

**PERCEPTION AND CAUSATIVE STRUCTURES IN ENGLISH AND EUROPEAN PORTUGUESE:  
Φ-FEATURE AGREEMENT AND THE DISTRIBUTION OF BARE AND PREPOSITIONAL INFINITIVES**

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**ABSTRACT**

This paper discusses perception and causative verbs in English and European Portuguese within Chomsky's (2000, 2001) Agree framework and provides an answer for the old riddle of why these verbs appear to select for different infinitival complements in their active and passive forms. Assuming that infinitival clauses are Case-bearing projections (Raposo 1987, Nunes 1995), the paper proposes that in active structures, the infinitival head and the embedded subject can both agree with the matrix light verb and so "share" the accusative Case it licenses. In passive structures, on the other hand, the intervening  $\phi$ -features of the participial head block the agreement between the finite T and the infinitival head, which will then be licensed only if preposition insertion is sanctioned as a last resort repair strategy.

**KEY-WORDS:**

perception constructions  
causative constructions  
infinitives  
Agree  
English  
European Portuguese

## 1 Introduction

In this paper we revisit an old riddle of Modern English grammar, namely, the fact that the active forms of perception and causative verbs take bare infinitives for complements, while their passive counterparts appear to select for prepositional infinitives, as illustrated in (1) and (2).<sup>1</sup>

- (1) a. John saw/heard/made them hit Fred  
b. \*John saw/heard/made them to hit Fred
- (2) a. \*They were seen/heard/made hit Fred  
b. They were seen/heard/made to hit Fred

The puzzle can be summarized as follows: if the matrix verbs in (1a) Case-mark the embedded subject, as indicated by the accusative morphology on the pronoun, then we should get passive constructions like (2a), contrary to fact. Conversely, if the passive constructions in (2b) are licit, we should expect their active counterparts in (1b) to be licit as well, again an incorrect prediction. The pattern in (1)-(2) thus contrasts with standard instances of ECM constructions, where passivization of the ECM verb does not change the type of infinitival it takes, as shown in (3).

- (3) a. John considers her to be a genius.  
b. She was considered to be a genius.

This puzzle has received considerable attention in the literature (see references in fn. 1), but it seems to us that a common trait of the proposed solutions is that the unacceptability of

sentences like (2a), for instance, is not derived from independently motivated properties, but is generally attributed to some idiosyncrasy ascribed to passives or to the perception or causative construction as a whole. In this paper, we will instead advance an analysis couched on independent formal properties that characterize infinitives and passive constructions, namely, the fact that both infinitives (see e.g. Raposo 1987) and past participles (see e.g. Kayne 1989) are “nominal” projections in the sense that they are associated with Case and  $\phi$ -features. The tight relation between these two kinds of features has gained prominence in recent versions of the Minimalist Program, once it is assumed that Case checking/assignment is dependent on  $\phi$ -feature checking/valuation (see Chomsky 2000, 2001). Exploring this new line of inquiry made available by recent developments within the minimalist framework, we argue (i) that the infinitival complement of perception and causative verbs in English is “inflected” in number and Case and (ii) that the set of  $\phi$ -features associated with participial morphology is the ultimate culprit for the ungrammaticality of sentences such as (2a), as it is able to induce minimality effects, blocking (some)  $\phi$ -checking/Case relations across it.

We will show that despite the obvious lack of overt number morphology in the infinitival head, English sentences like (1a)/(2a) are not syntactically different from the corresponding sentences with inflected infinitives in European Portuguese, as illustrated in (4).<sup>2</sup>

(4) *European Portuguese:*

- a. %O João viu/ouviu/deixou-os                    entrarem        na        sala.  
*the João saw/heard/let    CL.3PL.ACC enter-INF-3PL in-the room*  
‘João saw/heard/let them enter the room’

- b. \*Eles foram vistos/ouvidos/deixados entrarem na sala.  
*they were seen/heard/let enter-INF-3PL in-the room*  
'They were seen/heard/allowed to enter the room'

The paper is organized as follows. Section 2 outlines the empirical bounds of this study, by distinguishing the constructions above from superficially similar constructions both in English and European Portuguese. Section 3 spells out some specific assumptions we will make regarding the feature composition of infinitival heads and the derivation of passives. Section 4 discusses minimality issues involved in the derivation of active and passive versions of perception and causative constructions. Section 5 argues that the dummy preposition *to* found in the passive version of these constructions in English is a marker of inherent Case. Finally, a brief conclusion is presented in section 6.

## **2 Different Types of Infinitival Complements**

Both English and Portuguese have interfering factors that may at first sight render perception and causative constructions involving infinitival complements quite intractable. The fact of the matter is that in both languages there exist different types of infinitival clauses with different syntactic and semantic properties and a given verb may subcategorize for more than one type of infinitival. Take the contrasts in (5)-(6), for instance.

- (5) a. \*I saw John know French.  
b. John was seen to know French.
- (6) a. \*I heard John have an accent.

- b. John was heard to have an accent.

(5a) and (6a) appear to be at odds with (1a), for the matrix verb seems unable to Case-mark the embedded subject.

Upon close inspection, there is however a difference between (1a), on the one hand, and (5a) and (6a), on the other, which suggests that they are indeed two different constructions. In the former, the matrix verb selects for an eventive predicate, whereas in the latter, it selects for a proposition. The grammatical passive versions of (5a) and (6a) given in (5b) and (6b), for instance, have an epistemic reading that can be paraphrased roughly as in (7a) and (7b), respectively.<sup>3</sup>

- (7) a. It was known that John knew French.
- b. It was known that John had an accent.

By contrast, the epistemic reading is never available in the active sentences where a perception verb takes a bare infinitive as its complement. A sentence such as (8) below, for instance, cannot be paraphrased as ‘It was known/believed (by a witness) that she hit Fred’. Similarly, a continuation such as *but nobody knew about it* may be felicitously added to (8), but not to (5b) or (6b). That is, the infinitival in (8) expresses an event and not a proposition.

- (8) A witness saw/heard her hit Fred.

Given this difference in meaning, it wouldn’t be surprising if *see* and *hear* selected different kinds of projections in (1a)/(2b)/(8), on the one hand, and (5b)/(6b), on the other.

Suppose for the sake of the argument that the eventive reading is associated with TP (a bare infinitival, putting (2b) aside for the moment), whereas the propositional/epistemic reading is associated with CP (a *to*-infinitival). If so, the unacceptability of (5a) and (6a) should be attributed to the fact that their embedded predicates are not eventive; hence, a TP infinitival is excluded. In turn, the unacceptability of (9) below can be accounted for if the matrix verb cannot check the Case-feature of the embedded subject across both CP and TP.

- (9) a. \*I saw John to know French.  
b. \*I heard John to have an accent.

In other words, under the propositional/epistemic reading, *see* and *hear* behave like the *wager*-class of verbs in allowing passivization of embedded subjects, despite being unable to Case-mark them, as illustrated in (10) (for relevant discussion, see e.g. Postal 1974, Kayne 1984, Pesetsky 1995, and Bošković 1997).<sup>4</sup>

- (10) a. \*John wager Peter to be crazy.  
b. Peter was wagered to be crazy.

