of) see her immediately  
'I want to see her immediately'.

b Maria sembra (\*di/a) aver capito  
Maria seems (of/to) have understood  
'It seems Maria understood'.

- c Chi credi (\*di/a) aver risolto il problema?  
 Who you.believe (of/to) have solved the problem?  
 ‘Who do you believe has solved the problem?’

In sections 2.3.-2.4. of Chapter 1, I mentioned different ways of accounting for this pattern. In section 2.3., I discussed a way of assimilating it to analyses of the \*that-trace effect. The suggestion made was that the infinitival complement is a CP in all three cases in (59), but the C must be filled by a special covert morpheme in (59)b-c. On this view, the structures of the grammatical versions in (59) would look like those in (60):

- (60)a Desidero [CP di [IP PRO vederla subito] (Control)  
 b Maria sembra [CP Ø [IP I aver <Maria> capito ]] (Raising)  
 c chi credi [CP Ø [IP I aver <chi> risolto il problema ]] (ECM)

The family of analyses suggested in section 2.4. of Chapter 1 would say that the infinitival complement is a CP in (59)a, but just an IP in (59)b-c:

- (61)a ... want [CP C [IP PRO ... /\*... want [IP PRO ... (Control)  
 b ... seem [IP t ... /\* ... seem [CP C [IP t ... (Raising)  
 c ... believe [IP t --- /\* ... believe [CP C [IP t... (ECM as raising-to-object)

We also need to explain why English *to* (and German *zu*, Norwegian *å*) behaves differently. In Chapter 1, I said that one could account for this by saying that *to* is not a complementizer (C), but now we are examining the consequences of adopting an analysis positing no distinction between English *to* and Italian *a* and *di*. They are all complementizers in the same sense. Therefore, I will try to assess the possibility of accounting for the difference between *to* and *a/di* with respect to Raising and ECM only in terms of whether the proposition attracts only the infinitival VP or the whole IP.

## 2.2. Back to the proposal in section 2.3. of Chapter 1

On some accounts of the \*that-trace effect, it would be easy to adapt the proposal suggested in 2.3. of Chapter 1 to Kayne’s analysis of infinitival complementizers so as to capture the difference between *to* and *a/di* with respect to Raising and ECM. The key point would be that

the subject of the infinitive won't find itself inside a constituent directly embedded under a complementizer unless the entire infinitival clause raises to the Spec of one of the prepositions that are now equated with infinitival complementizers (and the preposition has raised to W). This is what happens in Italian because the whole infinitival IP is nominal. But it does not happen in English where only the infinitival VP is nominal. So we have the contrasting structures in (62) building in the subject of the infinitive left out in (57) and (58):

(62)a [WP [VP pro [VP tentano ]] [WPdi+W [[IP PRO scappare]]] (Italian)

b [WP [VP we [VP try [IP PRO]]] [WPto+W [[VP hurry]]] (English)

The subject of the infinitive is inside a constituent directly embedded under *di* in (62)a, but the subject of the infinitive is not inside a constituent directly embedded under *to* in (62)b, since it has been stranded by movement of the infinitival VP to Spec-*to*.

The sentences analysed in (62) are Control sentences. When we are looking at Raising and ECM sentences, the subject of the infinitive must be a trace rather than PRO. The ungrammatical Raising and ECM sentences with *di* would correspond to structures like those in (63):

(63)a [WP [VP Maria [VP sembra ]] [WPdi+W [[IP <Maria> capire]]]

b [WP [VP pro [XP <chi> [VP credi ]] [WPdi+W [[IP <chi> aver risolto il problema]]]

The corresponding structures in English would like (64)a-b:

(64)a [WP [VP Maria [VP seems [IP <Maria> ]]] [WPto+W [[VP hurry]]]

b [WP [VP we [XP who [VP believe [IP <who> ]]] [WPto+W [[VP have solved the problem]]]

Notice that I now assume that ECM really is raising to a “structural object”, an assumption that will be discussed below and specially in Chapter 4.

The contrast between English and Italian would be explainable in these terms under some early accounts of the \*that-trace effect, e.g, Chomsky & Lasnik's (1977) original \*that-trace filter.

But the account by Rizzi (2007) referred to in section 2.3. of Chapter 1 cannot be used to account for the difference between English and Italian only on the basis of the different structures in (63) and (64). On that account, an unfilled Spec-IP must be licensed by a special null element in the immediately higher C, and this requirement is not met either in (63) or in (64).

### 2.3. The proposal in 2.4. of Chapter 1

In section 2.4 of Chapter 1, I alluded to different ways of ensuring that a Control infinitive must be a CP, while a Raising or ECM complement must be an IP, as in (61):

- (61)a ... want [<sub>CP</sub> C [<sub>IP</sub> PRO ... (Control)
- b ... seem [<sub>IP</sub> t ... /\* ... seem [<sub>CP</sub> C [<sub>IP</sub> t ... (Raising)
- c ... believe [<sub>IP</sub> t --- /\* ... believe [<sub>CP</sub> C [<sub>IP</sub> t... (ECM as raising-to-object)

Transposed to Kayne's theory of prepositional complementizers, the well-formed structures in (61) come out as in (65) in Italian:

- (65)a [<sub>WP</sub> [<sub>VP</sub> pro [<sub>VP</sub> desiderano ]] [<sub>WP</sub>di+W [[<sub>IP</sub> PRO scappare]] (Control)
- b [<sub>VP</sub> Maria [<sub>VP</sub> sembra [<sub>IP</sub> <Maria> aver capito ]]] (Raising)
- c [<sub>VP</sub> pro [<sub>XP</sub> chi [<sub>VP</sub> credi [<sub>IP</sub> <chi> aver risolto il problema ]]]] (ECM)

Within the theory formulated in Chomsky (1981), these structures would count as well-formed for the same reasons as the structures in (61). In fact, (65)b-c are identical to (61)b-c, and the trace is governed by the matrix verb as required, since IP is not a barrier for government. In (65)a, the subject is not governed by the matrix verb which not only is separated from PRP by



*di*+W (now equated with C), but also fails to c-command it, but this is as it should be since PRO must not be governed.

By the same token, the structures that would correspond to the ill-formed structures in (61) remain ill-formed:

(66)a [<sub>VP</sub> pro [<sub>VP</sub> desiderano [<sub>IP</sub> PRO scappare ]]]

b [<sub>WP</sub> [<sub>VP</sub> Maria [<sub>VP</sub> sembra ] ] [<sub>WP</sub>*di*+W [[<sub>IP</sub> <Maria> aver capito]]

c [<sub>WP</sub> [<sub>VP</sub> pro [<sub>XP</sub> chi [<sub>VP</sub> credi ] ] ] [<sub>WP</sub>*di*+W [[<sub>IP</sub> <chi> aver risolto il problema]]

In (66)a, PRO is governed by the matrix verb. In (66)b-c, the trace is not governed by the matrix verb.

In English, the structures in (61) must now correspond to those in (67):

(67)a [<sub>WP</sub> [<sub>VP</sub> we [<sub>VP</sub> try [<sub>IP</sub> PRO]]] [<sub>WP</sub> *to*+W [[<sub>VP</sub> hurry]]] (Control)

b [<sub>WP</sub> [<sub>VP</sub> Maria [<sub>VP</sub> seems [<sub>IP</sub> <Maria>]]] [<sub>WP</sub> *to*+W [[<sub>VP</sub> understand]]]

c [<sub>WP</sub> [<sub>VP</sub> we [<sub>XP</sub> who [<sub>VP</sub> believe [<sub>IP</sub> <who> ] ] ] [<sub>WP</sub> *to*+W [[<sub>VP</sub> have solved the problem]]]

(67)b-c are fine, because the trace remains governed by the matrix verb, but (67)a should not be fine because PRO should not also be governed.

The theory launched in Chomsky (1981) is a “representational” theory in the sense that grammaticality is determined by constraints that apply to the final output of the syntactic computation. Recent theories originating from Chomsky (1995) instead place conditions on derivations. Thus, the second approach mentioned in 2.4. in Chapter 1 would say that raising to a subject or object position out of an infinitival complement clause is impossible when the complement clause is a CP, because C is a phase head, and therefore everything inside its complement, the IP, becomes inaccessible to syntactic operations once the CP has been completed. When we try to account for the distribution of *di* combining this view with Kayne’s theory of infinitival complementizers, timing issues arise. Equating the preposition preceding

the infinitive with the phase head C, we would want to say that the subject of an infinitive cannot be extracted from an infinitival IP after the infinitival IP has moved to Spec-*di* and *di* has raised to W. But to account for the Italian facts, we then also need to make sure that the subject of the infinitival IP cannot be raised into the matrix clause before the infinitival IP is raised to Spec-*di*. I now turn to this issue.

