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Gerunds become prepositional infinitives in Romance Small Clauses: The effects of later Merge to the syntactic spine

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Abstract: This article offers a comparative analysis of “predicative” gerunds (“PGs”) and prepositional infinitives (“PIs”), focussing on perception constructions in Spanish (PGs) and European Portuguese (PIs). I demonstrate that these two constructions are diachronically related and that they still have a similar syntax. The evidence discussed suggests that both constructions are Small Clauses headed by a preposition of central coincidence. In PGs, this preposition is merged in a low aspectual projection and incorporates into the verb. In PIs, an evolution of PGs, it is merged later in the structure. This leads to a layering process, i.e. the splitting of a single head into a series of heads and transferring the semantics of one functional head to more heads. Thus, PIs have a more expanded structure than gerunds. Finally, further empirical evidence for this analysis is discussed, such as the insertion of adverbs and the use of *sin* (“without”) to negate the perceived event.

Keywords: comparative syntax, variation, perception verbs, incorporation, subject raising

1 Introduction

This article presents a comparative analysis of two Romance constructions formed with an uninflected verb and used as secondary predicates: so-called predicative gerunds (henceforth, “PGs”) and prepositional infinitives (“PIs”).¹

¹ Secondary predicates are syntactically not independent, and their subject is coindexed with an argument of the matrix clause:

(i) *Mary saw Anne laughing*

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The two constructions are generally in complementary distribution within the Romance domain: either a variety uses PGs, like Spanish (1), or it uses PIs, like European Portuguese (“EP”), see (2).

- (1) *Vi a Jorge llorando.* (Spanish: PG)
I.saw DOM Jorge crying
- (2) *Vi o Jorge a chorar.* (EP: PI)
I.saw the Jorge A cry
'I saw Jorge crying.'

I propose that the two constructions in (1) and (2) have a similar structure: they are both Small Clauses (“SCs”) with a truncated TP as complement, and both contain a P(reposition). This preposition incorporates into the Verb in gerunds, while in PIs (2) it does not, because it is merged later: Thus, it is higher in the structure,² and therefore it is kept separate from the verb, which appears in the infinitive. Thus, the structures for (1–2) are:³

- (3) $Vi_{[SC/FP]} a \text{ Jorge } [F' \emptyset [AspP \text{ llorar} + a [VP \text{ Jorge llorar}]]]$
- (4) $Vi_{[SC/FP]} o \text{ Jorge } [F' \emptyset [AspP a [NegP [AspP \text{ chorar} [VP o \text{ Jorge chorar}]]]]]$

The contribution of the present article is twofold: on the one hand, it broadens our knowledge of gerundial constructions, since the comparison it draws

In (i), *Anne* is superficially both the object of the matrix verb *saw* and the subject of the secondary predicate *laughing* (for the structural status of the subject of the secondary predicate, see *infra*). “Predicative gerund” refers to gerunds used as secondary predicates. This term is well established in the Spanish grammatical tradition (*gerundio predicativo*).

² As stated in recent developments of Minimalism, the sentence structure is built bottom-up by the operation Merge. Thus, if an item is higher in the structure it is necessarily merged later than any lower item (see e.g. Chomsky 1995).

³ Note that the structures in (3)–(4) correspond with den Dikken’s claim that “All SMALL CLAUSES are projections of a functional head” (den Dikken 2006: 62, *contra* Moro 2000).

between PGs and PIs is new in the literature.⁴ On the other hand, it extends the analysis of adverbial and periphrastic gerunds as PPs headed by a preposition of central coincidence to PGs (Hale 1986).⁵ I support my analysis by adopting a comparative perspective which builds on a discussion of novel – and previously unnoticed – synchronic and diachronic evidence. This broader perspective leads me to reduce the Romance-internal variation between PGs and PIs to a single difference: the position of the preposition. As mentioned above, in PGs the preposition is in a low AspP and is incorporated into the verb that moves to the same projection; in PIs, it is found in a higher position of the TP space. This is possible due to the division of the phrase into several layers.⁶

The layering process, i.e. the splitting of a head into a number of heads, thereby rearranging the featural content of each functional head, is the result of a diachronic process that has led the preposition to be merged later (and thus to appear higher up in the structure) in PIs than in PGs: PGs are the older form – they were present all over Romance in the Middle Ages – and PIs evolved from them. Crucially, the opposite evolution, i.e. the passage from PIs to PGs, is not attested in any variety.

PGs and PIs thus differ not only in whether or not they incorporate the P, but also in their size: both PGs and PIs are truncated TPs, as the ungrammaticality of high adverbs or modal verbs in these constructions shows. However, merging the P later in PIs than in PGs results in the expansion of their structure. I show that PGs are merged in a low aspectual projection; PIs, on the other

4 Rafel (2000) analyses Pseudorelative clauses (“PRs”), PGs and PIs (see § 3.2). However, he focuses on English perceptive gerunds, which have a different structure from Romance PGs (see § 2.1.2).

5 Alternatively, the P of these constructions could be analysed as the expression of a relation of zonal inclusion (\subseteq ; for oblique Case and locative PPs as expressions of zonal inclusion, see Belvin and Den Dikken 1997; Manzini and Franco 2016; Franco and Manzini 2017; Manzini, Savoia and Franco, to appear). I leave this possibility open, since my analysis does not depend on the specific nature of the preposition.

6 This analysis is inspired by Torrego’s (2010) account of causative constructions in Spanish. In particular, she accounts for the variation in the availability of *faire-par* constructions by positing a difference in the low ApplP: in some *loista* dialects Appl moves to the higher verbal head. As a consequence, in these dialects the structure below Appl is richer: it embeds a v^* that is a Phase head and that restricts the possibility of passivizing the infinitival verb. In the other Spanish varieties, on the other hand, Appl does not move, and therefore it embeds a more reduced structure that allows passivization.

Note that the process described here is similar to Giorgi and Pianesi’s (1996) Feature Scattering. The processes differ, however, in that PIs can have intervening material between the P and the infinitive (see below), while in Giorgi and Pianesi’s account the scattered features must be adjacent.

hand, have a richer structure, since they also contain (at least) NegP and some adverbial projections. To prove this difference in size, I discuss some new observations, such as the hitherto unnoticed fact that in some varieties of Spanish the event expressed by the PG can only be negated by the preposition *sin* (“without”) followed by an infinitive. So, even varieties with PGs – like Spanish – use a PI when an event is negated. This is an additional piece of evidence for the underlying form of gerunds as “P+V complexes”.

The article is structured as follows. Section 2 describes the distribution and syntactic properties of PGs and PIs, and demonstrates that these constructions must be distinguished from both bare infinitives (*Vi a Jorge llorar* – “I saw Jorge cry”) and English gerunds. Section 3 sums up the main analyses of PIs or PGs in the literature to date. Section 4 is the paper’s core: it first discusses different types of evidence for a unified analysis of PGs and PIs and then presents the analysis and explains each part of it; finally, it examines two predictions of the proposed analysis and briefly discusses adverbial gerunds. Section 5 contains the conclusions.

2 Properties of PGs and PIs

2.1 Description and cross-linguistic distribution

In Romance, either PGs or PIs are used as secondary predicates. As shown in Map 1, PGs are especially used in Spanish, Catalan, Portuguese varieties spoken in Brazil, in Southern Portugal and in the Azores and Madeira, French,⁷ Sardinian and Rumanian,⁸ while PIs are mainly used in two geographically distinct areas: Central and Northern Portugal (Pereira 2015),⁹ and an area that

7 In French two different forms exist: the so-called *participe présent*, which is used in predicative constructions, and the *gérondif*, which has adverbial functions. Actually, the only difference between these two verb forms is the presence of the preposition *en* in the case of the *gérondif*, and both forms share their origin, in a crossing of the Latin *gerundium* and *participium* (on the intricate question of the origin of these verb forms see Iliescu and Mourin 1991, a.o.). Due to this particular situation, I do not consider these French forms in my analysis.

8 Gerunds are also used in the perceptive constructions of Northern Ladin (a subgroup of Rhaeto-romance), but these are Exceptional Case Marking constructions (“ECM”) rather than predicative structures (Casalicchio 2013, 2016b).

9 In European Portuguese, PIs can be formed both with inflected and non-inflected infinitives (Raposo 1989; Barbosa and Cochofel 2004). For ease of exposition I refer only to the non-inflected variant in this article. The structure of inflected PIs is arguably the same as that proposed here for non-inflected PIs, with some minor differences which allow the occurrence of inflection (but not, crucially, of nominative case, see (17)).

includes Central and Northern Italy (including Standard Italian) and Southern France (with inter-speaker variation in Occitan). Only in the Swiss Romansh varieties, and (marginally) Catalan, are both PGs and PIs used: in Catalan, PIs are limited to some very restricted contexts selected by a perception verb; in Romansh, however, they seem to alternate quite freely with PGs. Finally, in the areas of Portugal where PGs are used, they are competing with PIs (Carrilho and Pereira 2011; Pereira 2015), probably because of the influence of the standard variety, which uses PIs.¹⁰

Lastly, Southern Italy is unique: in most of its varieties both PGs and PIs are ruled out, and speakers generally use another construction, namely “Pseudo-relative clauses” (“PRs”). PRs are used all over Romance, except for Rumanian (Radford 1975; Cinque 1992; Brito 1995; Casalicchio 2013, a.o.):

- (5) a. *Ho visto Gianni che mangiava la mela.* (Italian)
 I.have seen Gianni that ate the apple
 b. *Vi a Juan que se comía la manzana.* (Spanish)
 I.saw DOM Juan that SE ate the apple
 ‘I saw John eating the apple.’

