

Patterns of Agreement

Theoretical and psycholinguistic perspectives

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Al piccolo Michele e alla memoria dei due marescialli

“There is truth and then again there is truth. For all that the world is full of people who go around believing they've got you or your neighbor figured out, there really is no bottom to what is not known. The truth about us is endless. As are the lies.”

Philip Roth, *The Human Stain*

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Abstract

This dissertation aims at contributing to the discussion about the status of the computational mechanism of agreement and its role to the full interpretation of a sentence at the semantic interface (LF), as proposed by Chomsky (1995, 2000, 2001), Manzini & Savoia (2007,2011). The term agreement is traditionally used to refer to inflectional identity/non-distinctness (in person, number and gender, φ -feature) between a verb and an argument of the sentence, or between a noun and a determiner or an adjective (e.g. Italian *I brav-i pittori-i vend-ono* ‘good painters sell’). Linguists (including psycholinguists) disagree as to whether this core process is essentially a semantic or a syntactic one, or on the contrary a morphophonological mechanism (a matter of pronunciation) linked to the requirement of the sensory-motor interface (PF). The general aim of the present work is to contribute to this ongoing debate by looking specifically at how the computational mechanism of agreement proposed by linguists can account for non-canonical configuration of agreement and psycholinguistic data, including acquisition of language (first (L1) and second language (L2)) and online processing (error detection, ambiguity resolution). Are these non-canonical configurations linked to a failure of the computational mechanism or to the interpretation of the lexical items and their syntactic derivation? Furthermore, do the different agreement features (gender number and person) have a similar role in the processing of agreement or do the different degrees of cognitive strength associated to each feature influence the syntactic output that is spelt out to the other cognitive interfaces/device (semantic/discourse-pragmatic)? The aim of the present work is to address the answers to these questions through the study of the characteristics of ‘non-canonical-agreement’ construction in Romance and the examination of psycholinguistic data coming from corpus analysis, behavioral, experimental and electrophysiological studies. The answer to the first question will be that the formal mechanism of agreement (agree in Chomsky, 2001) can be maintained in its structural essence: the non canonical pattern of agreement will be accounted for in terms of interpretative requirement at semantic interface. The answer to the second question will be that person has a special status across both the non canonical construction of agreement and the data coming from acquisition (L1 and L2) and language processing.

Chapter 1

Introduction

1.0 Patterns of Agreement

The main aim of this thesis is to contribute to the discussion about the status of the computational mechanism of agreement and its role to the full interpretation of a sentence at the semantic interface (LF), as proposed by Chomsky (1995, 2000, 2001), Manzini & Savoia (2007,2011). Agreement is one of the most familiar and well-studied phenomena of grammar, hence much is known on its core properties and on the linguistic variation it gives rise to. The term agreement is traditionally used to refer to inflectional identity/non-distinctness (in person, number and gender, henceforth φ -feature) between a verb and an argument of the sentence, or between a noun and a determiner or an adjective (e.g. Italian *I brav-i pittori-i vend-ono* ‘good painters sell’). Linguists (including psycholinguists) disagree as to whether this core process is essentially a semantic or a syntactic one, or on the contrary a morphophonological mechanism (a matter of pronunciation) linked to the requirement of the sensory-motor interface (PF). The general aim of the present work is to contribute to this ongoing debate by looking specifically at how the computational mechanism of agreement proposed by linguists can account for psycholinguistic data, including acquisition of the first language (L1), second language (L2) and online processing (error detection, ambiguity resolution).

We will propose in the following chapters some theoretical and psycholinguistic analyses of non-canonical agreement configurations, that apparently do not fit in the computational mechanism of agreement. Are these non-canonical configurations linked to a failure of the computational mechanism or to the interpretation attributed to lexical items that enter into the derivation? Furthermore, do the different agreement features (gender number and person) have a similar role in the processing of agreement or do the different degrees of cognitive strength

associated to each feature influence the syntactic output that is spelt out to the other cognitive interfaces/deviced (semantic/discourse-pragmatic)? The aim of the present work is to address these questions through the analysis of some constructions in Italian and other Romance languages in the first part of the manuscript and through data from spontaneous speech and electrophysiological studies in the second part.

The analyses and the data brought together in this manuscript consists of the collection of articles in linguistics and psycholinguistics lightly revised, and with some clarifications and extensions, written or published between 2015 and 2017. The present chapter is intended to introduce the theoretical background and common topics that will be presented in the following chapters.

The remainder of this chapter is structured as follows: next section (1.1) is devoted to provide a working definition of agreement that we will be using thorough the next chapters. In section 1.2 we will introduce the concept of hierarchy of features. Section 1.3 introduces the overall organization of the present work and a description of the topics of each chapter.

1.1 Working Definition of Agreement

The term agreement is traditionally used to refer to a morphophonologically overt covariance between verbs and one argument of a sentence, however in the last decades it is also used to refer to a wider range of linguistic phenomena such as the morphophonological covariance between noun and determiners, or adjectives and nouns (traditionally defined as concord)¹. The word agreement is used to define both the phenomenon itself and the grammatical mechanism are usually identified: in this section we will define the grammatical mechanism that regulates agreement as the operation of Agree.

¹ We will not enter into a discussion about the lexical items that enters into the *Agree* relation that implies the use of the label concord as described in Baker (2008), we will be referring always to agree for each eastance of overt morphophonological covariance between items. Furthermore, all over the manuscript we always refer to agreement between verb-like elements and one argument of the sentence: predicate-argument agreement (φ -agreement) which is traditionally defined as agreement.

Shifting from the early minimalist assumption that all agreement relations are established under the spec-head configuration (Chomsky 1995), Chomsky (2000, 2001, 2004, 2007, 2008) propose that agreement takes place via downward probing by elements which have an unvalued and uninterpretable feature (henceforth, uF; e.g. φ -feature on Infl node). In this system, when a head having a uF (= probe) is introduced into a derivation, it probes down into its search domain (= c-command domain) and finds an XP which has a matching feature (= goal). When the probe successfully finds its goal, the unvalued/uninterpretable features on the probe get valued by the goal. The element that enters into an agreement relation, in the basic case of subject-verb agreement, with a nominal argument (e.g., an Infl node realizing finite verbal agreement) is referred to as the *probe*, and the nominal with which the probe enters into an agreement relation is referred to as the goal.

Agreement probes enter the derivation bearing a set of φ -features that are uninterpretable —meaning, literally, that they cannot be interpreted at the syntax-semantics interface. Chomsky posits that uninterpretable features cause ill-formedness unless altered or removed by the time the structure is subjected to semantic interpretation, however it would be suitable that features that could not be interpreted by the semantic component would simply be ignored by the interpretive procedure². On this view, φ -agreement can be seen as a response to this impending ill-formedness: when a set of uninterpretable φ -features on a probe enters into an agreement relation with the set of interpretable φ -features found on a noun phrase, they are rendered interpretable themselves (or alternatively, deleted altogether).

² In this respect, Preminger (2014) defines the model of Agree of Chomsky (2000, 2001) as the derivational time-bombs model for the role of the uninterpretable features at the Infl node that need to be interpreted. If uninterpretable features have remained not interpreted, the sentence should give rise to ungrammaticality. We will be analyzing different constructions in which the uninterpretable features are not interpreted but the sentences are still grammatical. While Preminger (2014) defines these configuration as presenting default agreement, for the case of variable agreement we will analyze in chapter 3, and 4, we will not be using any default value but we will propose that agreement depends on how different syntactic configurations are interpreted in the semantic component.

The operation of probe –goal has formal requirements about the syntactic configuration in which it applies. In the theory of Agree developed in Chomsky (2000, 2001), a functional head F agrees with XP only if:

- a) F c-commands XP (the C-command Condition)
- b) There is no YP such that F c-commands YP, YP c-commands XP, and YP has φ -features (the Intervention Condition).
- c) F and XP are contained in all the same phases (e.g. full CPs) (the Phase Condition)

Chomsky’s insight is that in a formal model of grammar the range of operation of agreement may be limited to local domains (phases) characterized by minimal distance of the agreeing elements (c), positioned in an optimal asymmetric configuration with respect to one another (a), and such that there is no intervener between them (b). The machinery of the operation of Agree we have just outlined will be used as a baseline for the discussions about different patterns of agreement in all the present manuscript.

The formal mechanism of probe- goal (Chomsky, 2000, 2001) is obligatory for the full interpretation of a sentence at semantic interface. Trivially, the first consequence is the ungrammaticality of a sentence like (1b). While in (1a) the verb *want* probes the NP *Catalans* for number, in (1b) the derivation crashes since the overt singular feature of *wants* does not match the plural NP *Catalans* and there is no other available goal NP, such that *wants* can be interpreted.

- (1) a. Catalans want independence
- b. *Catalans wants independence

However, committee-type noun phrases shows two agreement options: a syntactic (2.a) and a semantic (2.b) one. Den Dikken (2001) defines them as “plurilinguals” since, despite their

singular morphology, they can trigger plural finite verb agreement without giving rise to any effect of ungrammaticality³.

- (2) a. The committee hasn't yet made up its mind.
b. The committee haven't yet made up their mind/minds.

(Huddleston and Pullum, 2002:495):

Anyway, without any further stipulations (as a null plural *pro* heading the NP *committee* as proposed by Den Dikken 2001) the basic mechanisms of Agree can not account for the grammaticality of (2b) since the probe and the goal do not match in number.

Many authors especially in psycholinguistic account for sentences like (2b) as an instance of semantic agreement.

1.1.1 Semantic Agreement

Semantic agreement produces a target (or targets) with features that reflect the meaning of the goal (controller in psycholinguistic terms) and do not straightforwardly match the morphosyntactic values of the goal. So *committee* in (2) is a collective noun and it can be conceptualized semantically as plural—as a group composed of multiple members as in (2a)—or as singular—as a collection of people acting in a like manner. Corbett (2006:275) actually acknowledges this fact directly: “it is suggested that the agreement options permit expression of different perspectives: a committee [his collective example] may be viewed as an entity (singular agreement) or as a set of individuals (plural agreement)”.

Some linguists (Wechsler & Zlatić, 2000, 2003, Danon, 2013, Perez Jimenez & Demonte 2015), in order to account for semantic agreement proposes that an NP carries not one, but two sets of syntactic agreement features, referred to as index and concord features:

³ Den Dikken (2001) proposes that pluringuars are headed by a null pronominal plural *pro*. This does not account for the optionality of 2a/ 2b. We will be arguing that a similar pattern found with complex NPS involving pseudo-quantifiers or relational names (i.e., a flock of birds) undergoes parametric variation and are related to the referential status of the NP which has to be interpreted at semantic interface(Chapter 3).

- a) ϕ *index features* constrain the NP's referential index, and are relevant to pronoun binding and subject-predicate agreement.
- b) ϕ *concord features* are more closely related to the noun's morphology, and are relevant to NP-internal concord.

Perez Jimenez & Demonte assume that the ϕ *concord features* (Gender, Number, Case) are inflectional features interpretable at PF (i.e. the verbal agreement morphology), while the ϕ *index features* (Gender, Number, Person) are semantic properties interpretable at LF (i.e. the interpretation as a group, as an individual or as a subatomic plural (Borer 2005)). Both sets of ϕ *features* are formal syntactic features and are present in each NP (goal/controller). So in the case of syntactic agreement, the committee-like NP is interpreted as a 'comitative' group (Borer 2005) and the *concord features* are interpreted through the verbal morphology following the requirements of the PF. In the case of the semantic agreement the NP is interpreted as subatomic plural at LF and the *index feature* (instead of the *concord feature*) are shown on the verb morphology. It is not clear how the mechanism of spell-out from a syntactic representation with a double repertoire of features would work, especially in choosing the "preferred" interface requirement. We will discuss in detail the prediction of this model in chapter 3 when we will be presenting optional agreement with complex NPs (see section 3.2, 3.3).

1.1.2 Notional agreement

In psycholinguistics the semantic agreement is not derived by features at work in the syntactic representation, but both the referential status of the NPs and/or attraction effects of other NPs have a central role in agreement. Although a number of authors in psycholinguistics accept that agreement is a computational mechanism linked to clause structure (Bock and Eberhard, 1993; Carminati, 2005; Franck et al., 2006), there are many psycholinguists who maintain that

agreement is a semantic/referential process in nature (Vigliocco and Hartsuiker, 2002; Haskell and Macdonald, 2003).

The analyses on agreement in psycholinguistics started mainly to account for errors people made with agreement: the mismatch in features which is given in attraction configurations (like *the key to cabinets are*), in which the source of a verb's number is not the number of the subject per se but the number of another noun proximal to the verb (as in the renowned paper of Bock & Miller, 1991). Viewed as an error process, the mismatch of features found in attraction is the product of interference between grammatically plural nouns and grammatically singular sentence subjects (e.g. Eberhard, Cutting, & Bock, 2005; Franck, Lassi, Frauenfelder, & Rizzi, 2006).

However, apart from the account of agreement errors driven by interference/attrition, which are not relevant for the present purpose, notional agreement (which is how many psycholinguists define semantic agreement) sets meaning-driven variations in agreement.