The fact that perception verbs selecting infinitival complements in English admit an epistemic reading if the infinitives are propositional, but not if they are bare, provides a plausible analysis for the additional contrast in (11), pointed out by an anonymous reviewer.

- (11) a. \*I saw Mary be leaving/have left  
b. ?Mary was seen to be leaving/to have left

(11a) illustrates the well-known restriction that bans auxiliaries in direct perception constructions. This restriction can be accounted for, if such auxiliaries head functional projections that are not of the type selected by perception verbs. The acceptability of (11b) in turn indicates that here we have a case of a propositional (CP) complement, within which the functional projections headed by the auxiliaries can be appropriately licensed.

As illustrated in (12) below with the noneventive predicate *adorar* ‘adore’, European Portuguese behaves like English in that its perception verbs only allow an epistemic reading if their infinitival complements are propositional. The only relevant difference is that the embedded subject of preposition infinitivals can be licensed even if it doesn’t undergo *wh*-movement (see fn. 4), as seen in (12b).

- (12) a. \*Eu vi o João adorar camarões.  
*I saw the João adore-INF shrimps*
- b. Eu vi o João a adorar camarões.  
*I saw the João to adore-INF shrimps*  
 ‘I saw/witnessed that João loves shrimps’
- c. O João foi visto a adorar camarões.  
*the João was seen to adore-INF shrimps*  
 ‘It was seen/witnessed that John loves shrimps’

We will not pursue this comparison any further. For our purposes, it suffices to say that the contrasts seen in (5), (6), (11), and (12a)/(12c) are unrelated to the ones seen in (1) and (2),

which are the topic of this paper, and hence will not be our concern here. Also outside the scope of this paper are infinitival constructions like the following in European Portuguese:

- (13) a. O João viu tu saíres / nós sairmos.  
*the João saw you-SG-NOM leave-INF-2SG/we.NOM leave-INF-1PL*  
‘João saw you/us leave’
- b. O João viu-te /nos a saíres /sairmos.  
*the João saw-CL.2SG.ACC/CL.1PL.ACC to leave-INF-2SG/leave-INF-1PL*
- c. O João viu-te /nos a sair  
*the João saw-CL.2SG.ACC/CL.1PL.ACC to leave-INF*  
‘João saw you/us leaving’

(13a) involves a standard inflected infinitival clause where the subject is assigned nominative Case clause-internally. As for constructions such as (13b) and (13c), which are parallel to (12b), Raposo (1989) has argued that they involve a complex structure where the perception verb selects for a PP small clause headed by the preposition *a* ‘to’, which is a marker of progressive aspect (see also Barbosa and Cochofel, forthcoming for relevant discussion). This preposition in turn selects for an infinitival clause (inflected or uninflected) whose subject is controlled by the subject of the PP small clause. Assuming that this analysis is essentially correct, the matrix verb in (13b) and (13c) Case-marks the subject of the small clause (the accusative clitics), rather than the subject of the infinitival clause. And again, this is different from what happens in (1), (2) and (4).

In sum, this paper will specifically focus on a particular class of infinitival complements of perception and causative verbs, namely, the one in which the embedded subject is Case

marked by the matrix verb, as in (14), and the preposition preceding the infinitival (if present) is not contentful, as in (15).<sup>5</sup>

(14) a. John saw/heard/made her hit Fred.

b. *European Portuguese:*

O João viu/ouviu/deixou-os entrar(%em) na sala.

*the João saw/heard/let CL.3PL.ACC enter-INF(-3PL) in-the room*

‘João saw/heard/let them enter the room’

(15) They were made to leave.

### 3 Background assumptions

**3.1 Infinitives as Case-bearing Projections** Raposo (1987) argues that Portuguese infinitival clauses behave like nominal projections with respect to the Case Filter in that they can only appear in positions where Case can be licensed, as illustrated in (16).<sup>6</sup>

(16) a. o rapaz receia [chumbar o exame]

*the boy fears fail-INF the exam*

‘The boy fears failing the exam’

b. o receio \*(de) [chumbar o exame]

*the fear of fail-INF the exam*

‘the fear of failing the exam’

c. o rapaz está receoso \*(de) [chumbar o exame]

*the boy is fearful of fail-INF the exam*

‘the boy is fearful of failing the exam’

In (16a), the infinitival clause can arguably be Case-marked by the verb *recear* ‘fear’, whereas the infinitival complement of its cognate noun in (16b) or its cognate adjective in (16c) requires the insertion of the dummy preposition *de* in order to be Case-marked.

Nunes (1995) extended Raposo’s proposal to English infinitivals, based on their diachronic changes. As argued by Lightfoot (1979), infinitives were nominal projections in Old English. In fact, before the phonological weakening of its inflectional endings, English had an overt infinitival morpheme, *-an*, which surfaced as *-anne* or *-enne* when preceded by *to*, exhibiting inflection for the dative Case assigned by *to* (see Callaway 1913). Nunes’s proposal was that the infinitival morpheme became phonetically null in Modern English but retained its nominal property of requiring Case-assignment.

Here we will follow the gist of Nunes’s proposal but reinterpret it within the Agree-based framework. In particular, we will assume with Chomsky (2000, 2001) that Case-valuation is associated with  $\phi$ -checking involving a probe with a “complete” set of [-interpretable]  $\phi$ -features. Thus, if the infinitival T in question has a Case feature (Raposo 1987, Nunes 1995), it should also have a set of  $\phi$ -features in order for its Case to be valued under  $\phi$ -checking. Furthermore, given that such infinitival T cannot itself value the Case-feature of the embedded subject (Recall that the subject of the infinitival clause is Case-marked by a higher probe), its  $\phi$ -set should be “incomplete”. The question then is how defective this set is.

Starting with gender, there is no evidence in either European Portuguese or English that such a feature may be associated with T. In other words, a “complete”  $\phi$ -set for T in these

languages arguably involves just person and number. As for the feature person, in Chomsky's (2000, 2001) system it endows a given probe with Case-valuation properties, if it is [-interpretable]. For instance, the  $\phi$ -set of a finite T, which has a [-interpretable] person feature, enables it to value a given Case feature (as nominative), as opposed to the  $\phi$ -set of a participial head, which does not have this feature, and cannot by itself empower the participial head with Case-valuation properties.<sup>7</sup> Given that the embedded subject in the constructions under discussion has its Case valued by an external probe, the infinitival T should not have a person feature either. Once person and gender are excluded, only number remains. We will then assume from now on that the feature matrix of the infinitival head of the English and European Portuguese constructions in question involves EPP, Case, and number.<sup>8</sup>

**3.2 Derivation of Passives under Agree** Given that we are primarily interested in the apparent different properties of perception and causative verbs in their active and passive forms, let us examine the relevant details of the derivation of passives that we will be assuming in this paper.

Take the derivation of the sentence in (17), for instance, whose first steps are represented in (18) (with English words for convenience).

(17) As meninas foram vistas.