## 2.4. Timing issues

In the preceding subsection, I represented the English Raising and ECM structures as in (67)b-c:

(67)a [WP [vP we [VP try [IP PRO]]] [WP to+W [[VP hurry]]] (Control)

b [WP [vP Maria [VP seems [IP <Maria>]]] [WP to+W [[VP understand]]] (Raising)

c [WP [vP we [XP who [VP believe [IP <who> ]]]] [WP to+W [[VP have solved the problem]]] (ECM)

These structures would be the outcome of derivations in which the subject of the infinitival IP is raised before the infinitival VP moves to Spec-*to* and *to* moves to W (irrelevant traces left out):

(68) [vP v [VP seems [IP Maria understand]]] → [vP Maria v [VP seems [IP <Maria> understand]]]

→ [ to [vP Maria v [VP seems [IP <Maria> understand]]] →

[[VP understand] to [vP Maria v [VP seems [IP <Maria>]]]] →

[WP W [[VP understand] to [vP Maria v [VP seems [IP <Maria>]]]] →

[WP to+W [[VP understand] [vP Maria v [VP seems [IP <Maria>]]]] →

[WP [vP Maria v [VP seems [IP <Maria>]]] to+W [[VP understand]]]

(69) [vP we v [VP believe [IP who have solved the problem]]] →

[XP X [vP we v [VP believe [IP who have solved the problem]]] →

$[_{XP} \text{ who } X [_{VP} \text{ we } v [_{VP} \text{ believe } [_{IP} \langle \text{who} \rangle \text{ have solved the problem} ] ] ] ] \rightarrow$   
 $[ \text{ to } [_{XP} \text{ who } X [_{VP} \text{ we } v [_{VP} \text{ believe } [_{IP} \langle \text{who} \rangle \text{ have solved the problem} ] ] ] ] ] \rightarrow$   
 $[ [_{VP} \text{ have solved the problem} ] \text{ to } [_{XP} \text{ who } X [_{VP} \text{ we } v [_{VP} \text{ believe } [_{IP} \langle \text{who} \rangle ] ] ] ] ] \rightarrow$   
 $[_{WP} \text{ W } [ [_{VP} \text{ have solved the problem} ] \text{ to } [_{XP} \text{ who } X [_{VP} \text{ we } v [_{VP} \text{ believe } [_{IP} \langle \text{who} \rangle ] ] ] ] ] ] \rightarrow$   
 $[_{WP} \text{ to+W } [ [_{VP} \text{ have solved the problem} ] [_{XP} \text{ who } X [_{VP} \text{ we } v [_{VP} \text{ believe } [_{IP} \langle \text{who} \rangle ] ] ] ] ] ] \rightarrow$   
 $[_{WP} [_{XP} \text{ who } X [_{VP} \text{ we } v [_{VP} \text{ believe } [_{IP} \langle \text{who} \rangle ] ] ] ] \text{ to+W } [ [_{VP} \text{ have solved the problem} ] ] ]$

(68) is the derivation of the Raising structure in (67)b and (69) is the derivation of the ECM (= raising-to-object) structure (67)c.

In these derivations, the position in the matrix clause that the subject raises to, is below the point where *to* is merged. In (68)-(69), I have assumed that the subject of the infinitive raises to the matrix Spec-vP position in Raising sentences and to Spec-XP (the structural object position) in ECM sentences, and that *to* is merged after vP/XP has been completed, but there are other derivations that would share the property that Raising and ECM (as raising-to-object) occur before *to* is merged.

But it is also possible to imagine derivations where *to* is merged before Raising and ECM have a chance to apply. Those would be derivations where *to* is merged before the head attracting the subject of the infinitive in Raising and ECM sentences. (70) and (71) exemplify this for Raising and ECM respectively:

(70)  $[_{VP} v [_{VP} \text{ seems } [_{IP} \text{ Maria understand } ] ] ] \rightarrow [ \text{ to } [_{VP} v [_{VP} \text{ seems } [_{IP} \text{ Maria understand } ] ] ] ]$   
 $\rightarrow$   
 $[ [_{VP} \text{ understand} ] \text{ to } [_{VP} v [_{VP} \text{ seems } [_{IP} \text{ Maria } ] ] ] ] \rightarrow$   
 $[_{WP} \text{ W } [ [_{VP} \text{ understand} ] \text{ to } [_{VP} v [_{VP} \text{ seems } [_{IP} \text{ Maria } ] ] ] ] ] \rightarrow$   
 $[_{WP} \text{ to+W } [ [_{VP} \text{ understand} ] [_{VP} v [_{VP} \text{ seems } [_{IP} \text{ Maria } ] ] ] ] ] \rightarrow$   
 $[_{WP} [_{VP} v [_{VP} \text{ seems } [_{IP} \text{ Maria } ] ] ] \text{ to+W } [ [_{VP} \text{ understand} ] ] ] \rightarrow$   
 $[_{IP} \text{ I } [_{WP} [_{VP} v [_{VP} \text{ seems } [_{IP} \text{ Maria } ] ] ] \text{ to+W } [ [_{VP} \text{ understand} ] ] ] ] \rightarrow$   
 $[_{IP} \text{ Maria } \text{ I } [_{WP} [_{VP} v [_{VP} \text{ seems } [_{IP} \langle \text{Maria} \rangle ] ] ] \text{ to+W } [ [_{VP} \text{ understand} ] ] ] ]$

(71) [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> who have solved the problem]]] →  
 [ to [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> who have solved the problem]]]] →  
 [[<sub>VP</sub> have solved the problem] to [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> who]]]] →  
 [<sub>WP</sub> W [[<sub>VP</sub> have solved the problem] to [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> who]]]]] →  
 [<sub>WP</sub> to+W [[<sub>VP</sub> have solved the problem] [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> who]]]]] →  
 [<sub>WP</sub> [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> who]]] to+W [[<sub>VP</sub> have solved the problem]]] →  
 [<sub>XP</sub> X [<sub>WP</sub> [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> who]]] to+W [[<sub>VP</sub> have solved the problem]]]] →  
 [<sub>XP</sub> who X [<sub>WP</sub> [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> <who>]]] to+W [[<sub>VP</sub> have solved the problem]]]]

The derivations in (70)-(71) are also compatible with the idea that *to* is a phase head as long as the trace of *to* does not count as a phase head separate from W+X, which would block movement of the remnant matrix vP (complement of <*to*>) to Spec-WP. With *to*+W as the only phase head, i.e. taking the movement of *to* to W to extend the phase induced by *to*, this is unproblematic, and the subsequent raising of the infinitive's subject is equally unproblematic since it is transported to Spec-WP, the phase edge, inside the matrix vP before raising occurs. (On the other hand, there might be a problem with subextraction from a left-branch vP.)

Assuming that the preposition attracting the infinitive is merged before the head attracting the subject of the infinitive also gives the desired result for Italian, precisely because the subject of the infinitive is not transported to the phase edge inside the matrix vP in Italian. (72)-(73) illustrate this:

(72) [<sub>VP</sub> v [<sub>VP</sub> sembra [<sub>IP</sub> Maria aver capito ]]] → [ di [<sub>VP</sub> v [<sub>VP</sub> sembra [<sub>IP</sub> Maria aver capito ]]]]  
 →  
 [[<sub>IP</sub> Maria aver capito] di [<sub>VP</sub> v [<sub>VP</sub> sembra ]]] →  
 [<sub>WP</sub> W [[<sub>IP</sub> Maria aver capito] di [<sub>VP</sub> v [<sub>VP</sub> sembra ]]]] →  
 [<sub>WP</sub> di+W [[<sub>IP</sub> Maria aver capito] [<sub>VP</sub> v [<sub>VP</sub> sembra ]]]] →  
 [<sub>WP</sub> [<sub>VP</sub> v [<sub>VP</sub> sembra ]]] di+W [[<sub>IP</sub> Maria aver capito]]] →

[<sub>IP</sub> I [<sub>WP</sub> [<sub>VP</sub> v [<sub>VP</sub> sembra]] di+W [[<sub>IP</sub> Maria aver capito]]] →

[<sub>IP</sub> Maria I [<sub>WP</sub> [<sub>VP</sub> v [<sub>VP</sub> sembra ] ] di+W [[<sub>IP</sub> <Maria> aver capito]]]

(73) [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> chi aver risolto il problema]]] →

[ di [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> chi aver risolto il problema]]]] →

[[<sub>IP</sub> chi aver risolto il problema] di [<sub>VP</sub> pro v [<sub>VP</sub> credi ]]] →

[<sub>WP</sub> W [[<sub>IP</sub> chi aver risolto il problema] di [<sub>VP</sub> pro v [<sub>VP</sub> credi]]]] →

[<sub>WP</sub> di+W [[<sub>IP</sub> chi aver risolto il problema] [<sub>VP</sub> pro v [<sub>VP</sub> credi]]]] →

[<sub>WP</sub> [<sub>VP</sub> pro v [<sub>VP</sub> credi]] di+W [[<sub>IP</sub> chi aver risolto il problema]]] →

[<sub>XP</sub> X [<sub>WP</sub> [<sub>VP</sub> pro v [<sub>VP</sub> credi]] di+W [[<sub>IP</sub> chi aver risolto il problema]]]] →

[<sub>XP</sub> chi X [<sub>WP</sub> [<sub>VP</sub> pro v [<sub>VP</sub> credi]] di+W [[<sub>IP</sub> <chi> aver risolto il problema]]]]

In each of these two derivations, the last step is illicit if *di+W* is a phase head, since the subject of the infinitive is extracted from inside the complement of *di+W*. Hence, *di* cannot occur with Raising and ECM complements in Italian.

However, if *di* is merged after the head attracting the subject of the infinitive, as in (68)-(69), taking *di+W* as a phase head will not prevent *di* from occurring with Raising and ECM complements:

(74) [<sub>VP</sub> v [<sub>VP</sub> sembra [<sub>IP</sub> Maria aver capito]]] → [<sub>VP</sub> Maria v [<sub>VP</sub> sembra [<sub>IP</sub> <Maria> aver capito]]]

→ [ di [<sub>VP</sub> Maria v [<sub>VP</sub> sembra [<sub>IP</sub> <Maria> aver capito]]]] →

[[<sub>IP</sub> <Maria> aver capito] di [<sub>VP</sub> Maria v [<sub>VP</sub> sembra ]]] →

[<sub>WP</sub> W [[<sub>IP</sub> <Maria> aver capito] di [<sub>VP</sub> Maria v [<sub>VP</sub> sembra ]]]] →

[<sub>WP</sub> di+W [[<sub>IP</sub> <Maria> aver capito ] [<sub>VP</sub> Maria v [<sub>VP</sub> sembra ]]]] →

[<sub>WP</sub> [<sub>VP</sub> Maria v [<sub>VP</sub> sembra]] di+W [[<sub>IP</sub> <Maria> aver capito]]]

(75) [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> chi aver risolto il problema]]] →  
 [<sub>XP</sub> X [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> chi aver risolto il problema]]]] →  
 [<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> <chi> aver risolto il problema]]]] →  
 [ di [<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> <chi> aver risolto il problema]]]]] →  
 [[<sub>IP</sub> <chi> aver risolto il problema] di [<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi ]]]] →  
 [<sub>WP</sub> W [[<sub>IP</sub> <chi> aver risolto il problema] di [<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi ]]]]] →  
 [<sub>WP</sub> di+W [[<sub>IP</sub> <chi> aver risolto il problema] [<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi ]]]]] →  
 [<sub>WP</sub> [<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi ]]] di+W [[<sub>IP</sub> <chi> aver risolto il problema]]]

This is obviously because at the point where the subject of the infinitive moves, the infinitival IP is not yet inside the complement of the phase head *di+W*. So the timing of operations is crucial for Italian though not for English.