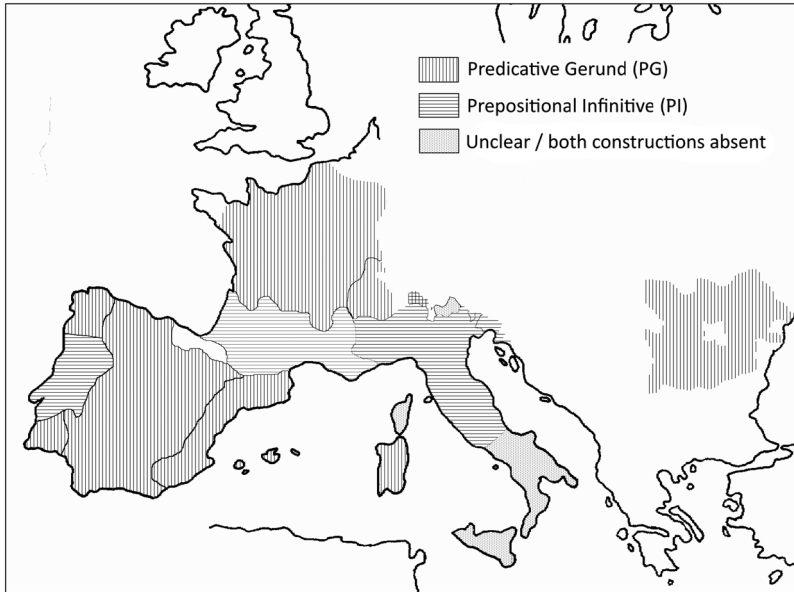
In Italian, the distribution of PRs perfectly overlaps with PGs in Spanish or PIs in European Portuguese (“EP”), and they share the same aspectual properties (for a correspondence between PIs and PRs, see Raposo 1989; Guasti 1992; Brito 1995, for PGs and PRs, see Fernández Lagunilla 2011b, and for a correspondence between all three constructions, see Casalicchio 2013). In this article I do not discuss the structure of PRs in depth (for which, see Casalicchio 2013, Casalicchio 2016a), but I refer to them when any correlation is particularly important for the analysis of PGs and PIs.

In this article, I focus mainly on two varieties, which I take as exemplary: Spanish for PGs and EP for PIs. When other varieties offer data of particular interest for my analysis, however, I also refer to them.

2.1.1 PIs and PGs are Small Clauses

PGs and PIs share common structural properties. First of all, both can be considered Small Clauses (“SCs”), as demonstrated by the fact that they have

¹⁰ In Standard European Portuguese, however, PGs are residually used in some restricted contexts, especially when they modify a noun (Brito and Raposo 2013). I thank two anonymous reviewers for pointing out various details about the use of PIs and PGs in European Portuguese.



Map 1: The distribution of PGs and PIs in Romance (Europe).

the same distribution as adjectival and prepositional SCs (exemplified in (6a) (6b) respectively): see Di Tullio (1998: 198) for Spanish PGs, Raposo (1989: 284) for EP (from which these examples were adapted).

- (6) a. *Vi a Juan*
I.saw DOM Juan
- | | | |
|---|--------------------------|---------------|
| { | <i>desnudo.</i> | (Spanish: AP) |
| | naked | |
| | <i>en la habitación.</i> | (PP) |
| | in the room | |
| { | <i>nadando.</i> | (PG) |
| | swimming | |
- ‘I saw Juan naked/in the room/swimming.’
- b. *Eu vi os meninos*
I saw the children
- | | | |
|---|---------------------|----------|
| { | <i>nus.</i> | (EP: AP) |
| | naked | |
| | <i>no quarto.</i> | (PP) |
| | in-the bedroom | |
| { | <i>a nadar(em).</i> | (PI) |
| | A swim(3PL.) | |
- ‘I saw the children naked/in the bedroom/swimming.’

The coordination test also confirms this analysis: both PIs and PGs can be coordinated with other types of SC (either with the same (7), or with a different (8), subject):

- (7) a. *Vi a Juan [muy tranquilo] y [sonriendo].* (Spanish)
 I.saw DOM Juan very quiet and smiling
 (Di Tullio 1998: 202)
- b. *Vi o João [muito sossegado] e [a sorrir].* (EP)
 I.saw the João very quiet and A smile
 ‘I saw John very quiet and smiling.’
- (8) a. *Vi [a María en la cama] y [a Antonio viendo la televisión].* (Spanish)
 I.saw DOM Maria in the bed and DOM Antonio watching the television
- b. *Vi [a Maria na cama] e [o António a ver televisão].* (EP)
 I.saw the Maria in-the bed and the Antonio A look television
 ‘I saw Maria in bed and Antonio watching TV.’
 (Barbosa and Cochofel 2004: 395)

PGs and PIs generally express imperfective aspect; they are stage-level predicates in which a single moment of an ongoing event is singled out. Di Tullio (1998: 200) points out that a sentence like:

- (9) *Vi el barco atracando en el puerto.*
 I.saw the ship docking in the port
 ‘I saw the ship docking at the port.’

can be followed by the clause “but it went adrift because a hurricane came up” (for a similar aspectual reading of PIs, see Barbosa and Cochofel 2004). This is due to the fact that in (9) the speaker perceived the ongoing event of docking, but did not necessarily see its completion. PGs and PIs are therefore often considered to be ruled out when an SC with an individual-level predicate is required (e.g. when the matrix verb is *consider*):¹¹

¹¹ However, note that with some matrix verbs, the PG of a stative verb can be used (I thank Alexander Grosu, p.c., for pointing out this fact to me):

- (10)
- | | | |
|---|---|--|
| a. <i>Considero a Jorge</i>
I.consider DOM Jorge | } | <i>*comiendo.</i> (Spanish: PG)
eating
<i>*nudo.</i> (Stage-level AP)
naked
<i>inteligente.</i> (Individual-level AP)
intelligent |
| b. <i>Considero o Jorge</i>
I.consider the Jorge | } | <i>*a comer.</i> (EP: PI)
A eat
<i>*nu.</i> (Stage-level AP)
naked
<i>inteligente.</i> (Individual-level AP)
intelligent |

‘I consider Jorge *eating/*naked/intelligent.’

The ungrammaticality of PGs and PIs is parallel to that of stage-level adjectives like “naked”, while individual-level adjectives like “intelligent” are ruled in. This shows that both PGs and PIs are inherently stage-level SCs.

As far as the overall structure of these constructions is concerned, both PGs and PIs are compatible with two different constituent types (Raposo 1989; Di Tullio 1998; Rafel 2000; Casalicchio 2013, Casalicchio 2014): they may form a single constituent together with their antecedent¹² (11), or may not (12):¹³

- (i) *me imagino sabiendo tapizar* (http://yobienytulola.blogspot.com/2014/10/)
 me I.imagine knowing quilt
 ‘I imagine myself being able to quilt.’

In this paper, I focus mainly on PGs and PIs used with perceptive verbs.

12 For explanatory reasons, I use the term “antecedent” to refer to the DP or pronoun which is coindexed with the subject of the PG or PI. This choice does not imply that I analyse PGs and PIs as having the same structures as relative clauses (see *infra* for my analysis). Moreover, in (11) and (12) I abstract away from the preposition *a* required by Direct Object Marking (DOM) in Spanish, as well as from the article *o/a* required by personal names in EP.

13 Different constituency tests are used in the literature to back up the structures in (11) and (12), e.g. clefting for the mono-constituent (i) and movement of the DP antecedent for the bi-constituent analysis (ii) (examples from Spanish, but the same holds for EP):

- (i) *Lo_i que vi fue [el barco atracando en el puerto]_i* (Spanish)
 that what I.saw was the boat docking in the port
 ‘What I saw was the boat docking in the port.’
 (Di Tullio 1998: 202)

- (11) Vi [(a) Jorge llorando / a chorar]
- (12) Vi [(a) Jorge_i] [PRO_i llorando/a chorar]

As shown by Casalicchio (2013), the choice between a mono-constituent and a bi-constituent PG/PI is not free, but depends on the syntactic context in which it is embedded: in most cases only one or the other construction is possible, while in some cases (e.g. with perception verbs) both constructions can occur.

2.1.2 Differences with bare infinitives and English gerunds

Before discussing the data of PGs and PIs, I want to exclude from my analysis two constructions that superficially look like PGs and PIs, but actually have a different structure: (i) bare infinitive constructions in Romance; (ii) English gerunds.

Bare infinitives are also used in Romance perceptive constructions, like PGs and PIs (cf. (13) with (1)–(2)):

- (13) a. *Vi a Jorge llorar.* (Spanish)
 I.saw DOM Jorge cry
- b. *Vi o Jorge chorar.* (EP)
 I.saw the Jorge cry
 ‘I saw Jorge cry.’

Despite their similarity, bare infinitives have a different semantics, which is related to a different syntactic structure (*pace* Di Tullio 1998; Duarte 1992; Duarte and Gonçalves 2002):¹⁴ when a bare infinitive is used, the perception concerns an event perceived as a whole, and the logical subject of the infinitive is just part of it. With PGs/PIs, on the other hand, an individual (i.e. the antecedent) is perceived, at a time when he is involved in an event. As noted in Casalicchio (2016b: 61), this difference involves “the distinction between

(ii) *La vieron comiendo.*
 Her.CL they.saw eating
 ‘They saw her eating.’

¹⁴ For a more detailed discussion of the differences between bare infinitives and predicative constructions, see Barbosa and Cochofel (2004) and Casalicchio (2016b).

categorical andthetic predication”: only in PGs/Pis is the subject singled out from the event (as we expect in SCs). This different semantics is reflected syntactically because the logical subject of the infinitive, but not of the PG/PI, can be phonologically null (14). Furthermore, bare infinitives and PGs/Pis differ in their distribution, because the former can only be used with perception verbs, while PGs/Pis are used in all instances of stage-level SCs (15). Finally, recall that PGs/Pis can be coordinated with other types of SC, such as APs and PPs; bare infinitives cannot (cf. (16) with (7)–(8)):¹⁵

(14) *Oigo llover / *lloviendo.*

I.hear rain.INF raining
‘I hear it rain(ing).’