*the girls were seen-FEM-PL*

'The girls were seen'

(18) a. [PartP -en<sub>[G:u]/[N:u]/[Case:u]</sub> [VP see [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:u]</sub>]]

b. [PartP -en<sub>[G:FEM]/[N:PL]/[Case:u]</sub> [VP see [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:u]</sub>]]

In (18a), the participial head (*-en*) has unvalued gender, number, and Case features and the object has an unvalued Case-feature.<sup>9</sup> Agreement between these two elements values the gender and number features of *-en*, as seen in (18b), leaving their Case-features untouched. Recall that Case valuation is contingent on agreement with a “complete”  $\phi$ -set (i.e. with a  $\phi$ -set containing a [-interpretable] person feature), and the participial head in (18) does not have this feature. Further computations then introduce the finite T in the structure, as represented in (19).

(19) [TP T<sub>[P:u]/[N:u]/EPP</sub> [VP be [PartP -en<sub>[G:FEM]/[N:PL]/[Case:u]</sub> [VP see  
[the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:u]]]]]</sub>

The structure represented in (19) manifests two kinds of problems. The first one relates to the fact that there is no one-to-one correlation between Case-assigners and Caseless elements, for there is just a single Case assigner (T) and two elements in need of Case valuation (the internal argument and the participial head). The second problem concerns minimality: how can T agree with the object skipping the intervening participial head?

With respect to the first problem, Chomsky (2001:15) proposes that  $\phi$ -feature valuation is subject to a (all-or-nothing) maximization principle according to which “partial elimination of features under Match, followed by elimination of the residue under more remote Match, is not an option”. Under this proposal, when T agrees with the participial head in (19), the latter has its Case feature valued, as shown in (20) below, but T remains unaltered due to the maximization principle, because not all of the  $\phi$ -features of T can be valued by *-en* (*-en* does not have a person feature). Thus, T can still probe its domain after the derivational step depicted in (20) is reached.

(20) [TP T<sub>[P:u]/[N:u]/EPP</sub> [VP be [PartP -en<sub>[G:FEM]/[N:PL]/[Case:NOM]</sub> [VP see  
 [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:u]</sub>]]]]

As for the second problem, Chomsky (2001:17) suggests that “the intervention effect is nullified unless intervention blocks remote matching of all features”. In (20), it is not the case that the participial head matches all the features of the internal argument that could enter into an agreement relation with T; in particular, *-en* does not have a person feature. Therefore, T is allowed to probe beyond the participial head and enter into an agreement relation with the internal argument and attract it to its Spec, as shown in (21), and all of the unvalued features are appropriately valued.

(21) [TP [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:NOM]</sub> [T' T<sub>[P:3]/[N:PL]/EPP</sub> [VP be  
 [PartP -en<sub>[G:FEM]/[N:PL]/[Case:NOM]</sub> [VP see *t* ]]]]]

This analysis appears to face some technical problems when we consider more complex cases such as the Italian sentence in (22a), pointed out by an anonymous reviewer. As shown in (22b) with English words (irrelevant details omitted), the derivation of (22a) involves a step where an additional agreeing past participle intervenes between T and the subject of the small clause.<sup>10</sup>

(22) a. Blasi e Kallon sono stati trovati positivi  
 Blasi and Kallon be(PR.3PL) been(MASC.PL) found(MASC.PL) positive  
 a recenti controlli antidoping.  
 in recent controls antidopping

b. [TP T [VP be [PartP -en<sub>φ</sub> [VP be [PartP -en<sub>φ</sub> [VP find [[Blasi and Kallon] positive]]]]]]]]]

The additional participial head associated with the higher auxiliary verb in (22b) is not problematic for the agreement relation between T and DP. Once the higher *-en* does not have a person feature, it doesn't match all the features of the subject of the small clause and cannot prevent T from agreeing with this DP. The problem actually arises when we consider the relation between T and the lower participial head. Given that the higher participial head matches all the features of the lower one, agreement between T and the lower *-en* should be blocked, leaving the Case feature of the latter unvalued and causing the derivation to crash, contrary to our expectations.

However, there is another derivational route for sentences such as (22a). The first steps are like the ones in the derivation of simple passives, as represented in (23) below. The participial head agrees with the small clause subject and has its  $\phi$ -features valued, but no Case valuation takes place.

- (23) a. [PartP -en<sub>[G:u]/[N:u]/[Case:u]</sub> [VP find [[Blasi and Kallon]<sub>[P:3]/[G:MASC]/[N:PL]/[Case:u]</sub> positive]]]
- b. [PartP -en<sub>[G:MASC]/[N:PL]/[Case:u]</sub> [VP find  
[[Blasi and Kallon]<sub>[P:3]/[G:MASC]/[N:PL]/[Case:u]</sub> positive]]]

After the higher participial head enters the derivation, as shown in (24a) below, it cannot agree with the small clause subject. The lower intervening participial head matches all the features of the higher one, yielding a minimality effect. However, given that the lower participial head has already had its  $\phi$ -features valued, it can value the  $\phi$ -features of the higher one, as shown in (24b). Crucially, the valued  $\phi$ -features of the lower *-en* — although uninterpretable — will only be

deleted when the structure is spelled out, at the strong phase level (see Chomsky 2000:131, 2001:18, 2004:116).

- (24) a. [PartP **-en**<sub>[G:u]/[N:u]/[Case:u]] [VP be [PartP **-en**<sub>[G:MASC]/[N:PL]/[Case:u]] [VP find  
[[Blasi and Kallon]<sub>[P:3]/[G:MASC]/[N:PL]/[Case:u]] positive]]]]]]</sub></sub></sub>
- b. [PartP **-en**<sub>[G:MASC]/[N:PL]/[Case:u]] [VP be [PartP **-en**<sub>[G:MASC]/[N:PL]/[Case:u]] [VP find  
[[Blasi and Kallon]<sub>[P:3]/[G:MASC]/[N:PL]/[Case:u]] positive]]]]]]</sub></sub></sub>

After the finite T enters the derivation, as shown in (25a) below, it can agree with the higher participial head (no element intervenes) or the subject of the small clause (the intervening elements do not match all the features of this DP), but not with the lower participial head (the higher *-en* intervenes and matches all the features of the lower one). Suppose that T agrees with the subject of the small clause, as illustrated in (25b).

- (25) a. [TP T<sub>[P:u]/[N:u]/EPP] [PartP **-en**<sub>[G:MASC]/[N:PL]/[Case:u]] [VP be [PartP **-en**<sub>[G:MASC]/[N:PL]/[Case:u]]  
[VP find [[Blasi and Kallon]<sub>[P:3]/[G:MASC]/[N:PL]/[Case:u]] positive]]]]]]]]</sub></sub></sub></sub>
- b. [TP T<sub>[P:3]/[N:PL]]/EPP [PartP **-en**<sub>[G:MASC]/[N:PL]/[Case:u]] [VP be [PartP **-en**<sub>[G:MASC]/[N:PL]/[Case:u]]  
[VP find [[Blasi and Kallon]<sub>[P:3]/[G:MASC]/[N:PL]/[Case:NOM]] positive]]]]]]]]</sub></sub></sub></sub>

Once the computation hasn't reached a strong phase, the valued Case feature of the small clause subject hasn't been deleted yet. It can then value the Case feature of the lower *-en*, as shown in (26a) below, which in turn can value the Case feature of the higher *-en*, as shown in (26b), for the same reason. Finally, the small clause subject moves and checks the EPP, as illustrated in (26c), yielding the sentence in (22a), with two agreeing participles.<sup>11</sup>

