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# Past participle agreement in French and Italian: A two-Agree analysis

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In this study, past participle agreement (PPA) patterns in French and Italian are explained based on recent minimalist notions involving minimal search and labeling. For minimal computation, Agree minimally values a participle and an in-situ object (*Minimal Agree*). Hence, the participle is spelled out in a default form. If an object is displaced, a participle can choose to Agree with the object's copy in its SPEC. Since the Agree operation is coupled with labeling, it fully values the participle (*Full Agree*), resulting in morphological agreement. In many cases, the optionality of PPA results from the participle's free selection between the two types of Agree. The proposed analysis also deals with cases where PPA is either obligatory or absent. First, a derived subject obligatorily triggers agreement since Full Agree applies to the subject to label the so-called TP node, which also affects the participle. Second, Italian 3rd person clitic objects control agreement obligatorily, which is attributed to their internal structure. Third, agreement with a wh-object is absent in Italian because of criterial freezing. Since Full Agree is part of criterial licensing, a wh-phrase cannot select this option until it reaches its final criterial position unless some form of reconstruction is available.

# 1 Introduction

It is well known that a past participle in French and Italian can agree in gender and number with a preverbal object but not with an object remaining in situ. Observe that the clitic object in (1a) triggers feminine plural agreement on the participle whereas the postverbal object in (1b) does not.

(1) *French* (Kayne 1989 [2000: 25])
  a. Paul **les** a repeint-**es**.
    Paul them has repainted-F.PL
    'Paul has repainted them(F).'

  b. Paul a  repeint/*repeint-es  **les chaises**.
    Paul has repainted/*repainted-F.PL the chairs[F]
    'Paul has repainted the chairs.'

Previous attempts to account for the mechanism of past participle agreement (PPA) have encountered several complicating factors. First, PPA is obligatory in some constructions but optional in others. Second, PPA affects semantics in some cases but not in others. Third, PPA patterns differ between French and Italian in several respects.

This study provides a minimalist analysis of PPA. Differences between French and Italian are attributed to different morphosyntax and parameterized criterial freezing. The remainder of this paper is organized as follows. In Section 2, I illustrate the PPA patterns in French and Italian. Section 3 examines the previous approaches and associated problems. Section 4 introduces two types of Agree operations derived from minimal search and labeling algorithm (LA). In Sections 5–7, I show how the two-Agree theory accounts for the PPA patterns. In Sections 8 and 9, I consider some further consequences of the analysis and the validity of parameterized criterial freezing, respectively. Finally, Section 10 concludes the paper.

# 2 Past participle agreement (PPA): Data
## 2.1 PPA in French

In this section, we consider French PPA patterns. A lexical verb appears in past participle form in both perfect and passive sentences. A participle in an unaccusative perfect sentence or a passive sentence obligatorily agrees with a derived subject, that is, an A-moved object (Sportiche 1998; Belletti 2006).[1] In (2a, b), the derived subjects are 3rd person feminine singular, and the participles must be spelled out with the same gender/number properties:

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[1] These participles are typically preceded by *être* 'be'. A few unaccusative participles preceded by *avoir* 'have' reject agreement with a derived subject.

(2)  Mathieu (2003: 87)

a.  **Elle** est allé-**e**/*allé       en  vacances.
    she  is  gone-F.SG/*gone[DEF] on  holiday
    'She went on holiday.'

b.  **Elle** a  été    réveillé-**e**/*réveillé.
    she  has  been  woken-F.SG/*woken[DEF]
    'She was woken up.'

In contrast, PPA is optional if the preceding object is a clitic.[2] In the following examples, the participle may show agreement or appear in a default form.

(3)  (3a) from Belletti (2006: 497); (3b) from Nguyen (2014: 14)

a.  Ces  sottises,    Jean ne **les** a  jamais fait-**es**/fait.
    these stupid.things[F] Jean not them has ever   done-F.PL/done[DEF]
    'These stupid things, Jean has never done them.'

b.  Il  **t'** a  pris-**e**/pris       au    jardin.
    he  you has  taken-F.SG/taken[DEF] to.the garden
    'He took you(F) to the garden.'

PPA is also optional with an A'-moved object and, if applied, has a semantic effect (Déprez 1998). The following examples illustrate this point:

(4)  Déprez (1998: 10)

a.  **Combien  de  fautes**   a-t-elle fait-**es**?
    how.many of  mistakes has-she made-F.PL
    'How many (amongst a known set of) mistakes has she made?'

b.  **Combien  de  fautes**   a-t-elle fait?
    how.many of  mistakes has-she made[DEF]
    'What is the number of things that are mistakes and that she has made?'

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(i)  Sportiche (1998: 143)
    **Les  tomates**   ont  cuit/*cuit-es          par …
    the  tomatoes[F] have cooked[DEF]/*cooked-F.PL by
    'The tomatoes were cooked by…'

Whatever the explanation, it should be based on the analysis of how certain unaccusatives exceptionally occur with *avoir*, which is beyond the scope of this paper.

[2] According to Déprez (1998) and Sportiche (1998), PPA with clitics is more common than PPA with wh-terms. Pre-scriptive grammar states that either PPA is obligatory (cf. Friedemann & Siloni 1997; Sportiche 1998; Guasti & Rizzi 2002; Belletti 2006; Rocquet 2010).

Déprez (1998) notes that the agreeing sentence (4a) presupposes a specific set of mistakes and asks how many of them are attributed to the subject. There is no such requirement for the non-agreeing sentence (4b). The object can be either specific or nonspecific when it does not trigger PPA.

PPA with a derived subject does not have this effect. Sportiche (1998) observes that the following sentence allows a non-generic non-specific reading of the indefinite subject:

(5)  Sportiche (1998: 155)
    Dans ce pays, **une chaise** est repeint-**e** toutes les heures.
    in this country a chair[F] is repainted-F.SG all the hours
    'In this country, a chair is repainted every hour.'

It is not clear whether the specificity requirement is relevant to clitics since they are intrinsically specific.[3] In sum, PPA results in a specific reading of an A'-moved object, but the effect is absent or unclear in other PPA cases.

## 2.2 PPA in Italian

PPA in Standard Italian holds in contexts similar to those of French. First, a participle cannot agree with an in-situ object.

(6)  Kayne (2005: 84)
    Gianni ha vist-o/*vist-i **tre ragazzi**.
    Gianni has seen-DEF/*seen-M.PL three boys
    'Gianni has seen three boys.'

Second, PPA is obligatory with a derived subject.

(7)  Law (2003: 193) with slight modification
    a. **Maria** è arrivat-**a**/*arrivat-o.
       Maria is arrived-F.SG/*arrived-DEF
       'Mary has arrived.'

    b. **Due camicie** sono stat-**e** lavat-**e**/*lavat-a.
       two shirts[F] are been-F.PL washed-F.PL/*washed-F.SG
       'Two shirts have been washed.'

However, different patterns are found elsewhere. First, PPA is obligatory if the clitic object is 3rd person.

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[3] Except for partitive clitic *en* (*ne* in Italian), which I consider in Section 8.

(8)  Belletti (2006: 495–496)

   a.  **L'**  ho        vist-**a**/ *vist-o.
       her  have.1SG  seen-F.SG/*seen-DEF
       'I have seen her.'

   b.  **Le**     ho        vist-**e**/*vist-o.
       them[F]  have.1SG  seen-F.PL/*seen-DEF
       'I have seen them.'

PPA is optional with 1st/2nd person clitics (Burzio 1986). In (9), the participle may take the default masculine form *visto* even if *mi/ti* refers to a female.

(9)  Belletti (2006: 496)
   **Mi/ti**   ha        vist-a/vist-o.
   me/you   have.3SG  seen-F.SG/seen-DEF
   'He has seen me/you.'

Second, PPA is absent with an A'-moved object.

(10)  Belletti (2006: 500)

   a.  i    libri    **che**  ho        lett-o/*lett-i
       the  books[M]  that  have.1SG  read-DEF/*read-M.PL
       'the books that I have read'

   b.  **Quanti  libri**    hai        lett-o/*lett-i?
       how.many  books[M]  have.2SG  read-DEF/*read-M.PL
       'How many books have you read?'

## 2.3 Summary of the data

The above observations are summarized as follows:

(11)

|   |   | French | Italian |
|---|---|---|---|
| a. | PPA with in-situ Obj | -- | -- |
| b. | PPA with A-moved Obj | Obligatory | Obligatory |
| c. | PPA with clitic Obj | Optional | Obligatory with 3rd person clitics/ Optional with 1st/2nd person clitics |
| d. | PPA with A'-moved Obj | Optional (requires specificity) | -- |

PPA patterns are complex and recalcitrant. Researchers have attempted to explain why these patterns are as they are. Below, I critically examine how previous studies have approached this problem.

## 3 Previous approaches to PPA

Kayne (1989 [2000]) was the first to provide a generative account of PPA. Observing that only dislocated objects can trigger PPA, the author postulates Agr as a head responsible for PPA: PPA surfaces when Agr governs the object.

(12)    a.    $[_{AgrP}$ Agr $[_{VP}$ Prt $DP_1]]$
                         |___//___| no government → no PPA

        b.    $DP_1 \ldots [_{AgrP} (t_1)$ Agr $[_{VP}$ Prt $t_1]]$
                            |__| government → PPA

PPA with an in-situ object is absent since no government relation holds between Agr and the object (see (12a)). If the object is displaced, Agr can govern (the trace of) the object, as in (12b). Sportiche (1998) assumes that SPEC-Agr is not an obligatory intermediate position, resulting in the optionality of PPA. The idea has led to the unification of PPA and finite verb agreement, both of which take place under government in AgrP.

The analysis, although simple and attractive, raises questions regarding its applicability. Does obligatory PPA with a derived subject imply that A-moved DP must stop at SPEC-Agr? If so, why? What can account for the differences between French and Italian PPA? Efforts have been made to develop Kayne's (1989 [2000]) concept to answer these questions.

### 3.1 Explanation by recourse to feature arrangements

Some researchers have tried to explain PPA by arranging feature setups (e.g. Déprez 1998; Radford & Vincent 2007). Below, I outline the essence of Radford & Vincent's (2007) analysis of French PPA.