Notional agreement refers to collective nouns. Collective nouns (e.g. committee, gang, team) are canonically treated as grammatically singular in American English, but plural agreement can occur when the referent is construed as a notional plural. Humphreys & Bock, (2005), in a sentence completion task, found a contrast between the sentence in (3) and the one in (4) both involving the collective noun *gang*:

(3) The gang **on** the motorcycles

(4) The gang **near** the motorcycles

The difference in the relation represented by the prepositions **on/near** favor two different readings. The reading (3) is easily construed in terms of distinct individuals, whereas (4) is more likely to be construed as a single group. Consistent with this notional difference, the former is more likely than the latter to elicit plural verb agreement. So the notional agreement is strictly linked to the knowledge of the word encoded in the relation expressed by the preposition.

The insight of psycholinguistic studies, roughly, is that typical errors are taken to investigate the primitive mechanisms at work in the computation of agreement. So the mismatch in the subject verb configuration can be linked to attrition, the linear intervention of a mismatching controller, but the bias that favors the appearance of a typical pattern of agreement is strictly linked to the semantics and to the knowledge of the words. Although syntactic models are designed to account for the grammaticality/ungrammaticality of sentences and not for the typical error, a theory of agreement has to encounter psychological adequacy and provide explanations for the behavioral psycholinguistics data. Concretely, while the data about attrition may reveal the relation between the computational syntactic device and interface with phonology (PF), the data about notional agreement can be associated to the semantic agreement found in the grammatical sentences of different natural languages and then to the output that the syntactic computation gives, depending on the lexical item inserted in the derivation, at the other cognitive interfaces (mainly the semantic interface, LF).

Crucially for present purposes, there is no necessary opposition between the computational conception and semantic (cognitive) construals, if the computational mechanism of agreement plays a role in the full interpretation of a sentence at the semantic interface (LF), as proposed by Chomsky (1995, 2000, 2001), Manzini & Savoia (2007, 2011). Conversely this excludes, at least for the semantic/notional agreement, ideas about agreement as a mainly morphophonological phenomenon (a quirk of pronunciation)⁴.

1.1.3 Other Patterns of Agreement and Their interpretation

The mechanism of agreement does not only play a role within the syntactic output to be fully interpreted at semantic interfaces for what concerns the referential status of the subject in a subject-verb configuration, but it can also provide an output linked to the semantics of the

⁴ The view that agreement is a pure morphological and post syntactic operation developed within the framework of the Distributed Morphology (Halle & Marantz (1993) is not analyzed in detail in the present manuscript, since our main interest is to show the relation between the computational mechanism of Agree and the interface relation with semantic interfaces. However, in the cases under analysis the requirements of the semantic component integrate the syntactic computation with no need for an extra syntactic morphological module. We will propose some considerations about it in Chapter 6.

the event and to the role within the discourse of the agreeing nominal elements (discourse vs event participant). For instance, we have been talking about the agreement between verb and subject as a pure syntactic pattern whose referential interpretation (entity/ set of individuals) determine its overt realization (the optionality or the mismatch) as an effect of the semantic interface requirements, but there are other patterns of agreement that have different interpretative counterparts: 1) constructions where two more inflected verbs are found (sharing their overt ϕ features) in the same clause with aspectual semantic interpretation (Chapter 2); 2) constructions where the verbal forms may agree or not depending on the referential status of the agreeing nominal element: whether it refers to participants to the event or the discourse (Chapter 4). We introduce here these particular constructions to show that they can also be analyzed through the basic machine of syntactic agreement we have been introducing so far and each pattern has different interpretative consequences.

As for the constructions presenting more than one verbal inflection, both agreeing with the same subject, we are referring mainly to a subset of serial verb constructions:

“A serial verb construction (SVC) is a sequence of verbs which act together as a single predicate, without any overt marker of coordination, subordination, or syntactic dependency of any other sort.² Serial verb constructions describe what is conceptualized as a single event.. : (Aikhenvald 2006:1).”

What is of interest in our respect is the pattern of agreement found with these serial verbs: two or more finite verbs along with their complements occur in a single clause without any form of coordination or subordination in which the two verbs (V1 and V2) share the same inflection for Tense and person. These double inflection on the verbs has consequence on the eventive interpretation of the complex sentence: ‘the verbs in the construction all refer to sub-parts or aspects of a single overall event[...] Lord (1974: 196–7)’. So, the double inflection in the Taba⁵ example in (5) implies a resultative interpretation .

⁵ Taba (also known as East Makian or Makian Dalam) is a Malayo-Polynesian language of the South Halmahera – West New Guinea group. It is spoken mostly on the islands of Makian, Kayoa and southern Halmahera in North Maluku province of Indonesia by about 20,000 people.

- (5) n=babas welik n=ha-mot i
 3sg=bite pig 3sg=caus-die 3sg
 'It bit the pig and killed it'

Taba (Bowden 2001: 297–8)

We will propose an analysis of a serial verb-like construction in (Chapter 2) found in some Southern Italian varieties in which the double inflection implies a progressive interpretation at the semantic interface. We will take this as one more proof of the fact that the pattern of agreement is a syntactic output where basic operation of agreement applies (two verb matching the agreement features with the clausal subject) that simply restricts meaning at semantic interface (=progressive) and does not determine it (along the line of Manzini and Savoia (2005, 2007, 2011))

For what concerns the optional non agreeing form depending on that the nominal element denotes a discourse participant or an event participant, we refer to the *person split*. For person split we refer to the contrast found between the morphology of 1st and 2nd singular person and 3rd person. 1st and 2nd person refer to the participants in the discourse (i.e. the speaker and the hearer and the sets including them) and they are anchored directly at the universe of discourse, independently of their role within the event. On the other hand, 3rd singular person refers to non-participants in the discourse and depends directly for its characterization on the position assigned to it within the structure of the event (Benveniste, 1966, Harley & Ritter, 2002 Bobaljik, 2008, Harley and Ritter 2002, Manzini and Savoia, 2007, 2011, Legendre, 2010, among others). In standard Italian we find a particular pattern of agreement linked to this person split. In the Italian clitic system, in fact, a person split is found: 3rd person singular clitics, which represent event-anchored participants (Manzini & Savoia, 2011), have forms inflected for gender (*lo* for masculine/*la* for feminine), while 1st and 2nd person clitics, which represent discourse-anchored participants (speaker and hearer), display syncretic forms (*mi/ti* for both genders). While 1st and 2nd person clitics denoting a feminine referent allow agreement with both feminine and masculine past participle in the proclitic constructions with the present perfect in Italian as in (6), 3rd person feminine clitics do not (7) as analyzed in

Manzini and Franco (2016). Conversely 3rd person masculine do not allow a feminine past participle.

(6) a. mi/ti hanno vista
pro me /you (CL acc. fem . sing) have (Present 3rd Pl) seen (P.Participle fem.sing)

b. mi/ti hanno visto
pro me /you (CL acc. fem . sing) have (Present 3rd Pl) seen (P.Participle masc.sing)

‘They have seen me/you’

(7) a. la hanno vista
pro her (CL acc. fem . sing) have (Present 3rd Pl) seen (P.Participle fem.sing)

b. *la hanno visto
pro her (CL acc. fem . sing) have (Present 3rd Pl) seen(P.Participle. masc.sing)

‘They have seen her’

(8) a. *lo hanno vista
pro him (CL acc. fem . sing) have (Present 3rd Pl) seen (P.Participle fem.sing)

b. lo hanno visto
pro him (CL acc. fem . sing) have (Present 3rd Pl) seen(P.Participle. masc.sing)

‘They have seen him’

1st and 2nd person have a different interpretative effect in comparison with 3rd person. On the one side 1st and 2nd person are involved in other cognitive devices at the time of utterance since they are not only represented in the sentence but they are recoverable from the universe of the discourse (for instance, they might be available in other cognitive device, such as the vision). On the other side, 3rd person, on the other side represent a non-participant in the discourse and can be recovered only by the context of the sentence. This discourse/cognitive person split maybe mapped into the lexical items that enters into the syntactic derivation (1st and 2nd person clitics have no gender, while 3rd person clitics are inflected for gender) or/and directly in the syntax

(depending on the parametric variation across language) since it has a strong interpretative difference at semantic interface. In Chapter 5 we will analyze the psychological adequacy of the person split in Italian providing neurophysiological data about that.

The study of the different pattern of agreement will be carried out paying attention to the role that each φ feature has in the agreement mechanisms. φ features differ in the strength of their interpretation at semantic interface: person, as we have been introducing above, have a relationship with the discourse participant and so it might have a different role than gender and number in the interpretative consequence at semantic interface. Next section is devoted to the introductory analysis of the so called ‘hierarchy of φ features’.

1.2 Hierarchy of φ –features: the role of person

Person, gender and number are the φ -features involved in predicate–argument agreement⁶. The central role of φ –features in syntax within the generative grammar framework became central in the analyses of the rich vs poor agreement languages and its relation to the *pro-drop* parameter (Taraldsen 1980, Rizzi 1982)⁷.

However, the fact that the repertoire of φ -features varies across languages but this variation is not random was first acknowledged by Greenberg (1963). In the formulation of its Universals, he observed that other types of features are dependent on person and number: for instance, if the verb agrees with a nominal subject or nominal object in gender, it also agrees in number (Universal 32), and number related features such as trial and dual are dependent on having a singular/plural distinction (Universal 34).

By discussion on the Greenberg’s Universal 32,34,36 typologists have often claimed that the features of person, gender and number stand in an implicational relation to one another as in (9)

⁶ Adger & Harbour 2006, in their definition of φ –features claim “..that other features, such as those involved in honorification and definiteness also fall within this definition, while case, for example, does not (Adger & Harbour, 2006:2)”. However, for the purpose of this work we will be mainly referring to person, number and gender.

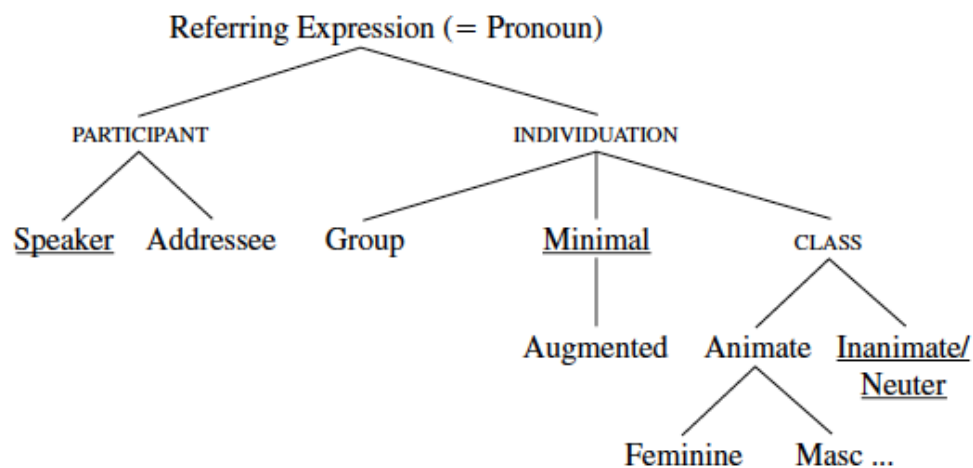
⁷ See Adger & Harbour for an historical description.

(9) Feature Hierarchy: Person > Number > Gender.

The evidences for the hierarchy in (9) come from both the (co-)occurrence of features in the world language and the observation of syntactic phenomena (such as the person split in 7/8). The insight of (9) is that if in a language there is one of the feature, there are/is also the one(s) that are immediately above it in the hierarchy. That is, if in a language there is the feature of gender, also the feature of number and person will be available in the same language. So, looking at (9), the features of person seems to be more important since it can occur without the co-occurrences of number and gender.

Harley and Ritter (2002) relate the Feature Hierarchy to conceptual categories in human cognition that have found systematic encoding in language. They suggest that the hierarchical organization of phi-features is a direct reflection of their relative degrees of ‘cognitive significance’, with features higher on the hierarchy being more cognitively significant or salient than the ones below. They propose a morphosyntactic feature geometry as the one in (10).

(10)



(Harley and Ritter, 2002: 486)

Harley & Ritter (2002) propose that this geometry is made available directly in the Universal Grammar (UG) and that in any given language a subset of the possible features will be active: 1) the node *Referring Expression* refers directly to the nominal features available. 2) The node *participant* refer directly to person which is the highest node: Speaker and Addressee, will be used to represent person, specifically, 1st and 2nd person (3rd person being unmarked). 3) The *Individuation* node and its dependents, Group, Minimal, and Augmented, are used to represent number systems and 4) the *class* node encodes gender and other class information.

However, the geometry of Harley & Ritter has to account for the case of arbitrary gender and number. Gender, in fact, can be of two types: semantically contentful or purely grammatical. So, for example, in Italian common gender divisions include masculine and feminine the gender assignment of nouns can be determined by their meaning biological sex as in (11). This semantic division is only partially valid, and many nouns may be used to refer to a gender category that contrasts with their morphological gender (12) since in many cases the attribution of grammatical gender is arbitrary (13).