(15) *Encontré a Ana *llorar / llorando.*

I.found DOM Ana cry.INF crying
‘I found Ana crying.’

(16) **Vi a Juan [muy tranquilo] y [sonreír].*

I.saw DOM Juan very calm and smile.INF
(Di Tullio 1998: 202 fn. 8)

Finally, there is a language-internal difference between PIs and bare infinitives in EP: the antecedents of PIs can never appear in the nominative (17a), whereas in inflected bare infinitives they can (17b) (Raposo (1989):

(17) a. **Eu vi eles a trabalhar(em)* (EP)

I saw they.NOM A work(3PL.)
‘I saw them working.’

b. *Eu vi eles trabalharem.*

I saw they.NOM work.INFL
‘I saw them work.’

(examples from Raposo 1989: 288)

The other construction that I do not consider in this analysis is the English gerund. As argued in Felser (1999), in English perceptive constructions infinitives and gerunds share the same structure and only differ in their aspectual reading. If Felser is on the right track, English gerunds thus structurally

¹⁵ I give the relevant examples in Spanish, but the same holds for EP PIs.

correspond to Romance bare infinitives, but not to PGs and PIs (*pace* Rafel 2000).¹⁶

2.2 Main contexts of use for PGs and PIs

The correspondence between the language-internal distribution of Spanish PGs and that of European Portuguese PIs is striking: these two verb forms are perfectly overlapping, because they can both be used as secondary, stage-level predicates. Descriptively, we can enucleate four groups of contexts in which they are used, according to the syntactic role of the antecedent (or of the whole PG): it may be the subject (18) or the object of the matrix verb (19)–(20),¹⁷ the complement of a preposition (21), or used in “root contexts”, like captions or titles (22):¹⁸

(18) a. *Mario volvió a casa oliendo a vino.* (Spanish)

Mario came.back to home smelling to wine

b. *O Mario chegou a casa a cheirar a vinho.* (EP)

the Mario came.back to home A smell to wine

‘Mario came back home smelling of wine.’

(19) a. *Oí a Felipe cantando.* (Spanish)

I.heard DOM Felipe singing

b. *Ouvi o Felipe a cantar.* (EP)

I.heard the Felipe A sing

‘I heard Felipe singing.’

(20) a. *La policía lo sorprendió entrando por el techo.* (Spanish)

the police him surprised entering by the roof

‘The police caught him while he was entering by way of the roof.’

¹⁶ Romance bare infinitives in perceptive constructions are usually analysed as Exceptional Case Marking constructions, and not as SCs (Ciutescu 2013; Casalicchio 2016b). For the differences between English and Spanish gerunds, see Borgonovo (1996) and Fábregas and Jiménez-Fernández (2016), both of whom consider English – but crucially not Spanish – gerunds to be nominal constituents.

¹⁷ When the antecedent is the object of the matrix verb, the PG can have adjunct (19) or argument status (20), see Casalicchio (2013).

¹⁸ Cfr. Gutiérrez Araus (1992); Fernández Lagunilla (1999); Casalicchio (2013), a.o., where the reader can also find more examples of the different contexts. Note that these contexts are exactly the same as those that permit the use of PRs in other Romance languages like Italian (cf. above).

- b. *Ele apanhou os rapazes a roubar(em) galinhas.* (EP)
 he caught the boys A steal(3.PL) chickens
 ‘He caught the boys stealing chickens.’
 (Raposo 1989: 292)

- (21) a. *La foto de María haciendo las galletas*
 the picture of Maria making the biscuits
nunca la había visto antes. (Spanish)
 never it I.had seen before
- b. *A foto da Maria a cozinhar os biscoitos,*
 the picture of-the Maria A cook the biscuits
nunca tinha visto antes. (EP)
 never I.had seen before
 ‘I had never seen the picture of Maria making biscuits before.’

- (22) a. E. Delacroix, *La Libertad guiando al pueblo* (Spanish)
 the Liberty leading DOM-the people
A Liberdade a guiar o povo (EP)
 the Liberty A lead the people
 E. Delacroix, *Liberty leading the people* (title of painting)

3 Previous analyses

3.1 The analyses of PIs

The structure of Portuguese PIs is still debated in the literature, which divides along two lines in this regard. The first originates with Raposo (1989), who proposed that PIs are PP-Small Clauses headed by the preposition *a*. He interprets them as a particular type of control structure, where the antecedent (in my terms) is the controller and gets case from an element of the matrix sentence via Exceptional Case Marking (“ECM”). The proposed structures are shown in (23)–(24) for non-inflected and inflected PIs, respectively:

- (23) non-inflected PIs: $[_{PP} NP_i a [_{CP} [_{IP} PRO_i I VP]]]$
- (24) inflected PIs: $[_{PP} NP_i a [_{IP} pro_i I/Agr VP]]$
 (Raposo 1989: 287)

Note that when the infinitive is not inflected, the preposition *a*, which is the head of the SC, selects a CP, because in GB-terms the preposition must be unable to govern inside IP – otherwise it would trigger infinitive inflection. As a consequence, the subject of the infinitive is a PRO. In (24), however, I with Agr is assigned case by the preposition *a*, and this in turn enables it to case mark the null *pro* within the PP. The analysis of PIs as PPs was taken up later by Rafel (2000). However, this analysis raises two problems: i) it assumes that the antecedent and the preposition are merged in the Specifier and in the Head of the same projection; ii) the subject is generated in Spec,PP, from where it controls the null subject. As we will see *infra* (§ 4.2), however, both these assumptions are contradicted by the data.

The second line of analysis for PIs in EP was suggested by Duarte (1992) and Duarte and Gonçalves (2002). They propose that PIs are neither PPs nor control structures, but reduced clauses, i.e. AspPs:

- (25) Verb_{perc.} [_{AspP} NP [_{Asp'} [_{Asp°} a -r][_{AgRP} [_{AgP} [_{AgP} VP]]]]]
(Duarte 1992: 152)

In this analysis, the preposition *a* and the infinitival ending *-r* are analysed as a discontinuous morpheme. However, this analysis, which is reminiscent of Felser's (1999) analysis of English perceptive constructions, treats PIs and bare infinitives as the same structures (both are AspPs), without considering the important semantic and syntactic differences shown above (Section 2.1.2). Moreover, it makes the same wrong predictions as Raposo (1989) with regard to intervening material and the first-merge position of the antecedent.

Barbosa and Cochofel (2004) propose an account that aims to unify the main aspects of the two previous analyses: they share Raposo's (1989) analysis of PIs as control clauses, and discuss supporting evidence. At the same time, they argue that the preposition *a* expresses a progressive meaning, and is therefore merged in an aspectual projection, like in Duarte's (1992) and Duarte and Gonçalves' analysis, forming a Small Clause with the antecedent of the PI:¹⁹

- (26) [_{VP} Perception verb [_{SC} NP_i [_{AspP} a [_{TP} pro_i/PRO_i... V...]]]]]
(Barbosa and Cochofel 2004: 398)

The authors further suggest that the *a* in PIs is a preposition of central coincidence, following Hale's (1986) distinction between prepositions of central and

¹⁹ In Barbosa and Cochofel's analysis it is unclear how an AspP can select a TP, because usually AspPs are interpreted as lower than TP (see e.g. Cinque 2006).

non-central coincidence. This explains the progressive value of the construction, since central coincidence prepositions are generally associated with non-terminative (i.e. durative/progressive) meanings, because they focalise on a specific moment of the event.²⁰ I will come back to the role and position of the preposition and to the evidence against analysing PIs as control structures in Section 4, after discussing the main analyses of PGs.

3.2 The analyses of PGs and Rafael's (2000) comparative analysis of PGs and PIs

Borgonovo (1996) and Di Tullio (1998) offer two analyses of Spanish PGs. While Borgonovo compares Spanish and English gerunds in perceptive and nominal constructions (see *above*), Di Tullio mainly discusses the overall structure of PGs, considering the various contexts in which they can occur and proposing a threefold analysis, which is reminiscent of Cinque's (1992) threefold analysis of PRs. With regard to the internal structure of PGs, Di Tullio proposes that gerunds are AspPs, and that they are only distinguished from bare infinitives by aspectual properties:²¹

(27) VP [NP [_{AspP} -r / -ndo] VP] (Di Tullio 1998: 201)

This claim resembles Duarte (1992) and Duarte and Gonçalves' (2002) claim for PIs, although it was proposed independently – Di Tullio does not consider PIs. Nevertheless, as in Duarte's studies, the syntactic differences between PGs and bare infinitives are not taken into account, although these cannot be explained in purely aspectual terms, since they involve structural differences (see Section 2.1.2).

Rafel (2000) takes a different approach. As far as I know, he is the first scholar to have proposed a comparative analysis of PRs, PGs and PIs in perceptive constructions. He calls all these constructions "Complex Small Clauses", i.e. SCs with a more complex internal structure than ordinary SCs: they are a CP for PRs, a PP for PIs and an FP for (English) PGs:

²⁰ In Hale (1986), prepositions of central coincidence indicate that the location of the figure coincides with the ground. Prepositions of central coincidence in English include *on*, *in*, *at*. Prepositions of non-central coincidence, such as *from*, *to* or *into*, mean that the location of the figure is tangential to the ground, i.e. it either begins or ends at the ground (see also Demirdache and Uribe-Etxebarria 2000: 176).

²¹ To be more precise, Di Tullio proposes that bare infinitives correspond to one of the three structures she proposes for PGs, i.e. the clausal AspP structure.