Suppose that the derivation has reached the stage (13).

(13)    $[_{vP}$ v $[_{VP}$ Prt Wh/Clitic$]]$

The Wh/Clitic object must move to SPEC-v before the vP phase is completed. The movement is triggered by the edge feature (EF) of v. Let us assume that v carrying an EF may affect the presence of other features:

(14)    If v carries [EF, uSpecificity], a participle optionally carries [uGr, uNr].[4]

The lower case [u] means "unvalued" or "uninterpretable." If a participle carries [uGr, uNr], it searches for an object to receive gender and number values. [uSpecificity] is licensed by an object with a specific reading. Thus, the feature setup in (14) guarantees optional PPA with a dislocated object and the specificity requirement.

This analysis, however, suffers from conceptual and empirical problems. From a minimalist perspective, an arbitrary stipulation of feature setups is not desirable. Empirically, the analysis does not address either obligatory PPA cases or differences between French and Italian PPA.

The same criticism applies to Déprez (1998), who accounts for French PPA patterns by arranging feature setups. Still, the author's idea of relating PPA to the Mapping Hypothesis (Diesing 1992) is incorporated into the analysis to be developed, as we will see in Sections 7 and 9.

## 3.2 Explanation by recourse to movement paths

Some researchers build on Kayne's (1989 [2000]) insight that PPA results from a government relation between a dislocated object and Agr/v (e.g. Friedemann & Siloni 1997; Sportiche 1998; Guasti & Rizzi 2002; Belletti 2006). Different PPA patterns emerge from different movement paths of an object or a participle. Below, I illustrate the analysis proposed by Belletti (2006). Although Belletti does not provide a precise structural representation, I reconstruct the author's intended structures for the sake of discussion.

Suppose that PPA emerges if an object and a participle enter into a SPEC-Head relation in the same AgrP. Also suppose that there are (at least) four Agr projections between TP and VP:

(15)    $[_{Agr4P}$ Agr4 $[_{Agr3P}$ Agr3 $[_{Agr2P}$ Agr2 $[_{Agr1P}$ Agr1 $[_{VP}$ Prt DP]]]]]

A participle raises to one of these Agr heads. The landing site is determined by its status (active or passive) and parameter settings. Similarly, a dislocated object moves via SPEC of one of these AgrPs. The escape hatch is determined by the type of movement and parameter settings. PPA emerges if a participle and an object stop at the same AgrP.

Furthermore, suppose that landing sites are determined as follows:

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[4] Radford & Vincent's (2007) original proposal consists of a set of assumptions: If transitive v carries [EF], it optionally carries [uSpecificity]; If transitive v has [EF], it optionally carries [uGr, uNr]; If transitive v has [uSpecificity, uGr, uNr], the agreement features percolate down onto the participle.

| (16) | | French | Italian |
|------|---|--------|---------|
| a. | A passive participle raises to[5] | Agr1 or Agr2 | Agr1 or Agr2 |
| b. | An active participle raises to | Agr1 or Agr2 | Agr2 or Agr3 |
| c. | An A-moved object stops at SPEC of | Agr1P | Agr1P |
| d. | A 3rd person clitic stops at SPEC of | Agr2P | Agr2P |
| e. | A 1st/2nd person clitic stops at SPEC of | Agr2P | Agr3P |
| f. | An A'-moved object stops at SPEC of | Agr2P | Agr4P |

Obligatory PPA with a derived subject results from (16a) and (16c): a derived subject and a participle enter into a SPEC-Head configuration in Agr1P (the participle stops at Agr1 even if it moves up to Agr2 owing to the Head Movement Constraint). Optional PPA with the other types of dislocated objects in French is related to (i) SPEC-Agr2 as the only possible escape hatch (see (16d–f)) and (ii) optional participle movement to Agr2 (see (16b)). In Italian, obligatory PPA with 3rd person clitics results from SPEC-Head agreement in Agr2P (see (16b) and (16d)). PPA with 1st/2nd person clitics emerges if the participle chooses to raise up to Agr3 (see (16b) and (16e)). PPA with an A'-moved object is absent since the object and the participle never meet in the same AgrP (see (16b) and (16f)).

Supporting evidence for (16a, b) can be found in Pollock (1989), Belletti (1994), Cinque (1999), and Guasti & Rizzi (2002). Observing the relative order of participles and adverbials, these authors claim that (i) a participle has several possible landing sites (as in (17a, b) and (18b)); (ii) a passive participle may occupy a position lower than an active one (as in (18a, b)); and (iii) a French participle does not raise as far as an Italian one (as in (18a) and (19)).

(17)   (17a) from Belletti (1994: 26); (17b) from Pollock (1989: 369)
  a.   *Italian*: An active participle optionally raises past *più* 'anymore'.
       Gianni non ha  (più)     **parlato**  (più).
       Gianni not  has (anymore) spoken    (anymore)
       'Gianni hasn't spoken anymore.'

  b.   *French*: An active participle optionally raises past *beaucoup* 'lot'.
       Pierre a  (beaucoup) **lu**   (beaucoup) de  livres.
       Pierre has (lot)      read  (lot)       of  books
       'Pierre has read lots of books.'

(18)   Cinque (1999: 147) with slight modification
       *Italian*: An active participle must raise past *tutto* 'all', but a passive participle may stay to the right of *tutto*.
  a.   Ho      (?*tutto)  **arrangiato**  (tutto)  bene.
       have    (?*all)     arranged      (all)    well
       'I have arranged everything well.'

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[5]  A "passive" participle in (16a) includes an unaccusative perfect participle.

b. Per fortuna, è    stato  (tutto) **arrangiato** (tutto) bene.
   luckily      is    been   (all)    arranged     (all)    well
   'Luckily, everything has been well arranged.'

(19)  Guasti & Rizzi (2002: 180)
      *French*: An active participle cannot raise past *tout* 'all' (compare this with the Italian (18a)).
      Jean a    (tout) **compris**   (*tout).
      Jean has  (all)   understood  (*all)
      'Jean has understood all.'

These observations lend support to the assumptions (16a, b).

By contrast, evidence for the assumptions (16c–f) is, to the best of my knowledge, nonexistent. The assumptions are also conceptually problematic: There is no principled reason for language to be equipped with recursive AgrPs or escape hatch parameters. Moreover, as pointed out by D'Alessandro & Roberts (2008), there remains a question about how to accommodate SPEC-Head agreement under the Agree theory.[6] Considering these problems, Belletti's (2006) analysis is difficult to maintain.

## 3.3 Explanation by recourse to PF

Some researchers argue that PPA is a PF phenomenon (e.g. D'Alessandro & Roberts 2008; Rocquet 2010). According to D'Alessandro & Roberts (2008), a participle shows morphological agreement with an object *if they are spelled out together*. Consider the following structure:

(20)    $[_{vP}\ v_{Aux}\ [_{vP}\ Subj\ Prt\text{-}v_{[u\varphi]}\ [_{VP}\ t_{Prt}\ DP_{[i\varphi]}]]]$
        |_____| Agree

Agree holds between Prt-v and the in-situ object. Because vP is a strong phase, the complement domain, VP, is spelled out when the phase is completed. The Spell-Out domain contains an object, but not Prt-v. Therefore, the participle fails to show agreement with the in-situ object.

When the object is a clitic, it is in the same Spell-Out domain as Prt-v as a result of clitic movement, as shown in the following structure:

(21)    $[_{CP}\ C\ [_{TP}\ Subj\ \textbf{clitic}_i\text{-}v_{Aux}\text{-}T\ [_{vP}\ t_{vAux}\ [_{vP}\ t_{Subj}\ \textbf{Prt-v}\ [_{VP}\ t_{Prt}\ t_i]]]]]$

When the phase CP is completed, the Spell-Out domain, TP, contains both the clitic and Prt-v. Thus the participle shows morphological agreement with the clitic.

A derived subject is also contained in the same domain as the participle.

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[6]  SPEC-Head agreement can be revived under the idea of minimal search, which I propose in Section 4.

(22)    $[_{CP}$ C $\boxed{[_{TP}$ **DP**$_i$ v$_{Aux}$-T $[_{vAuxP}$ $t_{vAux}$ $[_{vP}$ **Prt-v** $[_{VP}$ $t_{Prt}$ $t_i]]]]}$ ]

The unaccusative/passive vP is not a phase. When the CP phase is completed, the participle is spelled out together with the derived subject with morphological agreement.

D'Alessandro & Roberts (2008) thus offer a simple explanation without ad hoc assumptions. However, their discussion is limited to the obligatory PPA cases in Italian. It remains unclear how their analysis accounts for optional PPA with 1st/2nd person clitic objects. Moreover, it seems impossible to extend the analysis to PPA in French. For example, the analysis cannot consider PPA with a wh-object since a wh-object and a participle are obviously in different Spell-Out domains. The specificity requirement (as seen in (4)) also remains unexplained under the PF approach.

To conclude this section, we still lack a satisfactory account of PPA phenomena in French and Italian. In the next sections, I approach this problem based on recent minimalist notions involving minimal search and labeling.

## 4  Minimal Agree and Full Agree

As pointed out by Guasti & Rizzi (2002), PPA is a typical case of agreement asymmetry (cf. Greenberg 1966; Corbett 2006). Cross-linguistically, agreement tends to be richer when the controller (i.e. nominal) precedes the target of agreement than when the order is reversed.

(23)    Controller    …    Target    ….    Controller
             |_____|    |_____|
                  richer agreement      poorer agreement

As for PPA, the object preceding the participle can trigger PPA (rich agreement), but the object following the participle cannot (poor agreement).