It is not easy to determine on the basis of independent empirical evidence whether *di* is merged before or after the head that attracts the subject of the infinitive in Raising and ECM sentences, but the derivations given by Kayne at least suggest that he considers the preposition that combines with the infinitive to be introduced quite late, and it seems plausible that the position the subject of the infinitive is raised to, is quite low. For example, if we analyse ECM as raising to a structural object position in the matrix clause, the structural object position must be below the head Agr inducing past participle agreement, since otherwise the raised subject of the infinitive would incorrectly be expected to always trigger past participle agreement the same way as the object of a passivized transitive verb under Kayne's (1989) account of past participle agreement in Romance, and Kayne takes this Agr head to be very low.

On the other hand, if ECM is construed as not involving movement, but really “exceptional case-marking” of the infinitive's subject by the matrix verb, as in Chomsky (1981), invoking phasehood of *di* provides no account of the failure of *di* to occur in ECM construction regardless of when *di* merges. Both in (73) and (75), the matrix verb *credi* ‘believe’ will be able to probe and case-mark *chi* at the first stage of the derivation.

In Chapter 4, I will suggest an analysis that does not depend on phasehood and is consistent with raising to subject/object occurring before *di* is merged.

## 2.5. ECM and wh-movement in Italian

Before I end this chapter, I also want to point out a further consequence of adopting the analysis introduced in section 1. I have remarked in Chapter 1 that Italian only allows ECM if the subject of an infinitive is a wh-phrase and also undergoes wh-movement:

(76)a Chi credi (\*di/a) aver risolto il problema?

Who you.believe (of/to) have solved the problem?

‘Who do you believe has solved the problem?’

b Ecco la ragazza che crediamo (\*di/a) aver risolto il problema

Here the girl that we.believe (of/to) have solved the problem

‘Here is the girl who we believe has solved the problem’.

(77) \* Crediamo Maria (di/a) aver risolto il problema

We.believe Maria (of/to) have solved the problem

We believe that Maria solved the problem’.

In an earlier paper, Kayne (1989), Kayne attempts to explain this in the context of the theory proposed in Chomsky (1981). The basic idea is that the Italian counterparts of English ECM verbs select a CP complement rather than an IP complement. So (77) must have the structure in (78) with  $C = \emptyset$ :

(78) crediamo [<sub>CP</sub> C [<sub>IP</sub> Maria aver risolto il problema ]]

Kayne also assumes that ECM involves case-marking by the matrix verb rather than movement of the subject of the infinitive and points out that on Chomsky’s (1981) theory the matrix verb cannot assign case across both CP and IP, although it could assign case across CP alone. This

rules out (78). But if the subject of the infinitive is a *wh*-phrase, as in (76), it moves to the embedded Spec-CP before it moves to the matrix Spec-CP, and at this intermediate stage, the matrix verb can access the subject of the infinitive and assign case to it:

(79) crediamo [<sub>CP</sub> chi C [<sub>IP</sub> <chi> aver risolto il problema ]]

But this account is incompatible with the idea in Kayne (2000) that all complementizers are introduced the way the infinitival complementizers are under the analysis presented in section 1. This is because the C in (78) – (79) would only appear in the derivation after the matrix verb has already assigned case to the subject of the infinitive as pointed out at the end of the preceding subsection.

I will return to the issues regarding the interaction between *wh*-movement and ECM in Chapter 4.

### 3. Summary

I began this chapter by introducing Kayne's (2000) analysis of prepositions as infinitival complementizers and showed how this analysis accounts for the fact that the English *to* can follow the negation, while Italian *a/di* cannot. Then, I examined ways in which this analysis could accommodate different accounts of why *di* cannot appear in Raising and ECM sentences, while the English *to* can.

The main issue, I think, is the timing issue that came up at the end.



## Chapter 3

### Raising and ECM again

I now return to the differences between English and Italian first mentioned in Chapter 1 concentrating on the fact that while English allows (and requires) *to* with ECM and Raising infinitives, Italian cannot have any preposition preceding an ECM or Raising infinitive. In Chapter 2, I introduced Kayne's (2000) analysis of preposition used as infinitival complements and showed how this analysis allowed one to account for the fact that the negation can precede *to* in English, but neither *a* nor *di* can be preceded by the negation in Italian. However, I also found that some of possible accounts of the contrast between English and Italian with respect to ECM and Raising might not be easy to integrate into an analysis based on Kayne's (2000) proposal. In this chapter, I propose a different way of looking at the issue based on the assumption that *a* and *di* only occur when the infinitival IP is nominal, while English *to* occurs when the infinitival VP is nominal.

#### 1. Another look at Raising and ECM in Italian

I'll start by reminding the reader of what is at issue. Then, I'll argue that the failure of *di* to appear in Raising and ECM constructions in Italian is an effect of Relativized Minimality, and look at some of the consequences of this view.

##### 1.1. What we have found out so far

In the previous chapter (section 2.3), I discussed two different accounts of why *di* cannot appear in Raising and ECM complements in Italian, although it occurs (obligatorily) with Control complements. The first proposal was based on the theory given by Chomsky (1981) according to which the presence of *di* viewed as an equivalent of Chomsky's C prevents the matrix verb from governing the subject of the infinitival IP in (80):

- (80)a [WP [vP pro [VP desiderano ]] [wpdi+W [[IP PRO scappare]]]
- b [WP [vP Maria [VP sembra ]] [wpdi+W [[IP <Maria> aver capito]]]
- c [WP [vP pro [XP chi [VP credi ]] [wpdi+W [[IP <chi> aver risolto il problema]]]

Since a trace must be governed by the matrix verb, and PRO must not, (80)a is fine, but (80)b-c are ruled out.

The second proposal, which is more in line with current thinking, was based on the notion that *di* (= C) is a phase head. As we saw in Chapter 2, this prevents *di* from occurring in Raising and ECM sentences, provided *di* is merged before the head attracting the subject of the infinitival IP as in the following derivations:

- (81) [vP v [VP sembra [IP Maria aver capito ]]] → [ di [vP v [VP sembra [IP Maria aver capito ]]] ]
- 
- [[IP Maria aver capito] di [vP v [VP sembra ]]] →
- [WP W [[IP Maria aver capito] di [vP v [VP sembra ]]]] →
- [WP di+W [[IP Maria aver capito] [vP v [VP sembra ]]]] →
- [WP [vP v [VP sembra ]]] di+W [[IP Maria aver capito]] →
- [IP I [WP [vP v [VP sembra]] di+W [[IP Maria aver capito]]] →
- [IP Maria I [WP [vP v [VP sembra ]]] di+W [[IP <Maria> aver capito]]]

- (82) [vP pro v [VP credi [IP chi aver risolto il problema]]] →
- [ di [vP pro v [VP credi [IP chi aver risolto il problema]]]] →
- [[IP chi aver risolto il problema] di [vP pro v [VP credi ]]] →
- [WP W [[IP chi aver risolto il problema] di [vP pro v [VP credi]]]] →
- [WP di+W [[IP chi aver risolto il problema] [vP pro v [VP credi]]]] →
- [WP [vP pro v [VP credi]] di+W [[IP chi aver risolto il problema]]] →

[<sub>XP</sub> X [<sub>WP</sub> [<sub>VP</sub> pro v [<sub>VP</sub> credi]] di+W [[<sub>IP</sub> chi aver risolto il problema]]]] →

[<sub>XP</sub> chi X [<sub>WP</sub> [<sub>VP</sub> pro v [<sub>VP</sub> credi]] di+W [[<sub>IP</sub> <chi> aver risolto il problema]]]]

In these derivations, the last step is illicit, because the subject of the infinitive is extracted from the complement of the phase head *di+W*.

I have also briefly discussed whether there is independent evidence for or against the order of Merge assumed in (81)-(82) and found that although the evidence available is certainly not decisive, there may be reasons to believe that the heads attracting the subject of the infinitive are merged before *di* and we also saw that if ECM is construed as not involving raising of the embedded subject, there is no account of the failure of *di* to appear in ECM constructions in the context of Kayne's (2000) analysis of infinitival complementizers. I therefore turn to a different proposal more tightly linked to Kayne's assumptions via a prelude in the following subsection.

## 1.2. Relativized Minimality

The notion of Relativized Minimality was introduced by Rizzi (1990), who partitions the structural positions into three types: head positions, A-positions (argument positions) and A-bar positions (neither heads nor A-positions). On this basis, he formulates a constraint which can be stated as in (83) (where X ranges over head, A-position and A-bar position):

(83) A constituent in a position  $\alpha$  cannot move to an X-position  $\beta$ , if there is an X-position  $\gamma$  that c-commands  $\alpha$  and is c-commanded by  $\beta$ .

The essence of this is that a constituent can only move to the nearest position of the relevant type.