(11)	a. il	bimbo		b. la	bimba
	the.m.sing	child. m.sing		the.f.sing	child. m.sing
	'the boy'			'the girl'	

(12)	Il	bimbo	è stato	la	vittima
	the.m.	boy.m.sing	is been. m.sing	the.f.sing	victim.f.sing
	'The boy was the victim'				

(12)	a. il	posto		b. la	posta
	the.m.sing	place. m.sing		the.f.sing	mail f.sing
	'the place /the seat'			'the mail, the post office'	

Number undergoes similar pattern: some singular NPs may refer to a plurality of referents, as we have seen for the semantic/notional agreement (see examples 2-4). While we will be dealing

with the constructions implying the optionality of agreement depending linked to the number or to the gender of the subject NP (Chapter 3), we will not provide any analyses of the opposition between semantic and grammatical gender. The gender will be seen in contrast to the feature of person (Chapter 5) which is commonly seen as the most salient feature by both linguists and psycholinguists. It is worth highlighting for what concerns person, an opposition between grammatical and semantic person is not found systematically across languages: this is mainly for the anchoring of 1st and 2nd singular person directly to the universe of discourse.

There is agreement in Linguistics regarding the saliency of person, followed by number, among the repertoire of phi-features, but there are competing views on the nature of these features and their combinations. Chomsky (1995, 2001) argues that phi-features are computed together as a cluster in syntactic derivation, whereas other authors (Nevins, 2011; Sigurdsson, 2009; Zawiszewski, Santesteban & Laka 2015 among others) argue that person, number and gender undergo different derivational processes. We will be proposing all over the present manuscript that person has both an essential role (at least more prominent gender and number) in the different pattern of agreement we will be analyzing (mainly in part 1) and represent an independent operation within the computational mechanism of agreement (mainly in part 2 where we will be dealing with psycholinguistic data).

1.3 In this volume

This work is divided in two parts: while in the first part (Chapter 2 and Chapter 3) we describe the non canonical configuration of agreement, in the second we propose the analysis of psycholinguistic data.

As for the first part, Chapter 2 will be devoted to the analysis of the distribution of progressive construction in some southern Italian varieties which involve an inflected auxiliary and an embedded finite complement. We will argue that the non canonical constructions similar to the finite control constructions in Balkan languages is a biclausal construction which has a mono-eventive interpretation. The double inflection is due to an interface requirement since the

matrix auxiliary anchors the event represented by the embedded predicate to the utterance time this aspectual semantic requirement is deeply related to the semantic of progressive constructions as described by Higginbotham (2009).

In Chapter 3 we analyze the different patterns of agreement found cross-linguistically with complex NPs involving an approximate numeral/quantifiers and a preposition, which selects an embedded NP. There is parametric variation on which element is target by the verbal agreement: languages differ on whether they allow agreement just with the approximate numeral (French, German), with the embedded NP (Occitan, Sardinian) or with both quantifier and the embedded NP (Italian, Spanish). We will propose a syntactic account for such variation based on the indefinite status of the approximate numeral quantifier and on the PP that introduces the embedded NP. The semantic interface requirement, the configuration of the θ greed and the markedness of the different φ features, then, are also involved into the present syntactic account.

The second part is devoted to the analysis of psycholinguistic data.

Chapter 4 presents data from the acquisition of Italian the distribution of overt/null subjects in Italian is linked to the morpho-syntactic features of the lexical elements found in each sentence: in particular, the informative/discourse-semantic status of person can account for the distribution of early null /overt subject in L1 Italian. We propose a corpus analysis of the spontaneous speech of four children and their parents and caregivers. We will show that both adults and children use overt subjects depending on the morpho-syntactic features of the lexical items involved in the sentences. Once more Indefiniteness and the person of the subject NP will allow us to account for the operation of lexical parametrization (Manzini & Wexler, 1988) of the elements allowed in subject position: the syntactic operation linked to each lexical item imply different interpretation at semantic interface.

In Chapter 5 we collect different sets of data that confirm the central role of the person features. On the one side we will show that difference found between person and number/gender are stronger than the difference found between gender and number in many psycholinguistic data. Furthermore, we will analyze the results of an Event Related Potential (ERP) study on which person and gender are compared. The results once more will confirm us the central role of person.

Chapter 6 we will resume the findings of both the theoretical analyses (first part) and the psycholinguistic data (second part): we will propose a model in which agreement is a minimal syntactic mechanism. The deviant patterns of agreement are given at the semantic interface: the referential and aspectual requirements drive the overt realization of agreement. We will pursue that, at least in the phenomena under analysis, the effect found in the overt patterns of agreement are not a matter of pronunciation, that is, ascribable to the requirement of the phonetic form.

This volume aims to address some partial answers to the two main questions in section one: are the non-canonical configurations of agreement linked to a failure of the computational mechanism or are they linked to the interface relation with other cognitive devices (mainly the semantic interface) that are instantiated by the lexical items? Do the different agreement features (gender number and person) have a similar role in the processing of agreement or do the different degrees of cognitive strength associated to each feature influence the syntactic output that is spelt out to the other cognitive interfaces/devices (semantic/discourse-pragmatic)?

The answer to the first question will be that the formal mechanism of agreement (agree in Chomsky, 2001) can be maintained in its structural essence: the non canonical pattern of agreement will be accounted for in terms of interpretative requirement at semantic interface. The answer to the second question will be that person has a special status across both the non canonical construction of agreement and the data coming from acquisition (L1 and L2) and language processing.

Part One

Patterns of Agreement

Chapter 2

Pattern of Agreement in Aspectual Inflected Constructions.

2.0 Introduction

In this chapter we will explore the distribution of progressive aspect in some Apulian varieties. In many of these varieties the present continuous is expressed through an embedded finite complement (in the terms of Manzini and Savoia, 2005 and Manzini, Lorusso and Savoia, 2017): it is formed by an inflected stative verbs *stɛ* (=to stay), a connecting element *a* (=to) and an embedded inflected lexical verb (present indicative) which agrees in person and number with the matrix subject. The example in (1) shows the progressive aspectual construction in the variety spoken in Conversano (Apulia).

- (1) Stek a fatsə u pɛn
 Stay-1s to do-1s the bread
 I am making the bread

In the same variety we can find a parallel construction to express the progressive in which the embedded lexical verb is not inflected. In (2) the embedded verb *fɛ* (=to do) is infinitive.

- (2) Stek a fɛ u pɛn
 Stay-1s to do_{INF} the bread
 I am making the bread

In Conversanese⁸ the aspectual inflected construction is not found with 1st and 2nd plural persons (3): only the construction with an embedded infinitive lexical verb is available to express the progressive (4).

(3) Nojə_j /voŭ_k stɛmə_j/stɛtə_k a * mandʒɛmə_j / * mandʒɛtə_k
 We / you stay-(1P/ -2P) to eat (1P /2P)

(4) Nojə /voŭ stɛmə/ stɛtə a man'dʒɛ
 We / you stay-(1P/ -2P) to eat_{INF}
 We / you are eating

We propose a unique structure for both finite and infinitival constructions. A unique locative-like structure is proposed to account for both constructions. The progressives are commonly realized as locative constructions crosslinguistically (Bybee, Perkins & Pagliuca, 1994, Mateu & Amadas 1999; Laka 2006). We will argue (as Mateu & Amadas) that progressives are preferentially expressed as locative constructions since they imply a process of unaccusativization involving an abstract central coincidence relation preposition. We will further link the difference between the two parallel constructions (1)-(2) to the aspectual marking denoted by each of them: while the embedded inflected constructions (1) denote an event identification between the auxiliary and the lexical verb, the uninflected constructions (2) involve a slightly different reading which is not found with proper progressive constructions, namely they imply a frequentative reading (Chierchia, 1995). We will try to show that although both constructions share a similar aspect, the inflected constructions, at least in the varieties under investigations, present a more restrict progressive entailment (the instantiation of a central coincidence relation) than uninflected ones. The 1st and 2nd plural person are not found

⁸ Similar pattern are found in the varieties of the same area (i.e. in the South East of Bari in A: Mola di Bari, Rutigliano, Castellana, Turi. In all the paper we will be refer mainly to the variety of Conversano, nevertheless we will sketch some relevant differences between the variety of Conversano and some other varieties of the same group in section 1.

in the aspectual inflected constructions (3) but they allow only the infinitive counterpart (4). We will show that this is a general morpho-syntactic inflectional pattern found across romance languages: 1st and 2nd plural usually show a distinct derivational morphology along the inflectional paradigm (Manzini & Savoia, 2005, 2011). Furthermore they involve fact, a more complex referentiality than other person (Bobaljik, 2008), they are not mere plurals of the discourse participants (as 1st and 2nd singular) but they may refer to other referents not directly involved in the discourse (event participants).

In section 2.1 the distribution of the pattern of inflection across the different varieties is described: the insights of previous account are also listed. Section 2.2 introduces the analysis of progressive as locative/unaccusative construction (in the terms of Mateu & Amadas, 1999) in contrast with other languages that do not show such a proper locative construction (Cinque, to appear). Section 2.3 presents the current syntactic analysis of the phenomenon in which we will first propose a biclausal structure to account for both the inflected and the uninflected progressive constructions in the varieties under investigation. In section 2.4 we will show that a central coincidence relation is fundamental for the interpretative issues linked to the two types of progressive constructions. Section 2.5 is devoted to some notes on the person split pattern found in the progressive constructions especially in the variety of Conversano which will allow us to formulate a general claim about the inflectional paradigms of 1st and 2nd plural persons in romance. Section 2.6 introduces a different syntactic and semantic analysis of a new paper (Manzini, Lorusso & Savoia) which updates the previous analysis. Section 2.7 resumes the insight and the main concerns of the present analysis.

2.1 The distribution of aspectual inflected constructions.

Different studies have focused on verbal periphrases in Southern Italian varieties that involve two inflected verbs⁹. The main characteristic of these construction is that a matrix aspectual

⁹ In this chapter we are dealing mainly with the auxiliary ‘stare’(=stay) in the progressive constructions, which is not a raising predicate (as the ones involved by the derivation of the hyper-raising constructions, Harford & Perez

auxiliary inflected for number and person selects a lexical verb also inflected. The lexical embedded verb can be introduced by a preposition or not. The auxiliary loses its lexical meaning and the complex VP is interpreted as a unique predicate, being the embedded lexical verb the one that gives the referential meaning to the event denoted by the complex VP. For example, in (5) the subject Marie is not ‘staying’ and then eating, but she is just eating.

- (5) Ma'ri ste a mandʒʒ (Conversano, Apulia)
 Maria stay-3s to eat-3s
 Maria is eating

Similar patterns are found in different Southern Italian varieties. Ledgeway (1997) labels asyndetic construction the imperative structures in Neapolitan that involves two inflected verbs. A fully inflected verb is embedded under another fully inflected matrix verb (6). No preposition introduces the embedded element. In his terms, these constructions define a family of coordinative constructions grammaticalized into subordination. These imperative constructions are paratactic in the sense that ‘...they contain as many assertions as there are clause...(Ledgeway,1997: 231)’, in (6), in fact, there are two assertions (7), whereas the progressive construction in Conversanese (5) contains only one assertion ranging over the entire constructions.

- (6) va spanne 'e panne nfuse
 go.imper.2.sg. hang-out.Imper.2.sg. the clothes wet
 'go and hang out the washing'

1985; Martin & Nunes 2005, Nunes 2008, Zeller 2006). However, similar aspectual constructions are found in many Southern Italian varieties also with motion verbs (go, come) or modal auxiliaries (want) (Manzini and Savoia, 2005, Di caro and Giusti, 2015; Cardinaletti & Giusti, to appear; Cruschina, 2013, Manzini, Lorusso & Savoia, 2017) but not proper raising predicate is involved. We will argue that the subject is base generated (and case assigned) under the T of the matrix verb: these constructions share more similarities with finite control constructions found in Balkan languages (Landau 2004, 2013, Manzini & Roussou, 2000) and in Southern Italian varieties (Manzini & Savoia, 2005, Ledgeway, 2015, Manzini, Lorusso and Savoia 2017).

(Ledgeway, 1997:231)

(7) a. va!

'go!'

b. spanne 'epanne nfuse!

'hang out the washing!'

(Ledgeway, 1997:232)

Most Sicilian dialects display a construction with a functional verb (usually of motion), followed by the linking element *a* and a lexical inflected verb. Cardinaletti & Giusti (2001, 2003)¹⁰ label these structure Inflected Constructions. They are "...similar to what is generally known as 'Serial Verb Construction' in other language families (cf. Aikhenvald, 2006), in which the two verbs (V1 and V2) share the same inflection for Tense and person ... (Di Caro & Giusti, 2015: 392)". The examples in (8) from the dialect spoken in Delia (Caltanissetta) are considered by Di Caro & Giusti (2015) as monoclausal constructions with a functional verb in opposition to their infinitival counterparts (9), which are the only available option in standard Italian (10) and are biclausal constructions.

(8) La sira mi veni a ccunta du cosi.

the evening to-meCL come.3SG a tell.3SG two things

'He comes to tell me some stories at night'

(9) La sira mi veni a ccuntari du cosi.

the evening to-meCL come.3SG to tell.INF two things

(10) La sera mi viene a raccontare /*racconta delle storie.

the evening to-meCL come.3SG to tell.INF tell.3SG some stories

'He comes to tell me some stories at night'

(Di Caro & Giusti, 2015)

¹⁰ In the terms of Cruschina (2013) these are Double Inflected Constructions.