Chomsky (2013; 2015) claims that richer agreement is related to LA. Consider the following structures:

(24)    a.



        b.
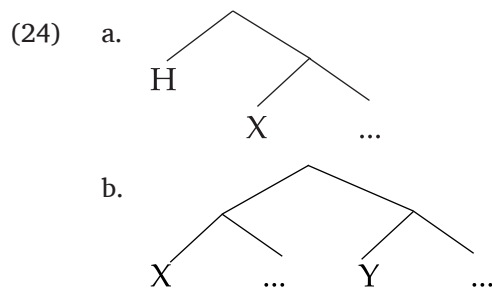
When a lexical item (H) is merged with a phrase, as in (24a), LA selects H as the label of the syntactic object (SO). In this case, LA is just minimal search. When two phrases merge, as in (24b), LA cannot select one head for labeling. There are two ways in which the SO can be labeled: (i) Make XP or YP invisible to LA by raising it, or (ii) take the most prominent feature(s) shared by X and Y to be the label of the SO. The latter is a minimalist reformulation of SPEC-Head agreement. Chomsky (2015: 7) suggests that "in SPEC-head constructions rich agreement is necessary for labeling." Agreement elsewhere may not be rich, since there is no labeling issue.

In the above formulation, there are two distinct types of Agree:

(25)  a.  Minimal Agree

<div style="margin-left:2em">

(SO → H)

H<br>
[uφ]  X    ...<br>
      [Gr]

</div>

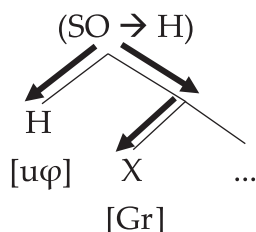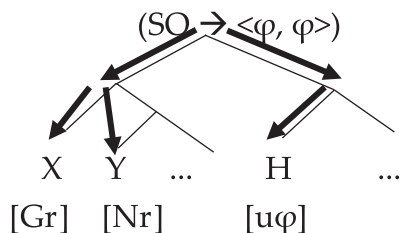     b.  Full Agree

<div style="margin-left:2em">

(SO → <φ, φ>)

X   Y   ...   H    ...<br>
[Gr]  [Nr]     [uφ]

</div>

In (25a), LA can select H as the label of the SO without the help of Agree. If Agree holds between H and XP, the operation may stop when H's unvalued feature is minimally valued. For minimal computation, Agree *must* stop there (cf. Atlamaz & Baker 2018; Kobayashi 2020b).[7] I call this *Minimal Agree*. In (25b), however, the SO cannot be labeled by minimal search LA alone. Search must continue until all matching φ-features are found to fully value H. Then, "the pair of the agreeing elements" (Chomsky 2015: 7) becomes the label. I call this *Full Agree*.

In the PF component, the vocabulary insertion procedure spells out H together with the valued φ-features. If H has enough values, the procedure picks an agreement morpheme and associates it with H. I denote this process by lower-case *agree*. In (25a), H does not agree with XP if gender and number information is necessary for the procedure to pick an agreement morpheme for H. The procedure repairs the defect by inserting default gender and number values, in which

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[7]  This implies that well-formed LF/PF representations can contain unvalued features. See Preminger (2014) for arguments related to this assumption.

case H will surface in a default form.[8] In (25b), by contrast, since H has its [uφ] fully valued by Full Agree, it is spelled out with an agreement morpheme. Thus, the agreement asymmetry follows from the two types of Agree.

As for the timing and the domain of Agree and Transfer, I adopt the following assumptions:

(26)  a.  Agree and Transfer take place at the phase level (Chomsky 2000: 131; 2004: 116; 2007: 18–19; 2008: 143; 2013: 42).
   b.  Transfer applies to the complement of a phase head (Chomsky 2004: 108; 2013: 42).
   c.  Agree applies to the entire phase: minimal search can see the edge as well as the complement domain (cf. D'Alessandro & Roberts 2008).
   d.  Multiple Agree is possible (Chomsky 2008: 142): minimal search applies to the domain as far as it encounters an intervener.

The assumption (26c) may require justification. Why do we not simply assume that Agree, like Transfer, applies to the complement domain? In fact, (26c) is unavoidable under the minimalist assumptions. Consider, for instance, a matrix wh-question: C and a wh-phrase, both in the edge domain, must Agree. Another instance of edge-Agree is presented in (27a).

(27)  a.  $[_{vP}$ EA **V-v**$_{[u\varphi]}$ $[_{VP}$ $t_V$ Obj$_{[uCase]}]]$
            |_____| Agree

   b.  $[_{vP}$ EA v $[_{VP}$ V$_{[u\varphi]}$ Obj$_{[uCase]}]]$
                  |_____| Agree

   c.  $[_{vP}$ Obj$_{[uCase]}$ EA **V-v**$_{[u\varphi]}$ $[_{VP}$ $t_V$ < Obj$_{[uCase]}$ >]]$
                      |_____| Agree (i)
   Agree (ii)   |_____|

V-v in the edge must be able to Agree with an object in the complement domain. If Agee is applicable only to the Transfer domain, V with [uφ] must stay in the same domain as the object, as shown in (27b). However, this cannot be maintained. Since Agree and Transfer take place simultaneously (see (26a)), VP cannot be tampered with following Agree/Transfer; that is, V can no longer raise to v or higher. This is obviously a problem since (at least some instances of) V-raising are substantial (cf. Roberts 2010). Therefore, we have to assume that V-to-v raising occurs in syntax and that V-v in the edge is available for Agree.[9]

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[8] Alternatively, the vocabulary insertion procedure may repair only the unvalued number value while retaining the gender value assigned to H. In this case, H will appear in a partially agreeing form. In Section 8.2, I touch upon partial agreement in Standard Arabic.

[9] See Bobaljik & Wurmbrand (2005) for another argument for the mismatch between the Transfer and Agree domains. I thank an anonymous reviewer for pointing out their work to me.

Notably, if an edge element can participate in Agree, movement creates more than one Agree option. Consider (27c): V-v may Agree with a copy of the object in situ or in the edge (though in the latter case, Agree can wait until the next higher phase). I assume that either option can be taken and that a restricting rule would be a burden on the computation. V-v, however, does not Agree with *both* copies. Since a chain is "a sequence of occurrences of a single α" (Chomsky 2000: 114), one Agree is enough for every copy of a chain to be valued.

In the following sections, I show that the two-Agree theory provides a simple account of the observed PPA patterns.

## 5 An account of PPA (I): PPA with an in-situ object and a derived subject

Let us first consider why an in-situ object cannot trigger PPA in either French or Italian.

(28)    Paul    a    repeint/*repeint-es    **les chaises**.    (= (1b))
        Paul    has    repainted/*repainted-F.PL    the    chairs[F]
        'Paul has repainted the chairs.'

(29)
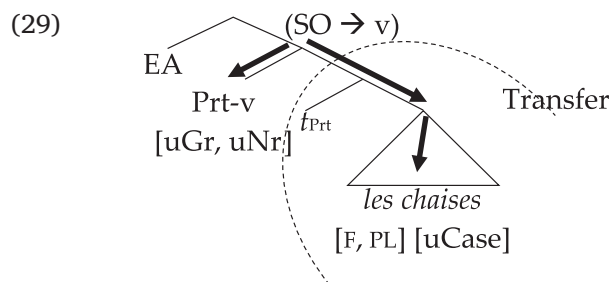


I assume with Chomsky (2000; 2001) that only CP and non-unaccusative vP are phases. A participle raises to a higher functional head (v). The vP constitutes a phase and is dominated by an auxiliary phrase ($v_{Aux}P$), which is also a phase if headed by *avoir/avere* 'have'.[10] When the vP phase is completed, Transfer applies to its complement domain and Agree to the entire phase. Since nominal phrases are not phases, in (29), the probe Prt-v can search the entire object for a matching goal. From its agreement morphology, I assume that Prt-v has unvalued gender and number features. Agree in (29) is minimal because the SO is labeled by minimal search LA.

What is the minimal matching goal for Prt-v? To answer this, let us consider the morphosyntax of a nominal phrase. According to Ritter (1992), gender is an inherent feature of nouns, but number is not since a nominal can be either singular or plural (see Harbert & Bahloul 2002; Faß

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[10] Chomsky (2001: 12) argues that a verbal phase must have an external argument. If so, *avoir/avere* as well as v might take EA, making a control structure. The discussion of this topic is beyond the scope of this paper. See Kayne (1993) for an analysis of $v_{Aux}P$.

2021 for similar remarks). Hence, the plural morpheme *-s* is separated from N, constituting a Number head. Carstens (2001) assumes that D, the highest head in the object, does not carry valued φ-features. Although definite/indefinite articles in French and Italian inflect for gender and number, it should be a reflex of φ-Agree within the nominal phrase. An argument for this is that determiners as well as possessive pronouns and adjectives share φ-information with a lexical noun.

(30)    *Italian* (Carstens 2001: 154)

    a.  l-a       mi-a     casa      bell-a

        the-F.SG  my-F.SG  house[F]  nice-F.SG

        'my nice house'

    b.  l-e       mi-e     case      bell-e

        the-F.PL  my-F.PL  houses[F]  nice-F.PL

        'my nice houses'

Multiple agreement within DP is well captured if we assume that D and the modifiers carry [uGr] and [uNr] which are valued by N and Number, respectively. These features on D are unvalued at the stage (29), since DP is not a phase. Therefore, Prt-v skips D and continues searching until it encounters a head with a valued φ-feature. A more detailed illustration of the Agree operation in (29) is provided below:

(31)
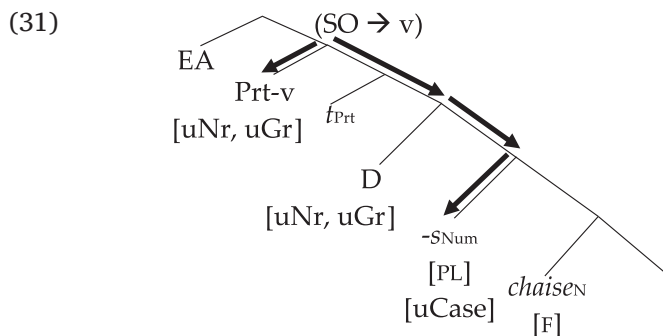


Num (*-s*) with a plural feature, made active by the unvalued Case feature, is found as the closest goal. The search stops here and assigns a plural value to Prt-v. Since both gender and number are necessary for morphological agreement, the participle shows up in a default form.[11]

---

[11] N (*chaise*) raises above Num (*-s*) either in syntax or at PF to derive the surface order. In the former case, Prt-v would find the N as the closest goal. Here, too, PPA is absent since Prt-v receives only a gender value from the N.