In more recent work, movement is triggered by a head that searches for a constituent of a certain kind in its c-command domain ("probing"). In this perspective, the  $\beta$  in (83) would be either the triggering head or the Spec position associated with it, and  $\alpha$  and  $\gamma$  are two constituents that the type  $\beta$  is looking for. Relativized Minimality then amounts to saying that when a head probes its c-command domain for a constituent of certain type, it must pick the first one it finds.

It has also been common to relativize in terms of features rather than in terms of the distinction between head positions, A-positions and A-bar positions. Consider the so-called Superiority effect illustrated in (84):

(84)a Who said what?

b\*What did who say?

The structure prior to wh-movement would look like (85) where C is an interrogative C:

(85) [<sub>CP</sub> C [<sub>IP</sub> who [<sub>VP</sub> said what ]]]

The interrogative C looks for a wh-phrase and makes it move to Spec-CP, and the contrast in (84) tells us that it must pick the first it finds, (In (85), *who* asymmetrically c-commands *what*.) But this doesn't follow from (83), since Spec-CP is an A-bar position, but Spec-IP isn't. It does follow, however, if we adopt (86):

(86) If  $\alpha$  is a head probing for a constituent with a feature F, both  $\beta$  and  $\gamma$  are c-commanded by  $\alpha$  and have the feature F, but  $\beta$  asymmetrically c-commands  $\gamma$ ,  $\alpha$  only probes and attracts  $\beta$ .

This is just a way of stating the intuition that a probing head must pick the nearest constituent with the right feature.

For what follows, it is important to point out that this intuition also tells us that if  $\beta$  contains  $\gamma$ ,  $\beta$  is closer to the probing  $\alpha$  than  $\gamma$  is. In (87), the path from  $\alpha$  to  $\beta$  measured in nodes traversed is shorter than the path from  $\alpha$  to  $\gamma$ :

(87) [ $\alpha$  ... [ $\beta$  ...  $\gamma$  ...

Therefore, if  $\alpha$  is looking for a constituent with the feature F, and  $\beta$  and  $\gamma$  both have this feature,  $\alpha$  should probe and attract  $\beta$  and not  $\gamma$ . Accordingly, we may replace (86) with (88):

(88) If  $\alpha$  is a head probing for a constituent with a feature F, both  $\beta$  and  $\gamma$  are c-commanded by  $\alpha$  and have the feature F, but  $\beta$  asymmetrically c-commands  $\gamma$  or contains  $\gamma$ ,  $\alpha$  only probes and attracts  $\beta$ .

### 1.3. Relativized Minimality and the categorial status of the infinitival IP

As mentioned in Chapter 1, Kayne (2000) links the need for the infinitival IP to combine with *a/di* in Italian to the nominal character of the whole infinitival IP in this language. Again, I will reproduce the relevant quote here:

[. . .] I will follow Raposo (1987a) in taking Romance infinitives to be nominal. More specifically, there will be an infinitival functional head (above the VP) with a nominative feature. In the terms of Chomsky (1995), the infinitive form of the verb itself will have a corresponding feature in the lexicon. Verb raising of familiar sort (to the infinitival functional head) will check this feature. Attraction of the entire infinitive phrase to Spec,*de/di* will be sensitive to the same nominal feature.

(Kayne 2000: 283)

With this in mind, we can now try to explain the impossibility of having *di* in Raising and ECM structures by applying the constraint in (88).

Suppose, as I have suggested, that *di* is really introduced into the derivation later than the head attracting the subject of the infinitive in Raising and ECM constructions. Then, the subject of the infinitival IP is raised into the matrix clause at a point where the infinitival IP is still the complement of the matrix verb:

(89) [<sub>VP</sub> v [<sub>VP</sub> sembra [<sub>IP</sub> Maria aver capito]]] → [<sub>VP</sub> Maria v [<sub>VP</sub> sembra [<sub>IP</sub> <Maria> aver capito]]]

→ [ di [<sub>VP</sub> Maria v [<sub>VP</sub> sembra [<sub>IP</sub> <Maria> aver capito]]]] →

[[<sub>IP</sub> <Maria> aver capito] di [<sub>VP</sub> Maria v [<sub>VP</sub> sembra ]]]] →

[<sub>WP</sub> W [[<sub>IP</sub> <Maria> aver capito] di [<sub>VP</sub> Maria v [<sub>VP</sub> sembra ]]]]] →

[<sub>WP</sub> di+W [[<sub>IP</sub> <Maria> aver capito ] [<sub>VP</sub> Maria v [<sub>VP</sub> sembra ]]]]] →

[<sub>WP</sub> [<sub>VP</sub> Maria v [<sub>VP</sub> sembra]]] di+W [[<sub>IP</sub> <Maria> aver capito]]

(90) [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> chi aver risolto il problema]]] →

[<sub>XP</sub> X [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> chi aver risolto il problema]]]] →

[<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> <chi> aver risolto il problema]]]] →

[ di [<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> <chi> aver risolto il problema]]]]] →

[[<sub>IP</sub> <chi> aver risolto il problema] di [<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi ]]]] →

[<sub>WP</sub> W [[<sub>IP</sub> <chi> aver risolto il problema] di [<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi ]]]]] →

[<sub>WP</sub> di+W [[<sub>IP</sub> <chi> aver risolto il problema] [<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi ]]]]] →

[<sub>WP</sub> [<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi ]]] di+W [[<sub>IP</sub> <chi> aver risolto il problema]]]

Hence, it is immaterial whether or not *di+W* is a phase head.

However, I take it that the probing head attracting the subject of the infinitive simply looks for something nominal, e.g. something associated with the categorial feature N. Then, the assumption that the whole infinitival IP is nominal in Italian comes to play a crucial role. The relevant step of the derivation is given in (91) for Raising and in (92) for ECM:

(91) [<sub>VP</sub> v [<sub>VP</sub> sembra [<sub>INP</sub> Maria aver capito]]] → [<sub>VP</sub> Maria v [<sub>VP</sub> sembra [<sub>INP</sub> <Maria> aver capito]]]

(92) [<sub>XP</sub> X [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>INP</sub> chi aver risolto il problema]]]] →

[<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> <chi> aver risolto il problema]]]] →

To highlight the assumption that the infinitival IP is nominal in Italian, I have annotated the label IP with N.

Clearly the step of the derivation shown in (91)-(92) violates (88):

(88) If  $\alpha$  is a head probing for a constituent with a feature F, both  $\beta$  and  $\gamma$  are c-commanded by  $\alpha$  and have the feature F, but  $\beta$  asymmetrically c-commands  $\gamma$  or contains  $\gamma$ ,  $\alpha$  only probes and attracts  $\beta$ .

Obviously, we must now also say that the *di*-less infinitival IP appearing in grammatical Raising and ECM constructions is not nominal – a point I will return to in Chapter 4. The derivations in (93)-(94) are then legitimate:

(93) [<sub>VP</sub> v [<sub>VP</sub> sembra [<sub>IP</sub> Maria aver capito]]] → [<sub>VP</sub> Maria v [<sub>VP</sub> sembra [<sub>IP</sub> <Maria> aver capito]]]

(94) [<sub>XP</sub> X [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> chi aver risolto il problema]]]] →

[<sub>XP</sub> chi X [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>IP</sub> <chi> aver risolto il problema]]]]

Here, I have removed the annotation N on the IP label to indicate that the infinitival IP is not nominal in this case.

We now have a way of explaining why *di* cannot appear in Raising and ECM constructions, if *di* only appears when the infinitival IP is nominal, as suggested by Kayne (2000), and this explanation is independent of the order in which *di* and the heads attracting the subject of the infinitive merge. It is also compatible with the fact that *di* appears in Control constructions. In these, the infinitival IP is allowed to be nominal because the subject is not extracted from it by a head probing for nominal constituents. Therefore, a sentence like (95) can be derived as in (96):

(95) Maria crede di aver ragione

Maria believes of have right

‘Maria believes to be right’.

(96) [<sub>VP</sub> Maria v [<sub>VP</sub> crede [<sub>INP</sub> PRO aver ragione]]] →

[ di [<sub>VP</sub> Maria v [<sub>VP</sub> crede [<sub>INP</sub> PRO aver ragione]]]] →

[[<sub>INP</sub> PRO aver ragione] di [<sub>VP</sub> Maria v [<sub>VP</sub> crede ]]] →

[<sub>WP</sub> W [[<sub>INP</sub> PRO aver ragione] di [<sub>VP</sub> Maria v [<sub>VP</sub> crede ]]]] →

[<sub>WP</sub> di+W [[<sub>INP</sub> PRO aver ragione] [<sub>VP</sub> Maria v [<sub>VP</sub> crede ]]]] →

[<sub>WP</sub> [<sub>VP</sub> Maria v [<sub>VP</sub> crede ]]] di+W [[<sub>INP</sub> PRO aver ragione]]

I should also point out that the analysis proposed here also works if ECM involves case-marking by the matrix verb rather than movement of the subject of the infinitival IP. In the first line of the derivation in (92), X (or the matrix v/V) would still probe its c-command domain for a nominal constituent, except it wouldn’t also force it to raise. But since the infinitival IP is nominal, and probing its subject to the constraint in (88), probing won’t reach the subject of the infinitive:

(92) [<sub>XP</sub> X [<sub>VP</sub> pro v [<sub>VP</sub> credi [<sub>INP</sub> chi aver risolto il problema]]]]

#### 1.4. English

On this approach to the Italian facts, I can again explain the contrast in (97)-(98) between *di* and the English *to* by assuming that only the infinitival VP is nominal in English:

(97)a Maria sembra (\**di*) aver capito

Maria seems (of) have understood

‘It seems Maria understood’.

b Chi credi (\**di*) aver risolto il problema?



Who you.believe (of) have solved the problem?

‘Who do you believe has solved the problem?’