In the present analysis both the inflected and the infinitival constructions will be analyzed, following the intuition of Manzini & Savoia (2005) as biclausal structures: while the inflected construction imply an event identification (section 2.4 and 2.54), the infinitival counterparts do not. The differences in the aspectual reading (see section 2.5) of the two types of progressive construction in Conversanese will confirm this analysis.

Manzini & Savoia (2005) propose an event identification analysis for all the aspectual constructions with finite verbs found in Apulian, Calabrian and Sicilian varieties. These aspectual constructions are found with different matrix verbs: progressive (stay) in (11), motion verbs (go, come) (12) modal (want, will must) (13).

(11) stɔk a bbeivə (Taranto: Apulia)
 Stay-1s to drink-1s
 ‘I am drinking’

(12) væ u cæmə (Minervino Murge: Apulia)
 Go-2s him VL call-2s
 ‘you go to call him’

vaju a mmaɲtʃu (Modica: Sicily)
 go-1s to eat-1s
 ‘I go to eat’

u vəju cəmu (Umbriatico: Calabria)
 him go-1s call-1s
 ‘I go to call him’

(13) ti vɔʃʃu a vveʃu (Brindisi: Apulia)
 you CLacc want-1s to see-1s

I want to see you

vɔffu mmaɲɔʒu

(Mesagne: Apulia)

want-1s eat –1s

I want to eat

In the present work we will be dealing mainly with the progressive constructions involving the auxiliary *stay*, but many assumptions of the present analysis can apply also to the other aspectual constructions with inflected verbs as argued in Manzini, Lorusso and Savoia (2017).

2.1.1 The progressive aspectual constructions with finite verbs in the Apulian varieties

In the Southern Apulian variety of Conversano the present continuous is expressed through an aspectual inflected construction involving the inflected stative verbs *stɛ* (=to stay), a connecting element *a* (=to) and the present indicative of the lexical verb which agrees in person and number with the matrix verbs. In tab .1 the paradigm of inflection for the present indicative is presented. The same pattern of inflection is not found for past tenses or imperative. The inflection constructions are not found for the 1st and 2nd plural persons¹¹.

Tab 1: Progressive for the verb “ma’ndʒɛ” (= to eat) in the variety of Conversano

Indicative present	Auxiliary stay	Prep.	Lexical Verb
1SG	stek	a	mandʒə
2SG	ste	a	mandʒə

¹¹ Other varieties have the very same paradigm with respect to the lack of aspectual infinite construction for the 1st and 2nd plural person and with past tenses and imperatives: the varieties of Castellana, Turi, Rutigliano, Mola , Poligano. These towns are also in the Southern- east area of Bari.

3SG	ste	a	mandʒə
1PL	stɛm	a	*mandʒɛmə
2PL	stɛt	a	*mandʒɛtə
3PL	stan	a	'mandʒənə

In the same area there are varieties as the one of Putignano (tab.2) and Martina Franca (tab. 3) (Manzini & Savoia, 2005) where specialized forms are found in the inflection for the auxiliary *stay* (2sg, 3sg, 1pl, 2pl) which differs from the inflected forms of the lexical verb *stay*. With 1st sg and 3rd pl the inflected forms of the auxiliary coincide with the ones of the lexical counterpart *stay*.

Tab 2: Progressive for the verb “ffɔ” (= to make) in the variety of Putignano

Indicative present	Auxiliary stay	Prep.	Lexical Verb
1SG	stok	a	ffatsə
2SG	ste	∅	ffaʃə
3SG	ste	∅	ffaʃə
1PL	sta	∅	ffaʃeimə
2PL	sta	∅	ffaʃeitə
3PL	ston	a	'ffaʃənə

Tab 3: Progressive for the verb “ccɛ'mɛ” (= to call) in the variety of Martina Franca

Indicative present	Auxiliary stay	Prep.	Lexical Verb
1SG	stɔ	∅	ccɛmə
2SG	stɛ	∅	ccɛmə
3SG	stɛ	∅	ccɛmə

1PL	stɛ	∅	ccamɛ:mə
2PL	stɛ	∅	ccamɛ:tə
3PL	stɔnə	a	ˈccɛmənə

In both the variety of Putignano and the one of Martina Franca (tab.2, tab.3) when the forms of the auxiliary coincide with the form of the lexical “stay” the embedded predicate is introduced by the preposition a (see 1st singular and 3rd plural for Putignano and 3rd plural for Martina Franca). Along this line of analysis there is the variety of Mesagne where the auxiliary “stay” share just the root with the lexical “stay”: a specialized inflection is found just with the progressive construction which is different from the lexical use of the verb (tab.3) as noted by Manzini & Savoia (2005). There seems to be a correlation between the presence of the specialized forms of the aspectual auxiliary and the overt/null preposition introducing the embedded lexical verb, at least on the varieties examined in the present work.

Tab.4: Progressive for the verb “ffari” (= to make) in the variety of Mesagne

Indicative present	Auxiliary “stɛ”	Prep.	Lexical Verb
1SG	sta	∅	ffatsu
2SG	sta	∅	ffatji
3SG	sta	∅	ffatji
1PL	sta	∅	ffatjimu
2PL	sta	∅	ffatjiti
3PL	sta	∅	ffannu

Furthermore in all the varieties in which there are specialized forms for the aspectual auxiliary we do not find any restriction on the inflection of the embedded verb (no person split). So while in Conversanese (tab.1) there are no specialized forms for the auxiliary and we do not find with 1st and 2nd plural the full inflected embedded verb, in the other varieties when the aspectual auxiliary has specialized forms the embedded verb is always inflected.

This pattern of inflection is quite widespread in the Southern varieties. The parametric variation found across varieties is linked to¹²:

- i. the aspectual auxiliary that enters in the constructions (progressive, modal, motion verb);
- ii. the tense (present, past);
- iii. the mood (imperative, indicative).

In the present analysis we will not account for the variation across varieties but we will be referring mainly to the present indicative constructions involving the auxiliary *stay*. In our respect, progressive aspectual inflected constructions share locative properties (for example the second verb introduced by the preposition *a*). In next section a crosslinguistic analysis of the locative-like system of the progressive will be presented in order to introduce our syntactic proposal in section 2.3.

2.2 The progressives as Unaccusative Constructions

In the typological literature (Bybee, Perkins & Pagliuca, 1994, Cinque, to appear among others) progressives have been claimed to often involve cross-linguistically locative constructions. However, other types of constructions (not properly locatives) are also found across languages. While we will first introduce the data about languages that encode progressive through locative constructions, in 2.3.1 we will present the data from Cinque (to appear) in which languages that encode a functional through locatives constructions are listed. The main idea is that all progressive constructions do not share an Abstract PROG functional projection (as Cinque (to appear) argues) but they result from an unaccusativization of the subject and languages may vary on how they represent such a thematic variation.

¹² See Manzini, Lorusso and Savoia (2017) for a detailed analysis of the parametric variation across the varieties of Apulia, Calabria and Sicily.

2.2.1 The progressives as Locative Constructions

The pervasiveness of the grammatical isomorphism between progressive and spatial location was documented in the typological overview undertaken by Bybee, Perkins & Pagliuca (1994).

The progressive involving locative constructions can be distinguished for how the locative relation is expressed: either by preposition or auxiliary.

Languages like Italian or Spanish may encode the progressive through the use of the auxiliary “stay”: *stare* (in Italian) in (14) and *estar* in Spanish (15). The same auxiliary is found with locative expression and with stage level predicates, as in the Spanish examples (16) and (17).

(14) Gianni sta mangiando (Italian)
‘Gianni is eating’

(15) Juan está estudiando (Spanish)
‘Juan is studying’

(16) Juan está en la habitación *Locative construction* (Spanish)
‘Juan is in the room’

(17) Juan está cansado *Stage-level predicate* (Spanish)
‘Juan is tired’

Mateu & Amadas (1999), among others show that in a wide range of languages the progressives are also expressed through the use of locative prepositions. The examples (18-20) show that progressive are expressed through an overt locative preposition in Dutch (18), French (19) and Middle English expressed the progressive through the preposition on (20).

(18) Ik ben aan het/’t werken. (Dutch)
I am on the working

‘I am working’.

van Gelderen (1993: 180-182);

(19) Zazie est en train de miauler. (French)

Zazie is in along of miaowing

‘Zazie is miaowing’.

Demirdache & Uribe-Etxebarria (1997: 9; 1998: 25)

(20) He is on hunting. (Middle English)

(Jespersen (1949: 168), apud Bybee et al (1994: 132))

In language like Gungbe there is a progressive particle *tò* which means literally “be at”. The lexical verb, when it follows directly the progressive particle, similarly to what happens in Apulian varieties, may undergo a process of reduplication (Aboh, 2004, 2009) as in (21) where *ɖa* is the verb and *ɖiɖa* is its reduplicated form. The locative-progressive constructions coexist in some languages with a morphological reduplication¹³.

(21) $\epsilon\epsilon$ $w\epsilon$ *mi* *tò* *ɖiɖa* *na Aluku* (Gungbee)
 what_ FOC 2PL PROG (= be at) cook cook to Aluku

¹³ The reduplication in Gungbee seems to pattern with the double inflection described in the present work. However, as Cinque (to appear) points out, some kind of morphological reduplication of different segments of the verb root is found to express the progressive although no overt locative marking is present in Oceanic languages as the Mekilese example (i) shows (Hyslop 2001,341).

- (i) a. *wadek* ‘to read’ *wadwadek* ‘to be reading’
 b. *piload* ‘to pick breadfruit’ *pilpiload* ‘to be picking breadfruit’

Nevertheless, it is difficult to find an immediate connection between the morphological reduplication in some language and double inflections of Apulian varieties and it is far from the aim of the present work to find it. Future analysis are needed to compare the two types of progressives. However, we may hypothesize that both the reduplication and the double inflection are the surface representation of the same aspectual event identification as it by the progressives which identify the subject in a central coincidence relation within the event denoted by the embedded verb, as it will become clear in section 3. For the present purposes, it is relevant that the progressive particle can be associated to a locative element and that its presence may imply a morphological change on the lexical verb. For a detailed discussion on the progressive in Gungbe see Aboh (2004, 2009).

‘What are you cooking for Aluku?’

(Aboh, 2004)

Mateu & Amadas (1999) referring to this general analysis of progressive as locative constructions, further argue that progressives are universally unaccusative. In their proposal two assumptions are made in order to refer to the progressive as unaccusatives: the first is that since progressive are expressed in the majority of the languages in the world by a locative structure, locatives are unaccusative and so progressive represents a process of unaccusativization for the lexical verbs that enter in the progressive derivation. The second assumption is strictly linked to the first assumption: the process of unaccusativization is given by the fact that the subject of a progressive structure enters in a *central coincident relation* (Hale & Keyser, 1993) with the event denoted by the lexical verb (i.e. its lexical aspect or aktionsart). The *central coincidence relation* is the location within the locative structure: it is one precise moment within the event¹⁴. For telic predicates as ‘John built the house’ (22), the event has a natural endpoint in the sense that John ‘finished’ to build the house. In the progressive version (23) the subject John is centrally located within the temporal contour of the event of building the house, so he is taken on the process of building and consequently he has not finished to build the house¹⁵.

(22) John built the house

JOHN BUILT THE HOUSE

(23) John was building the house

JOHN DID NOT BUILD THE HOUSE

¹⁴ Mateu & Amadas (1999) argues that there is a syntactically relevant semantic structure, which can be represented in a tree structure (cf. Bouchard (1995) for the same proposal). In their lexical-conceptual structure (LCS), the argument structure of the verbs (including locative constructions) can be viewed as a spatial relation in the sense that it purely relates elements into our cognitive space: Figure» (i.e. the subject) and «Ground» (the locative complement), to use Talmy’s (1985) terminology. By these approach also the timeframe of an event is represented though spatial relation.

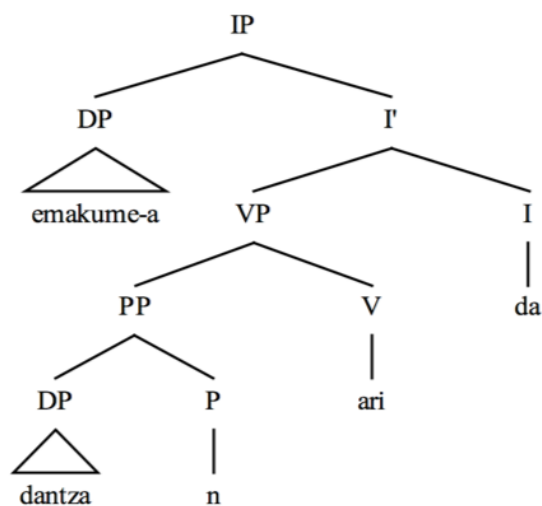
¹⁵ For an analysis on how languages encode the central coincidence relation or terminal coincidence relation firstly introduced by Hale & Keyser (1993), see Mateu (2004), Ramchand,(2001).

In ergative languages like Basque, the single argument ("subject") of an intransitive verb behaves like the object of a transitive verb and is marked with the absolutive case and it differs from the agent ("subject") of a transitive verb which is marked with the ergative case. Laka (2006) argues that progressive structures in Basque are homomorphic with locative/unaccusative structures, it results from the fact that the *ari* progressive auxiliary involves a biclausal syntactic structure (26). The main verb *ari* 'to be engaged' takes a locative PP ('in something') expressed through the locative suffix as in the intransitive structure in (24): the PP can take a nominal complement (24b) or a VP (26b).