- (26) a. [TP T<sub>[P:3]/[N:PL]/EPP</sub> [PartP -en<sub>[G:MASC]/[N:PL]/[Case:u]</sub> [VP be [PartP -en<sub>[G:MASC]/[N:PL]/[Case:NOM]</sub> [VP find [[Blasi and Kallon]<sub>[P:3]/[G:MASC]/[N:PL]/[Case:NOM]</sub> positive]]]]]]
- b. [TP T<sub>[P:3]/[N:PL]/EPP</sub> [PartP -en<sub>[G:MASC]/[N:PL]/[Case:NOM]</sub> [VP be [PartP -en<sub>[G:MASC]/[N:PL]/[Case:NOM]</sub> [VP find [[Blasi and Kallon]<sub>[P:3]/[G:MASC]/[N:PL]/[Case:NOM]</sub> positive]]]]]]
- c. [TP [Blasi and Kallon]<sub>[P:3]/[G:MASC]/[N:PL]/[Case:NOM]</sub> [T' T<sub>[P:3]/[N:PL]/EPP</sub> [PartP -en<sub>[G:MASC]/[N:PL]/[Case:NOM]</sub> [VP be [PartP -en<sub>[G:MASC]/[N:PL]/[Case:NOM]</sub> [VP find [*t* positive]]]]]]]]

Given this general background, let's now get back to the puzzles regarding the infinitival complements of perception and causative verbs.

#### 4 $\phi$ -completeness and Intervention Effects

**4.1. Derivation of Active Sentences** Let's start by considering the relevant steps of the derivation of active sentences such as (27), for instance.

(27) I saw Mary leave.

After the infinitival TP in (28a) below is assembled, the infinitival T probes its domain and enters into an agreement relation with *Mary*, attracting it to its Spec to check the EPP, as shown in (28b). This agreement relation allows T to have its number feature valued, but the Case-features of both elements remain unvalued, for their  $\phi$ -sets do not contain a [-interpretable] person feature.

- (28) a. [TP T<sub>[N:u]/[Case:u]/EPP</sub> [VP Mary<sub>[P:3]/[G:FEM]/[N:SG]/[Case:u]</sub> leave]]  
 b. [TP Mary<sub>[P:3]/[G:FEM]/[N:SG]/[Case:u]</sub> [T' T<sub>[N:SG]/[Case:u]/EPP</sub> [VP t leave]]]

The next relevant step involves the introduction of the light verb into the picture, as shown in (29).

- (29) [<sub>VP</sub> V<sub>[P:u]/[N:u]</sub> saw [TP Mary<sub>[P:3]/[G:FEM]/[N:SG]/[Case:u]</sub> [T' T<sub>[N:SG]/[Case:u]/EPP</sub> [VP t leave]]]]

In (29), *Mary* and the infinitival T are equidistant (see Chomsky 1995) from *v*; hence, either element could enter into a checking relation with the light verb. Suppose *v* in (29) agrees with the infinitival T head first, valuing its Case, as shown in (30a) below. Due to the maximization principle, *v* remains unaffected by this agreement relation. It will only have its  $\phi$ -features valued when all of them can be valued, as happens when *v* agrees with the embedded subject, as shown in (30b), where all unvalued features get finally valued.

- (30) a. [<sub>VP</sub> V<sub>[P:u]/[N:u]</sub> saw [TP Mary<sub>[P:3]/[G:FEM]/[N:SG]/[Case:u]</sub> [T' T<sub>[N:SG]/[Case:ACC]/EPP</sub> [VP t leave]]]]  
 b. [<sub>VP</sub> V<sub>[P:3]/[N:SG]</sub> saw [TP Mary<sub>[P:3]/[G:FEM]/[N:SG]/[Case:ACC]</sub> [T' T<sub>[N:SG]/[Case:ACC]/EPP</sub> [VP t leave]]]]

To summarize, the structural configuration in (29) is such that it allows the embedded subject and the infinitival head to “share” the accusative Case licensed by the matrix light verb. More specifically, the embedded subject does not induce a minimality violation for the agreement between the light verb and the infinitival head and thanks to the maximization

principle, this agreement relation does not prevent the light verb from participating in another agreement relation, this time with the embedded subject.<sup>12</sup>

Let us now examine the European Portuguese data in (31).

- (31) a. A Maria viu-te                    sair/\*saíres.  
*the Maria saw-CL.2SG.ACC leave-INF/leave-INF-2SG*
- b. A Maria viu-nos                    sair/\*sairmos.  
*the Maria saw-CL.1PL.ACC leave-INF/leave-INF-1PL*
- c. A Maria viu-os/as    sair/%saírem.  
*the Maria saw-CL.3MASC.PL.ACC/CL.3FEM.PL.ACC leave-INF/leave-INF-3PL*  
‘Maria saw you/us/them leave’

The data in (31a) and (31b) fall under our expectations. The uninflected infinitivals are not Case-assigners and their subjects must be Case-marked by the matrix light verb. Accordingly, the inflected infinitivals assign nominative to their subjects and should prevent the matrix light verb from entering into Case/agreement with them. It is thus surprising that there is variation among speakers regarding the inflected version of (31c).

We propose that this variation results from possible realizations of the complex  $[T_{\text{INF/[N]}} + V]$  in the morphological component. English infinitives have no overt morphology for number. Thus, an infinitival T head with a valued number feature is assigned an uninflected form in the morphological component by default. European Portuguese, on the other hand, does have inflected infinitives; however, each inflected form encodes *both* person and number. Thus, the complex  $[T_{\text{INF/[N]}} + V]$  will also be assigned an uninflected form by default, as can be seen in (31). As for the unexpected inflected pattern in (31c), it is very symptomatic that the exception

affects exclusively third person plural pronouns. A crucial distinctive property of these pronouns is that they are bimorphemic (*o/a + s*), with *-s* being the marker for plural. The additional inflected possibility in (31c) suggests that for a group of speakers, the complex [ $T_{\text{INF/[N]}} + V$ ] with the number feature valued as plural may be assigned a default value for person, i.e. third person, yielding what at face value looks like the standard  $\phi$ -complete inflected form for third person plural.<sup>13</sup>

If so, the dialectal variation in European Portuguese with respect to the inflected version in (31c) is not syntactic in nature, but rather reflects different solutions found by the morphological component to deal with a verbal form with a number feature valued as plural, but no specification for person. The morphological component may assign it a default form, which is homophonous with the uninflected infinitival, or associate the valued number feature with a default person feature, yielding a “defective inflected infinitive”.<sup>14</sup> The fact that the second solution is available in some dialects thus provides independent morphological evidence for our proposal in section 3.1 that the infinitival T head of the complement of perception and causative verbs in English and European Portuguese has a defective  $\phi$ -set containing only a number feature.

To wrap up. Despite appearances, Case assignment in active perception and causative constructions in English and European Portuguese patterns in essentially the same way, with the embedded subject and the infinitival head “sharing” the Case assigned by the matrix light verb. Detectable differences arise only with respect to how the morphological component handles infinitival verbal forms with a number feature valued but without specification for person.