- (28) a. *He visto a Juan que corría.* (Spanish; PR)
 I.have seen DOM Juan that he.run
 ‘I saw Juan running.’
- b. *Vi os abogados a trabajar(em).* (EP; PI)
 I.saw the lawyers A work(.INFL)
 ‘I saw the lawyers working.’
- c. *I saw John running.* (English; gerund)

- (29) a. [CP Juan_i que [IP pro_{expl.} [VP pro_i corría]]]]
 b. [PP Juan_i [P' a [CP \emptyset [IP pro_{expl.}/PRO_{expl.} [VP pro_i/PRO_i correr]]]]
 c. [FP John_i [F'-ing [CP \emptyset [IP PRO_{expl.} [VP PRO_i run(n)-]]]]
 (simplified representation of Rafel 2000: 79, 115, 210²²)

The common denominator of all these structures is that they are headed by an element that Rafel holds to be an aspectual marker: the complementiser in (29a), the preposition *a* in (29b) and the *-ing* ending in (29c). The subject of the Complex Small Clause²³ is base generated in the Spec of the Complex SC, and not moved from within the predicate; thus, PGs and PIs are control structures (as in Raposo's 1989; Barbosa and Cochofel's 2004 analyses).

Three critical points should be noted in Rafel's analysis: first, it differs from Di Tullio's (1998) and Barbosa and Cochofel's (2004) in not being based on reduced structures (AspP), because even PGs and PIs contain a full CP: the aspectual value of these constructions is not syntactically encoded in a dedicated projection, but is directly expressed by the aspectual marker. Moreover, PGs and PIs are more expanded than PRs, because the PP has a full CP as complement. This is clearly contrary to facts, because PGs and PIs only have a reduced TP (e.g. modals and auxiliaries are excluded), as I show *infra*.

Second, Rafel's analysis of PGs and PIs predicts that the antecedent and the infinitive or gerund must be adjacent. However, in both PIs (as noted above), and in PGs, some types of adverb can intervene between these two elements.

²² For a better comparison, in (29b) I give the structure of the sentence *Vi o Juan a correr*, corresponding to (29a) and (29c), instead of (28b). The only difference is that in EP there is no (overt) singular inflection for infinitives, thus the difference between inflected and uninflected infinitives is opaque.

²³ Note that the subject of the Complex SC may be either a lexical DP/pronoun (as shown in (29)) or a PRO coindexed with an argument of the matrix clause. According to Rafel, this accounts for the alternation between mono-constituent and bi-constituent structures. See Casalicchio (2014) for criticism of this approach.

Finally, Rafel's comparison is skewed by the fact that he considers mainly English – and not Romance – gerunds (see Section 2.1.2).

4 A unified analysis of PGs and PIs

Having discussed the main aspects of the analyses proposed in the GB and Minimalist frameworks, I now present a new proposal, based on a unified analysis of both PIs and PGs. To justify it, I first discuss synchronic and diachronic evidence for a structural correspondence between gerunds and PIs. Then, I show that the difference between these two constructions just depends on the position of the preposition *a*, which is merged earlier in PGs (and thus lower, in a position which is reached by the non-finite verb, giving rise to incorporation), and later in PIs. The preposition is present in both constructions because it is responsible for the progressive reading of the PG/PI. The antecedent, on the other hand, is merged in Spec,vP as usual, and is then moved to the Specifier of a FP:

- (30) a. *Vi a Pablo comiendo* (Spanish PG)
I.saw DOM Pablo eating
- b. *Vi o Pablo a comer* (EP PI)
I.saw the Pablo A eat
'I saw Pablo eating'
- (31) a. ... [FP Pablo [AspP comer + a [vP Pablo comer ...]] (PG)
↑
- b. ... [FP o Pablo [AspP a [AspP comer [vP Pablo comer ...]]] (PI)
↑

In the last part, I discuss two predictions made by my analysis that are borne out by the data.

4.1 Arguments for a structural correspondence of gerunds and prepositional infinitives

In this section, I discuss empirical and theoretical arguments that all point to a structural correspondence between PGs and PIs.

4.1.1 Empirical arguments

In the previous sections, I discussed some of the arguments for a correspondence between PGs and PIs, and their nature as SCs, recapitulated below:

- (1) In Romance, each variety uses either PGs or PIs. They only overlap in a few areas, where one of the two is usually the “traditional” form, while the other is “imported” (PIs in Southern Portugal, Azores and Madeira due to standard EP, some uses of PGs in Catalonia due to contact with Spanish), see § 2.1;
- (2) PGs and PIs share the progressive aspect: both refer to an ongoing event, without implying its completion (9);
- (3) finally, both PGs and PIs are SCs, as the following syntactic tests show:
 - (a) both PGs and PIs can be coordinated with other types of SC (APs and PPs, (7)–(8));
 - (b) PGs in languages like Spanish have exactly the same distribution as PIs in EP (§ 2.2);
 - (c) being SCs, both PGs and PIs require an overt antecedent (14).

Two further types of evidence support a unified analysis. The first is diachronic: in Romance, we find various cases of synthetic forms replaced by a PP headed by a functional preposition. This affected the case system in the passage from Late Latin to Early Romance, for example; not only in the case of nouns (32), but also of the Latin gerunds (*gerundia*), flected nominal forms of a verb that were replaced by infinitives headed by the preposition A or DE (33), see Tekavčić (1972):

- (32) a. CAMPI > DE CAMPO (genitive: ‘of the field’)
 b. CAMPO > A(D) CAMPO (dative: ‘to the field’)
- (33) a. AMANDI > DE AMARE (genitive: ‘of loving’)
 b. AMANDO > AD AMARE (dative: ‘to loving’)
 (Tekavčić 1972: 251)

As (32)–(33) show, in Late Latin the synthetic forms CAMPI and CAMPO evolved to DE CAMPO and A(D) CAMPO. Similarly, the gerundial forms AMANDI and AMANDO became DE AMARE and AD AMARE.

A similar change affected PGs in Northern Italy between the Medieval and the Modern period: Casalicchio (2016c) shows that most Northern Italian varieties used PGs up to the XIV century. Later on, PGs were completely replaced by PIs. This process took place sooner in some areas and later in others, but the change appears to have been sudden: until a certain period we find only PGs, but then, at a certain point, only PIs are used. Consider, for example, Milanese

and Friulian: in the first centuries of their attestation, we find only PGs ((34a) and (35a)). From as early as the XVII century onwards, PIs appear to have entirely replaced PGs ((34b) and (35b)):

- (34) a. *Quand hav intes Pillato | lo popul zo digando || ...*
 When has heard Pilatus the people this saying
 ‘When Pilate heard the people saying this, ...’
 (Bonv. S II, 41)
- b. *Quand mi sera maræ v’ han vist a piansc*
 When I was ill you.CL they.have seen A cry
 ‘When I was ill you were seen crying.’
 (Maggi, *Rime* XI 43)
- (35) a. *Tuest che vedè Ribalt vignint pe vie...*
 as.soon as she.saw Ribalt coming on way
 ‘As soon as she saw Ribaldo coming along that way, ...’
 (*Trav. Orl. Fur.* I, 79)
- b. *Cho chu ‘l soccors sintirin a vigni...*
 when that the help they.heard A come
 ‘When they heard the rescuers coming, ...’
 (*Trad. Orl. Fur.* IV 71)

The examples in (34) come from Milanese: they are taken from a religious poem by Bonvesin de la Riva (XIII century) (34a), and from a poem by Carlo Maria Maggi (XVII century) (34b). In both cases we have a perceptive construction, but in the first the gerund *digando* (“saying”) is used, while in the second we find the infinitive *piansc* (“cry”) preceded by the preposition *a*. In (35), I quote two Friulian examples taken from different vernacular versions of Ludovico Ariosto’s famous *Orlando Furioso*, dating back to the XVI and XVII centuries, respectively. In both cases the predicate of the perceptive construction is the verb *vigni* (“come”): it occurs as a gerund in (35a),²⁴ as a PI in (35b).²⁵

²⁴ The Friulian form *vignint* could derive from a Latin gerund or present participle. I analyse it as a gerund because in all the varieties in which gerunds are formally distinct from present participles (e.g. Spanish or Old Milanese in (34a)), only gerunds are used as secondary predicates, unlike in Latin (see also Casalicchio 2013, 2016c).

²⁵ Although all Friulian and Milanese examples are taken from verse forms, the choice between PGs and PIs is not conditioned by factors like metre or style, because they always resort to one of these constructions, and never to the other.

The same switch, from PGs to PIs, is also attested in EP (Cunha 1986; Barbosa 1999; Pereira 2015), a fact of considerable significance for my theory. However, even more remarkably, to the best of my knowledge, *the opposite situation, namely the switch from PIs to PGs, is never attested.*

The second type of evidence concerns gerunds and PIs in contexts other than secondary predication, i.e. in adverbial and periphrastic constructions. Adopting a pan-Romance perspective, we see the same complementary distribution of gerunds and PIs. In periphrastic constructions, the choice between the two forms depends both on the variety and the functional verb used: e.g. Spanish uses gerunds with *continue*, Italian and EP PIs (36).²⁶ In the progressive construction with *stare/estar*, however, PIs are limited to EP and some Italo-romance varieties (Casalicchio and Migliori 2018), witness (37):

- (36) a. *María sigue trabajando* / **a trabajar.* (Spanish)
 b. *Maria continua *lavorando* / *a lavorare.* (Italian)
 c. *A Maria continua *trabalhando* / *a trabalhar.* (EP)
 the Maria keeps working A work
 ‘Maria keeps working.’

- (37) a. *Estoy comiendo.* (Spanish)
 I.stay eating
 b. *Sto mangiando.* (Italian)
 I.stay eating
 c. *Estou a comer.* (EP)
 I.stay A eat
 d. *Stenghə a mmagna’.* (Ariellese, Abruzzo)
 I.stay A eat
 ‘I’m eating.’