(98)a Maria seems \*(to) understand

b Who do you believe \*(to) have solved the problem?

The derivations of (98)a-b are shown in (99)-(100):

(99) [<sub>VP</sub> v [<sub>VP</sub> seems [<sub>IP</sub> Maria understand]]] → [<sub>VP</sub> Maria v [<sub>VP</sub> seems [<sub>IP</sub> <Maria> understand]]]

→ [ to [<sub>VP</sub> Maria v [<sub>VP</sub> seems [<sub>IP</sub> <Maria> understand]]]] →

[[<sub>VP</sub> understand] to [<sub>VP</sub> Maria v [<sub>VP</sub> seems [<sub>IP</sub> <Maria>]]]] →

[<sub>WP</sub> W [[<sub>VP</sub> understand] to [<sub>VP</sub> Maria v [<sub>VP</sub> seems [<sub>IP</sub> <Maria>]]]]] →

[<sub>WP</sub> to+W [[<sub>VP</sub> understand] [<sub>VP</sub> Maria v [<sub>VP</sub> seems [<sub>IP</sub> <Maria>]]]]] →

[<sub>WP</sub> [<sub>VP</sub> Maria v [<sub>VP</sub> seems [<sub>IP</sub> <Maria>]]] to+W [[<sub>VP</sub> understand]]]

(100) [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> who have solved the problem]]] →

[<sub>XP</sub> X [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> who have solved the problem]]]] →

[<sub>XP</sub> who X [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> <who> have solved the problem]]]] →

[ to [<sub>XP</sub> who X [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> <who> have solved the problem]]]]] →

[[<sub>VP</sub> have solved the problem] to [<sub>XP</sub> who X [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> <who> ]]]]] →

[<sub>WP</sub> W [[<sub>VP</sub> have solved the problem] to [<sub>XP</sub> who X [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> <who> ]]]]]] →

[<sub>WP</sub> to+W [[<sub>VP</sub> have solved the problem] [<sub>XP</sub> who X [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> <who> ]]]]]] →

[<sub>WP</sub> [<sub>XP</sub> who X [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> <who> ]]]] to+W [[<sub>VP</sub> have solved the problem]]]

The first steps of the derivations are separated out in (101)-(102):

(101) [<sub>VP</sub> v [<sub>VP</sub> seems [<sub>IP</sub> Maria understand]]] → [<sub>VP</sub> Maria v [<sub>VP</sub> seems [<sub>IP</sub> <Maria> understand]]]

(102) [<sub>XP</sub> X [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> who have solved the problem]]]] →

[<sub>XP</sub> who X [<sub>VP</sub> we v [<sub>VP</sub> believe [<sub>IP</sub> <who> have solved the problem]]]]

The subject of the infinitival IP can be extracted because the infinitival IP is not nominal in English. So if the attracting heads look for a nominal constituent, probing will bypass the IP and find its subject. Notice also that the infinitival VP, which is nominal, is asymmetrically c-commanded by the subject. Therefore, the subject of the infinitival IP will be the first nominal constituent that the probing head finds.

On the other hand, since the infinitival VP is nominal, the subsequent steps of the derivations will run as in (99)-(100) combining the infinitival VP with *to*.

## 2. Some issues

In this section, I identify two important questions that arise from the analysis presented in the preceding section. The second of them will be discussed more fully in Chapter 4.

### 2.1. Can the infinitival VP be nominal in Italian?

Suppose the nominal features of the infinitival IP in Italian originate from the V or VP and percolate up. To allow the infinitival IP not to be nominal as in the preceding section, one must then assume either that percolation of nominal features up to the IP node is optional, or that a special intervening head may appear between the VP and the IP node to block the percolation. Either way, we will expect that the infinitival VP can be nominal in Italian even when the IP isn't.

In structures where the infinitival IP is nominal, it makes no difference whether the VP is also nominal. In particular, movement to Spec-*di* will not be able to extract a nominal VP contained in a nominal IP, given (88), if we assume that *di* is just probing for a nominal constituent.

But when we turn to contexts where the infinitival IP is not nominal, i.e. in Raising and ECM contexts, we see that we must exclude the possibility that the infinitival VP is nominal. If not, Italian would allow derivations not violating Relativized Minimality leading to ungrammatical sentences like those in (103):

(103)a \**Maria sembra di aver capito*

Maria seems of have understood

‘It seems that Maria understood’.

b \**Chi credi di aver risolto il problema?*

Who you.believe of have solved the problem?

‘Who do you believe has solved the problem?’

These derivations would be just like the English derivations in (99)-(100).

For this reason, I must take issue with the last part of the quote from Kayne (2000) already reproduced:

[. . .] I will follow Raposo (1987a) in taking Romance infinitives to be nominal. More specifically, there will be an infinitival functional head (above the VP) with a nominative feature. **In the terms of Chomsky (1995), the infinitive form of the verb itself will have a corresponding feature in the lexicon. Verb raising of familiar sort (to the infinitival functional head) will check this feature. Attraction of the entire infinitive phrase to Spec,*de/di* will be sensitive to the same nominal feature.**

(Kayne 2000: 283)

In the boldfaced part of this quote, Kayne in fact suggests that the nominal features of the infinitival IP in Italian come from the verb and are transmitted to the IP via verb-raising to I. Instead, I will assume that the nominal features of the infinitival IP in Italian come from I itself.

I realize, though, that this deprives of the possibility of establishing the link Kayne suggests between the fact that the infinitival IP is nominal in Italian, but not in English, to the fact that

the verb may seem to move more in Italian than in English. However, I also note that the infinitival complementizer *att* in Swedish seems to share the properties of the Italian *di*, as observed in subsection 2.1. of Chapter 1. Yet, Swedish does not seem to allow verb raising to I more readily than English does.

## 2.2. The obligatoriness of *di* in Control structures

Another loose end is this: I pointed out in section 1.3 that the analytical proposal made in section 1. is consistent with the fact that *di* may appear in Italian control structures, although it doesn't appear in Raising or ECM sentences. In control structures, the subject is not extracted from the infinitival IP which may therefore be nominal so that it can combine with *di*. But in a control structure, the infinitive not only may combine with *di*, but it must:

- (104) \**Maria crede aver ragione*  
Maria believes have right  
'Maria believes that she is right'.

Therefore, it is not sufficient to say that the infinitival IP can be nominal in control structures. It must be nominal. But this doesn't follow from anything yet.

## 3. Summary

In this chapter, I have focused on a new way of accounting for the fact that Italian, unlike English, doesn't allow an infinitival complementizer, i.e. *di*, to occur in Raising and ECM constructions. The proposal exploits the idea that *di* only occurs when the infinitival IP is nominal in conjunction with Relativized Minimality. Importantly, the analysis also presupposes that the infinitival IP can fail to be nominal.

I have also identified to issues that need to be addressed. The first is the question whether the infinitival VP can be nominal in Italian. The second concerns the fact that I must say that the infinitival IP is always nominal in Control sentences, but have so far not found anything this might follow from.

I return to the second issue in the next chapter.

## Chapter 4

### On the difference between English and Italian infinitival IPs

This chapter deals with two questions left open so far. The first section aims to offer a deeper analysis of Raising and ECM constructions in order to gain an understanding of how exactly these differ from Control constructions. The second section is dedicated to the interaction between ECM and Wh-movement in Italian.

#### 1. An account for the issue of Raising and ECM and the nominality of the InfP

As I pointed out in the previous chapter, English and Italian infinitival IPs seem to follow two separate patterns. Namely, in English only the VP within the infinitival IP can potentially have a nominal feature, while in Italian the whole infinitival IP can be nominal, while the VP alone cannot. This represents the key difference between English and Italian when it comes to infinitival phrases. The nominality of the infinitival IP in Italian and of the infinitival VP in English is indeed the crucial aspect of the analyses discussed in chapter 2 and 3. In this section, I turn to an issue that arises on these analyses, but hasn't been addressed so far: To account for the fact that Raising and ECM infinitives are possible in Italian without *di*, I assumed in Chapter 3 that the infinitival IP doesn't have to be nominal in Italian, but to account for the obligatoriness of *di* with Control infinitives, I must assume that the infinitival IP must be nominal in Control constructions. Now, I want to propose a specific way of accounting for this.

##### 1.1. The complementarity between *di* and Raising/ECM

The first issue that I would like to address to is the complementarity between *di* and Raising to subject (or object) and ECM in Italian. As seen in (105)-(108), Italian *di* does not occur in Raising and ECM constructions, unlike the English *to*:

Raising:

(105) John seems **to** be the best candidate.

(106) Gianni sembra (\*di) essere il candidato giusto.

John seems (\*of) be the candidate right.

‘John seems to be the right candidate’.

ECM:

(107) I believe John **to** be the best candidate.

(108) \* Chi credi (\*di) essere il candidato giusto?

Who you.believe (of) be the candidate right?

‘Who do you believe to be the right candidate?’

If we assume that in Italian the infinitival IP has to be nominal in order for *di* to occur, then we can account for the ungrammaticality of (106) and (108) with *di* by making it impossible for the subject to be raised out of nominal IP, as in Chapter 3. In (106) Raising can only occur without *di*, because a D/NP (here, the subject of the infinitive) cannot be extracted from a constituent which is also nominal (here, the infinitival IP). Likewise, for (108), if ECM involves raising to a structural object position in the matrix clause. (If ECM involves just probing by the matrix *v* or *V*, the infinitival IP must also not be nominal, as shown in chapter 3.)

Notice that when the infinitival IP is not nominal, the infinitival VP must not be able to be nominal either. Otherwise, *di* would still be introduced in Raising and ECM sentences the same way *to* is introduced into such sentences in English. This suggested that the nominal features of an infinitival clause are introduced at a point above the VP in Italian and necessarily percolate to the IP, but do not affect the VP. This was also discussed briefly in Chapter 3.