    In this connection, an anonymous reviewer asked me where [uCase] resides, which I had not specified in the previous draft. If we assume that "uninterpretable features render the goal *active*" (Chomsky 2000: 123), it must appear on a head with a valued feature. Thus, [uCase] resides on either Num or N. I assume that either option is possible: [uCase] can be added to either of the nominal heads when they enter a derivation (cf. Chomsky 1995). In

Let us next consider why PPA is obligatory with a derived subject in both French and Italian.

(32)  **Elle** est allé-**e**/*allé          en vacances.  ( = (2a))
      she is  gone-F.SG/*gone[DEF] on holiday
      'She went on holiday.'

(33)
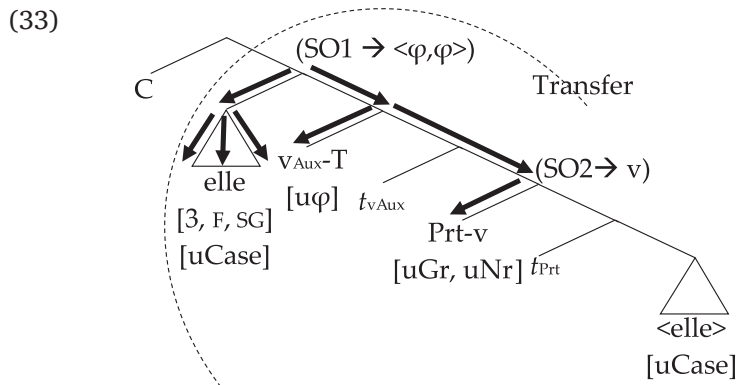


Neither unaccusative vP nor $v_{Aux}$P (headed by *être/essere* 'be') is a phase. Transfer does not apply until the CP phase is complete. At Transfer, the SO1 in (33) needs to be labeled by Full Agree: Search picks all φ-values in the derived subject to fully value $v_{Aux}$-T. At this stage, Prt-v should also have its [uφ] valued. Full Agree, therefore, continues and assigns the picked φ-values to Prt-v (Multiple Agree). The agreement morpheme thus shows up on the participle as well as the finite auxiliary.

One might suspect that Prt-v should be valued by Minimal Agree since the SO2 is labeled without the help of Full Agree. However, it is uneconomical: Search picks all the φ-values of the subject to fully value $v_{Aux}$-T and then *forgets all the φ-values except one* to minimally value Prt-v. It is more economical to continue one Full Agree operation as far as possible.

To summarize, the two-Agree theory provides a simple account for why PPA is absent with an in-situ object and obligatory with a derived subject. Minimal Agree applies to a participle and an in-situ object. A minimally valued participle must show up in a default form. If an object is A-moved, Full Agree holds between the derived subject and a finite auxiliary to label the so-called TP node, which also affects the participle. The fully valued participle appears in an agreeing form.

However, there is an apparent problem that needs consideration. In Italian, an internal argument of a passive/unaccusative verb seems to trigger PPA even from a postverbal position:

---

(31), [uCase] resides on Num, and the derivation is convergent. If [uCase] resides on N, the derivation deviates since Agree between Prt-v and N is blocked by the inactive intervening Num.

(34) D'Alessandro & Roberts (2008: 480)
Sono arrivat-**e** **le** **ragazze**.
are arrived-F.PL the.F.PL girls
'The girls have arrived.'

Under the present analysis PPA is not expected if *le ragazze* 'the girls' really remains in situ, leaving the subject position empty. One way to solve this problem is to assume that PPA is triggered by the subject *pro*, which has the same φ-values as *le ragazze* (cf. Burzio 1986). As long as this explanation holds, PPA in (34) is not a major problem in the current analysis.

## 6  An account of PPA (II): PPA with a clitic object

We will now consider PPA with clitic objects. In French, PPA with clitics is optional. In contrast, in Italian, PPA is obligatory with 3rd person clitics and optional with 1st/2nd person clitics. A rough sketch of the argument presented in this section is shown below:

(35)



(36)    a.



b.
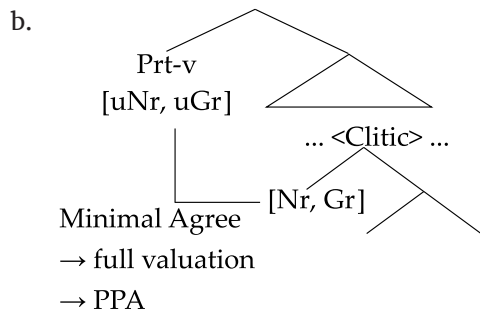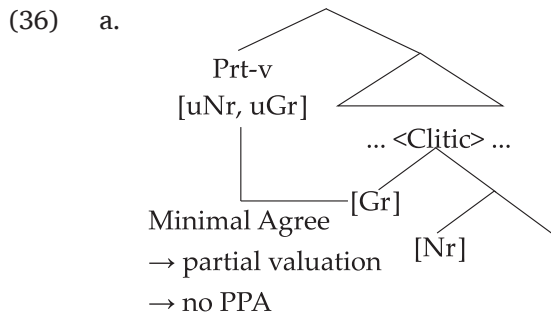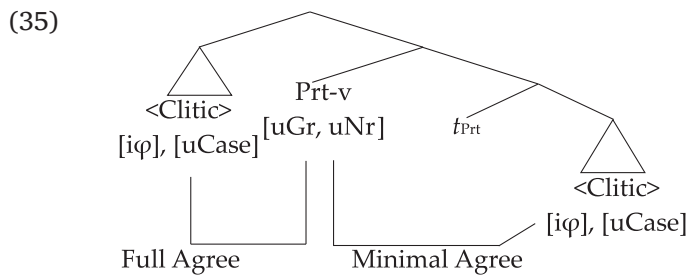
A clitic stops at SPEC-v before reaching its final landing site. Prt-v can Agree with a copy of the clitic in its SPEC or in the object position, as shown in (35). In the former case, Full Agree applies to label the so-called vP node, which results in PPA. In the latter case, Minimal Agree applies. If the highest φ-bearing head of the clitic does not have enough φ-information, as in (36a), the participle is not fully valued and spelled out in a default form. If the highest φ-bearing head has both gender and number values, as in (36b), the participle is fully valued and shows up in an agreeing form. Thus, all clitics can trigger PPA because of the availability of Full Agree, and some clitics *must* trigger PPA if their highest φ-bearing head has both gender and number features.

In the remainder of this section, I first discuss the structures of clitics, and then explain the observed PPA patterns.

## 6.1 Morphosyntax of clitic objects

The proposal in this section is twofold: (i) clitic pronouns involve a projection encoding φ-information (PhiP); (ii) PhiP may be decomposed into two layers. The discussion is based on Déchaine & Wiltschko (2002) and Kayne (2000).

Déchaine & Wiltschko (2002), examining the morphosyntax of pronouns cross-linguistically, argue that pronouns of languages are classified into the following three types:

(37)   a.   $[_{DP}$ D $[_{PhiP}$ Phi$_{[\varphi]}$ $[_{NP}$ N]]]
       b.   $[_{PhiP}$ Phi$_{[\varphi]}$ $[_{NP}$ N]]
       c.   $[_{NP}$ N]

The DP pronoun has three projection layers. Either sublayer, PhiP or NP, can also be a pronoun. Déchaine & Wiltschko note that PhiP is "a cover term for any intermediate functional projection that intervenes between N and D and that encodes φ-features" (p. 410). PhiP may be decomposed into several projections.

The three types of pronouns have different semantics and syntax. DP pronouns are always definite and occur only in argument positions. PhiP pronouns can be arguments or predicates, and can also function as bound variables. NP pronouns are inherently constants, and allow modification by adjectives and demonstratives.

Déchaine & Wiltschko argue that clitic pronouns in French (and other Romance languages) are PhiPs.[12] This is evident from the fact that a 1st/2nd person clitic object can be bound by its subject.

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[12]  Partitive clitic *en* is an exception, which they identify as NP.

(38)     Déchaine & Wiltschko (2002: 430)

    a.    Je$_i$  **me**$_i$  suis  vu.
         I    me   am   seen
         'I saw myself.'

    b.    Tu$_i$  **t**$_i$'  es   vu.
         you you are  seen
         'You(SG) saw yourself.'

    c.    Nous$_i$  **nous**$_i$  sommes  vu.
         we    us    are      seen
         'We saw ourselves.'

    d.    Vous$_i$  **vous**$_i$  êtes  vu.
         you  you  are  seen
         'You(PL) saw yourselves.'

The binding test cannot be applied to 3rd person clitics because the 3rd person reflexive shows up in a special form *s(e)*. Still, their PhiP status is confirmed by the fact that they can be used as predicates, as in (39a), and as bound variables, as in (39b).

(39)     Déchaine & Wiltschko (2002: 428–429)

    a.    Jean est un avocat,     et   François **le** sera     aussi.
         Jean is   a    lawyer[M] and François it  will.be too
         'Jean is a lawyer, and François will be one too.'

    b.    Chaque homme$_i$ pense  que  Marie  **l**$_i$'    a    vu.
         each    man      thinks that Marie him  has seen
         'Each man thinks that Mary saw him.'

One might suspect that 3rd person clitics should be DPs since they have the same form as definite articles (Fr. *le, la, les*; It. *lo, la, li, le*), as maintained by Kayne (2000). For Kayne, definite articles are Ds, regardless of their semantics. However, Déchaine & Wiltschko argue that Romance "definite" articles should also be analyzed as Phi since they are not necessarily definite. To resolve this conflict, I assume that Romance 3rd person clitics are DPs whose head may be active or inert. If inert, the clitics show PhiP properties, as in (39a, b).

    Déchaine & Wiltschko's syntactic analysis is consistent with Kayne's (2000) morphological decomposition of pronouns. Kayne first observes that French 1st/2nd person possessives may show agreement with the head noun, claiming that they consist of person + agreement (+ abstract possessive) morphemes.[13]

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[13] Agreement morphology is absent when the head noun is masculine singular.