A similar pattern holds for adverbial gerunds: we see the same complementary distribution, with some varieties resorting to gerunds, others to PIs. Although gerunds are the most widespread option (including EP, Lobo 2002, Lobo 2006; Brito 2003), in some cases EP and Italian admit the use of a PI as an alternative to a gerund (38–39),²⁷ or as the only option (40):

²⁶ In Brazilian Portuguese, *continuar* may take a gerund or PI, depending on the aspectual meaning of the resulting periphrasis (Oliveira et al. 2004).

²⁷ However, the use of adverbial PIs is more restricted than that of gerunds. In EP, as noted by Mória and Viotti (2004), they undergo severe temporal and aspectual restrictions. In Italian, on

- (38) *A Ana recitou o poema quase {cantando / a cantar}* (EP/BP)
 the Ana recited the poetry almost singing A sing
 ‘Ana – almost singing – recited the poetry.’
 (Móia and Viotti 2004: 136)
- (39) *{A pensarci / pensandoci} bene, non avresti dovuto*
 A think=of.it.CL thinking=of.it.CL well not you.had had.to
farlo (It.)
 do = it.CL
 ‘Considering the facts well, you shouldn’t have done it.’
- (40) a. **Avendo magnà màssa torta, el Giorgio l’ è sta mal.*
 having eaten too.much cake the Giorgio he.CL is been ill
 b. *A avér magnà màssa torta, el Giorgio l’ è sta mal.*
 A have eaten too.much cake the Giorgio he.CL is been ill
 (Trentino, ASIt 1.7, cited in Casalicchio and Cordin forthcoming)
 ‘Having eaten too much cake, Giorgio felt ill.’

So, the alternation between gerunds and PIs in Romance is not limited to their use as secondary predicates. Rather, it is found in all contexts, not only in diachrony, but also in synchrony. It is crucial to note that in all the Romance languages I have examined *the only two forms that can appear are gerunds or infinitives selected by the preposition a, and never other forms*, like past participles, or infinitives selected by other prepositions or bare infinitives, which are frequently used in other contexts.

4.1.2 Theoretical arguments

The idea that gerunds are structurally PPs has already been proposed in some formal studies, such as Mateu (2002); Panagiotidis (2010); Fábregas (2008); Gallego (2010); Gallego and Hernanz (2012), a.o. Unlike the present article, however, they only consider periphrastic or adverbial gerunds, and not PGs. Moreover, no study on Romance has ever compared PGs with PIs as secondary predicates.

the other hand, the most important restriction is the ban on the occurrence of an overt subject: only a PRO can be used, unlike in adverbial gerunds (Casalicchio 2016b).

A first proposal to consider gerunds as (locative) PPs comes from Mateu (2002), who suggests that “[...] the progressive construction must be regarded as implying a locative unaccusative structure over the corresponding argument structure lexically assigned to the verb.” (Mateu 2002: 134). This means that progressive constructions are locative adverbials (“a locative unaccusative structure”). To support this claim, he cites cross-linguistic evidence of progressive forms, realised with a preposition followed by the nominal form of the verb in various languages. Furthermore, he adds evidence from Bolinger (1971),²⁸ who observed that the English progressive derives from a prepositional phrase (*working* < *aworking* < *on+working*²⁹). Finally, he notes that the progressive form can often be replaced by a prepositional expression, as these examples show:

- (41) a. *He is at work* *He is working*
 b. *She is at prayer* *She is praying*
 (Mateu 2002: 137)

Note that this property is not restricted to English, since it is also present in Spanish, as shown by Masullo (2008):

- (42) a. *de fiesta* (lit. of party) *festejando* (celebrating)
 b. *de caza* (lit. of hunt) *cazando* (hunting)
 (Masullo 2008, cited in Gallego 2010: 88)

However, in all their examples Bolinger and Masullo compare gerundial forms with PPs that take a nominal complement; neither considers the correspondence of gerunds with other verb forms (such as PIs).

Mateu further argues that the preposition involved in progressives is a preposition of central coincidence (Hale 1986), as independently proposed, two years later, by Barbosa and Cochofel (2004) for Portuguese PIs (see above). Thus, a sentence like “John was breaking the window” should receive the following transparent syntactic meaning:

²⁸ Note that Bolinger originally wanted to show that the *-ing* ending of progressives is an adverbial nominal, and not a prepositional form. Some pieces of evidence he cites only apply to English. I do not consider them here.

²⁹ The gerundial forms with a preposed *a* are still used in some varieties of Modern English (*He's a-running*).

- (43) a. be [John centrally located in [event [cause [the window TCR break]]]]
 b. =John was centrally located in the event of causing the window to become broken
 (Mateu 2002: 142)


Panagiotidis (2010) follows a similar line of investigation in his analysis of Greek and Hebrew adverbial gerunds, although he does not propose that the preposition is incorporated, but that it is phonologically null and selects the gerundial clause:

- (44) *irthe* [pp∅ *traghudh-ondas*] (Modern Greek)
 he.came singing
 ‘He came singing.’
 (Panagiotidis 2010: 178)

Panagiotidis proposes that the null P expresses temporal value, independently of the value of the gerund, which may be modal, causal, or other. He explains this by means of an inclusion relation (\subseteq) of the type in (45): the event of the matrix clause $\tau(\text{ME})$ is contained in the event expressed with the gerund $T(\text{GE})$:

- (45) $\tau(\text{ME}) \subseteq T(\text{GE})$

Gallego (2010) and Gallego and Hernanz (2012) also take up Mateu’s analysis (2002), focussing on Spanish gerunds. They, too, propose that gerunds incorporate a preposition of central coincidence. Gallego (2010), in fact, suggests that the preposition has a hybrid nature, because it also participates in some of the properties of the complementiser. Following a proposal by Pesetsky and Torrego (2004), Gallego posits that P and T are contextual versions (i.e. allomorphs) of the same abstract category, since they are both birelational predicates. He suggests the following analysis (46):

- (46) [PP P [CP C* ... [TP tT ... [v*P V* ...]]]] (Gallego 2010: 90)


In (46), the P is first merged in TP, to which position the verb also moves. The P incorporates into V, and the whole P-V complex then moves to the PP. The nature of adverbial gerunds as “infinitives + P” is demonstrated by (examples adapted from Gallego 2010: 86 f.):

- (i) gerunds cannot have a subordination marker (first noted in Hernanz 1994):

- (47) (**Por*) *habiendo demostrado el domador su valentía ...*
 (*for) having shown the tamer his bravery...
 ‘The tamer having shown his bravery, ...’

(ii) gerunds cannot be preceded by an overt preposition in verbal periphrases (in other contexts, however, they can be, see Section 4.2.2):

- (48) *empezar (*a) gritando*
 begin A shouting
 ‘to start shouting’

(iii) gerunds cannot be used in complement positions, unlike in English:

- (49) *Quiero ganar / *ganando.*
 I.want win winning
 ‘I want to win.’

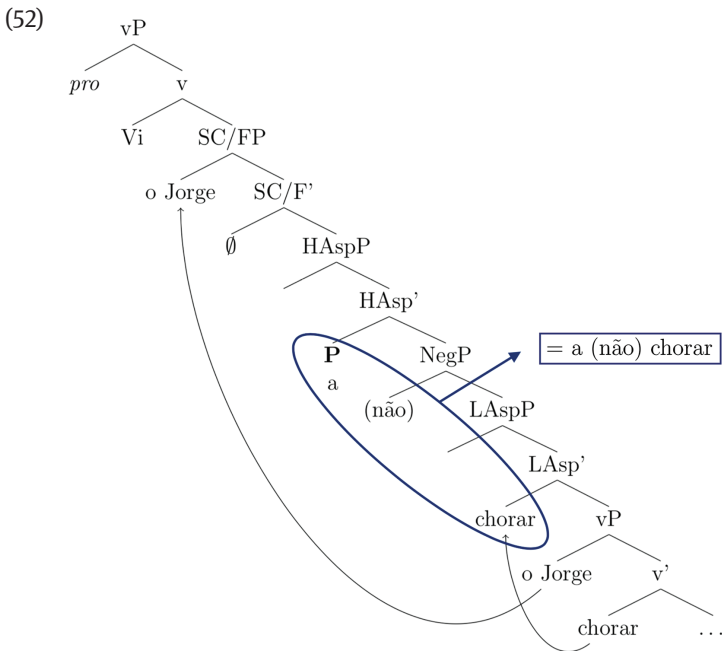
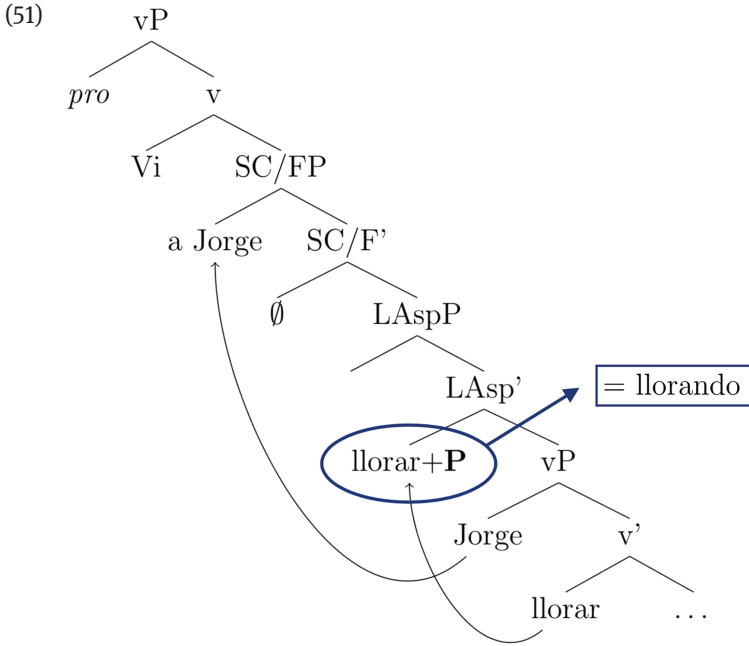
For these reasons, Spanish gerunds cannot be considered as correspondent to infinitives; the hypothesis that gerunds are a “P+infinitive” complex clearly explains the differences between these two verb forms. Gallego’s proposal can also be adapted to PGs, although there are some differences concerning especially the size of PGs vs. adverbial gerunds (see below).