- (24) a. Emakume-a danza-n ari da
 woman-DET (ABS.) dance-LOC engaged is
 'the woman is engaged in dance' (the woman is dancing)

(Laka, 2006)

b.

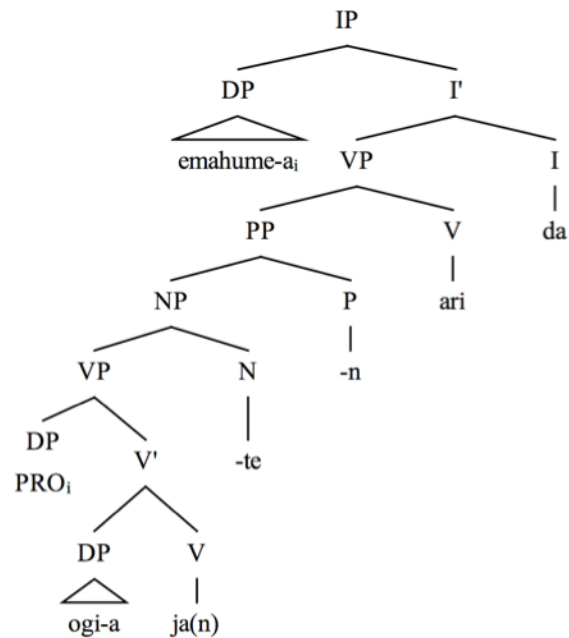


Laka (2006) points out that there is a contrast between canonical transitive sentences which selects ergative case for the subject (25) and their progressive equivalents which select the absolutive case (zero marked) for the subject and the nominalized clause *ogia jaten* (26).

(25) emakume-a-k ogi-a jaten du
 woman-DET -ERG bread-DET eating has
 ‘The woman eats (the) bread’

(26) a. emakume-a ogi-a ja-te-n ari da
 woman-DET- ABS bread-DET eat-NOM -LOC engaged is
 ‘the woman is (engaged in) eating the bread’

b.



(Laka, 2006)

These data about the overt case marking in Basque confirm that progressive structures imply an unaccusativization of the event: when the progressive auxiliary is expressed, the subject is marked with an absolutive case as in all intransitives (unaccusative) structures. Furthermore, the presence of a PP as a complement of the auxiliary supports the crosslinguistic generalization for which progressives are unaccusative locative constructions.

2.2.2 The progressives as non Locative construction

Locative constructions are not the only way through which progressives can be expressed crosslinguistically. Cinque (to appear) proposes a list of the different ways in which progressives are encoded across languages, although we will not go into the details of his analysis, we will mention here the constructions that although do not present any overt locative elements can be accounted forms in the terms of an unaccusativization involving a central coincidence relation preposition.

A first group of non-locative progressives (Cinque, to appear) involve some auxiliary that are not found in any locative construction (as in the example (14)-(17)): the Abbruzzo-Molise dialects present the auxiliary *hold* (27), Persian presents the auxiliary *have* (28), the English creole language Gullah presents the auxiliary *do* (29).

(27) a. Təném a mmagná (Abbruzzo-Molise dialects)

we hold to eat_{INF}

‘We are eating’

(Rohlf 1970,133: apud Cinque, to appear)

b. té ppjjove

it holds rain_{INF}

‘it is raining’

(Ledgeway 2016,266)

(28) Man dār-am dars mi-khon-am (Persian)

I have.PRS-1SG lesson DUR-read.PRS-1SG

‘I am studying’

(Vafaeian 2012:13)

(29) dem duh eat and duh laugh (Gullah)

3PL do eat and do laugh

‘They were eating and laughing’

(Jäger 2006, §6.2.2.2)

Furthermore, Cinque reports data from some languages that use a non locative preposition, such as *with* in some African languages. See the Lunda example in (30). Other languages use temporal prepositions as *after* in Quebecoise (31).

(30) ní.dí na-kuzáta (Lunda)

I.am with-work_{INF}

‘I am working’

(Cinque, to appear)

(31) Y était après chanter quand j’ai ouvert la porte (Quebecoise)

‘He was singing when I have opened the door’

(Cinque, to appear)

All the constructions in (27)-(31) are not locative constructions, anyway they still share similar relations with the locative constructions we have been listing in section 2.3.1. Locative Ps, and specifically the Romance *a* preposition involved by the Apulian constructions under investigation, according to Manzini and Savoia (2011), Manzini and Franco (2016) instantiates a relation (\subseteq) whose content they take to be part/whole, similarly to what Belvin and den Dikken (1997:170) call zonal inclusion.

So in sentences like *there is a party at the club* the preposition *at* introduces a relation between ‘*club*’ and ‘*party*’ as a specialization of the part-whole relation, which involves instances where the internal argument of (\subseteq) is a location (i.e. ‘*x* included by *y*, *y* location’) or is otherwise locatively restricted. Roughly the examples in (27)-(31) can be accounted for in the terms of this primitive relation, namely the part-whole relation, that subsumes also non locative

constructions. In the case of auxiliary+verb the part-whole relation is instantiated between the embedded lexical verbs which is the whole (introduced or not by any preposition) and the auxiliary which represent the instantiation of the part-whole relation within the event denoted by the embedded lexical verb¹⁶.

In our respect it is important to notice that the progressive implies an unaccusativization as in Mateu & Amadas (1999) but not linked directly to the locative nature of progressives but to the more general primitive part-whole (\subseteq) relation. The part whole relation is instantiated between the subject of the matrix auxiliary and the event denoted by the embedded verb: the subject is seen in a given /partial moment of the entire event represented by the verb. Since the part-whole relation is not strictly linked to the locative patterns that Mateu & Amadas use in order to reduce syntax to a cognitive space as in Talmy's account (see footnote 7), it allows us to not reduce everything to a spatial relation and to account for relations that can difficultly can be reduced to a cognitive space. The central coincidence relation involved in the analysis above is a special flavor of the part-whole relation, introduced. In other words, the subject of the matrix verb of a progressive construction is in a part whole relation with the event denoted by the embedded verb. It means that it is caught at a particular point in the unfolding of the event which it occurs to be central. This could be an explanation for the fact that progressives are not found with states and achievement following the Vendler's class (see section 2.3 example (43)): the event structure can not be decomposed in subevent so that a subject can be centrally located within the unfolding of the event.

For the purpose of the present work we will not provide a detailed analysis of the implication of using either the locative or the part-whole relation, since we will be mainly referring to the Apulian constructions involving the locative prepositions *a*: we will be referring to the progressive as locative constructions. However, it was important to notice that instead of mapping any relation to an abstract cognitive space, it seems, in our opinion, easier to take a more abstract such as the part-whole relation which is involved in more contexts than the mere spatial one. It allows us, in fact, to account for the similitude between different progressives,

¹⁶ The proper description of the part-whole relation is under the scope of the present analysis. For a detailed discussion of its primitive nature behind locative, instrumental and dative relations see (Manzini and Savoia (2011), Manzini and Franco (2016) Franco & Manzini, (2017), Franco, Savoia & Manzini (2015)).

including the ones that, according to (to appear) are not proper locative constructions (27)-(31). After this brief excursus we can go back to the analysis of the progressive constructions in Conversanese (1)-(2) that we will analyze as locative constructions.

2.3 Syntactic Analysis of the progressive inflected constructions.

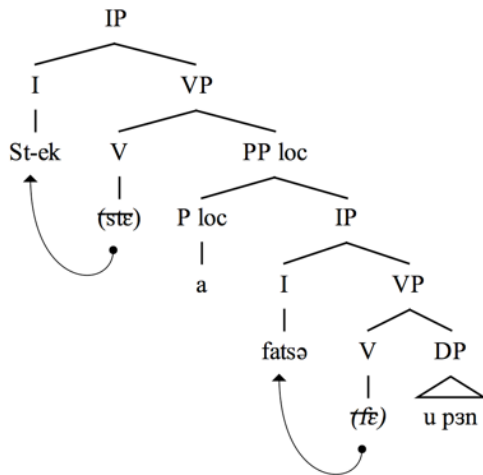
The main progressive construction in Conversanese, we introduced in section 2.1 and 2.2 that we repeat here in (32), is formed by an inflected stative verbs *stɛ* (=to stay) a locative preposition *a* and an inflected lexical verbs. It patterns with unaccusative locative construction (33) formed by a stative auxiliary and a locative phrase.

(32) *Stek* *a* *fatsə* *u pən*
 Stay-1s to do-1s the bread
 I am making the bread

(33) *Stek* *a* *kəsə*
 Stay-1s at home
 I am at home

The main difference between the two sentences is that in (33) the complement of the preposition is an NP: the subject is in a spatial relation with the NP *kəsə* (=home). In (32) the subject is centrally located within the timeframe denoted by the telic event of making the bread. The progressive involves a PP that introduces an IP. We propose for (32) the derivation suggested by Manzini & Savoia (2005): the aspectual inflected construction involves a connecting preposition which is selected by the aspectual auxiliary (34).

- (34) Stek a 'fatsə u pən
 I am making the bread



The sentences in (34) is a biclausal structure since both the auxiliary and the embedded verb show overt indicative morphology. These constructions can be considered biclausal if we follow one of the diagnostics proposed to account for the biclausality of present perfect (in English, Chomsky, 1957, 1981, 1995; and in romance languages Kayne, 1993; Manzini & Savoia 2005, 2007, 2011): that is, the optionality of the clitic placement in romance languages (Manzini & Savoia, 2011). The progressive in Conversanese shows a long distance clitic placement (35), the clitic climbs in a proclitic position before the auxiliary as in the ‘restructuring’ present perfect constructions, in the sense of Rizzi (1982). However, there are also varieties in which the clitic is found not only in a long distance configuration but also as a proclitic of the embedded verb, as in the the examples of aspectual inflected construction of Minervino Murge (36) Montemilone (37) Mesagne (38) and Alliste (39). The examples of Mesagne (38) show that the optionality of clitic placement are found within the same variety (38a vs. 38b). The optionality of clitic placement across and within varieties in Romance show that the parameter is independent by the monoclausal vs biclausal status of the construction involved. In this respect the long distance

clitic placement can not be taken as a proof of monoclausality (see Manzini & Savoia, 2011, Manzini, Lorusso & Savoia, to appear for further discussion).

(35) U stek a *u mandʒə (Conversano: Apulia)
 it (cl.) stay-1s at *it(clitic) eat-1s
 I am eating it

(36) Væ u cæmə (Minervino Murge: Apulia)
 Go-2s him VL call-2s
 ‘you go to call him’

(Manzini & Savoia, 2005:)

(37) va/vinə u camə (Montemilone: Basilicata)
 Go/come him call-2s
 ‘you go to call him’

(Manzini & Savoia, 2005)

(38) a vɔʃʃu lu vɛʃu Mesagne: Apulia
 Want (1.s) it see -1.s
 ‘I want to see it’

b. lu sta ffattsu
 itcl stay do-1s

(Manzini & Savoia, 2005)

(39) ʃta llu tʃɛrku (Alliste)
 Stay(aux) (1.s)him/it search
 ‘I am searching him/it’

As pointed out in Laka (2006) for the basque progressive auxiliary *ari*, the verb *stɛ* is a proper lexical verb: the same form of the verb is used for both locative/progressive constructions and for sentences involving other PP (40). In the varieties where the progressive auxiliary differs from the lexical *stay*, as in Putignano, we have the progressive forms without the connecting preposition (36) and the lexical *stay* with a preposition (37).

(40) stɛm kə la makənə (Conversano: Apulia)
Stay-1p with the car
‘We are by car’

(41) sta ffaʃeimə
Stay (aux.) (1.p) do (1.p) (Putignano: Apulia)
‘We are doing’

(42) a. stam aə la ‘mɛkənə (Putignano: Apulia)
Stay-1p with the car
‘We are by car’

b. stam a kɛsə
Stay (1.p) at home
‘We are at home ’

These biclausal progressive constructions, as Manzini & Savoia (2005) initially suggests, involve an event identification between the two inflected verbs, contrary to the asyndetic constructions of the imperative in Neapolitan (Ledgeway, 1997) where each verb represent an assertion (see example in 6-7). *Event Identification* is defined by Kratzer (1996) as a recursive operation

involving the external argument¹⁷ and the aspectual reading that is applied on the event denoted by the embedded lexical VP. It relates the external argument introduced by a *v* head or by aspectual heads to the predicate via an identification of the event variable of the embedded predication. Roughly, *Event Identification* allows us to add further aspectual information to the event described by the verb. Only if the two predicates have compatible aktionsarten, event identification may take place. In our respect the progressive auxiliary allow the event identification, following Vendler's (1967) class, with embedded predicates involving activities and accomplishment but not with achievements or state.