On the other hand, *di* is obligatory in sentences where the subject of the infinitive is not raised (or case-marked by the matrix *X*, *v* or *V*):

(109) Mi sembra \*(di) aver ragione.

me.Dat it. seems (of) have right

‘It seems to me that I am right’.

(110) Credo \*(di) aver ragione.

I.believe (to) have right.

‘I believe to be right’.

If *di* only appears when the infinitival IP is nominal, this must mean that the infinitival IP must be nominal whenever Raising or ECM does not apply to its subject. Our task is now to seek an explanation why this is so.

## 1.2. Labeling

One possible account that I think offers an interesting analysis regarding this issue is based on Chomsky's (2012) labeling algorithm. Chomsky suggests that when two syntactic structure A and B are merged, the top node of the new structure has to be labeled according to what it 'sees' or finds underneath:

For a syntactic object SO to be interpreted, some information is necessary about it: what kind of object is it? Labeling is the process of providing that information. [...] The simplest assumption is that LA is just minimal search, presumably appropriating a third factor principle, as in Agree and other operations. In the best case, the relevant information about SO will be provided by a single designated element within it: a computational atom, to first approximation a lexical item LI, a head. This LI should provide the label found by LA, when the algorithm can apply.

(Chomsky 2012: 43)

Thus, when one of A and B is a head while the other one is a phrase, the head provides the label of the node C immediately dominating A and B:

(111) [<sub>AP</sub> A [<sub>BP</sub> B ... ]]

The reason is that A is closer to the top node than B.

But when both A and B are phrases, their heads are equally close to the top node C, and the algorithm fails to determine a label for C:

(112) [<sub>C</sub> [<sub>AP</sub> A ... ] [<sub>BP</sub> B ... ]]

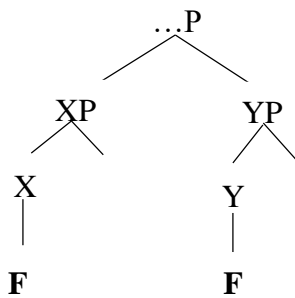
For this case, Chomsky proposes the following:

The interesting case is  $SO = \{XP, YP\}$ , neither a head (we return to the only other possibility,  $\{H, H\}$ ). Here minimal search is ambiguous, locating the heads  $X, Y$  of  $XP, YP$ , respectively. There are, then, two ways in which  $SO$  can be labeled: (A) modify  $SO$  so that there is only one visible head, or (B)  $X$  and  $Y$  are identical in a relevant respect, providing the same label, which can be taken as the label of the  $SO$ . These are the two cases that are prominently found.

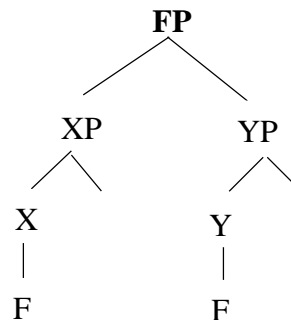
(Chomsky 2012: 43)

Option B is meant to say that when the heads  $A$  and  $B$  in (112) share a feature  $F$  (or a set of features) useable for labelling, it is not necessary for the algorithm to choose between them, since the shared feature  $F$  can be used to label  $C$ :

(113) a.



b.



When  $A$  and  $B$  in (112) do not share any relevant features, option A must be taken. What this amounts to, is that one of  $AP$  and  $BP$  must move away to break the symmetry (as in Moro's (2000) "dynamic antisymmetry" approach). The underlying assumption is that traces/lower copies are ignored by the labelling algorithm and that labelling can apply acyclically to  $C$  after movement of  $AP$  or  $BP$ .

Suppose now that a  $NP$  is merged with an infinitival  $IP$  as the subject of the infinitival clause:

(114)  $[C [_{NP} N \dots ] [_{IP} I \dots ]]$



Suppose also that the only relevant feature a NP might share with an infinitival I is the categorical feature N. Then, if  $I \neq N$  in (112), the subject NP must move away in accordance with option A in Chomsky's algorithm. That is, when the infinitival IP is not nominal, Raising and ECM, now necessarily viewed as raising to a structural object position, is obligatory.

If  $I = N$ , however, option B can be taken, and the subject NP can stay:

(115) [<sub>NP</sub> [<sub>NP</sub> N ... ] [<sub>IP</sub> I ... ]]

In fact, the subject NP must stay in this case, since a NP cannot be extracted from a containing NP, as argued above. Also, the IP must combine with *di*, since a nominal IP needs case-licensing just like other nominal phrases.

I take it that (115) corresponds to the cases where the subject of the infinitive is PRO. The reason the subject has to be PRO in (115) may be that other NPs cannot be case-licensed in the Spec-position of an infinitival IP.

If the preceding proposals are on the right track, we now have an explanation for the complementarity between *di* and raising (to subject or object). The complementarity corresponds to the existence of exactly two options for labelling a constituent formed by merging two phrases AP and BP, i.e. options A and B in Chomsky's algorithm: When the infinitival IP is not nominal, the infinitival  $I \neq N$  and labelling fails unless the subject NP undergoes raising (to subject or object). When the infinitival IP is nominal, the infinitival  $I = N$ , and the infinitival IP is labelled according to option B. But then, the subject cannot be raised, and the IP must combine with *di*.

### 1.3. PRO in English and labelling

The preceding account of Italian Control infinitives leads to an obvious question about Control infinitives in English. Control infinitives are generally analysed as infinitival clauses with a subject PRO which stays within the infinitival clause. But I have said that the subject of an infinitival IP can remain within the infinitival IP if  $I = N$ , and the IP is labelled as nominal constituent as indicated in (115):

(115) [IP [NP N ... ] [IP I ... ]]

But I have also said that the infinitival IP (as opposed to the VP) is never nominal in English. So how can English have control infinitives?

Notice that we cannot modify the view of the English infinitival IP by saying that English too allows an infinitival IP to be nominal in Control constructions. That would nullify our previous account of the fact that *to* can follow *not* in English, since this fact is seen in Control structures too:

(116) We prefer not to meet them again

I have assumed, following Kayne (2000), that a sentence like (116) has a structure like (117) (before I and other functional heads are added to the matrix clause):

(117) [WP [VP we [VP prefer [IP PRO not ]]] to+W [[VP meet them again ]]]

But the derivation leading to this structure must extract a nominal VP from the infinitival IP stranding *not* inside the IP. The relevant step of the derivation is shown in (118):

(118) [ to [VP we [VP want [IP PRO not [VP meet them again ]]]]] →  
[[VP meet them again ] to [VP we [VP want [IP PRO not ]]]]

If the infinitival IP were nominal, this step should be blocked by Relativized Minimality:

(119) If  $\alpha$  is a head probing for a constituent with a feature F, both  $\beta$  and  $\gamma$  are c-commanded by  $\alpha$  and have the feature F, but  $\beta$  asymmetrically c-commands  $\gamma$  or contains  $\gamma$ ,  $\alpha$  only probes and attracts  $\beta$ .

So I will have to admit that the infinitival IP cannot be nominal even in Control constructions in English and search for another way of making the existence of Control infinitives compatible with the assumptions I adopted to account for Italian. I think the following is the most plausible line of analysis: We may say that PRO stays inside vP rather than move to Spec-IP. If we take the infinitival vP rather than just V to be nominal (in English), this is compatible with our account of Italian, since PRO and v then share the nominal feature N. On this view, the structure in (117) is replaced with (120):

(120) [<sub>WP</sub> [<sub>VP</sub> we [<sub>VP</sub> prefer [<sub>IP</sub> not ]]]] to+W [[<sub>VP</sub> PRO meet them again ]]]

Actually, if the nominal part of the infinitival clause is vP rather than VP in English, PRO cannot be in Spec-IP in English. A derivation including the step in (121) would be blocked by (119):

(121) [<sub>IP</sub> I [<sub>VP</sub> PRO [<sub>VP</sub> meet them again ]]] → [<sub>IP</sub>PRO I [<sub>VP</sub> <PRO> [<sub>VP</sub> meet them again ]]]

However, we will then have a problem with Raising and ECM infinitives in English, since the subject of the infinitive will never be able to move away from the Spec of the infinitival vP. To accommodate ECM and Raising infinitives, we will have to say that the infinitival VP is always nominal in English, and that the nominal features of the V can be transmitted to v (though not to I), but don't have to be transmitted. Whether this is viable, remains to be seen.

Alternatively, we might allow the infinitival I to license a case-feature K ( "null case" as in Martin (1996)) on PRO taking this to mean that I and PRO will share the feature K, and that this feature can be used to label the construction created by merging PRO with IP. But this option must not exist for Italian, since I would then lose my account of why Control infinitives must be nominal IPs in this language.

Finally, one might envisage assimilating Control to Raising as proposed by Hornstein (1999). Then, the labelling problem for Control infinitives in English would disappear, but if Hornstein's analysis is also extended to Italian, the fact that *di* appears with Control infinitives, but not with Raising infinitives could not be accounted for the way I have proposed above.

## 2. ECM and wh-movement

Another issue that marks the difference between English and Italian infinitival clauses is related to ECM constructions. In Italian, the subject of the infinitival IP must be a wh-phrase, but in English this is not so. I now propose a way of accounting for this.

### 2.1. ECM and Relativized Minimality

We have observed that English freely allows ECM constructions with a number of verbs, as in (122), while Italian does not:

(122) I believe John **to** be the best candidate.

(123) \*Credo Gianni (di) essere il candidato migliore

I.belong Gianni (of) be the candidate best

‘I believe Gianni to be the best candidate’.

Interestingly enough, if wh-movement applies Italian ECM constructions turn out to be grammatical:

(124) Who do you believe to be the best candidate?

(125) Chi credi (\*di) essere il candidato migliore?