Having discussed these different arguments in favour of a unified analysis, I now present my proposal that PGs and PIs are only distinguished by a parametric variation regarding the merging site of the preposition.

4.2 The structure of Prepositional Infinitives and Predicative Gerunds

As we saw in the previous section, the distribution of gerunds and PIs overlaps in Romance, sometimes even within the same variety. I suggest that this happens because there is a structural correspondence between the two constructions. The basic structure for PGs (51) and PIs (52) is:

- (50) a. *Vi a Jorge llorando.* (Spanish PG)
 I.saw DOM Jorge crying
 b. *Vi o Jorge a chorar.* (EP PI)
 I.saw the Jorge A cry
 ‘I saw Jorge crying.’



The structures of PGs (51) and PIs (52) differ minimally:³⁰ what changes is the position of the preposition. In PGs, it is merged in a lower AspP (“LAspP”),³¹ in the projection to which the verb also has to move. As a consequence of this movement, the verb incorporates into the preposition, resulting in the formation of a gerund. In (52), however, the preposition is merged later and is therefore in a higher AspP (HAspP), which is not reached by the infinitive (unlike the proposals of Duarte 1992; Duarte and Gonçalves 2002). The verb moves to a low AspP like in Spanish, but since it does not reach the projection in which P is hosted incorporation cannot take place. The P is thus spelled out as *a*. This analysis makes a clear prediction: in PIs, material can intervene both between the antecedent and the P and between the P and the infinitive.³² Finally, the antecedent moves to the Specifier of the SC, whose Head is not realized (or possibly filled by a Relator, as proposed in den Dikken 2006).

In the next section I discuss the evidence for the different parts of the structures in (51) and (52), and then I come back to the predictions made by my analysis.

4.2.1 Evidence for the structure proposed for PGs and PIs

The PG and PI structures proposed in (51) and (52) contain three claims that I discuss in this section: i) the preposition in a PI is merged later, and thus in a higher AspP; ii) as a consequence, the complement of the SC is more reduced in PGs than in PIs: it is a LAspP in PGs, a HAspP in PIs; iii) PGs and PIs are not control structures.

First, in PIs the preposition is merged in HAspP, thus neither in the projection to which the verb moves (as claimed by Duarte 1992; Duarte and Gonçalves

30 I do not consider the alternation between mono-constituent and bi-constituent PGs/PIs (cf. (11) vs. (12)) and only discuss the mono-constituent version here. However, the same analysis applies to the biclausal version, the only difference being that the antecedent is located in the matrix clause and from there controls a coindexed null subject within the SC.

31 I refer here to a generic AspP; if we adopt the cartographic model of the TP, we must say that the exact aspectual projection depends on the context in which a PI (or a PG) is uttered, see Casalicchio (2014) for a detailed outline of the different aspectual projections attested in Spanish and Catalan PGs.

32 An alternative account would be that the P is merged in the same projection in both languages and the infinitive moves higher in Spanish. However, Schifano (2018) shows that there is no significant variation in the movement of infinitives in Spanish and EP.

2002; Barbosa and Cochofel 2004), nor in the head of the SC (52), as in Raposo's (1989) and Rafael's (2000) analysis. My account is based on the fact that adverbs can occur both on the right and on the left of the P, showing that it must be in a separate projection. If we now consider the derivation of the PI, the first element to be merged (i.e. moved) outside the vP/VP is the infinitive itself, as its position with respect to low TP-adverbs (Cinque 1999) shows:³³

- (53) *Ouvi o Jorge a (*bem) cantar (bem).* (EP)
 I.heard the Jorge A (well) sing (well)
 'I heard Jorge singing well.'

In (53), the infinitive *cantar* must occur to the left of the low adverb *well*, which sits in Spec,VoiceP, at the boundary between TP and vP (Cinque 1999, 2006). Since Cinque shows that the lowest projections in the TP are dedicated to Aspect, the non-finite verb must reach (at least) a low AspP. Thus, the preposition must be higher than this projection, otherwise it would sit in the same position as the verb, and this would lead either to the unattested order **cantar a*, or to the incorporation of the preposition into the verb (and thus to a PG, see *infra*). We thus find the following preliminary order of elements:

- (54) $a > [_{LAspP} \text{Verb } [_{VoiceP} \textit{well}]$

Moreover, the preposition cannot be in LAspP because it occurs higher than the negation, which precedes the low aspectual projections (Zanuttini 1997; Cinque 1999, Cinque 2006):

- (55) *Todos nós vimos Deco a não meter um golo* (EP)
 all we saw Deco A not shoot a goal
 'We all saw that Deco did not shot a goal.'
 (real example, cited in Barbosa and Cochofel 2004: 388)

In addition, the sequence "a + inf." can be interrupted by some adverbs (which are themselves higher than negation), as shown by Barbosa and Cochofel (2004):

³³ Belletti (1990) shows that in some Romance languages like Italian the infinitive moves to the TP layer. Her claim, although it was not formulated on the basis of predicative constructions, can also be extended to them, as shown in (53).

- (56) *Eu não estou a ver o primeiro Ministro a, de repente,*
 I not stay to see the first Minister A of sudden
ceder poderes ao Presidente da República
 cede powers to-the President of-the Republic
 ‘I’m not seeing the First Minister suddenly ceding powers to the President of the Republic.’
 (real example, cited in Barbosa and Cochofel 2004: 388)

Thus, the order of the elements in TP is:

- (57) $a > [{}_{\text{HAspP}} \textit{de repente} [{}_{\text{NegP}} \textit{não} [{}_{\text{LAspP}} \textit{Verb} [{}_{\text{VoiceP}} \textit{well}]$

On the other hand, some adverbs can occur above the P, i.e. between the antecedent and *a*:³⁴

- (58) a. *Vi a Ana descaradamente a tirar a última fatia do bolo*
 I.saw the Ana brazenly A take the last piece of-the cake
 ‘I saw Ana brazenly taking the last piece of cake.’
 b. *Eu vi o avô {já} a {já} não respirar*
 I saw the grandpa already A already not breathe
e percebi que ele estava morto.
 and I.perceived that he stayed dead
 ‘I saw grandpa not breathing anymore and I realised that he was dead.’

Note that the adverb *já* in (58b) can be placed both before and after the preposition (at least for some speakers I consulted), which shows that there is some variation. This shows that the P is still merged in AspP, although in a higher projection than the P of Spanish PGs:³⁵

- (59) $[{}_{\text{HAspP}} \textit{já} [{}_{\text{HAsp}^\circ} \textit{a} [{}_{\text{HAspP}} \textit{já} [{}_{\text{NegP}} \textit{não} [{}_{\text{LAspP}} \textit{Verb} [{}_{\text{VoiceP}} \textit{well}]$

The second claim concerns the size of the SC hosting the infinitive and the gerund. In the structures in (51) and (52), they are both analysed as AspPs, unlike Raposo’s (1989) and Rafael’s (2000) proposals (cf. the structures in (23)–

³⁴ I thank two anonymous reviewers for pointing out this fact to me, and providing me with the examples cited in (58).

³⁵ Note that the fact that *a* is clearly merged in HAspP shows that it cannot be analysed as a prepositional complementiser in Rizzi’s (1997) sense; nor can it be considered as the spell-out of den Dikken’s (2006) relator: in this case it would be merged as Head of the SC, which it clearly is not.

(24) and (29), respectively). I argue for this solution again on the basis of empirical evidence: not only do some adverbs occur higher than the preposition or the PG, but modal verbs, which occur in the higher portion of the TP (Cinque 1999, Cinque 2006), are ruled out in PGs/PIs. In (60), I give the relevant examples for PGs, but the same observations hold for PIs:

- (60) **Vi a Juan debiendo / pudiendo cantar.*
 I.saw DOM Juan having.to being.able sing

Furthermore, PGs and PIs have no temporal specification on their own (as we would expect if they had a full TP), and their temporal interpretation depends on the tense of the matrix verb. Again, the examples are given with PGs, but also hold for PIs:³⁶

- (61) **Hoy veo a Pablo {trabajando / habiendo trabajado} ayer.*
 today I.see DOM Pablo working having worked yesterday

Finally, recall that according to Raposo (1989), PIs cannot check nominative case, as we would expect if they were full TPs (see, again, ex. (17a)). The same holds for PGs:

- (17) a. **Eu vi eles a trabalhar(em)* (EP)
 I saw they.NOM A work(INFL.)

The properties noted here are valid for both PGs and PIs: both are AspPs. However, there are also differences between these two constructions: as we saw above, negation is possible in EP through the use of the standard negation *não*, but PGs cannot be negated with *no* (cf. (62) with (55)), Fernández Lagunilla (1999, 2011a):

- (62) **Todos nos vimos a Deco no metiendo un gol* (Spanish)
 all we saw DOM Deco not making a goal

This difference shows that the structure of the complement of the SC is more extended in PIs than in PGs, because in the former it also includes NegP. Thus, I propose that the procrastination of the merge of *a* in PIs results in the expansion of the structure of the whole SC.

³⁶ Note that both PIs and PGs differ in this respect from their adverbial counterpart (see below).

My last claim regarding the structures in (51) and (52) concerns the coindexation mechanism of the antecedent with the syntactic subject of the embedded clause. We have seen that Raposo (1989), Rafel (2000), and Barbosa and Cochofel (2004) propose that there is a control relation. For PRs, this claim has been put forward by Grillo and Moulton (2015) and Casalicchio (2016a), on the basis of the reconstruction test: reconstruction effects have previously been used by Belletti and Rizzi (1988) to distinguish between raising and control structures. In the case of Italian psych-verbs like *preoccupare* (“worry”), reconstruction effects are grammatical with raising (63), but not with control, verbs ((64), examples taken from Casalicchio 2016a).³⁷

(63) *I propri_i figli sembrano preoccupare Gianni_i* (Italian – raising)
 the own children seem worry Gianni
 ‘His own children seem to worry Gianni.’