**4.2. Derivation of Passive Sentences** Assuming that the derivation of active perception and causative constructions proceeds along the lines described in section 4.1, consider their

unacceptable passive counterparts in (32) below, where the embedded subject moves and the infinitival T head stays behind, or in (33), where the whole TP moves to the matrix subject position. Why are these sentences unacceptable? In other words, why can't the embedded subject and the infinitival head also "share" the nominative Case licensed by the matrix T?<sup>15</sup>

- (32) a. \*Mary was seen leave.  
 b. \*As meninas foram vistas sair.  
*the girls were seen-FEM-PL leave-INF*  
 'The girls were seen to leave'

- (33) a. \*Mary leave was seen.  
 b. \*As meninas sair foi visto /foram vistas.  
*the girls leave-INF was seen-DFLT / were seen-FEM-PL*  
 'The girls were seen to leave'

Let's take a closer look at the derivation of the European Portuguese example in (32b), given that its morphological aspects are more transparent. The computations within the infinitival TP are identical to the ones involved in the derivation of active sentences. That is, the infinitival head in (34a) below (English words used for convenience) agrees with *the girls* and has its number feature valued, as shown in (34b), but no Case valuation takes place.

- (34) a. [TP T<sub>[N:u]/[Case:u]/EPP</sub> [VP [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:u]</sub> leave]]  
 b. [TP [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:u]</sub> [T' T<sub>[N:PL]/[Case:u]/EPP</sub> [VP *t* leave]]]

After the participial head is introduced in the derivation, as shown in (35a), it agrees with the embedded subject, as shown in (35b), and again, there is no Case valuation.

- (35) a. [PartP **-en**<sub>[G:u]/[N:u]/[Case:u]</sub> [VP see [TP [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:u]</sub> [T' T<sub>[NPL]/[Case:u]/~~EPP~~</sub> [VP *t* leave]]]]]]
- b. [PartP **-en**<sub>[G:FEM]/[N:PL]/[Case:u]</sub> [VP see [TP [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:u]</sub> [T' T<sub>[N:PL]/[Case:u]/~~EPP~~</sub> [VP *t* leave]]]]]]

Further computations then introduce a finite T into the structure, as shown in (36).

- (36) [TP T<sub>[P:u]/[N:u]/EPP</sub> [VP be [PartP **-en**<sub>[G:FEM]/[N:PL]/[Case:u]</sub> [VP see [TP [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:u]</sub> [T' T<sub>[N:PL]/[Case:u]/~~EPP~~</sub> [VP *t* leave]]]]]]]]

In (36) there are three elements that need to value their Case features (the infinitival head, the participial head, and *the girls*) and only one Case-checker (the finite T). The finite T can agree with *-en* without any problems, for there is no intervening  $\phi$ -feature bearer. When it does, it values the Case-feature of *-en*, as represented in (37), but remains unaltered, in accordance with the maximization principle.

- (37) [TP T<sub>[P:u]/[N:u]/EPP</sub> [VP be [PartP **-en**<sub>[G:FEM]/[N:PL]/[Case:NOM]</sub> [VP see [TP [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:u]</sub> [T' T<sub>[N:PL]/[Case:u]/~~EPP~~</sub> [VP *t* leave]]]]]]]]

Once the finite T in (37) still has unvalued features, it is allowed to further probe the structure. Now minimality is crucial for the success of further agreement relations. Given that

*the girls* and the infinitival head are equidistant, the former doesn't count as a proper intervener for agreement with the latter. As for *-en*, it doesn't match all the  $\phi$ -features of *the girls* (it doesn't have a person feature), but matches the one and only  $\phi$ -feature of the infinitival head; thus, it allows the finite T to agree with the DP, but blocks agreement with the infinitival head, as shown in (38).

(38) [TP T<sub>[P:3]/[N:PL]/EPP</sub> [VP be [PartP *-en*<sub>[G:FEM]/[N:PL]/[Case:NOM]</sub> [VP see  
 [TP [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:NOM]</sub> [T' T<sub>[N:PL]/[Case:u]/EPP</sub> [VP *t* leave]]]]]]]

(38) then reaches a dead end. Even if the DP moves to the matrix subject position to check the remaining EPP feature, the derivation will crash because the Case feature of the infinitival clause remains unvalued; hence the unacceptability of sentences such as the ones in (32).<sup>16</sup>

Similar considerations apply to the derivation of the sentences in (33). In fact, if the finite T can't reach the infinitival T when probing the structure, it shouldn't be able to reach and attract the infinitival TP to its Spec in order to check the EPP. In other words, the sentences in (33) can't even be derived under this scenario, and the same goes for sentences such as (39) (see fn. 15).

(39) \*I believe [ [Mary leave]<sub>i</sub> to have been seen t<sub>i</sub> ]]

It is worth pausing for a moment to contrast the doomed derivational step in (38) with the step seen in (25b), repeated below in (40), which underlies the derivation of licit constructions involving two agreeing participial heads.

(40) [TP T<sub>[P:3]/[N:PL]/EPP</sub> [PartP *-en*<sub>[G:MASC]/[N:PL]/[Case:u]</sub> [VP be [PartP *-en*<sub>[G:MASC]/[N:PL]/[Case:u]</sub> [VP find

[[[Blasi and Kallon][P:3][G:MASC]/[N:PL]/[Case:NOM] positive]]]]]]

In (40), the finite T has all of its features valued and cannot further probe the structure; hence it cannot value the Case features of the participial heads. However, each participial head can act as a probe in virtue of still having unvalued features. As we saw in section 3.2, the lower *-en* can then value its Case by agreeing with the subject of the small clause, after which the higher *-en* can probe its domain and have its own Case feature valued by agreeing with the lower *-en*. By contrast, such bottom-up domino agreement is unavailable in (38), for the elements that have their Case features valued are outside the probe domain of the infinitival head.<sup>17</sup>

Evidence that the problem in (32) has to do with the licensing of the infinitival head is the fact that if the embedded clause involves a progressive gerund, the corresponding sentences are acceptable in both English and European Portuguese, as illustrated in (41).

- (41) a. Mary was seen leaving.  
b. As meninas foram vistas saindo.  
*the girls were seen-FEM-PL leave-GER*  
'The girls were seen leaving'

The crucial difference here is that the progressive projection is not nominal and does not have a Case feature to be valued. Thus, the derivation of the sentences in (41) does not substantially differ from the derivation of the standard passives discussed in section 3.2.

Independent evidence for the proposed intervention of the participial head with respect to the infinitival head is in turn provided by Portuguese dialects in which adjunct clauses allow both

uninflected and inflected infinitivals if the verb is active, as shown in (42), but only inflected infinitivals if the verb is passivized, as shown in (43) (see Nunes and Raposo 1998).

- (42) a. Nós entrámos na sala depois de cumprimentar o director.  
*we entered in-the room after of greet-INF the director*
- b. Nós entrámos na sala depois de cumprimentarmos o director.  
*we entered in-the room after of greet-INF-1PL the director*  
 ‘We entered the room after greeting the director.’

- (43) a. %Nós entrámos na sala depois de ser convidados.  
*we entered in-the room after of be-INF invite-PPLE-MASC-PL*
- b. Nós entrámos na sala depois de sermos convidados.  
*we entered in-the room after of be-INF-1PL invite-PPLE-MASC-PL*  
 ‘We entered the room after being invited.’