Who you.belong (of) be the candidate best?

‘Who do you believe to be the best candidate?’

Although (125) is ungrammatical with *di*, it represents an example of wh-movement in an ECM construction that contrasts sharply with the ungrammaticality of (123) and that shows how in Italian ECM constructions seem to occur only with wh-movement. Wh-movement must happen when the subject of the infinitival IP raises to the structural object position of the matrix clause.

This contrasts with raising to the matrix subject position. In this case, wh-movement needs not to apply:

(126) Gianni sembra essere il candidato migliore

Gianni seems be the candidate best

‘Gianni seems to be the best candidate’.

An obvious difference between raising to subject and raising to the structural object position, is that the movement trajectory crosses over the subject, i.e. another NP, in the latter case, but not in the former. This suggests that the ungrammaticality of (123) (in contrast with the grammaticality of (126)) is due to a violation of Relativized Minimality. That is, the NP originating as the subject of the infinitive cannot move to the structural object position of the matrix clause, because the matrix subject still in Spec-vP is closer to that position:

(127) ... [XP -\_ [X' X ... [vP NP<sub>1</sub> [v' v [VP V [IP NP<sub>2</sub> [I' I ...

|\_\_\_\_\_ / \_\_\_\_\_|

This raises two obvious questions. First, how can the object NP reach the structural object position in a simple transitive sentence like (128):

(128) Maria scrisse un romanzo

Maria wrote a novel

‘Maria wrote a novel’.

Second, why is Italian different from English? But for now, I will simply proceed on the assumption that these questions can be answered (and return to them below).

If so, the question is how wh-movement helps raising to object avoid the violation of Relativized Minimality. The notion of parallel movement developed by Chomsky (2008) may be of use here. The case Chomsky considers, involves NP that moves both the subject position (Spec-IP) and to Spec-CP. The point of the exercise is to make this possible while maintaining

a ban on moving from the subject position to Spec-CP, e.g. as an effect of Rizzi's (2006) Criterial Freezing. The solution proposed is to say that the two movements occur in parallel, i.e. simultaneously, as in (129):

(129) [CP \_ [IP \_ .... Wh ...



This gives rise to two copies of the wh-phrase – one in Spec-IP and one in Spec-CP, but Chomsky suggests that the lower copy, i.e. the one in Spec-IP, is not spelled-out in accordance with a general economy condition at the level of spell-out.

One might then consider the possibility that wh-movement to the matrix Spec-CP and movement to the matrix structural object position also apply in parallel:

(130) [CP \_ [IP ... [XP \_ ... [vP NP<sub>1</sub> ... [IP wh ...



Then, we might say that when two movements  $M_1$  and  $M_2$  occur in parallel, the set of features triggering the parallel movements is the union of the features that would trigger  $M_1$  and  $M_2$  applying in isolation from one another. That is, the feature [wh] relevant to movement to Spec-CP would also be relevant to movement to the structural object position. Since this is a feature that is not shared by the matrix subject in (125) (corresponding to NP<sub>1</sub> in (130)), there is no violation of Relativized Minimality when movement to the structural object position in the matrix clause is effected in parallel with wh-movement to matrix Spec-CP.

A concern one may have about this line of analysis is that Chomsky's proposal was made specifically about movement to Spec-CP and Spec-IP in the context of a theory that posits a special relation between the two heads C and I. From this point of view, extending parallel movement to case we are discussing here might seem inappropriate, since no comparable

special relation has been posited for C and the X in (130). However, one might assimilate (130) more closely to Chomsky's scenario by enriching the structure as in (131):

(131) [CP \_ [IP ... [CP \_ [C' C [XP \_ [X' X ... [vP NP<sub>1</sub> ... [IP wh ...

Here, a lower C (-like) head is posited right on top of XP, and one might imagine that this lower C is related to X the same way the high C is related to I on Chomsky's analysis. This would be particularly natural in view of the standard view that there is a phase internal to IP, usually identified with vP. In (131), this internal phase might instead be associated with the lower CP.

## 2.2. When a direct object raises to the structural object position

I will now suggest a way of making the analysis just proposed consistent with the assumption that a direct object such as *un romanzo* "a novel" raises to the structural object position in simple transitive sentences like (128):

(128) Maria scrisse un romanzo

Maria wrote a novel

'Maria wrote a novel'.

That is, we must find a way of allowing NP<sub>2</sub> to raise to Spec-XP in (132) in spite of the intervening NP<sub>1</sub>:

(132) [XP \_ [X' X [vP NP<sub>1</sub> [v' v [VP V NP<sub>2</sub> ]]]]]

As it happens, (132) differs from (127), the raising-to-object structure, in at least one respect relevant to certain prominent accounts of Relativized Minimality effects in terms of "equidistance":

(127) ... [XP \_ [X' X ... [vP NP<sub>1</sub> [v' v [VP V [IP NP<sub>2</sub> [I' I ...

Chomsky (1995), who assumes a structure like (133) for transitive clauses (with X labelled AgrO), claims that movement of V to X (his AgrO) makes NP<sub>1</sub> and NP<sub>2</sub> equally close to X in a technical sense that will be clarified shortly. To illustrate, I use the structure without vP that Chomsky assumed:

(133) [<sub>XP</sub> – [<sub>X'</sub> X [<sub>VP</sub> NP<sub>1</sub> [<sub>V'</sub> V NP<sub>2</sub> ]]]]]

First, I reproduce the relevant definitions from Chomsky (1995: 299):

(134) The domain of a head H is the set S of all constituents contained in its maximal projection HP

except H itself and the constituents that contain H.

(135) The minimal domain of a head H is the smallest subset Z of its domain S such that each  $\alpha$  in is

reflexively dominated by some  $\beta$  in Z.

In (133), then, the domain of V is the set containing NP<sub>1</sub>, NP<sub>2</sub> and everything inside these NPs, but not X. The minimal domain of V is the same set minus things inside NP<sub>1</sub> and NP<sub>2</sub>.

Things change if V moves to X in (133), giving (136):

(136) [<sub>XP</sub> – [<sub>X'</sub> V+X [<sub>VP</sub> NP<sub>1</sub> [<sub>V'</sub> <V> NP<sub>2</sub> ]]]]]

In (136), the moved V is taken to have the same maximal projection as X, i.e. XP.

Crucially, Chomsky posits that the domain of a moved head H not only does not contain any constituent containing H, but also does not contain any constituent containing a trace of H, e.g. <V> in (136). Therefore, the domain of the moved V in (136) includes Spec-XP, NP<sub>1</sub> and NP<sub>2</sub>,



but not VP, and the minimal domain of the moved V is the same set (minus everything inside NP<sub>1</sub> or NP<sub>2</sub>), precisely because the VP dominating these two NPs is not included in the domain of the moved V. Thus, there is a minimal domain containing Spec-XP, NP<sub>1</sub> and NP<sub>2</sub>.

“Equidistance” is defined in terms of minimal domains (Chomsky 1995: 299):

(137) If two structural positions  $\alpha$ ,  $\beta$  are in the same minimal domain, they are equidistant from  $\gamma$ .

The relevance of this definition for Chomsky’s (1995) purposes was that it warrants saying that Spec-XP and NP<sub>1</sub> are equidistant from NP<sub>2</sub>. This is because Chomsky (1995), following Rizzi’s (1990) original proposal, formulated Relativized Minimality from the perspective of the phrase that moves: A phrase about to move to a position of type X (A-, A-bar or head-position) can only move to the closest position of type X. But given (137) in conjunction with the other assumption just mentioned, Spec-XP and NP<sub>1</sub> (Spec-VP) are equally close to NP<sub>2</sub>.

If we shift the perspective and say that the probing head triggering the movement, can only see the constituent of relevant type closest to it, as has become the norm, we will identify  $\gamma$  in (137) with the probing head. But at this point, the head-movement of V to X creating (136) loses its significance, since NP<sub>1</sub> and NP<sub>2</sub>, the constituents that now correspond to  $\alpha$  and  $\beta$  in (137), are already in the same minimal domain (of V) in (133). However, this changes, if we go back to the structure in (132):

(132) [XP<sub>-</sub> [X’ X [vP NP<sub>1</sub> [v’ v [VP V NP<sub>2</sub> ]]]]]

Here, the minimal domain of V excludes NP<sub>1</sub>, and the minimal domain of v excludes NP<sub>2</sub>. But if V raises to v, NP<sub>1</sub> and NP<sub>2</sub> (though not X) will fall into the same minimal domain:

(138) [XP<sub>-</sub> [X’ X [vP NP<sub>1</sub> [v’V V+v [VP <V> NP<sub>2</sub> ]]]]]

The domain of the raised V is the set containing NP<sub>1</sub> and NP<sub>2</sub> and everything inside these, and the corresponding minimal domain is just the set containing NP<sub>1</sub> and NP<sub>2</sub>. Hence, NP<sub>1</sub> and NP<sub>2</sub> are equally close to X according to our reinterpretation of (137), and X can pick NP<sub>2</sub> to raise to Spec-XP crossing over NP<sub>1</sub>.

But V-movement to v will not have the same effect in the structures where the subject of an infinitival IP tries to raise to the matrix Spec-XP. The outcome of V-to-v movement gives structures like (139):

(139) ... [XP - [X' X ... [vP NP<sub>1</sub> [v' V+v [vP <V> [IP NP<sub>2</sub> [I' I ...

In this case, the minimal domain of the raised V is the set containing NP<sub>1</sub> and IP, but not NP<sub>2</sub>: VP is not in the domain of the raised V since it contains the trace <V>. Hence, it is also not in the minimal domain of the raised V. But then, IP, which is in the domain of the raised V, is not (reflexively) dominated by a member of the minimal domain, unless IP itself is in the minimal domain of the raised V. But IP dominates NP<sub>2</sub>, and this means that NP<sub>2</sub> is not also in the minimal domain of the raised V, since a minimal domain is the smallest subset S of the domain such everything in the domain is (reflexively) dominated by a member of S. Accordingly, raising NP<sub>2</sub> to Spec-XP in (139) is still not allowed by Relativized Minimality.