- (43) a. *stec a mandʒə* (Activity)
 Stay-1s to eat-1s
 I am eating
- b. *Stek a fatsə la kəsə* (Accomplishment)
 Stay-1s to build -1s the house
 I am building the house
- c. *#Stek a sattfə* (State)
 I stay 1s at know 1s
 I am knowing

¹⁷ In (Kratzer 1996), the lexical root (embedded verb) contains information about the internal argument, but the external argument is introduced by a hierarchically superior functional head *v*. It was initially posited by Kratzer as a mechanism for joining the external argument onto a verb using Voice. Event identifying Voice and the verbal event adds the condition that the verb has an Agent. Event Identification takes one function of type $\langle e, \langle s, t \rangle \rangle$ (a function from individuals to functions from events to truth values) and another function of type $\langle s, t \rangle$ (a function from events to truth values) and returns a function of type $\langle e, \langle s, t \rangle \rangle$. In other words, Event Identification combines two predicates of events by abstracting over both of their event arguments. The insight of Event Identification of Kratzer (1996) is that it is a recursive operation that allow a n-clausal syntactic structure to be mapped in a mono-eventive semantic representation. Although T is usually assumed to close off the event variable introduced by V and *v*, successive event identification with higher functional heads allow different aspectual interpretation. In our respect the recursive use of event Identification allow to add (as a second recursive operation after the introduction of the external argument) further aspectual information about the event denoted by the embedded lexical verbs.

d. #Stek a canəskə u 'sennəkə

(Achievement)

I stay 1s at know 1s the mayor

The structure in (29) can not be accounted for in the term of a serial verb construction if we follow Baker's (1989) analysis, for which the serial verbs must share the same object. However, as Cruschina (2013) suggests, we can consider these aspectual inflected constructions serial verb construction if we adopt a less rigid statement on serial verb as the one introduced by Aikhenvald (2006:12): 'Prototypical serial verb constructions share at least one argument. Serial verb constructions with no shared arguments are comparatively rare, but not non-existent'. In our respects these aspectual progressive constructions share the same subject which is also marked on the overt morphology of both verbs.

The presence of a connecting element *a*¹⁸ also should support an analysis of the aspectual inflected constructions as non serial verb construction. Nevertheless, in the varieties of Putignano, Martina Franca and Mesagne, we do not find such a connecting element (see tab.2,3,4). With regard to such 'unstable' connecting element found with serial verbs, Aikhenvald (2006) admits that serial verb constructions 'may include a special marker which distinguishes a SVC from other types of constructions but does not mark any dependency relations between the components' (Aikhenvald 2006: 20). So in our respect, the locative progressive inflected structure in (34) is a serial verb construction since the two verbs are inflected and the connecting locative preposition is a special marker of the instantiation of a central coincidence relation (not a dependency relation) between the two verbs: the output is a unique event. In contrast, the progressive locative construction with the embedded uninflected verb has a different structure and distribution: it does not imply event identification and it is not a serial verb construction since the embedded verb is an infinitival complement which is in a dependency (locative) relation with the matrix auxiliary.

¹⁸ Two hypotheses are found in the literature regarding the origins of *a*: (i) it comes from the Latin preposition *ad*; and (ii) it derives from the Latin coordinating conjunction *ac* used in spoken and late Latin (cf. Rohlfs 1969: §§710, 761). Although in other southern Italian varieties there are cases in which the *a* is used both as a locative preposition and a conjunction, in the present analysis we analyze the *a* as a locative preposition (given the locative nature of the progressive) since the conjunction found in these varieties is *e* and crucially differs from the preposition *a*. Further evidences come from the aspectual non inflected construction in (39).

2.3.1 The progressive ‘uninflected’ constructions

As we have been repeating so far, in Conversanese there is a parallel progressive construction we repeat here in (44). It is formed by an inflected stative verbs *stɛ* (=to stay) the locative preposition and an uninflected lexical verbs (infinitive). It differs from the aspectual inflected construction mainly for its syntactic structure and aspectual entailment.

- (44) *Stek* *a* *fɛ* *u pɜn*
 Stay-1s to do_{INF} the bread
 I am making the bread

As the aspectual inflected progressive (35) it allows only a long distance clitic placement (45). But since the embedded verb is an infinitive, it allows enclitics (41), which are not possible with the finite verbs in the inflected aspectual counterpart.

- (45) *U* *stek a* **u* *man' dʒɛ*
 it (clitic) stay 1s/ at * it(clitic) eat_{INF}
 I am eating it

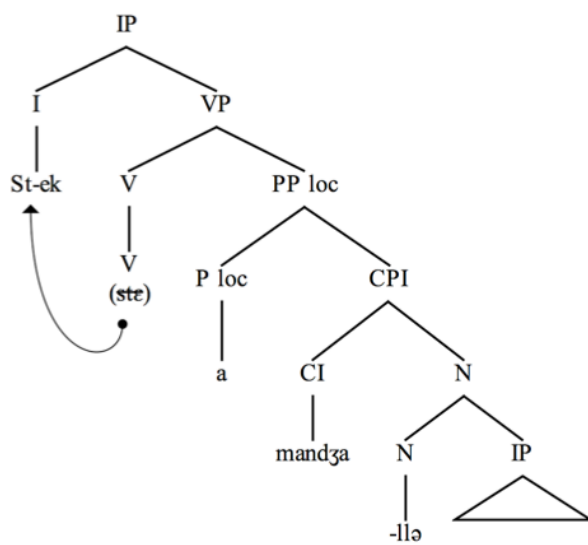
- (46) *Stek a mandʒa-llə*
 Stay eat_{INF} cl-ACC
 I am eating it

As for the locative structures in (38) and the aspectual inflected constructions (37) we have a locative construction where the aspectual auxiliary selects a locative PP, but in (44) the PP introduces an infinitive that is a full indefinite CP_I in the terms of Manzini & Savoia (2003): ‘The domain, labelled C_I, to suggest Indefiniteness, is identified with the “indefinite” modality

lexicalized by infinitivals.’Manzini & Savoia (2003:97). The infinitive verb raises to a CP_I position and the accusative enclitic is embedded in a nominal position before the the inflectional domain as in (42).

(47) Stek a mandʒa-llə

I am eating it



The structure in (47) is a locative structure: the subject is located in a position within the indefinite event expressed by the embedded infinitive verb. While in (34) we have been saying that the subject is centrally located within the event denoted by the embedded lexical verb, in (47) the subject is located (not centrally) within the event and in general it implies an inchoative reading. For example this type of progressive constructions is found also with states (48) and achievements (49) that were banned for the aspectual inflected construction. In (48) and (49) the interpretation of the sentence is inchoative: the subject is located in the starting point of the event denoted by the embedded verb and although the subject of the auxiliary controls/ is coreferential with the subject of the embedded infinitive, there is no such any event

identification that makes impossible the instantiation of a central coincidence relation with already stative predicates (as in 43c-d above).

(48) Stek a sa'pe (State)

I stay 1s at know_{INF}

I am realizing it (= I am starting to know)

(49) Stek a canəfə u sennəkə (Achievement)

I stay at know_{INF} the mayor

I am getting in touch with the mayor

These constructions do not identify a unique event. Similarly to the asyndetic imperative constructions in Neapolitan (Ledgeway, 1997) in (6) and (7) these constructions may be decomposed in two subevent¹⁹: the auxiliary denotes both a truly locative and a progressive periphrasis. Due the indefiniteness of the infinitive verb in CP_I, the subject is controlled by the matrix subject²⁰. This is confirmed by the presence of the accusative enclitic (46-47). No special entries are found for the matrix auxiliary with uninflected construction (as the specialized matrix auxiliary for the inflected construction in the varieties of Putignano, Martina Franca and Mesagne) and the connecting element can never be omitted. Nevertheless, the aspectual infinitive constructions with the verb *stay* are still interpreted as progressive constructions: they are the sole progressive forms available for 1st and 2nd plural person (section 2.5) and they mark an ambiguous progressive form. Next section is devoted to sketch the aspectual differences between the inflected and non inflected aspectual progressive constructions.

¹⁹ They do differ from the asyndetic constructions of Ledgeway (1997) since there is a connecting element between the two verbs and they can not be interpreted as truly paratactic constructions.

²⁰ For the purpose of the present work CP_I has to be interpreted merely as a tenseless, in the sense that it lacks independent tense specification and thus it agrees in tense with the matrix auxiliary. However for a complete analysis of the CP_I see Manzini & Savoia (2005, 2007, 2011).

2.4 Aspectual analysis of the inflected and non-inflected progressive constructions

Both inflected and uninflected aspectual progressive constructions are interpreted as truly progressive: in both case the events entails an ongoing reading (as in Arosio, 2011 among others). In other words, the event has not an entailment of termination. So for example the telic events with a natural endpoint, as ‘eat the bread’, are interpreted as not finished both in inflected (50) and non-inflected constructions (51).

(50) Stek a mandʒə u paninə (Inflected construction)

Stay-1s to eat-1s the sandwich

I am eating the bread

I HAVE NOT EATEN THE BREAD

(51) Stek a man'dʒɛ u pɜninə (Uninflected construction)

Stay-1s to eat_{INF} the sandwich

I am eating the sandwich

I HAVE NOT EATEN THE BREAD

They are no compatible with the habitual interpretation which is commonly assigned, also in Conversanese, to the simple present forms as shown in (52): in (52a) the temporal modifier ‘every year’ is found with the present tense, while we can not find this ‘habitual’ temporal modifier with inflected (52b) and uninflected (52c) progressives.

(52) a. Tottə i annə vek o mɛr

All the years go-1s (to+the) sea

‘Every year I go to the sea’

b. #Tottə i annə stek a vekə o mɛr

All the years stay-1s to go-1s to the sea

#Every year I am going to the sea

c. #Tottə iannə stek a ffi o mer

All the years stay-1s to go-1s to the sea

#Every year I am going to the sea

A main difference is found between the aspectual interpretation of the two constructions. It is linked to the episodic value of progressives: Chierchia (1995), among others, suggest that while individual level predicates express properties of individuals that are permanent or tendentially stable, progressives and stage level predicates, per contrast, attribute to individuals transitional and episodic properties. Frequentative adverbs roughly indicate the repetition of the same action and, thus, are mainly incompatible with progressive episodic operators. We might expect, then, that both inflected and uninflected constructions can not be found with frequentative adverbs, but this is not the case: uninflected progressive can be found with frequentative adverbs.

In both type of constructions, the morpheme *a* is the only element which can intervene between the two verbs. Adverbs like *sembə* (=always), which encodes frequentative aspectual properties (Cinque 1999), can not be found between the functional and the lexical verb but they are only allowed after the complex predicate with both type of constructions (53) and (54). Furthermore, with the ‘uninflected’ construction in (54) we can also find the frequentative adverb between the matrix auxiliary and the locative PP, while it is ruled out with the inflected construction in (53).

(53) Mari: stə (*sembə) a (*sembə) mandʒə (sembə) (inflected embedded verb)

Maria stay-3S (always) to (*always) eat-3s (always)

Maria is always eating

- (54) Mari: stɜ (sembə) a (*sembə) man 'dʒɛ (sembə) (uninflected embedded verb)
 Maria stay-3S (always) to (*always) eat_{INF} (always)
 Maria is always eating

Cardinaletti & Giusti (2003) in their analysis of aspectual inflected constructions with motion verbs in Sicilian, take the different distribution of frequentative adverbs as a proof of the fact that the inflected version is monoclausal while the uninflected one is biclausal. Our proposal, on the contrary, is that both types of progressive are biclausal. The presence of the frequentative temporal quantifier with the uninflected construction is linked to the indefinite CP₁ selected by the locative preposition. The subject of the embedded verb in CP₁ must receive a variable/operator interpretation since no person and number morphology is found on it, as in the control constructions. The frequentative adverbial modifier can bind the variable introduced by the embedded infinitive verb in (54) and allow a frequentative interpretation of the progressive locative construction²¹. The double inflection of (53), on the other side, remarks the event identification has taken place and the fact that the subject is centrally located within the event denoted by the embedded predicate: no temporal and aspectual binding is possible since both the auxiliary and the embedded verbs show the same inflectional morphology²². Nevertheless, besides these minor aspectual differences, both type of constructions still imply a progressive reading: the 'uninflected' construction, in fact, is the only progressive form found with 1st and 2nd plural persons. Next section is devoted to the analysis of the distribution of the aspectual inflected for person and number.

²¹ Since the embedded verb is not tenseless and aspect-less an adverb can work as an operator that binds it, intervening, as a modifier, in the auxiliary-embedded V temporal and aspectual binding.

²² For the varieties such as the ones of Putignano, Martina Franca and Mesagne (table 2, 3 and 4) where the embedding auxiliary either shows forms which differ from the its lexical counterpart and shows missing morphology along the inflectional paradigm. Following Manzini, Lorusso and Savoia (2017) the embedding verbs show expletive inflectional morphology which is not found with the uninflected version.

2.5 Person Split in the Progressive Aspectual Inflected Constructions

The progressive aspectual inflected construction is not found with 1st and 2nd plural person. As we mentioned in section 2.1, (3-4) repeated here as (55-56), 1st and 2nd plural person do not allow the progressive constructions involving the inflected embedded verb (55) but they are only found with the constructions involving an embedded infinitive verb (56).