Nunes and Raposo (2005) argue that in the dialects where the contrast in (43) holds, the T head of uninflected infinitivals has only a number feature in its  $\phi$ -set. If so, the derivation of (43a) involves a step similar to the one in (36), but with the reverse distribution of features. That is, in this case it is the T head with a number feature that is the highest probe, as represented in (44).

- (44) [TP T<sub>[N:u]/EPP</sub> [VP be [PartP -en<sub>[G:MASC.]/[N:PL]/[Case:u]</sub> [VP V pro<sub>[P:1]/[G:MASC.]/[N:PL]/[Case:u]</sub>]]]]

Similarly to what happens with the infinitival head in (36), T in (44) can't agree with the internal argument across *-en*, for the one and only  $\phi$ -feature of T is matched by the intervening participial head. Failure to agree with the internal argument then causes the derivation to crash because the EPP feature of the infinitival head is not checked; hence the unacceptability of (43a) in the relevant dialects. By contrast, the derivation of (43b) can converge because inflected infinitivals are arguably associated with a complete  $\phi$ -set, as represented in (45) below. That is, the person feature of the T head in (45) allows it to probe beyond the participial head and agree with the internal argument, attracting it to its specifier and checking the EPP (see Nunes and Raposo 2005 for further discussion).

(45) [TP T<sub>[P:u]/[N:u]/EPP</sub> [VP be [PartP *-en*<sub>[G:MASC.]/[N:PL]/[Case:NOM]</sub> [VP V *pro*<sub>[P:1]/[G:MASC.]/[N:PL]/[Case:u]</sub>]]]]

## 5 Inherent Case and Last Resort

Going back to the ungrammatical passive versions of perception and causative verbs in (32), English has a “repair strategy” to circumvent the Case Filter violation discussed above, as shown in (46) below. In other words, given that the finite T in (47) can't value the Case-feature of the infinitival T, a process of *to*-insertion is triggered to adequately license it (see Nunes 1995).<sup>18</sup>

- (46) a. \*Mary was seen leave.  
 b. Mary was seen to leave.

(47) [TP T<sub>[P:3]/[N:SG]/EPP</sub> [VP be [PartP *-en*<sub>[G:FEM]/[N:SG]/[Case:NOM]</sub> [VP see [TP Mary<sub>[P:3]/[G:FEM]/[N:SG]/[Case:NOM]</sub>  
 [T' T<sub>[N:SG]/[Case:u]/EPP</sub> [VP *t* leave]]]]]]]]

This *to*-insertion process is reminiscent of the *of*-insertion rule, illustrated in (48), which was also taken to be triggered to prevent a Caseless element from violating the Case Filter (see Chomsky 1981).

- (48) a. \*the destruction the city  
b. the destruction of the city

Chomsky (1986) analyzed the preposition *of* in constructions such as (48b) as the morphological realization of the inherent Case assigned by *destruction* to its complement. Assuming this to be on the right track, we propose that *to* in sentences such as (46b) is the morphological reflex of the inherent Case assigned by the matrix verb to its infinitival complement.<sup>19</sup> Thus, the infinitival morpheme in (46b) has its Case-feature licensed in a way analogous to *the city* in (48b).<sup>20</sup>

This proposal raises a couple of questions. First, if *to* is able to check the Case-feature of the infinitival T, why can't it check the Case-feature of the embedded subject, as well? In other words, why can't *Mary* and the infinitival T in (49) below be both licensed by *to*, in a way similar to what we proposed for the active version of this construction in (50) (cf. (30))? If this were possible, the derivation should converge after the expletive checked the features of the matrix T, incorrectly ruling (49) in.

(49) \*It was seen to Mary leave.

(50) I saw Mary leave.

There is however a crucial difference between the role played by the matrix light verb in (50) and the role played by the matrix verb in (46b) in licensing the infinitival T head: (50) involves a structural Case relation, whereas (46b) involves inherent Case, which must be associated with  $\theta$ -role assignment (see Chomsky 1986 for discussion). Thus, the embedded subject and the infinitival head can both enter into an agreement/structural Case relation with the matrix light verb in (50), but only (the head of) the infinitival TP can be Case-licensed by *to* in (46b) and (49), for it is the only element that is  $\theta$ -marked by the matrix verb. As Chomsky (1986) observes, there is no “exceptional”  $\theta$ -marking, where a given verb assigns a  $\theta$ -role to the specifier of its complement. In other words, *Mary* can’t be Case-licensed by *to* in (49) for the same reason it can’t be licensed by *of* in (51) below, namely, it is not  $\theta$ -marked by either *seen* or *appearance*. Hence, the derivation of (49) crashes because *Mary* does not have its Case-feature valued.

(51) \*the appearance of Mary to have left

A second question that arises has to do with minimality effects. At first sight, the matrix T in (47) shouldn’t be able to agree with and attract the embedded subject to its Spec, given that the intervening matrix verb in (47) is a Case-licenser of sorts (it assigns inherent Case). However, lack of intervention effects for purposes of agreement and A-movement seems to be an independent property of inherent Case relations. As is well known, the arguably inherently Case-marked pronouns in (52) below do not block raising of the embedded subject, despite the fact that they appear to c-command into the embedded domain, inducing Principle C effects, as shown in (53). Therefore, the fact that the matrix verb in (47) does not block the Case relation between the finite T and *Mary* is not surprising.

- (52) a. [John<sub>i</sub> seems to *him*<sub>k</sub> [t<sub>i</sub> to be nice]]  
 b. [John<sub>i</sub> struck *him*<sub>k</sub> [t<sub>i</sub> as a genius]]
- (53) a. \*[Mary<sub>i</sub> seems to *him*<sub>k</sub> [t<sub>i</sub> be in love with John<sub>k</sub>]]  
 b. \*[Mary<sub>i</sub> struck *him*<sub>k</sub> [t<sub>i</sub> as envious of John<sub>k</sub>]]

Finally, the proposal above appears to be tacitly making the questionable assumption that passive forms of the verb can assign inherent Case, but their active versions can't. In other words, if the infinitival head in (46b) is licensed through the inherent Case assigned by the matrix verb, which is realized as *to*, there arises the question of why such Case licensing can't take place in active constructions, as well. After all, there seems to be nothing wrong with the derivation of (54), for example, where *to* licenses the infinitival head and the matrix light verb licenses the embedded subject.

- (54) \*I saw Mary to leave.

Here we will not depart from the null hypothesis. We assume that the verb *see* can always assign inherent Case to its TP complement (regardless of whether it is active or passive) and that the derivation of (54) is indeed convergent.<sup>21</sup> What we would like to propose is that its unacceptability is rather related to economy computations regarding the insertion of morphological material not present in the underlying numeration. Recall that the derivation of (54) can converge without the insertion of *to* (cf. (50)), for the matrix light verb can value the Case of the infinitival head. Hence, (54) should be ruled out by the same economy considerations

that block *do*-insertion in (55a) below or *of*-insertion in (56a).<sup>22</sup> In these derivations, the computational system has resorted to insertion of morphological material that is not required for convergence and is not present in the numeration that feeds the computation (see e.g. Chomsky 1991, Arnold 1995, and Hornstein 2001 for relevant discussion). Furthermore, for each case, there's a competing alternative derivation that is arguably more economical in that it doesn't insert such material.<sup>23</sup> Thus, economy considerations exclude (54), (55a), and (56a) in favor of (50), (55b), and (56b), respectively.<sup>24</sup>

(55) a. \*John does love Mary. (unstressed *do*)

b. John loves Mary.