(40) Kayne (2000: 131–132)

    a. **mes** tables
       my.F.PL tables[F]
       'my tables'

    b. **tes** tables
       your.F.PL tables[F]
       'your tables'

    c. **ma** table
       my.F.SG table[F]
       'my table'

    d. **ta** table
       your.F.SG table[F]
       'your table'

In (40), *m-* and *t-* are 1st and 2nd person morphemes, respectively, and *-es* and *-a* represent agreement. We can interpret "agreement" as a spell-out of [uφ] valued by Agree with a head noun.

(41)    [Phi$_{[1]}$ [Phi$_{[uφ]}$ [[(Poss) [$_{NP}$ tables$_{[F.PL]}$]]]]][14]
           |_____| Agree
       ↓     ↓
      *m-*   *-es*

I adopt the idea that redundant φ-marking on a pronoun represents agreement within the pronoun.

    Kayne (2000) then analyzes accusative clitics in French and Italian as follows:

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(i)    Kayne (2000: 132)
        m**on** livre
        my    book[M]
        'my book'

Kayne assumes that *-on* is a possessive morpheme which surfaces only when agreement morphology is null.

[14] If *tables* is analyzed as *table*$_{[F]}$ and *-s*$_{[PL]}$ (see Section 5), it would be more precise to assume that lower Phi$_{[uφ]}$ is decomposed into Phi$_{[uGr]}$ and Phi$_{[uNr]}$:

(i)    [Phi$_{[1]}$ [Phi$_{[uNr]}$ [Phi$_{[uGr]}$ [[(Poss) [$_{NrP}$ -s$_{[PL]}$ [$_{NP}$ table$_{[F]}$]]]]]]]
            |_____|_____| Agree
      *m-*   *-e*   *-s*

See Section 8.3 for related discussion.

(42)   *French*
    a.  m'/me   *m* (1st person) + *e* (epenthesis)
    b.  t'/te   *t* (2nd person) + *e* (epenthesis)
    c.  l'/le   *l* (definite) + *e* (masculine singular)
    d.  l'/la   *l* (definite) + *a* (feminine singular)
    e.  nous   *n* (1st person plural) + *ou* (root) + *s* (plural)
    f.  vous   *v* (2nd person plural) + *ou* (root) + *s* (plural)
    g.  les   *l* (definite) + *e* (masculine/feminine) + *s* (plural)

(43)   *Italian*
    a.  mi/me   *m* (1st person) + *i/e* (epenthesis)
    b.  ti/te   *t* (2nd person) + *i/e* (epenthesis)
    c.  lo   *l* (definite) + *o* (masculine singular)
    d.  la   *l* (definite) + *a* (feminine singular)
    e.  ci   *c* (1st person plural) + *i* (plural)
    f.  vi   *v* (2nd person plural) + *i* (plural)
    g.  li   *l* (definite) + *i* (masculine plural)
    h.  le   *l* (definite) + *e* (feminine plural)

The 1st and 2nd person singular clitics are monomorphemic *m-* and *t-*, respectively, followed by epenthetic *-e/i*, where necessary. The plural counterparts, *n-* and *v-* in French (42e, f) and *c-* and *v-* in Italian (43e, f) represent plural number as well as person. Note that these person-number morphemes are followed by a plural morpheme (*-s* in French and *-i* in Italian). That is, number is doubly marked on the 1st/2nd person plural clitics. Although Kayne does not provide a precise Agree process within a clitic, it appears that the first morpheme of each clitic bears [uNr] to Agree with the number morpheme.

    Based on Déchaine & Wiltschko's (2002) PhiP analysis and Kayne's (2000) decomposition of clitics, I propose the following structure for the 1st/2nd person clitics:

(44)   Structure of 1st/2nd person clitics:
    [Phi1$_{[1/2, uNr]}$ [Phi3$_{[SG/PL]}$ [$_{NP}$ N]]]
              |_____|  Agree

The 1st/2nd person pronouns are headed by Phi with a valued person feature [1/2] and an unvalued number feature [uNr]. [uNr] is valued by (Minimal) Agree with a lower head Phi with a valued number feature. To distinguish the two Phi heads, I call the higher one Phi1 and the lower Phi3. The vocabulary insertion procedure reads these values and spells out each head accordingly:

(45)  a.  [Phi1$_{[1, \underline{SG}]}$  [Phi3$_{[SG]}$  [N]]]
          →    m-        -Ø      -Ø          (with epenthetic *-e/i* where necessary)

      b.  [Phi1$_{[2, \underline{SG}]}$  [Phi3$_{[SG]}$  [N]]]
          →    t-        -Ø      -Ø          (with epenthetic *-e/i* where necessary)

      c.  [Phi1$_{[1, \underline{PL}]}$  [Phi3$_{[PL]}$  [N]]]
          →    n-        -s      -ou    [Fr.]    (*-ou* raises above *-s* later)
          →    c-        -i      -Ø     [It.]

      d.  [Phi1$_{[2, \underline{PL}]}$  [Phi3$_{[PL]}$  [N]]]
          →    v-        -s      -ou    [Fr.]    (*-ou* raises above *-s* later)
          →    v-        -i      -Ø     [It.]

The values assigned under Agree are underlined for the sake of illustration.

Let us now consider the structure of 3rd person accusative clitics. They are all headed by *l-*, which Kayne identifies as D. *l-* is followed by a morpheme representing gender. In French, *-a* marks masculine and *-e* feminine. However, this distinction is blurred in the plural *les*. *Les* may be decomposed into D (*l-*), blurred gender morpheme *-e* and plural *-s*. Based on these observations, I propose the following structure of French 3rd person clitics:

(46)  French 3rd person clitics:
      [D [Phi2$_{[Gr, uNr]}$  [Phi3$_{[SG/PL]}$  [N]]]]
               |_____|  Agree

A 3rd person clitic involves Phi2 with a valued gender feature and an unvalued number feature, the latter of which is valued by the lower Phi3. The gender distinction on Phi2 is spelled out (*-e* or *-a*) if Phi2 is given a [SG] value, but not otherwise:[15]

(47)  PF realizations:
      a.    [D [Phi2$_{[M, \underline{SG}]}$  [Phi3$_{[SG]}$  [N]]]]
           →  l-      -e          -Ø    -Ø

      b.    [D [Phi2$_{[F, \underline{SG}]}$  [Phi3$_{[SG]}$  [N]]]]
           →  l-      -a          -Ø    -Ø

      c.    [D [Phi2$_{[M, \underline{PL}]}$  [Phi3$_{[PL]}$  [N]]]]
           →  l-      -e          -s     -Ø

      d.    [D [Phi2$_{[F, \underline{PL}]}$  [Phi3$_{[PL]}$  [N]]]]
           →  l-      -e          -s     -Ø

---

[15]  Impoverishment of φ-feature morphology is a common phenomenon. In English, for example, person information on a finite verb is not spelled out if it is given a [PL] value: I am$_{[1SG]}$; You are$_{[2SG]}$; He is$_{[3SG]}$; We are$_{[1PL]}$; You are$_{[2PL]}$; They are$_{[3PL]}$.

If this analysis is correct, every French clitic object contains two Phi heads, and the higher Phi has its [uNr] valued by the lower Phi (I leave open the question of whether a 3rd person feature exists somewhere in 3rd person clitics or it is merely "nonperson" (cf. Kayne 2000) since it does not affect the present discussion).

Italian 3rd person clitics may have a different internal structure, as they show no redundant number marking. A natural assumption is that a single head, say Phi2, carries both gender and number values:[16]

(48)    Italian 3rd person clitics:
        [D [Phi2$_{[Gr, Nr]}$ [N]]]

(49)    PF realizations:
        a.      [D    [Phi2$_{[M, SG]}$    [N]]]
                →    l-         -o         -Ø
        b.      [D    [Phi2$_{[F, SG]}$    [N]]]
                →    l-         -a         -Ø
        c.      [D    [Phi2$_{[M, PL]}$    [N]]]
                →    l-         -i         -Ø
        d.      [D    [Phi2$_{[F, PL]}$    [N]]]
                →    l-         -e         -Ø

In summary, syntactic and morphological evidence suggests that clitic objects have a complex internal structure. French and Italian clitics are minimally different in that gender and number values reside in different Phi heads in French, whereas they are contained in the same head in Italian.

(50)    a.    1st/2nd person clitics:
              [Phi1$_{[Pn, uNr]}$ [Phi3$_{[Nr]}$ [N]]]
        b.    3rd person clitics:
              i.  French
                  [D [Phi2$_{[Gr, uNr]}$ [Phi3$_{[Nr]}$ [N]]]]
              ii. Italian
                  [D [Phi2$_{[Gr, Nr]}$ [N]]]

If present, [uNr] is valued by Agree with a lower Phi at the phase level. In the next section I consider how the proposed internal structures of clitics are responsible for the observed PPA patterns.

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[16] Law (2003) provides a similar analysis.

## 6.2 PPA explained

We are now in a position to account for PPA with clitics. Consider example (3a), repeated here as (51).

(51)  Ces   sottises,      Jean ne **les**  a   jamais fait-**es**/fait.        (=(3a))
      these stupid.things[F] Jean not them has ever   done-F.PL/done[DEF]
      'These stupid things, Jean has never done them.'

Clitic raising, though apparently head movement, should be considered a type of A'-movement since clitics have a complex internal structure. They should move successive-cyclically to their final landing site. Therefore, the accusative clitic object should move via SPEC-v and SPEC-v$_{Aux}$. I assume, with Sportiche (1998) and Matushansky (2006), that clitics target (the inner) SPEC of T and then morphologically merges with a finite (auxiliary) verb in the PF component.

(52)                               vP phase

      [Jean [les$^4$ [a-T [<les$^3$> $t_{vAux}$ [<les$^2$> <Jean> fait-v [$t_{Prt}$ <les$^1$>]]]]]]

When Agree applies at the vP phase, Prt-v (*fait*-v in (52)) has two Agree options.

(53)  a.  [$_{SO}$ <Clitic$^2$> <EA> Prt-v$_{[uNr, uGr]}$ ... <Clitic$^1$>]
          |_____| Full Agree
      b.  [$_{SO}$ <Clitic$^2$> <EA> Prt-v$_{[uNr, uGr]}$ ... <Clitic$^1$>]
                                          |_____| Minimal Agree

If Prt-v chooses to Agree with Clitic$^2$, as in (53a), rich valuation is necessary to label the SO. Prt-v is fully valued and, hence, shows up in an agreeing form. Although a 1st/2nd person clitic lacks a formal gender value, I assume with Wechsler (2011), Collins & Postal (2012) and Wurmbrand (2017) that there resides in a clitic a *notional* gender value that Full Agree can find.[17] Consequently, Full Agree induces PPA.