### 2.3. English

The fact that English allows raising-to-object (ECM) without wh-movement, as in (122), may now be accounted for by saying that English allows the infinitival I to raise to V before the V raises to v, as in (140):

(122) I believe John **to** be the best candidate.

(140) ... [XP - [X' X [vP NP<sub>1</sub> [v' I+V+v [vP <I+V> [IP NP<sub>2</sub> [I' <I> ...

When we determine the domain of the raised complex head I+V weeding out any constituent that contains I+V itself, a trace of I+V or a trace of I, we find that it corresponds to the set

containing NP<sub>1</sub> and NP<sub>2</sub> as well as everything inside these two NPs. Correspondingly, the minimal domain of the raised I+V contains just NP<sub>1</sub> and NP<sub>2</sub>. Hence, the subject of the infinitival IP (NP<sub>2</sub>) falls within the same minimal domain as the subject of the matrix verb (NP<sub>1</sub>).

Of course, this account of the difference between English and Italian with respect to ECM posits a second difference between the two language in addition to the difference concerning the nominality of infinitival IPs. Ideally, the two differences should be related to one another. That is, it should be the case that an infinitival I that can carry nominal features cannot raise and “incorporate” into the matrix verb as in (140) (even when it does not in fact carry nominal features, as I take it to be the case in ECM constructions in Italian). Perhaps one can derive this from Chomsky’s labeling algorithm noticing that for Chomsky’s notion of equidistance to apply properly, the projection of a head Y must also be regarded as the projection of a head X raised and adjoined to Y. Another way of saying this is to say that the features labeling the constituent formed by merging X with Y are shared by X and Y:

(141) [<sub>FP</sub> ... X+Y ... ]

$$\begin{array}{cc} | & | \\ & \\ \text{F} & \text{F} \end{array}$$

This would follow from Chomsky’s labelling algorithm, if the two heads X and Y count as being equally close to the top node in (141).

If so, raising the infinitival I to V as in (140) creates a constituent that cannot be labeled unless the I shares relevant features with the V:

(142) [<sub>?</sub> I+V [<sub>IP</sub> NP<sub>2</sub> [<sub>I</sub> <I> ...

Suppose that the only relevant feature is the categorial feature V. Then, I must be verbal in (38), which is consistent with what I have assumed throughout about English: The infinitival IP is not nominal English. We can then exclude the derivation in (140) in Italian by saying that the infinitival I cannot be verbal in Italian (but can be nominal).

This claim is specifically about the infinitival I in Italian. Therefore it is consistent with the fact that ECM from “small clause” complements occurs without wh-movement even in Italian:

(143) Riteniamo Maria capace di risolvere il problema

We believe Maria capable of solve the problem

‘We believe Maria is capable to solve the problem’.

In particular, it is possible to assume that the small clause complement has a verbal head that raises to the matrix verb like the infinitival I in English. (Notice also that this is consistent with the fact that small clause complements never combine with *a* or *di*, i.e. are never nominal.)

### 3. Summary

I have used this chapter to look at certain issues that have remained unaddressed till now. This has led to an account of why the infinitival IP must be nominal in Control constructions in Italian, although it isn’t nominal in Raising and ECM constructions. I have also proposed a way of understanding why wh-movement must apply to the subject of the infinitive in Italian ECM constructions and suggested a way of accounting for the contrast between Italian and English in this regard.

## Conclusions and questions for future research

Most of the present study centers upon the comparison between Italian and English with regard to infinitival clauses and the prepositions combining with them. I believe this to be a challenging and interesting topic within the study of comparative syntax, and I have presented an analysis that traces the contrasts back to a single difference between the two languages (already suggested by Kayne (2000)): In Italian, the whole infinitival IP is nominal, while in English, only the infinitival VP has a nominal feature. This largely suffices to account for the discrepancies between Italian and English.

Nevertheless, this analysis leaves a number of questions open for further investigation. On this note, I would like to mention the issue of Ellipsis, which I stumbled upon during my research and which also points to a crucial difference between Romance and Germanic languages. The following paragraphs are a small digression on Ellipsis, which I think is a topic that should be considered in future research.

### Ellipsis

Another interesting phenomena that seems to occur both in English and Italian in relation to infinitival phrases is ellipsis ( more specifically, verbal ellipsis), which can strand the preposition *to* in English. The following example illustrates this:

(144) They tried hard to win, but we didn't try to.

In Italian, however, the preposition introducing the infinitive cannot be stranded under ellipsis:

(145)a Hanno tentato fortemente di vincere, ma noi non abbiamo tentato di vincere

They.have tried hard of win but we not have tried of win

'They tried hard to win, but we didn't try to.'

b\*Hanno tentato fortemente di vincere, ma noi non abbiamo tentato di.

They.have tried hard of win, but we not have tried of.

'They tried hard to win, but we didn't try to.'

In Italian, the most natural way of applying ellipsis in the second conjunct leads to (146):

- (146) Hanno tentato fortemente di vincere, ma noi **no**.  
they.have tried hard of win, but we no.  
'They tried hard to win, but we didn't'.

Here, the matrix verb is also elided in the second conjunct, and only the negation remains, but in the form of *no* 'no' (as in an answer *no* to a yes/no-question) rather than *non* 'not'.

In English, the closest counterpart to (146) would be (147):

- (147) They tried hard to win, but we **didn't**.

(148), which would correspond more directly to (146), is ungrammatical:

- (148)\*They tried hard to win, but we **no**

The contrast between the English (144) and the Italian (145)b may suggest that ellipsis cannot target a nominal IP, but this will not also account for the contrast between (148) and (146).

It seems plausible, however, that the latter contrast should be related to the similar contrast between the Italian (149) and English (150):

- (149) Penso di sì/ Penso di no  
I.think of yes/ I.think of no  
'I think so'/I don't think so'.

- (150) \*I think of yes/no

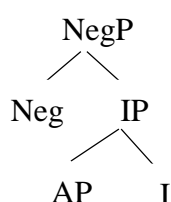
Here, English has:

(151) I think so/ I don't think so

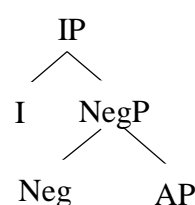
Notice that the *di* in (149) corresponds to *que* 'that' in Spanish and French (*Creo que sì/no, Je crois que oui/non*), suggesting that *di* is complementizer, which would mean that ellipsis is not altogether prohibited from leaving a complementizer behind.

Basque researcher Laka (1994) investigated this matter in relation to a comparison between English and Basque, which behaves similarly to Italian. Stating that "the first piece of independent evidence supporting the claim that the relative position of the Negative Phrase with respect to Tense is different in Basque and English comes from deletion" (Laka 1994:18), Laka gives the following tree structure of English and Basque in relation to deletion:

(21) a. Basque



b. English



(Laka 1994: 18)

According to the structures in Laka's (21 a, b), the reason why English does not allow (151) lies in its "NegP [. . .] nested in between IP (=TP) and AP" (Laka 1994: 19), which makes it impossible to erase the IP like Basque (and Italian) does. One of Laka's examples of deletion in Basque is the following:

(25) Marik liburua erosi du eta Peruk **ez**

Mari book-the bought has and Peter not

'Mary has bought the book and Peter hasn't'

(Laka 1994: 20)

As the literal translation of Laka's (25) shows, the Basque 'ez' ('not') seems similar to the Italian 'no' in (146 b) and (147 b). In fact, (152) would be the equivalent of Laka's (25) in Italian except that it remains to be understood why *no* cannot be replaced with *non* in (152):

(152) Maria ha comprato il libro e Pietro **no**.

Maria has bought the book and Pietro no

'Mary has bought the book and Pietro hasn't'.

If so, the parallel between (25) and (152) is actually quite an interesting aspect that the syntax of Italian and Basque have in common. In relation to these similarities between Italian and Basque, it seems worth to mention how Serbo-Croatian also is like Italian when it comes to a sentences such as (149):

(153) a. Serbo-Croatian:

Mislim **da da**/ Mislim **da ne**

I think that yes/ I think that no

'I think so'/'I don't think so'.

b. Italian:

Credo **di sì**/ Credo **di no**

I think of yes/I think of no

'I think so'/'I don't think so'.

As (153 a, b) show, Serbo-Croatian also allows the deletion of the IP retaining the negation *ne* or *da* 'yes' which might be seen as a reflex of the non-negative value of a "polarity head". Also, Serbo-Croatian keeps the complementizer *da* 'that' to introduce 'yes' and 'no' in (153 a), just like Italian has *di* in (153 b). This similarity appears quite striking, as the Basque one, given that neither Basque nor Serbo-Croatian are Romance languages.

When it comes to the relation with English, as Laka states, there is a crucial difference between English and Basque deletion, which it is also applicable to the one that we observed between Italian and English:



The explanation of why English and Basque behave differently with respect to IP deletion in these cases is straightforward under the proposal presented here: in English, deletion of IP could not take place without deletion of NegP as well, under the assumption that deletion cannot affect discontinuous chunks of the Phrase Marker. However, nothing prevents deletion of IP in Basque in these cases, because NegP is not dominated by IP, and thus it can be left intact after deleting the entire IP.

(Laka 1994:20)

My main reason for including the ellipsis facts in the discussion at this point is that they raise questions about the exact structural organization of clauses across languages, and I suspect that pursuing such questions may ultimately shed more light on another question that has been left open in this thesis, namely whether the contrast between English and Italian with respect to how much of an infinitival clause is nominal, can be related to other structural differences between the two languages.

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