(56) a. \*[[the city]<sub>i</sub>'s [destruction of t<sub>i</sub>]]

b. [[the city]<sub>i</sub>'s [destruction t<sub>i</sub>]]

To summarize, the apparently complex paradigm found in perception and causative constructions results from the interplay between multiple agreement/Case relations couched on  $\phi$ -defectiveness, on the one hand, and economy considerations regulating the insertion of morphological material not present in the numeration, on the other.

## 6 Conclusion

In this paper we have argued that Chomsky's (2000, 2001) proposal that  $\phi$ -incompleteness may allow multiple Agree/checking relations provides a new way to analyze perception and causative structures. The specific analysis developed here offered an account for the well known asymmetry between active and passive forms of perception/causative verbs in English, namely,

that the infinitival complements must be bare when selected by the active form, but prepositional when selected by the passive form.

Under the analysis pursued here, the contrast between active and passive constructions is due to the fact that in passives, the past participle morpheme intervenes between the finite T and the infinitival T, blocking agreement between the two heads. Hence, there is no way for the infinitival head (a Case bearing element) and the embedded subject to both have their Case-features valued by the finite T. Since in active constructions no parallel blocking effect arises, the Case-features of the infinitival head and the embedded subject can be valued by the same probe, namely, the matrix light verb. The proposal made here thus provides a uniform analysis for languages such as English and European Portuguese, whose perception and causative constructions look very dissimilar at first glance.

### **Acknowledgments**

A first draft of this paper, with a different technical implementation, appeared in the working papers of the University of Maryland (see Hornstein, Martins, and Nunes 2006). The current version has substantially benefited from comments by Željko Bošković and three *Syntax* reviewers. Our big thanks! The third author would also like to acknowledge the support he received from CNPq (grants 308176/2005-7 and 401148/2006-8) and FAPESP (2006/00965-2) during the writing of the paper.

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<sup>1</sup> See, among many others, Williams 1983, Zagana 1988, Bennis and Hoekstra 1989, Lightfoot 1991, Rosen 1991, Guasti 1993, Felser 1998, Basilico 2003, and references therein.

<sup>2</sup> Sentences like (4a), displaying an inflected infinitive with an accusative subject, are generally ignored in the linguistic literature on (standard) European Portuguese, including reference grammars with a generative background. However, they are common in the spoken language and judged fully acceptable by a good number of speakers (including the second author of this paper and an anonymous reviewer). We use the percentage symbol to signal that such constructions may be subject to dialectal variation and discuss what may trigger such difference in grammatical judgment in section 4.1 below.

<sup>3</sup> The sentences in (7a-b) are just approximate paraphrases of the passive sentences in (5b) and (6b). As noted by a reviewer, *John was heard to have an accent* entails that something was heard, while *It was known that John had an accent* does not. However, the important distinction to bear in mind here is that the epistemic reading is absent when active perception verbs take bare infinitives for complements.

<sup>4</sup> Notice also that like the *wager*-class of verbs, *see* and *hear* license the embedded subject if it undergoes *wh*-movement, as shown in (i).

- (i) a. Who does John wager to be crazy?
- b. Who did you see to know French?
- c. Who did you hear to have an accent?

<sup>5</sup> As it will be clear below, we argue that the proposition *to* in (15), for instance, is not part of the numeration that underlies the derivation and is therefore of a different nature from the homophonous preposition found in other types of infinitivals, such as control, ECM, and epistemic infinitivals. The fact that these other infinitivals do not exhibit the tight selectional restrictions displayed by direct perception verbs (cf. (5a), (6a), and (11a)) indicate that their clausal complements involve a structure more complex than the one selected by causative and direct perception verbs.

<sup>6</sup> This is also the behavior of English nominal gerunds (see Reuland 1983, among others, for relevant discussion). We leave a detailed comparison between infinitives and gerunds in terms of their Case-properties and  $\phi$ -feature specification to another occasion.

<sup>7</sup> In section 3.2 below we will see that the participial head can actually value the Case feature of another participial head if it has already had its own Case feature valued. But even in these exceptional circumstances, the defective  $\phi$ -set of the participial head plays no role in licensing Case-valuation.

<sup>8</sup> In section 4.1 below, we will see that European Portuguese data lend independent empirical support to the proposal that the  $\phi$ -set of such infinitives involves only number.

<sup>9</sup> It is immaterial for the current discussion if the incomplete  $\phi$ -set found in passives is to be associated with a defective light verb or with a participial head. For purposes of exposition, we will assume the latter.

<sup>10</sup> The sentence in (22a) is an actual illustration of the abstract configuration in (i) below (leaving aside the expletive and its trace), discussed by Chomsky (2001:19) – see Frampton, Gutmann, Legate and Yang (2000) and Hiraiwa (2001) for further discussion. A derivation along the lines of (23)-(26) can also handle instances of perfective participles in English as in (ii), pointed out by an anonymous reviewer, if perfective participles carry  $\phi$ -features and Case. It also accounts for passives taking adjectival small clauses as in (iii), pointed out by another reviewer, which arguably has an intervening functional head hosting the  $\phi$ -features (and Case) associated with the nominal predicate.

- (i) probe ... Expl ... Prt<sub>1</sub> believe  $t_{\text{Expl}}$  to have been Prt<sub>2</sub> caught [<sub>DO</sub> several fish]
- (ii) The girls have been seen.
- (iii) a. He considers them fools.  
b. They are considered fools.

<sup>11</sup> The proposal that the lower *-en* in (26a) and later the higher *-en* in (26b) can be reactivated as probes after the higher head T has probed its domain is not problematic as far as cyclicity is concerned, if cyclicity for purposes of feature-valuation is tied to computations of strong phases. Crucially, all feature-valuation that takes place in (26) occurs within a single strong phase.

<sup>12</sup> There is a second possible analysis that we would like to mention here, though we will not pursue it. The other option is to suppose that the Case marked small clause naked infinitive complement allows Case marking of its subject *internal* to the small clause. This sort of Case marking has been proposed for Basque by Ortiz de Urbina (1989) (see also Martins 2001) and is plausibly active in English *Acc-ing* gerunds where a Case marked gerund can assign accusative case to its subject. The main difference between naked infinitives and gerunds on this view is that the former *must* bear case while the latter may bear it. Developing the details of this sort of approach, however, lies beyond the scope of this paper.

<sup>13</sup> The unacceptability of (i) below in contrast with the inflected version in (31c) indicates that the number feature of the infinitival T cannot be valued by the number feature of a pronoun if the pronoun has its number and person fused (i.e. it is monomorphemic). In such circumstances, the infinitival head is again assigned a default specification and surfaces with no inflection. Thus, judgments are uniform across speakers with respect to constructions involving

monomorphemic pronouns (cf. (31a) and (31b)).