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[17] Notional gender might sound ad hoc and less convincing, as noted by an anonymous reviewer. Its existence, however, is suggested by the fact that nominals can induce more than one type of agreement (cf. Corbett 2006). Consider the following example:

  (i)  *French* (Ihsane & Sleeman 2016: 160)
       Mon     ancien    professeur de français était toujours content-e  de mon travail.
       my[M]   former[M] professor  of French   was  always  satisfied-F of my  work
       'My former French teacher(F) was always satisfied with my work.'

If Prt-v chooses to Agree with Clitic[1], as in (53b), it is Minimal Agree. That is, search stops when it encounters the closest goal in the clitic. With this in mind, let us consider (50a, b) again. Minimal Agree with 1st/2nd person clitics in French and Italian will be as follows:

(54)     Minimal Agree with 1st/2nd person clitics:
         [Prt-v$_{[uNr, uGr]}$     …        [Phi1$_{[Pn, uNr]}$ [Phi3$_{[Nr]}$ [N]]] ]
                  |_____|
                  Minimal Agree → partial valuation → no PPA
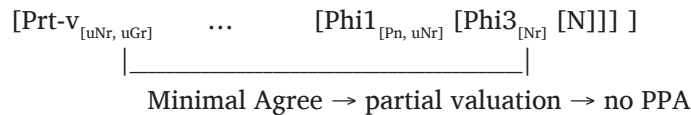
The highest Phi (Phi1) has [uNr], which remains unvalued before the vP phase is complete (recall that nominal phrases are not phases). Therefore, in (54), Prt-v skips Phi1 and Agrees with Phi3 with [Nr]. The probe's [uNr] is thus valued but not its [uGr], which results in the absence of PPA.

Minimal Agree with 3rd person clitics in French is illustrated in (55).

(55)     Minimal Agree with 3rd person clitics in French:
         [Prt-v$_{[uNr, uGr]}$    …    [D [Phi2$_{[Gr, uNr]}$ [Phi3$_{[Nr]}$ [N]]]] ]
                  |_____|
                  Minimal Agree → partial valuation → no PPA
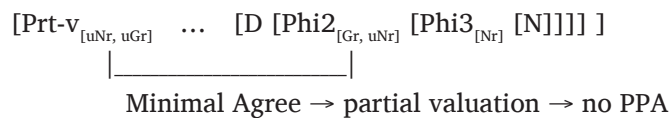
The highest Phi (Phi2) has only a gender value. Prt-v is thus partially valued and spelled out in a default form.

Minimal Agree with Italian 3rd person clitics leads to a different outcome:

(56)     Minimal Agree with 3rd person clitics in Italian:
         [Prt-v$_{[uNr, uGr]}$     …    [D [Phi2$_{[Gr, Nr]}$ [N]]] ]
                  |_____|
                  Minimal Agree → full valuation → PPA

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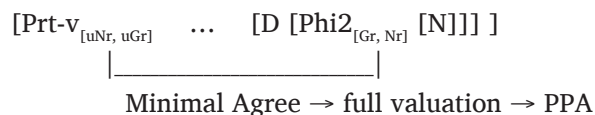
*Professeur* 'professor', a masculine noun, induces masculine agreement within the nominal phrase, whereas it induces feminine agreement on *content* 'satisfied' if the professor is female. The latter type of agreement is called notional or semantic agreement since the target agrees with the sex of the referent, not with its formal gender. To explain notional agreement, we need to posit a notional gender feature, which is visible to the syntactic computation.

A 1st/2nd person pronominal subject can also induce feminine agreement on a predicate if the referent of the subject is female.

(ii)    *French*
        Je  suis  content-e.
        I   am    satisfied-F
        'I(F) am happy.'

*Je* 'I', however, has no formal gender. A natural assumption would be that this is also notional agreement, that is, agreement with the pronoun's notional feminine value.

The highest Phi (Phi2) has both gender and number values (see (50bii)). Prt-v is, therefore, fully valued and shows up in an agreeing form. Full Agree, as in (53a), also results in full valuation. Consequently, Italian 3rd person clitics always trigger PPA.

In sum, the observed PPA patterns follow from the two-Agree theory and the internal structure of clitics. Prt-v can have its [uφ] valued under Minimal or Full Agree with a clitic. In most cases, Minimal Agree results in partial valuation and no PPA, and Full Agree in full valuation and PPA. Hence, most clitics optionally trigger PPA. 3rd person clitics in Italian are exceptional in that they always fully value Prt-v since their highest Phi head has both gender and number values. Therefore, these clitics obligatorily trigger PPA.

## 7 An account of PPA (III): PPA with an A'-moved object

Let us now turn to PPA with an A'-moved object. PPA is optional in French and absent in Italian.

(57)    *French*: optional PPA with an A'-moved object ( = (4a, b))
    a. **Combien de fautes**    a-t-elle    fait-**es**?
       how.many of   mistakes has-she   made-F.PL
       'How many (amongst a known set of) mistakes has she made?'

    b. **Combien de fautes**    a-t-elle    fait?
       how.many of   mistakes has-she   made[DEF]
       'What is the number of things that are mistakes and that she has made?'

(58)    *Italian*: no PPA with an A'-moved object ( = (10b))
    **Quanti    libri**        hai         lett-o/*lett-i?
    how.many   books[M]   have.2SG read-DEF/*read-M.PL
    'How many books have you read?'

Below, I use a wh-object as a representative example of A'-moved objects.

Optional PPA in French conforms with the proposed analysis. A wh-object stops at SPEC-v and SPEC-v$_{Aux}$ before reaching SPEC-C.

(59)                                                      vP phase

    [$_{SO1}$ Wh⁴ **C$_{[uF]}$** [Subj v$_{Aux}$-T [… [<Wh³> v$_{Aux}$ [$_{SO2}$ <Wh²> <Subj> **Prt-v** [$t_{Prt}$ <Wh¹>]]]]]]]

Prt-v has its [uφ] valued when the vP phase is completed. It can choose between Minimal Agree with Wh¹ or Full Agree with Wh². The former results in no PPA, and the latter in PPA. Thus, the two Agree options result in optional PPA with a wh-object.

The proposed analysis can also explain the specificity requirement of a PPA-inducing wh-object: The agreeing sentence (57a) presupposes a specific set of mistakes and asks how many of them are attributed to the subject. In the non-agreeing sentence (57b), the wh-object may or may not be specific. The specificity requirement can be considered a result of criterial interpretation.

To understand this point, let us first consider how C in (59) contributes to labeling and interpretation. According to Rizzi (2015), C is a criterial head that attracts a wh-phrase to its SPEC, thus creating a SPEC-Head configuration (criterial configuration) under which the shared feature, Q, labels the SO1 as $<Q, Q>$. At LF, the criterial head carries instructions for interpreting its SPEC as an interrogative quantifier. Thus, so-called SPEC-Head agreement brings about labeling and mapping instructions to LF.

According to this idea, we should expect Prt-v to be a criterial head. Suppose that Full Agree holds between Prt-v and $Wh^2$ to label the SO2 as $<\varphi, \varphi>$. In this case, Prt-v is a criterial head and carries instructions on how to interpret $Wh^2$. A similar proposal was made by Déprez (1998), who, considering Diesing's (1992) tripartite LF representation, claims that a PPA-inducing object is mapped to the restrictive clause by which it receives a presuppositional/specific reading. Integrating Déprez's idea into the present analysis, I propose that the criterial head Prt-v instructs LF to interpret its SPEC ($Wh^2$) as a specific entity. PPA with a wh-object, thus, induces a semantic effect.

Incidentally, a derived subject, which obligatorily triggers PPA, does not need a specific interpretation. Recall that in (5), repeated here as (60), the subject allows a non-specific reading:

(60)  Dans  ce   pays,   **une chaise**  est repeint-**e**      toutes  les   heures.
      in    this country a     chair[F]   is  repainted-F.SG all     the   hours
      'In this country, a chair is repainted every hour.'

This interpretation also follows from the present analysis. Full Agree holds between the derived subject and T to label the so-called TP node. T, the criterial head, instructs LF to interpret its SPEC as "Subject" (something related to aboutness; see Section 9). Since the instruction does not necessarily entail specificity, the derived subject does not need to have a specific reading.

However, the proposed analysis cannot readily explain the absence of PPA with wh-objects in Italian. In Italian, an independent factor might block the application of Full Agree between Prt-v and $Wh^2$ in (59). I assume that criterial freezing is active in Italian, but not in French:

(61)  Criterial freezing (Rizzi 2015: 319)
      In a criterial configuration, the criterial goal is frozen in place.

If Full Agree applies between Prt-v and Wh$^2$ in (59), the wh-phrase can no longer move to SPEC-C. Hence, the derivation is convergent only if Prt-v chooses to Agree with Wh$^1$ in the object position (Minimal Agree). Consequently, PPA does not appear with a wh-object in Italian.

Burzio (1986) regards PPA with a wh-object in Italian as "stylistically rather marked" (p. 80), unlike other researchers who simply exclude it. There might be a speaker variation as to whether (61) is a rigid rule or a preferred one.

In summary, the proposed analysis explains optional PPA with a French wh-object and the total absence of PPA with an Italian wh-object while assuming parameterized criterial freezing. PPA implies that a wh-object has entered into *two* criterial configurations: one with a participle (Prt-v), and the other with interrogative C. The violation of criterial freezing is not tolerated in Italian. However, in French, it poses no problem: A PPA-inducing wh-object is qualified as an interrogative quantifier (by C) and as a specific entity (by Prt-v). The specificity requirement for the PPA-inducing wh-object follows from labeling.

One might naturally wonder about the validity of parameterized criterial freezing. I make a few remarks about this in Section 9.