(55) Nojə_j /voʊ_k stɛmə_j/stɛtə_k a * mandʒɛmə_j / * mandʒɛtə_k
 We / you stay-(1P/ -2P) to eat (1P /2P)
 ‘We/you are eating’

(56) Nojə /voʊ stɛmə/ stɛtə a man’dʒɛ
 We / you stay-(1P/ -2P) to eat_{INF}
 ‘We / you are eating’

Similar data are also found in different varieties. Cardinaletti & Giusti (2003) found a similar pattern in their analysis of the inflected constructions in the dialect of Marsala. Manzini & Savoia (2005) show many other southern varieties (not only in Apulia) in which the aspectual inflected constructions are not found with 1st and 2nd plural person, while the other persons allow it, in (51) and (52) the examples of the Sicilian varieties of Villadoro e Calascibetta.

(57) jamo/jete a mmanɲɔʒari (Villadoro)
 go 1p/2p to eat

(58) Imu/iti a mmaɲɔʒari (Calascibetta)
 go 1p/2p to eat

Why 1st and 2nd plural persons do not allow the a+inflected form construction? Is it worth to talk about a person split? Our answer is that 1st and 2nd plural persons are referentially more complex than the other singular and plural (3rd) persons. Their complexity is linked to the fact that 1st and 2nd plural person are not the mere plural versions of the 1st and 2nd singular persons. In this sense we are dealing with a person split different from the one attested for the singular person in the auxiliary selection (Manzini & Savoia, 2005,2007,2011)

Bobaljik (2008)²³ proposes a two-valued binary feature system [\pm speaker] and [\pm hearer] to account for the person pronominal system across languages. The two-valued person feature system lacks a feature “third person”, which is then analyzed as [-speaker, -hearer]. For plural persons Bobaljik (2008) argues, along the lines of Lyons (1968) and Benveniste (1966), that 1st and 2nd plural person are not the mere plurals of the singular 1st and 2nd: ‘We (‘first person plural’) does not normally stand in the same relationship to I (‘first person singular’) as boys, cows, etc., do to boy, cow, etc. The pronoun we is to be interpreted as ‘I, in addition to one or more other persons’... In other words, we is not ‘the plural of I’: rather, it includes a reference to ‘I’ and is plural.’ Lyons (1968:277). So Bobaljik suggests that : ‘It is indeed meaningful to speak of a first person plural, but it is important to note that plural, for the first person, normally means an associative or group plural, rather than a multiplicity of individuals sharing the property [speaker]’ (Bobaljik, 2008:209). The same is true also for the 2nd plural person which is not the mere plural of you singular. So while 1st plural person is not just a sum of [speaker] but it is the sum of speaker plus others, 2nd plural person is not the just a sum of [hearer] but hearer plus others. Furthermore Bobaljik (2008) resumes this discussion saying that while 1st plural person is the sum of all person (59), 2nd plural person is the sum of all person excluding the [speaker] (60).

(59) we’ is 1st (+ 2nd) (+ 3rd)

(60) ‘you’ is 2nd (+3rd).

(adapted from Bobaljik, 2008)

²³ With varying choices of the feature labels, a similar argument has been presented and defended in one form or another by Ingram (1978), Harley and Ritter (2002), and in particular detail by Noyer (1997:chapter 2.)

Following similar considerations on the person system, Manzini & Savoia (2007,2011) use a person split analysis to describe the patterns found in other constructions (i.e. auxiliary selection with present perfect) where 1st and 2nd singular persons (discourse anchored pronouns: [+speaker, +hearer]) and 3rd singular person (event-anchored pronouns: [-speaker, -hearer]) show different morpho-syntactic patterns. For the analysis of plural persons Manzini & Savoia (2011) argue that ‘ the 1st person plural does not necessarily denote a plurality of speakers (though it may), or the speaker and hearer only (though again it may); rather its denotation routinely involves one speaker and a certain number of other individuals that are being referred to together with the speaker. The same is true for the 2nd person singular, which does not necessarily (or normally) denote a plurality of hearers but simply refers to the hearer taken together with a certain number of other individuals ...Because of this referential structure of the so-called 1st and 2nd plural, it is reasonable to propose that even varieties that activate the person split in the singular may not do so in the plural (Manzini & Savoia, 2011:213)’. In a lexical parametrization approach (Manzini & Wexler, 1988, Manzini & Savoia, 2011), languages involve a parametric distinction for plural on the one side and the discourse participants and event participants may not apply in plural.

In our respect the person split we found in the aspectual inflected progressive of Conversanese is not directly linked to the split involving discourse vs event participants, but to the referential complexity of the 1st and 2nd plural person. More precisely we have been contending that the progressive aspectual inflected constructions are based on a locative structure where the subject of the matrix subject enters in a central coincidence relation within the event denoted by the embedded predicates (as in Mateu & Amadas. 1999, Laka, 2006). 1st and 2nd plural person may not enter into this derivation because the referential complexity or the multiple referents identified by these plural persons do not allow the instantiation of a central coincidence relation as tight as the one found in the aspectual inflected constructions with other persons. To express the progressive with 1st and 2nd plural person the only available option in Conversanese is the one in which there is no event identification between the two subevent, so

the complex referential subjects can bind only the indefinite variable introduced by the embedded verb.

2.6 The syntax of agreement in the inflected construction: expletive agreement

In these section we introduce the analysis of Manzini Lorusso & Savoia (2017) who analyze these structures as involving obligatory control. The traditional assumption about control is that it involves a specialized empty category PRO (Landau 2013), though we favour a predicational construal of control (Landau 2015), especially suited to control into finite sentence (Manzini and Savoia 2007, to appear, Manzini 2009). In either instance, we will have to say that the lack of a CP phase in *a/bare* finite embeddings forces obligatory control (in the languages at hand).

Obligatory control/raising correlates with lack of independent tense specifications in the matrix and embedded sentence. This means that either one of the two verbs lacks tense specifications altogether – or else if tense specifications are present on both verbs, then they agree. This is indeed what we witness in our data, as in the data Table 1-4. The majority of dialects have inflections on the embedded verb – with the possibility of partial phi-features inflection on the matrix verb. Manzini et al. (2017) exemplify this pattern in its starkest form, i.e. both tense and phi-features realized only downstairs, with the Salentine variety of Mesagne in (44),.

- (61) lu sta ffatʃi-v-i *Mesagne*
it_{ci} stay do-past.impf-2s
'You were doing it'

It is the pattern in (61) that the accounts of Cardinaletti and Giusti (2001, 2003) and of Ledgeway (2016) concentrate on. According to Cardinaletti and Giusti, the single finite Agr projection in their monoclausal structure is lower than 'stay'/'go' etc. and is therefore picked up by the embedded verb, rather than by the superordinate verb. Whatever inflections the latter has, they are parasitic on those of the embedded verb. According to Ledgeway (2016) only a lexical

VP can project Agr – so that in bare embedding structures, which he construes as monoclausal, the functional verb cannot bear Agr. For cases of overtly inflected superordinate verbs in bare embeddings, he would probably have to resort to the same claim as Cardinaletti and Giusti that the higher agreement is parasitic on the lower one.

Cardinaletti and Giusti's (2001) solution, positioning the relevant class of verbs above Agr, while made possible by cartographic notation, encodes the facts, rather than explaining them. Indeed it is not clear why other functional verbs (auxiliaries) are normally inflected, i.e. lower than Agr, as Ledgeway (2016) also points out. Ledgeway's own proposal does not overcome the same problem. Suppose 'stay' etc. are directly merged under a functional head and not in VP; this must surely be true of auxiliaries in general, which are nevertheless fully inflected.

Let us then consider the predictions of the present approach. Instances where the inflection is realized on both matrix and embedded verb are predicted under a bi-clausal structure. But how come lack of inflection, specifically on the matrix verb, is also licenced? To begin with, it is morphologically inaccurate to speak of this phenomenon in terms of lack of inflection. So-called uninflected forms consist of the root of the verb (or one of its roots in the case of suppletive 'go') followed by a thematic vowel. These formations in Romance often coincide with the 3P singular of the indicative and systematically show up in the 2P singular imperative (see also Manzini and Savoia 2007 on corresponding forms in Albanian). Therefore, Manzini et al. 2017 prefer to refer to them as invariable rather than uninflected. If they are correct, monoclausal theorists would have to account for a residual inflection in examples like (61) as well.

Let us consider phi-features first. Within the present bi-clausal, hence bi-inflectional model, the relation between the two inflections in (61) is akin to the relation between an expletive and a referential pronoun/DP. The expletive does not express any referential content independent of that of its associate; this is expressed by Chomsky (1995) by an operation of expletive replacement at the C-I interface. In fact, at least in null subject languages like the ones we are dealing with, it is natural to construe verb inflections as D elements. Let us then say that as concerns phi-features, the relevant structure of (61) is as in (62); whatever operation applies to identify an expletive D(P) with its associate D(P) applies between the two D inflections in (62).

To be slightly more specific, we may assume that the content of the upstairs D, like of all expletives, can be equated to that of an unbound variable. Therefore it must be bound by the embedded D, by expletive replacement, or other equivalent operation.

(62) [IP [I st- [D a]] [VP [IP [I ffat]iv-[D i]]]

The same account holds in principle of tense. In order to be reasonably explicit on this point Manzini et al. 2017 adopt the notation of Tense structures in Higginbotham (2009), which has the distinct advantage to be syntactically transparent. A present tense sentence like the one in (63) means that the predicate ‘happy’ includes the ‘reference time’, i.e. the time of the context, here the time of utterance. The syntax from which this meaning is computed is (63b) “where the numerals in angled brackets stand for the open positions or implicit arguments in the head T and the VP. The implicit argument 3 of the VP, which ranges over events, is identified with argument 1 of T, and argument 2 of T set to the speech-time or utterance *u*. The feature -past is interpreted as meaning that 1 surrounds 2”. The resulting semantic representation is (63c), i.e. roughly, there is an event *e* of John being happy that surrounds (\approx) the time of the utterance *u*.

(63) a. John is happy
 b. [T -past <1,2> [VP John happy<3>]]
 c. [$\exists e \approx u$] happy (John, e)

Applying the relevant notation to examples like (44), we obtain representations like (47) for the embedded sentence. Suppose the matrix clause has what we may call an expletive tense position, lacking positively specified content, in the form of a free variable. Then presumably the equivalent of an expletive replacement operation takes place so that the embedded tense properties are interpreted as taking scope over the whole sentence. This is notated in (48) as a copying operation.

(64) a. ... [IP +past <1,2> [VP you did it<3>]]

- b. ... [$\exists e <u>$ do (you, it, e)
 (65) [_{IP} +past <1,2> ... [+past <1,2> [_{VP} you did it<3>]]

In short, invariable tense and phi-features inflections are licenced by the same mechanisms, essentially locality and movement, that allow expletive subject pronouns. Nothing prevents the matrix and embedded verb from being fully inflected for phi-features and tense – in which case Agree presumably takes care of identifying them. However, it is also possible for the higher inflection (which must be present in order to head the sentence) to have mere placeholder features. We note that this second structural solution is possible only with verbs of obligatory control/raising, i.e. ‘stay/be’, ‘come’, ‘go’. In other words, as also pointed out by Ledgeway (2016), the pattern excludes ‘want’, which admits a non control construal (for instance with *ku* embedding).

Interestingly, Balkan languages include a considerable number of invariable predicates embedding the so-called subjunctive particle. In Greek, the core modals *bori* ‘can’ and *prepi* ‘must’ are invariable and embed *na* subjunctive complements. Within the Romance family, the future of Aromanian is formed by the invariable predicate *va* followed by the subjunctive particle *si* (Manzini and Savoia to appear, see also Romanian *o să* forms). Perhaps most tellingly, Manzini and Savoia (2007) document causative constructions in several Arbëreshe varieties, all involving a matrix verb ‘make’ and an embedded finite complement introduced by the subjunctive particle *të*. But only in some varieties is the verb ‘do’ fully inflected; in several others, it is an invariable form. This means that expletive inflections are in principle available whenever there is a biclausal structure with no intervening CP phase, which is essentially what we would optimally expect on the basis of our model. Only in the single language and dialect, do we witness restrictions to certain classes of predicates and complements (only bare complements in Apulian varieties).

2.6.1 A Monoeventive Semantic Analysis for Biclausal Progressives

Before we proceed to the semantics literature, it is useful to repeat here the role of the preposition (cfr. Section 2.2.2) whose basic content may be argued to be dative. This is not the contentless linker or connector envisaged by Cardinaletti and Giusti (2001) or Cruschina (2013), rather, according to Manzini and Savoia (2011), Manzini and Franco (2016) the preposition *a* ‘to’ instantiates a relation (\sqsubseteq) whose content they take to be part/whole, akin to what Belvin and den Dikken (1997:170) call zonal inclusion. In other words, in sentence like *I gave the book to Peter*, ‘to’ introduces a relation between its object ‘Peter’ and the theme of the verb ‘the book’ such that ‘Peter’ includes ‘the book’, i.e. possesses it. They further construe locative as a specialization of the part-whole relation, which involves instances where the internal argument of (\sqsubseteq) is a location (i.e. ‘x included by y, y location’) or is otherwise locatively restricted.

In addressing possible approaches to the semantics of the progressive it must be kept in mind that we are not interested, or in fact equipped, to enter the semantic debate; we are simply interested in establishing whether a reasonable point-by-point mapping is possible between the rather detailed syntactic model constructed in section 2.2 and some semantic model. Of particular interest here are event theoretical models, especially because the work of Higginbotham (2009), briefly reviewed in section 2.3 makes them easily mappable to standard generative syntax.