(64) **I propri_i figli credono di PRO preoccupare Gianni_i* (control)
 the own children believe of worry Gianni

In PRs, reconstruction yields ungrammatical effects, thus Grillo and Moulton (2015) and Casalicchio (2016a) analyse them as control structures.³⁸ I have used the same test with PGs and PIs, and in this case the majority of consulted speakers found reconstruction acceptable (if sometimes a bit marginal):

(65) *Es una pena ver a sus propios_i niños preocupando a Juan_i*
 it.is a pity see DOM his own children worrying DOM Juan
 ‘It is a pity to see that his own children worry Juan’ (Spanish)

(66) *Imagina os próprios_i meninos a preocupar o João_i* (EP)
 Imagine the own children A worry the João
 ‘Imagine that his own children worry João.’

³⁷ In this paper, I follow Landau’s (2000 *et seq.*) theory of control, which better explains the difference between (63) and (64) than does the Movement Theory of Control (Hornstein 1999 *et seq.*). Moreover, it also allows us to explain why reconstruction is grammatical with PGs and PIs, but not with PRs.

³⁸ Similar analyses were also proposed in the pre-minimalist framework; see e.g. Brito (1995) for EP, who posits that the subject is merged outside the CP and coindexed with a *pro*.

This indicates that – unlike in PRs – the subject does not control a PRO-subject from outside, but is first merged as the External Argument of the embedded verb in Spec,vP, and then moves to the Specifier position of the SC.³⁹

4.2.2 Predictions of the proposed analysis

The contrastive analysis proposed in (51) and (52) makes two important predictions, which are verified in this section: first, the analysis predicts that even in languages with PGs, like Spanish, a PI shows up when incorporation is not possible (i.e. when a lexical preposition is used instead of the functional preposition *a*). Second, PGs may be preceded by another preposition (e.g. *en durmiendo*, lit. “in sleeping”). All two predictions are borne out.

The first prediction concerns the replacement of PGs by PIs even in languages like Spanish, when PGs are ruled out by some independent factor. I have already mentioned that in Spanish, a PG cannot be negated with the usual negative adverb *no*. However, this restriction does not hold for all gerunds. In fact, adverbial gerunds can be negated in two ways: either by using the negative element *no* before the gerund, or by using the preposition *sin* (“without”). In the latter case, however, the verb does not show up as a gerund, but as an infinitive:

- (67) Negation of gerunds in Spanish:
- a. *no* + gerund (*no comiendo*)
 - b. *sin* + infinitive (*sin comer*)
 - c. **sin* + gerund (**sin comiendo*)

Fernández Lagunilla (2011a) shows that the choice between (67a) and (67b) depends on complex semantic and syntactic constraints; in some cases both options are possible (usually with semantic/structural differences):

³⁹ The movement of the antecedent to the Specifier of the SC may be caused by an EPP feature: as proposed by Belletti (2008) in her analysis of cleft sentences, a SC is any constituent where a predication (i.e. a subject-predicate) relation obtains. This is formally expressed, she suggests, by an EPP-feature in the Spec of the SC.

Note that this also explains why the antecedent can occur to the right of the gerund/PI, as noted in Fábregas and Jiménez-Fernández (2016). This possibility is excluded for PRs, since the antecedent is merged on the left of the predicate:

- (i) *Ví comiendo a Pablo.*
 I.saw eating DOM Pablo
 ‘I saw Pablo eating.’

- (68) a. *Ganaron el partido no cometiendo faltas personales.*
 they.won the match not making fouls individual
 ‘They won the match because they didn’t make individual fouls.’
 b. *Ganaron el partido sin cometer faltas personales.*
 they.won the match without make.INF fouls individuals
 ‘They won the match and didn’t make individual fouls.’
 (Fernández Lagunilla 2011a: 247)

In (68a), the negated gerund explains the cause of the team’s victory, while the PP headed by *sin* in (68b) merely expresses a concomitant action.

In other cases, the construction “*sin* + infinitive” is preferred, or even the only available option. If we want to negate the event expressed by the gerund in (69), we may use either (70a) or (70b):

- (69) *María sigue soportándote* (Spanish)
 Maria keeps bearing=you.CL
 ‘Maria still bears you.’
- (70) a. *?María sigue no soportándote*
 Maria keeps not bearing-you
 b. *María sigue sin soportarte*
 Maria keeps without bear=you
 ‘Maria still doesn’t bear you.’

In example (70) the gerundial construction is selected by a functional verb and forms a periphrasis; both negative forms are possible with the same meaning, although the “*no* + gerund” form is judged as marginal.

In other cases, however, an event expressed by the gerund can never be negated, whether with *no* or with *sin*. This is usually the case in PGs, which are often described as incompatible with negation. However, this assertion is often based on perceptive constructions, which do, indeed, usually reject negated PGs (but for semantic reasons, see *infra*). If, on the other hand, we look at PGs in other contexts, we see that the secondary predicate can be negated with *sin* when the following conditions apply: (i) the matrix verb is of movement, speaking or achievement (cf. Fernández Lagunilla 2011a: 250 f.) and (ii) the antecedent is the subject of the matrix clause. In these cases, only the negation with *sin* is possible:

- (71) a. *??/*Juan volvió a casa no oliendo a vino*
 Juan came.back to home not smelling to wine

- b. *Juan volvió a casa sin oler a vino*
 Juan came.back to home without smell to wine
 ‘Juan came back home without smelling of wine.’

However, even with perception verbs things are less straightforward than they appear at first sight. In fact, with verbs like *see* or *catch*, events negated with *sin* are possible in some varieties of Spanish, in favourable contexts.⁴⁰ In fact, a sample Google search (12/9/2018) produced various results for “*sin* + infinitive” with these two verbs. Some examples are:

- (72) *XDDDDD siempre te veo con ellos puestos de hecho nunca*
 XDDDDD always you I.see with them put.on in fact never
te he visto sin escuchar música
 you I.have seen without listen.to music
 ‘[laughter] I always see you with them (sc. your headphones) on, in fact I’ve never seen you not listening to music (=Every time I see you you’re listening to music)’
 (<https://www.clubensayos.com/Historia-Americana/Ygtxgcvj/b/2307407.html>)
- (73) *Si las nueve campanadas, me dije, me sorprenden sin tener*
 if the nine chimes me I.told me catch without have
la mano sobre la aldaba de la puerta,
 the hand on the knocker of the door
algo funesto acontecerá.
 something ill-fated will.happen
 ‘If the nine chimes catch me when I don’t have my hand on the door-knocker, I told myself, something ill-fated will happen.’
 (A. Reyes, *La cena*)

(72) and (73) are formed with a perception verb, respectively, *ver* (“see”) and *sorprender* (“catch”), which take as their complement a PP headed by the preposition *sin*. In both examples it is clear that the subject of the PP is coindexed with the object of the perception verb, and not with the matrix subject, as the context shows: in (72) the addressee is listening to music

40 The negation of predicative constructions with *sin* is most widely accepted by American speakers, while it is generally considered ungrammatical by the Spanish speakers of Catalonia. In the rest of Spain, opinions diverge. Note that (72)–(73) are written by American speakers, (74) by a Spanish author from Castilla – La Mancha.

whenever he is seen by the speaker. The example (73) is formed with the verb *sorprender* (“catch”): the antecedent of the PP headed by *sin* is caught not doing something he should be doing (keeping his hand on the knocker).

Complements with *sin* are SCs, like PGs and PIs; more precisely, syntactically they are PIs, and therefore they behave like Portuguese PIs, rather than like Spanish PGs. This is shown by the next examples, again taken from Google:⁴¹

- (74) *Mientras, observo a mi tío con la mirada perdida,*
 in.the.meantime I.observe DOM my uncle with the look lost,
sin ya comer, negando con la cabeza
 without any.more eat negating with the head
y sujetándose el mentón con las manos entrelazadas.
 and seizing the chin with the hands joint
 ‘In the meantime, I observe my uncle and see that he has a lost look, that he has stopped eating, is shaking his head and grasping his chin with hands interlinked.’
 (<http://ita.calameo.com/books/004354687c0c555487c36>)

- (75) *Zeus rescato (sic!) a su hijo todavía sin nacer*
 Zeus rescued DOM his son yet without be.born
 ‘Zeus rescued his as yet unborn son.’
 (<https://it.answers.yahoo.com/question/index?qid=20111215085412AAAQEqg>)

The example in (74) is particularly revealing, because the PI with *sin* is coordinated with three other SCs, two of them formed with a PG and one with a PP. This confirms the analysis of this type of *sin*-clause as a SC, just like PGs and PIs. Comparing (74) and (75) we find a second important clue, namely the position of the adverbs, which

⁴¹ As one anonymous reviewer has pointed out, EP also allows the negation of the PI through “*sem* + infinitive”, as an alternative to “*a não* + infinitive”. This may point to the fact that, at least in EP, *sem* is itself the result of the incorporation of a preposition of central coincidence (*a*) with the negation, as shown by the fact that i) *sem* cannot be used to negate a bare infinitive (see fn. 42); and ii) *sem* can only be preceded, but not followed, by adverbs, unlike in (58b):

- (i) *Eu vi o avô (já) sem (*já) respirar e percebi que*
 I saw the grandpa already without already breathe and I realised that
ele estava morto.
 he was dead
 ‘I saw that grandpa was no longer breathing and I realised that he was dead.’
 (A. Fiéis, p.c.)