## 8 Further consequences
### 8.1 PPA with partitive clitic en/ne

In this section, I explore the consequences of the analysis presented so far. An immediate advantage concerns PPA patterns with partitive clitics. In French, PPA with partitive clitic *en* is generally impossible (cf. Belletti 2006; Radford & Vincent 2007), whereas some speakers allow it in limited contexts (cf. Déprez 1998; Sportiche 1998; Kayne 2005).

(62)    (62a) from Belletti (2006: 506); (62b) from Déprez (1998: 6)

    a. Il **en** a repeint /*repeint-es deux.
       he of.them has repainted[DEF]/*repainted-F.PL two
       'He has repainted two of them.'

    b. Des bombes, je peux vous assurer que cette usine **en** a produit-**es**,
       of bombs I can you assure that this factory some has produced-F.PL
       mais je ne peux pas vous dire lesquelles.
       but I not can not you tell which.ones
       'Bombs, I can assure you that this factory has produced some, but I could not tell you which ones.'

An unclear acceptability status is expected under the proposed analysis. PPA implies that the clitic has entered into a criterial configuration with Prt-v and hence has a specific interpretation,

that is, PPA-inducing *en* should be both partitive and specific. A speaker would accept PPA with *en* if they managed to come up with a situation in which such a reading of *en* is natural.

Interestingly, Italian partitive clitic *ne* obligatorily triggers PPA. According to Belletti (2006), "no variation is ever found among Italian speakers in this domain" (p. 516).

(63)  Belletti (2006: 507)
    **Ne**    ho    comprat-**e**/*comprat-o    molte.
    of.them  have.1SG  bought-F.PL/*bought-DEF  many
    'I have bought many of them.'

This fact is consistent with the proposed analysis. Recall that the highest φ-bearing head of Italian 3rd person clitics is Phi2 with gender and number values. Let us suppose that the same holds for partitive *ne*:

(64)  a.  $[<\text{ne}_{[Gr, Nr]}> \text{Prt-v}_{[uGr, uNr]} [t_{Prt} <\text{ne}_{[Gr, Nr]}> \text{molte}]]$
                  |_____|
              Minimal Agree → full valuation → PPA

    b.  $[<\text{ne}_{[Gr, Nr]}> \text{Prt-v}_{[uGr, uNr]} [t_{Prt} <\text{ne}_{[Gr, Nr]}> \text{molte}]]$
                  |_____|
              Full Agree → full valuation → PPA

Burzio (1986) and Kayne (2005) assume that *ne* has specific φ-information when it occurs with a quantifier such as *molte* 'many'. Prt-v has its [uGr, uNr] valued by either Minimal or Full Agree as in (64). Full Agree results in full valuation. Minimal Agree also results in full valuation since the highest Phi head of *ne* has gender and number values. Since Minimal Agree does not create a criterial configuration, *ne* does not need a specific reading. Consequently, *ne* always triggers PPA without a semantic effect.

In passing, PPA with *ne* is optional if there is no quantifier in the object position.

(65)  Burzio (1986: 81–82)
    a.  (Birra)  **ne**  ho    bevut-**a**/bevut-o.
        (beer[F])  of.it  have.1SG  drunk-F.SG/drunk-DEF
        'I have drunk some of it.'

    b.  (Spaghetti)  **ne**  ho    mangiat-**i**/mangiat-o.
        (spaghetti[M])  of.it  have.1SG  eaten-M.PL/eaten-DEF
        'I have eaten some of it.'

*Ne* may not have specific φ-values when it is not linked to a stranded quantifier. With no φ-values, *ne* does not trigger PPA. See Kayne (2005) for a possible analysis of how *ne* and a quantifier share φ-values.

## 8.2 Another type of agreement asymmetry

A second welcome result is another type of agreement asymmetry. Recall that in Section 6, I have argued that PPA with Italian 3rd person clitics is obligatory because Minimal as well as Full Agree leads to full valuation of the participle. French 3rd person clitics partially value a participle under Minimal Agree because their highest Phi only carries a gender value.

(66)　a.　*Italian*: Minimal Agree with a 3rd person clitic

$[\dots \text{Prt-v}_{[\text{uGr, uNr}]} \dots < [\text{D} [\text{Phi2}_{[\text{Gr, Nr}]} [\text{N}]]] > ]$

|_____|

Minimal Agree → full valuation → PPA

　　b.　*French*: Minimal Agree with a 3rd person clitic

$[\dots \text{Prt-v}_{[\text{uGr, uNr}]} \dots < [\text{D} [\text{Phi2}_{[\text{Gr}]} [\text{Phi3}_{[\text{Nr}]} [\text{N}]]]] > ]$

|_____|

Minimal Agree → partial valuation → no PPA

This indicates another type of agreement asymmetry: A controller whose φ-information is assembled in one head triggers richer agreement than a controller whose φ-information is scattered in different heads.

This type of asymmetry may be observed in, for example, Welsh. In this VS language, a finite verb agrees with a pronominal subject in person and number whereas a verb always occurs in the default 3rd person singular form with a lexical subject.

(67)　*Welsh* (Borsley et al. 2007: 199)

　　a.　gwel-**es  i**
　　　　saw-1SG  I
　　　　'I saw …'

　　b.　gwel-**odd  {e/hi}**
　　　　saw-3SG    {he/she}
　　　　'{He/She} saw…'

　　c.　gwel-**on  nhw**
　　　　saw-3PL   they
　　　　'They saw…'

(68)　*Welsh* (Borsley et al. 2007: 199)

　　Gwel-odd {**y  bachgen/bechgyn**} ddraig.
　　saw-3SG   {the  boy/boys}           dragon
　　'{The boy/boys} saw a dragon.'

A similar agreement asymmetry is observed in Standard Arabic, which allows both VS and SV word orders. In a VS sentence, a finite verb agrees with a pronominal subject in person, gender and number, as in (69). In contrast, the verb shows agreement in gender but not in number with a lexical subject. Observe that the finite verb in (70) appears in a feminine singular form, whereas the subject is dual.

(69) *Standard Arabic* (Soltan 2006: 248)
    Qaraʔ-**uu**     **hum-u**    d-dars-a.
    read-3.M.PL   they-EV   the-lesson-ACC
    'They read the lesson.'

(70) *Standard Arabic* (Harbert & Bahloul 2002: 45)
    Qadim-**at**     **al-bint-aani**.
    came-3.F.SG   the-girl-NOM.DU
    'The two girls came.'

The observation is summarized in (71).

(71)   a.   Target    ....     Pronominal Controller
            |_____|   richer agreement
    b.   Target    ....     Lexical Controller
            |_____|   poorer agreement

The target shows richer agreement with a pronominal controller than with a lexical controller.

Kobayashi (2020a;b) argues that this type of agreement asymmetry can be attributed to the different distributions of φ-features. Syntactic and morphological evidence suggests that pronouns in these languages are PhiPs whose highest head Phi carries a full set of φ-features. When Minimal Agree applies to the target and the pronominal controller, the target is fully valued by Phi and shows up in an agreeing form. In contrast, the highest head of a lexical controller has a partial set of φ-features: In Welsh, D carries gender and number values but lacks a person value; in Standard Arabic, the highest head is N with a gender value as a result of N-to-D raising (see Kobayashi 2020a;b for details). When Minimal Agree holds between a verb and a lexical subject, the verb is partially valued. In Welsh, the partially valued verb is spelled out in its default form. In Standard Arabic, the verb appears in a partially agreeing form.

## 8.3 PPA with an in-situ object

The discussion so far has been based on the observation that PPA with an in-situ object is absent in both French and Italian. Some Italo-Romance dialects, however, do allow PPA of this type, as pointed out by an anonymous reviewer. Here, I offer some examples of PPA with an in-situ object and a possible explanation.

D'Alessandro & Roberts (2008) observe that an in-situ object triggers PPA in highly literary and archaic Italian:

(72)  *19th century Italian* (Alessandro Manzoni, cited by D'Alessandro & Roberts 2008: 479, note 3)
la     quale, dopo  aver     **asciugate**    in  segreto  **le    lacrime**, …
the    which  after  to.have  wiped.F.PL      in  secret   the    tears[F]
'who, after secretly wiping her tears, …'
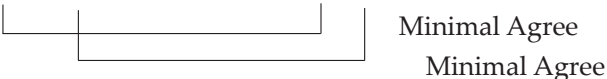
Moreover, D'Alessandro (2017) reports that dialects in Central and Southern Italy may show PPA with an in-situ object. For example, a past participle in Sanvalentinese agrees with an in-situ object, as in (73b), if the object is the most definite (or known) argument:

(73)  *Sanvalentinese* (D'Alessandro 2017: 7)
a.  Ajə         cciosə       li    pellistrə.
    have.1SG     killed.SG.M  the   chickens[M]
    'I have been killing chickens.'

b.  Ajə         **ccisə**    **li    pellistrə**.
    have.1SG     killed.PL.M  the   chickens[M]
    '(As for those chickens,) I have killed the chickens.'

In the sentence (73a), where the participle *cciosə* 'killed' agrees with the subject, the subject functions as a topic. In (73b), the participle agrees with the in-situ object, which makes the latter the topic of the sentence. Leaving aside the question of how topichood affects Agree (see D'Alessandro 2017 on this issue), I consider how PPA with an in-situ object is possible under the current analysis.

The simplest solution would be to assume that the participle's [uGr] and [uNr] are located on different heads. Suppose that a participle is composed of two heads, H1 and H2, with [uNr] and [uGr], respectively.

(74)   [H1$_{[uNr]}$   [H2$_{[uGr]}$ ... [$_{Obj}$ D [Num$_{[Nr]}$ [N$_{[Gr]}$]]] ]]
                                                                      Minimal Agree
                                                                        Minimal Agree

H1 Agrees with Num for [uNr], and H2 Agrees with N for [uGr]. The participle is hence fully valued. In the PF component, H1 and H2 are spelled out as a participle with an agreement morpheme. PPA with an in-situ object in some dialects might be due to the scattering of unvalued features.