- (i) \*A Maria viu-nos saírem.  
*the Maria saw-CL.IPL.ACC leave-INF-3PL*  
'Maria saw us leave'

<sup>14</sup> Constructions involving ECM prepositional complementizers in Brazilian Portuguese such as (i) below (see e.g. Lightfoot 1991 and Salles 1997) present a pattern that resembles that of (31) and seems amenable to a similar analysis. That is, if the infinitival head in (i) only has a number feature, it can't value the Case feature of the subject, which will then have its Case valued by the preposition *para*; hence, the subject pronouns in (ia) surface with oblique Case. In turn, the number feature of the infinitival T in (ib) is valued as plural and the resulting verbal form receives default person specification in the morphological component. In other words, Case valuation in (ib) is not different from (ia) and the pronoun is valued as oblique after entering into a probe-goal relation with *para*. However, given that third person pronouns have the same form when assigned oblique and nominative Case, this yields what looks like an inflected infinitive with a nominative subject.

- (i) a. para mim/ti fazer  
*for me-OBL/you.SG-OBL do-INF*  
'for me/you to do'
- b. para eles fazerem  
*for they-NOM/OBL do-INF-3PL*  
'for the boys to do'

<sup>15</sup> As seen in section 2, the infinitival clauses under study are subject to tight selectional restrictions. For instance, they cannot involve auxiliaries or function as an external argument, as respectively illustrated in (i) below. However, it's worth observing that the problem in (32) and (33) has nothing to do with selection. The infinitival clause in these sentences does not involve auxiliaries and is the internal argument of *see*, which is a member of the restricted class of verbs that may subcategorize for a bare infinitival. The fact that *see* appears in its passive form does not change the selection requirements for its complement.

- (i) a. \*I saw [John have left]/[John be leaving]

- b. \*[Mary leave] will make John cry

Furthermore, the ECM construction in (ii) below also shows that the problem with (32) and (33) cannot be attributed to some incompatibility between the infinitival morpheme and nominative Case. The matrix light verb in (ii) can assign accusative to the moved TP, but the result is still ungrammatical.

- (ii) \*I believe [ [Mary leave]<sub>i</sub> to have been seen <sub>t<sub>i</sub></sub> ]]

<sup>16</sup> It is worth contrasting the derivational stage depicted in (36), repeated below in (ia), with an embedded passive such as (iia):

- (i) a. [TP T<sub>[P:u]/[N:u]/EPP</sub> [VP be [PartP -en<sub>[G:FEM]/[N:PL]/[Case:u]</sub> [VP see [TP [the girls]<sub>[P:3]/[G:FEM]/[N:PL]/[Case:u]</sub> [T' T<sub>[N:PL]/[Case:u]/EPP</sub> [VP *t* leave]]]]]]]]

- b. \*The girls were seen leave

- (ii) a. [John expected [Mary to be likely [*t* to be [PartP -en [arrest *t*]]]]

- b. John expected Mary to be likely to be arrested.

In (ia), the intervening *-en* prevents an agreement valuation between the matrix T and the infinitival head, accounting for the unacceptability of the sentence in (ib). The intervening embedded subject in (ii), on the other hand, should not block Case-valuation of the participial head by the matrix light verb, for otherwise the corresponding sentence should be unacceptable. The question that then arises is which independent property can distinguish the two configurations in (ia) and (iia). We conjecture that the difference lies in the fact that the relevant chains are interwoven in (iia) but not in (ia). In (ia), the infinitival T is in the domain of the participial head, but not the opposite (the trivial chain headed by *-en* asymmetrically c-commands the trivial chain headed by the infinitival T). By contrast, since the participial head c-commands the lowest trace of the embedded subject in (iia), one chain is in the domain of the other. If interwoven chains are not computed for purposes of intervention, the contrast between (ib) and (iib) is accounted for. For alternative approaches to (ii), which do not carry over to (i), see Frampton, Gutmann, Legate and Yang (2000), Chomsky (2001), and Hiraiwa (2001).

<sup>17</sup> This derivation provides independent evidence for not taking Spec-head configurations as primitives in the grammar (see e.g. Nunes 1998 with respect to the Move-F framework and Chomsky 2000, 2001, 2004 with respect to the Agree-

based framework). Otherwise, the Spec-head relation between the embedded subject and the infinitival head in (38) could license valuation of the Case-feature of the infinitival head, incorrectly ruling in sentences such as (32).

<sup>18</sup> Recall that constructions such as (ia) below in European Portuguese are to be distinguished from constructions like (46b) (see section 2). The preposition *a* in constructions such as (ia) is a marker of progressive aspect and can also appear with active verbs, as shown in (ib), or even as discourse fragments, as shown in (ic) (see Raposo 1989).

(i) a. As meninas foram vistas a sair.

*the girls were seen to leave-INF*

‘The girls were seen leaving.’

b. Eu vi as meninas a sair.

*I saw the girls to leave-INF*

‘I saw the girls leaving’

c. Os meninos a fumar! Isso é um horror.

*the boys to smoke-INF this is a horror*

‘The boys smoking! That’s awful.’

<sup>19</sup> Suggestive evidence that the role of *to* in (46b) is different from the one it generally plays in infinitival clauses is provided by the fact that it is unable to license VP-ellipsis, as illustrated in (i).

(i) A: Did John wash the dishes?

B: He tried to/ he was expected to/he was supposed to/\*he was seen to

<sup>20</sup> Just to be clear, our proposal that *to* is a marker of inherent Case is restricted to the dummy preposition found in the infinitival complement of causative and direct perception verbs. It is beyond the scope of this paper to determine whether some of the instances of *to* that appear in several types of infinitival clauses in English (ECM, control or epistemic complements, for instance) can also be analyzed along the same lines.

<sup>21</sup> We conjecture that in languages like Italian, which admit passives such as the one in (i) (from Burzio 1988), the infinitival head is assigned inherent Case by the matrix verb, despite the lack of overt morphological manifestation.

(i) Giovanni fu visto parlare con Maria.

Giovanni was seen speak-INF with Maria

‘Giovanni was seen speaking with Maria.’

<sup>22</sup> In the wake of the research stemming from the DP-Hypothesis (see e.g. Abney 1987), we assume that the “possessive” *'s* is a determiner that assigns *structural* Case to its specifier.

<sup>23</sup> Another example of this last resort nature of preposition insertion as inherent Case realization is illustrated by Serbo-Croatian with examples like (i) (adapted from Bošković 2006:525). (ia) shows that when the instrument Case morphology can be realized by the NP, insertion of the preposition *sa* 'with' is prevented. By contrast, given that “higher numerals” like *pet* 'five' in Serbo-Croatian do not decline, the realization of inherent instrumental Case in (ib) is only possible if the preposition is inserted (see Bošković 2006 for additional data and discussion).

- (i) a. On je ovladao (\*sa) zemljom.  
he is conquered with country(INSTR.SG)  
'He conquered that country.'
- b. On je ovladao \*(sa) pet zemalja.  
he is conquered with five countries(GEN.PL)  
'He conquered five countries.'

<sup>24</sup> Quirky Case is different from inherent Case in this regard, for it retains its quirky morphology even when structural Case is available. Here we will have nothing to say on this difference.