I leave the exact analysis of *sem* in PIs open for future research.

can follow (as is the case of *ya* in (74)) or precede (*todavía* in (75)) the preposition *sin*. This double pattern exactly mirrors what we found with PIs in EP ((55)–(56), and (58)) and confirms my analysis: the preposition is neither the head of the SC, nor is it merged in the projection to which the infinitive moves. Examples (74)–(75), which are not constructed but real, hence confirm the analysis proposed in (52).⁴²

All the examples thus clearly show that secondary predicates *can* be negated with the preposition *sin* – in at least some Spanish varieties –, and that this eventuality is not ruled out syntactically, although it is usually considered odd on semantic grounds. In appropriate contexts, however, they are perfectly acceptable. Note that these examples correspond to secondary predicate PPs taking a nominal complement:

- (76) a. *Lo vieron sin pantalones*
 him they.saw without trousers
 ‘They saw him without [his] trousers.’
 b. *Lo sorprendieron sin papeles*
 him they.caught without documents
 ‘They caught him without documents.’

As demonstrated in the above discussion, the use of “*sin* + infinitive” as a negative counterpart to PGs is important evidence for my overall hypothesis. But why does Spanish resort to a PI in negative contexts? I propose that this is due to the fact that the negation with *no* is excluded from PGs for structural reasons (as we have seen, they have a reduced TP, where NegP is not available). *Sin*, however, is available, but since it is a lexical rather than a functional preposition, unlike *a*, it cannot incorporate into the verb.⁴³

42 Note that the construction with *sin* is only the negative counterpart of a PG, and not of a bare infinitive construction: indeed, this construction cannot be used in those contexts in which PGs (but, crucially, not bare infinitives) are ruled out. Weather verbs are a good example: they are compatible with bare infinitives but not with PGs (cf. (14)). Consistently with our proposal, they are also incompatible with *sin*-constructions:

- (i) **Vi sin llover* (Spanish)
 I.saw without rain

43 As noted by one anonymous reviewer, in Old Portuguese (but crucially not in Modern Portuguese) the negation pattern “*sem* + gerund” is attested (see Fiéis and Lobo 2009). Fiéis and Lobo (2011) suggest that this is due to a different featural make-up of gerunds in Old and Modern Portuguese: Old Portuguese gerunds had underspecified ϕ -features, Modern Portuguese have [- ϕ].

Finally, the proposed analysis also gives a straightforward explanation of why most Romance varieties have gerunds preceded by a preposition in restricted contexts, at both past and current language stages. The most well-known example is of course the French *gérondif*, which is used with adverbial value and is formed by the preposition *en* + the form of the *participle présent* (see fn. 7):

- (77) *Il le disait en riant.* (French)
 he it.CL said in laughing
 ‘He said it laughing.’

EP adverbial gerunds can also be preceded by the preposition *em*:⁴⁴

- (78) *Em ele vindo ao Porto, falamos nisso* (EP)
 in he coming to-the Porto we.talk on.that
 ‘When he’ll come to Porto we’ll talk about that.’
 (Brito 1984: 431)

There are also examples of PGs preceded by prepositions, however. Here are some examples from different languages:

- (79) a. *Audisti de Sansone, | cum’ el fo ençegnao:*
 you.heard of Samson how he was deceived
la moier en dormando | le crene li taiao. (Old Venetian)
 the wife in sleeping the hair him cut
 ‘Have you heard how Samson was deceived? His wife cut his hair off while he was sleeping.’
 (*Proverbia*, 93-94)
- b. *El... veseva gia a madirond sias tschereschas pigl om*
 He saw yet to ripening his cherries for-the year
vegnent.
 coming
 ‘He ... saw his cherries already ripening the next year.’
 (Sursilvan Romansh: Liver 1991: 72)

⁴⁴ Since an overt subject of adverbial gerunds can never be in first position, Brito (1984) suggests, in a pre-minimalist framework, that the preposition *em* be located in C° and licenses – together with the feature [Tense] of Comp – the gerund’s subject. See also Fiéis and Lobo (2009).

- c. *L yq partì a kantando.* (Istriot)
 he is leaved to singing
 ‘He left singing.’
 (Cernecca 1976: 238)

(79a) is an example of Old Venetian (XIII century), where the PG *en dormando* (“sleeping”) refers to the indirect object *li* (“him”, i.e. Samson). The examples (79b-c), on the other hand, come from currently spoken varieties: (79b) is Sursilvan, a Romansh dialect spoken in Switzerland. In this case, the prepositional gerund is used in a perceptive construction. Finally, (79c) is a PG on the subject from Istriot, spoken in south-western Istria. The link between a preposition and the gerund may even lead to a full grammaticalization of the “P + gerund” complex, like in the French example (77) and in some dialects spoken in Trentino (north-eastern Italy), where the preposition *in* and the gerund have become one morphological unit: in Val Cismon, there are some fixed forms which derive from a prepositional gerund: *incantèn* (> Latin IN CANTANDO, “singing”), *incorèn* (< Latin IN CURRENDO, “running”), Tissot (1976).

In my analysis of PGs (51), the presence of a preposition is accounted for by the fact that it is possible for an additional preposition to be merged, with the function of an aspectual marker, in the same projection in which *a* is merged in EP.⁴⁵

4.3 A final note on adverbial gerunds

The analysis presented in this paper is based on PGs and PIs used as secondary predicates. It is legitimate to wonder, however, whether and to what extent this analysis can be extended to other contexts – especially adverbial gerunds – which differ syntactically from PGs in various ways.⁴⁶

First of all, consider that there are two types of adverbial gerunds: internal modifiers, which are similar to PGs in many respects and also have a reduced TP structure, and external (or peripheral) modifiers, which are full TPs or (at least in some cases) CPs. There is abundant evidence for this difference (see e.g. Fernández Lagunilla 1999 for Spanish, Lobo 2002, Lobo 2006, and Lobo 2013; Brito 2003 for EP): only external modifiers can have a modal or auxiliary verb (cf. (80) with (60)) and are temporally independent ((81) vs. (61)), while internal modifiers behave like

⁴⁵ For a similar proposal, limited to adverbial gerunds, see Gallego and Hernanz (2012).

⁴⁶ This important question was raised by an anonymous reviewer.

PGs. Moreover, only external modifiers can have an independent – always post-verbal – subject, to which they assign nominative case (82):

- (80) *Pudiendo quedarse en casa, Pedro decidió acompañarme.* (Sp.)
 can.GER stay at home Pedro decided go.with=me
 ‘Although he could have stayed at home, Pedro decided to go with me.’
 (Fernández Lagunilla 1999: 3446)
- (81) *Empezando hoy el trabajo, acabaríamos mañana.*
 starting today the work we.would.finish tomorrow
 ‘If we started this job today, we would finish tomorrow’
 (Fernández Lagunilla 1999: 3458)
- (82) *Vindo ele ao Porto, falaremos nisso.* (EP)
 coming he.NOM to-the Porto we.will.walk in.that
 ‘If he comes to Porto, we’ll talk about it/that.’
 (Brito 1984: 432)

I suggest that this difference between PGs and external gerunds can be explained if we adopt Gallego’s (2010) proposal that the latter have the P merged in T, thus later than in PGs. However, incorporation can take place because here the verb has to move independently to TP or CP, due to the sentential nature of external gerunds – thus it incorporates the P even if it is higher in the structure. Note that the different merging site of the P correlates with the fact that gerunds used as external modifiers are much more flexible in their temporal and aspectual interpretation than PGs, since they can indicate, among other things, anteriority or posteriority, a result or a progression.

5 Conclusions

In this article I have proposed a new approach to the analysis of both PGs and PIs. The proposal is based on the detailed observation and comparison of data from several Romance languages, mainly Spanish and Portuguese. My investigation reveals that the two constructions share more than just their syntactic distribution: theoretical considerations, their diachronic evolution and the synchronic evidence all point to the fact that PGs and PIs should be analysed as having the same structure. On the other hand, both perceptive constructions with bare infinitives and English gerunds have a different structure, and must be accounted for in a different way.

The crucial difference between PGs and PIs is that in PGs the preposition is merged in a low AspP, while its merge has been procrastinated in PIs, thus the P is higher. This process has resulted in a more expanded structure for PIs, which means that they can host more elements than can PGs, such as negation and some types of adverb. A crucial point in favour of this analysis is that when Spanish cannot use a PG for syntactic reasons (i.e. when the event is negated) it also uses a PI headed by the preposition *sin*.

This study offers a detailed comparison of PGs and PIs, which confirms the interpretation of gerunds as PPs (first proposed by Mateu 2002). A further (and new) piece of evidence discussed in this paper concerns the analysis of the diachronic evolution that has led some varieties to switch from PGs to PIs. The preposition is responsible for the aspectual reading: the data discussed here lead me to suggest that the preposition sits in an AspP and is not the head of the SC.

Another issue tackled by this paper is the merging site of the antecedent: I discuss new evidence, gained from the reconstruction test, which shows that it must be externally merged in Spec,vP, from where it moves to the Spec of the SC. This finding has important consequences for the analysis of SCs: SCs are usually seen as basic configurations of a subject and a predicate (see Williams 1975; Stowell 1983; Cardinaletti and Guasti 1995; Moro 1997, Moro 2000; Dikken 2006, a.o.). The fact that in some cases their subject is merged within the predicate should lead to a reconsideration of the concept of SCs itself.

Finally, the proposed analysis offers a neat and detailed picture of PGs and PIs, in which we find a great deal of structural overlapping, since the only difference is the position of the preposition. However, the relationship between gerunds and PIs becomes more complex if we include other types of gerunds: the alternation between these and PIs cannot be reduced simply to a difference in the position of the preposition, other factors are also at play, such as the movement of the gerund to CP, when it is used adverbially. Although the present analysis sheds some light on these aspects, more research is needed to fully understand the overall syntax of Romance gerunds.

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