The idea that a probe's unvalued features can be located on different heads is not a novel one. D'Alessandro & Roberts (2010) and D'Alessandro (2017), for example, explain dialectal variation

in auxiliary selection in compound tenses by assuming that [uφ]-features for a finite auxiliary can appear on T as well as $v_{Aux}$ in some dialects. Moreover, Nawata (2011) relates syntactic changes in the history of English to the distribution of [uφ]-features. According to the author, in Old and Early Middle English, when a finite verb shows rich agreement with a subject, [uNr] and [uPn] of C are inherited by separate heads, Top and Fin. This induces V-to-Top movement and obligatory topic movement, rendering English at the time a V2 language. As rich agreement is lost, [uNr] and [uPn] of C are inherited by the same head, T, resulting in the loss of V2.

This proposal is only a possibility. If we want to pursue this direction further, we will need to explain why the participle's [uφ]-features appear on a single head in some dialects and not in others, which I leave for future research.

## 9  A note on criterial freezing

In Section 7, I propose a criterial freezing parameter that is active in Italian, but absent in French. The proposal is apparently problematic since the strongest minimalist thesis holds that the core computational system of I-language is (close to) uniform across languages (cf. Chomsky 2017; Chomsky et al. 2019). In this section, I provide further evidence for the proposal, although a full-scale reformulation of criterial freezing is beyond the scope of this paper.

Let us consider possible readings of the following sentence:

(75)    Diesing (1992: 17)
        Firemen are available.

The sentence allows either an existential or generic reading of the bare plural subject. That is, (75) can mean either that there are some firemen available at the speech time, or that firemen are such people that are available anytime. Diesing (1992) claims that the subject position (SPEC-T) is mapped to the generic reading at LF. The existential reading is obtained by lowering the subject to its theta position (SPEC-v) at LF (reconstruction). Under the copy theory of movement, we can reinterpret this as follows: Either a higher or lower copy of the subject can be chosen to be mapped to the generic/existential reading.

However, a question arises here. Rizzi (2006; 2010; 2015) claims that the subject position is a criterial position. The subject is a phrase about which an event is presented. Put differently, the criterial head T maps its SPEC (i.e. subject) to the "aboutness" reading.[18] To receive the reading, the copy of the subject at SPEC-T must be visible at LF even if it is reconstructed to SPEC-v to have an existential reading. How can a subject be interpreted at both SPEC-T and SPEC-v?

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[18]  Rizzi (2010; 2015) refers to the criterial head as Subj.

Let us assume that mapping can be applied to a subpart of a copy. *Firemen* is decomposed into null D and N. Suppose that D of the higher copy and N of the lower copy are separately mapped to an interpretation, as illustrated in (76a).

(76)  *English*

    a.   $[_{TP}$ [D [N …]] T $[_{vP}$ [D [N …]] … ]]
                ↓              ↓
            aboutness       existential reading

    b.   $[_{TP}$ [D [N …]] T $[_{vP}$ [D [N …]] … ]]
                ↓
            aboutness
            generic reading

The D part at SPEC-T is mapped to the aboutness reading and the N part at SPEC-v to the existential reading. If the whole subject is mapped to interpretation, as in (76b), it receives aboutness as well as the generic reading.

This implies that we cannot obsolete reconstruction even under the copy theory of movement (contra Chomsky et al. 2019). Reconstruction, which is operative in the LF component, determines what part of which copy should be used for mapping.

Interestingly, a bare plural subject in German cannot have a reconstructed reading. Consider the following examples:

(77)  *German* (Diesing 1992: 37–38)

    a.  … weil  Professoren ja doch   verfügbar  sind
           since  professors   'indeed'  available   are
        '… since (in general) professors are available'

    b.  … weil  ja doch  Professoren  verfügbar  sind
           since  'indeed'  professors   available  are
        '… since there are professors available'

The sentence particle *ja doch* 'indeed' indicates the position of the subject. The subject in (77a), which is to the left of the particle, is in SPEC-T, whereas the subject in (77b), which is to the right of the particle, remains in vP. As the translations show, the raised subject in (77a) has a generic reading and the in-situ subject in (77b) has an existential reading. That is, "in German the S-structure position of the subject correlates with the most readily available reading for a bare plural subject" (Diesing 1992: 37). This indicates that copy-splitting reconstruction is unavailable in German. Once the subject occupies SPEC-T, the entire copy is mapped to interpretation.

(78)   *German*
       [$_{TP}$ [D [N …]] T [$_{vP}$ [D [N …]] … ]]
           ↓
       aboutness
       generic reading

To account for the difference between English and German, I assume a reconstruction parameter, such as the following:

(79)   Reconstruction parameter (for certain interpretations)
       a.   Reconstruction can split a copy for mapping.        → English
       b.   Reconstruction cannot split a copy for mapping.     → German

Let us suppose that French adopts the parameter (79a) and Italian (79b). If a wh-object triggers PPA, it must have two criterial readings. This is readily available in French through copy-splitting reconstruction:

(80)   *French*: mapping of a PPA-triggering wh-object
       [$_{CP}$ [how.many [mistakes]] C … [$_{vP}$ [how.many [mistakes]] Prt-v […]]]
                   ↓                                        ↓
              Q-quantifier                           specific reading

In Italian, the two criterial configurations created in syntax are not properly interpreted. Parameter (79b) prohibits mapping of (a part of) the lower copy to a specific reading:

(81)   *Italian*: mapping of a PPA-triggering wh-object
       *   [$_{CP}$ [how.many [mistakes]] C … [$_{vP}$ [how.many [mistakes]] Prt-v […]]]
                   ↓                                        ↓
              Q-quantifier                        (no criterial reading assigned)

Representation (81) deviates at LF because the instruction of the criterial head Prt-v is not observed.

   This discussion reduces the criterial freezing parameter proposed in Section 7 to the reconstruction parameter (79). Another piece of evidence for the reconstruction parameter comes from the presence/absence of agreement with a wh-subject. Let us first consider the following examples from English:

(82)   Bošković (1997: 87)
       a.   [A man and a woman] **are/*is** in the house.
       b.   There **is/*are** [a man and a woman] in the house.
       c.   There **are/*is** [four men and a woman] in the house.

A coordinated subject triggers plural agreement on a finite verb, as shown in (82a). If a subject remains in a postverbal position, as in (82b) and (82c), a finite verb agrees only with the first conjunct of the subject. If a coordinated subject is A'-moved, it triggers plural agreement.

(83)     [Which man and which woman] do you think **are** in the house?

If the subject had to move directly to the A'-position, skipping subject position (SPEC-T), the copular would show singular agreement. Plural agreement indicates that the wh-subject stops at SPEC-T and SPEC-C, creating two criterial configurations. Presumably, reconstruction allows the wh-part to be interpreted at SPEC-C and the rest to be interpreted at SPEC-T.

Data from an Italian dialect suggest the opposite. In Fiorentino, a preverbal subject must occur with a subject clitic agreeing with it, as shown in (84a). When the subject is postverbal, the clitic takes the default form (*gli*), as in (84b).

(84)     *Fiorentino* (Camacho 2013: 23)
   a.   La    Maria **l'**      è    venut-a.
        the   Maria 3.F.SG  is   come-F.SG
        'Maria has come.'

   b.   **Gl'**  è    venut-o      la    Maria.
        3SG   is   come-DEF   the   Maria
        'Maria has come.'

When a subject is A'-moved, the subject clitic must be the default *gli*.

(85)     *Fiorentino* (Brandi & Cordin 1989: 124–125)
   a.   Quante       ragazze **gli**   è    venut-o      con   te?
        how.many   girls         3SG  is   come-DEF   with   you
        'How many girls have come with you?'

   b. *Quante       ragazze **le**        sono  venut-e        con   te?
        how.many   girls         3.F.PL   are    come-F.PL   with   you

This indicates that the wh-subject must skip the criterial subject position. Because reconstruction cannot split a copy for mapping, the wh-subject can enter into at most one criterial configuration.[19]

In summary, the assumed criterial freezing/reconstruction parameter is given empirical support to some extent. Different possible readings of a bare plural subject in English and German, and different agreement patterns with a wh-subject in English and Fiorentino appear to suggest that some languages allow reconstruction at LF, but others do not. Although Rizzi

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[19] Rizzi (2010) provides further evidence for the same conclusion from his variety of Italian.

(2010), based mainly on Italian data, argues that a criterial requirement is "unsatisfiable through reconstruction" (p. 23), the above data suggest that Rizzi's observation might not hold for every language.

## 10  Conclusion

The proposed analysis is a revival of the AgrP analysis developed by Kayne (1989) and Sportiche (1998): PPA surfaces if government holds between the object at SPEC-Agr and Agr; PPA is often optional since a dislocated object may or may not occupy SPEC-Agr. The present study has approached the idea of PPA from a minimalist perspective. Since a dislocated object leaves a copy in the object position and at SPEC-v, a past participle can Agree with either copy. Agree with a copy in the object position minimally values the participle (Minimal Agree), which is then spelled out in a default form. Agree with a copy at SPEC-v, however, is not minimal because it is coupled with the labeling operation (Full Agree). The participle is fully valued and spelled out in an agreeing form. Thus, optional PPA results from the two Agree options.

The proposed analysis, however, has a wider empirical implication than the AgrP analysis. First, it can deal with obligatory PPA with a derived subject. Full Agree holds between the derived subject and the finite auxiliary to label the so-called TP node. The operation continues to fully value the participle, leading to PPA. Second, it explains obligatory PPA with 3rd person clitics in Italian. These clitics contain a head carrying gender and number values. It fully values a participle under either Minimal or Full Agree, bringing about obligatory PPA. Third, it attributes the lack of PPA with a wh-object in Italian to criterial freezing. A PPA-triggering wh-object has two criterial positions that are not appropriately interpreted in Italian. French can mediate the two criterial positions through reconstruction, thus allowing PPA with a wh-object.

The reconstruction parameter is empirically supported, but apparently inconsistent with current minimalist assumptions. Further elaboration is necessary on this issue as recommended by an anonymous reviewer, but I leave it for future research.

## Abbreviations

1/2/3 = first/second/third-person, ACC = accusative, Aux = auxiliary, DEF = default agreement form, DU = dual, EA = external argument, EV = epenthetic vowel, F = feminine, Gr = gender, M = masculine, NOM = nominative, Nr = number, Obj = object, PL = plural, Pn = person, Poss = possessive, Prt = participle, SG = singular, Subj = subject

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The author has no competing interests to declare.

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