A well-known treatment of the progressive is provided by Parsons (1989). In his terms, “semantically, changing an event verb to the progressive requires that it be treated as a state verb; this simply means the sentence in question will require for its truth that the event in question *holds*, not that it *culminates*”. Thus the a non-progressive sentence like *Agatha crossed the street* and a progressive sentence like *Agatha was crossing the street* differ only because of the fact that the event *e* in the former culminates at time *t*, namely $\text{Cul}(e,t)$ – while the event *e* in the latter holds at time *t*, namely $\text{Hold}(e,t)$.

This semantics however does not evoke any obvious mapping to a locative syntax. This is not so for an equally well-known treatment, proposed by Landman (1992), which he summarizes as the Part-of Proposal, namely that “Mary is crossing the street is true iff some

actual event realizes sufficiently much of the type of events of Mary’s crossing the street”. For instance, the sentence in (65a) is true “iff some event is realized in w in the past and that event stands in the PROG relation to the type of events of Mary building a house”, as indicated in (65b), where PROG is the relation between events and types (sets) of events mentioned in the part-whole proposal.

- (65) a. Mary was building a house
 b. $\exists e' [t(e') < \text{now} \ \& \ \text{PROG}(e', \lambda e. \exists y [\text{house}(y) \ \& \ \text{Build}(e) \ \& \ \text{Agent}(e)=\text{Mary} \ \& \ \text{Theme}(e)=y])]$

Two points about Landman’s treatment are salient for present purposes. First of all the logical syntax of the progressive in (65) is bi-eventive, rather than mono-eventive, making it particularly suited to the bi-clausal syntax that we are proposing. In fact, in the terms of Manzini and Savoia’s (2005, 2011) treatment of Romance perfects, even ordinary Romance progressives, consisting of a copula and an embedded gerund, are bi-clausal. An operation of lambda-abstraction at the C-I interface, which turns the embedded clause/predicate/event into an event type (set), is necessary in order to map the syntax in section 2 to the semantics in (65b). But this is the kind of enrichment that can reasonably be expected to take place at the interface.

The second important point concerns the nature of PROG. In Landman’s terms, “ E , the set of events, is ordered by two relations: a relation of ‘part-of’ and a relation of ‘stage-of’ ... a stage of an event is a special sort of part of that event”. For instance “if an event is a complete accomplishment event (Mary’s building of a house), the result (the house being built) is part of that event”. Importantly for present purposes, this is true in exactly the same sense in which “Hanny’s hand at a certain interval is part of Hanny at that (or a larger) interval”. The last passage is that “not every part of e at an interval is a stage of e ; to be a stage, a part has to be big enough and share enough with e so that we can call it a less developed version of e ”. In practice, coming back to (65), what it means is that “in some world, an event of building a house by Mary

avored by many languages, though it is not clear to us that he advances any specific proposal concerning this connection.

In present terms, the cross-linguistic generalization of section 2.2.1/2.2.2 translates into the conclusion that the \subseteq inclusion/location content is a natural candidate to instantiate the relation between events and event properties that a considerable part of the formal semantics literature identifies with the progressive.²⁵ What holds of examples like (66) including an overt dative/locative preposition, also holds of bare finite embeddings, for instance the Mesagne's examples if the role of PROG (i.e. part/whole) is played directly by the main verb 'stay' in virtue of its locative content (or in virtue of the selection of an abstract preposition etc.).

Languages that do not express the progressive through an overt locative construction still can be accounted for in the terms of the \subseteq inclusion/location relation. Languages, in fact, vary as to how they encode the part/whole relation involved in the interpretation of progressive (section 2.2.2, Cinque to appear). The latter may be expressed through temporal prepositions such as *during* or *after/before* in Québécois or in Tinrin. Other languages may use a non locative auxiliary, as we have seen for *ari* (= be engaged in) in the Basque examples (24-26): once more the embedded complement introduces an \subseteq inclusion/location relation with the embedded verbs.

In conclusion, our main aim in going through semantic accounts of the progressive was to establish that it is possible for such accounts to be mapped to bi-clausal structures of the type proposed in section 2.3. As far as we can tell, this is indeed the case. In fact, structures of the type we propose, with two distinct event positions associated with the matrix and embedded verb and a locative content attributed to *a* are much better candidates to express a Landman/Higginbotham type semantics than competing monoclausal structures, which lack comparable internal complexity.

²⁵ It should be stressed that these conclusions differ from those of Mateu and Amadas (1999) that we took as our starting point. For us, the locative relation holds between events/event types; for Mateu and Amadas the locative relation held of an event and of an argument of that event, namely the subject.

2.7 Conclusions

In this chapter we presented a preliminary analysis of the progressive form in some Apulian dialects, we focused on the variety of Conversano (Apulia). In Conversanese two forms of progressive are available. Both constructions are formed by an inflected stative verbs a connecting preposition and a lexical verb. The two constructions differ on the inflection of the lexical verb selected by the preposition: one typology of construction implies an inflected embedded verbs and we have defined them as aspectual (progressive) inflected construction (following Manzini & Savoia, 2005), the other typology of constructions implies an uninflected embedded lexical verbs and we have defined them as the aspectual uninflected construction.

Both types of structure share a locative derivation, as progressive seem to do across many languages (Bybee, Perkins & Pagliuca, 1994, Mateu & Amadas 1999, Laka, 2006). In (34) and (47) we proposed a biclausal syntactic derivations for both inflected and uninflected progressive constructions. The difference is that while in the inflected constructions the locative preposition selects a full IP in the uninflected ones the locative prepositions selects an indefinite CP_I. The distinction in the structures has been used to account for the different syntactic and aspectual properties of the two progressive constructions.

On the one hand, the aspectual inflected progressive constructions: 1) denote an event identification between the auxiliary and the lexical verb; 2) allow long distance clitic placement and; 3) the matrix subject of the inflected progressive is centrally located within the event denoted by the embedded verbs, both verbs being identified by the same agreement inflectional morphology 4) no frequentative adverbs can intervene in the tight relation of event identification instantiated by the locative preposition *a*.

On the other hand the aspectual uninflected constructions: 1) may denote an inchoative reading; 2) do allow enclitic placement on the embedded infinitival verb; 3) the subject is located within the embedded event in order to bind its indefinite/variable interpretation (no agreement features) 4) also frequentative adverbs can bind the variable introduced by the embedded infinitival predicate.

The 1st and 2nd plural person are not found in the aspectual inflected constructions but they allow only the infinitive counterpart. Differences in the pattern of the morphological derivation of 1st and 2nd plural person is quite common (Manzini & Savoia, 2005, 2011) across romance languages: these persons are more complex than other person (Bobaljik, 2008) because they involve a complex reference to the discourse participants (as 1st and 2nd singular), to the plurality of participants and to the event participants. In a lexical parametrization analysis (Manzini & Savoia, 2011), languages involve a parametric distinction for plural and the difference discourse participants and event participants may not apply in plural.

As the analysis in 3.6 shows (Manzin et al. 2017), these aspectual constructions involve a biclausal syntax with two inflected verb forms (the matrix verb showing expletive construction) which it is triggered for the interpretative requirements of the semantic interface: that is, to present the event of the embedded predicate in a part-whole relation with the utterance time expressed by the auxiliary.

Chapter 3

Patterns of Syntactic Agreement with Embedded NPs

3.0 Introduction

In this chapter we analyze the different patterns of agreement found cross-linguistically with complex NPs involving an approximate numeral/quantifiers and a preposition, which selects an embedded NP. Verbal agreement can target either the numeral item/quantifier or the embedded NP. Languages differ on whether they allow agreement just with the quantifier (French, Barese), with the embedded NP (Occitan, Sardinian) or they show optional agreement with both quantifier and the embedded NP (Italian, Spanish). We will propose a syntactic account for such variation: it is linked to whether the PP that introduces the embedded NP is a phase or not. The configuration of the θ greed and the markedness of the φ features, then, are also involved into the present syntactic account.

The chapter is structured, as follow: in 3.1 we will introduce the phenomenon. Then after an empirical characterization of the phenomena under discussion 3.2, we will review three previous accounts of the embedded NP agreement (structural ambiguity, percolation of features, two different sets of features) and shows how the first two cannot account for the various agreement patterns (head, tail, either) found among the Romance varieties. We will build on the idea (Danon 2013, Demonte & Perez-Jimenez 2015) that an NP "carries not one, but two sets of syntactic agreement features", one set constraining the referential index and the other set related to NP-internal concord. Mismatches result in different agreement patterns. The different agreement patterns allow for two different interpretations at LF. Nevertheless, we will show that the "double-set" approach fails to account for some data (post- verbal subjects, small clauses, raising predicates) and the pattern of agreement of the languages allowing only the tail to be the

target of the Agree operation (e.g. Sardinian, which is a Type C language according to our typology). Thus, our proposal involves a parameter on the connecting PP and on the role of predication. Specifically, the PP involved in such constructions introduces a phase boundary in some varieties but not in others, and it can determine the agreement patterns with the quantifier-like head or with the embedded tail NP. This analysis overcomes some of the problems of the "double-set" approach (Danon 2013, Demonte & Perez-Jimenez 2015).

3.1 The data

Nominal constructions involving approximate numerals/quantifiers may show within and across languages different configurations of agreement: verbal agreement can target either the numeral item/quantifier or the embedded NP that bears the θ role interpretation.

- (1) un centinaio_i di senatori_k si sono dimessi_k/ è
 dimesso_i
 a hundred of senators cl.refl are resigned.pl/ is
 resigned.sg
 ‘A hundred senators have resigned.’ *Italian*

According to Brucart (1997), Demonte & Perez Jimenez (2015) these nominal constructions are made of:

- i) A **head** (the pseudo-quantifier/numeral/relational noun)
- ii) A **tail** (the full lexical element embedded under the genitive construction)

The syntactic constructions which are the focus of the present study are generally labeled as ‘pseudo-partitives’ in the literature. The term ‘pseudo’ highlights the fact that *contra* real partitives they do not express a sub-set relation, involving more properly a measurement relation

(Selkirk 1977, Milner 1978, Schwarzschild 2006). Proper partitive NPs express a relation between two extensionally defined NPs (e.g. *un centinaio dei suoi amici*, ‘(about) a hundred of her friends’) and thus involve a definite DP tail, interpreted as a ‘whole’, and a quantificational DP head interpreted the ‘part’ (cf. Jackendoff 1977, Barker 1998, among others). In pseudo-partitives the DP to be interpreted as the whole (i.e. the tail) is a bare mass noun or a plural count noun, describing the objects or substances to be measured, while the head is generally an indefinite atomiser noun (e.g. *piece*), an indefinite container noun (e.g. *glass*) or a proper measure noun (i.e. *inch*) (Koptjevskaja-Tamm 2001).²⁶

We will provide examples of the patterns of agreement triggered by these constructions in Romance languages (and beyond), showing that there exist:

- a) Languages with a **double route of agreement** (with both the head and the tail)
– **Type A**
- b) Languages with **agreement with the head** only (the proper syntactic agreement)
– **Type B**
- c) Languages with **agreement with the tail** only (the so-called semantic agreement)
– **Type C**

To our knowledge, the identification of Type C languages in the typology outlined above has not been previously acknowledged in the literature.

We will argue that differential agreement patterns reflect a genuine syntactic phenomenon (and not a mere interpretative path - as often semantic agreement has been argued to be). We will support this view showing some syntactic regularities (and asymmetries) in the patterns of agreement, especially in small clause and depending on the syntactic features of the lexical elements involved in Type A languages.

²⁶ Koptjevskaja-Tamm (2001) demonstrates that pseudo-partitives derive from real partitives in a historical perspective. This is argued to be a grammaticalization process triggered by the fact that pseudo-partitive items are nouns from a historical point of view, but in pseudo-partitive constructions they are used as elements that are not typical nouns (e.g. they lack referentiality).

The exploration of embedded NP agreement is not trivial, from the perspective of theoretical linguistics. Indeed, the theoretical implication of the double route of agreement, as well as tail agreement contrasts with the statements of the theory of Agree developed in Chomsky (2000, 2001), where a functional head F agrees with XP only if:

- d) F c-commands XP (the C-command Condition)
- e) There is no YP such that F c-commands YP, YP c-commands XP, and YP has φ -features (the Intervention Condition).
- f) F and XP are contained in all the same phases (e.g. full CPs) (the Phase Condition)

3.2 Difference across languages

3.2.1 Languages with a double route of agreement: Type A languages

In Italian with approximate numerals/quantifiers verbal agreement can target either the numeral item/quantifier or the noun embedded under the preposition *di* (of) that bears a θ role interpretation. Consider the data in (2), in which the verb is free to agree either with the (singular) quantifier (*centinaio*, *dozzina*) or the (plural) noun (*senatori*, *tifosi*) embedded under the partitive/genitive adposition *di* (of).

- (2) Una dozzina_i di tifosi_k hanno_k/ha_i cercato di aggredirmi *Italian*
 a dozen of fans have/has tried of attack.inf.cl.1sg
 ‘A dozen fans tried to attack me’

The same pattern of Italian is available in many different languages. In (3) and (4) we show some Hebrew and Persian data ²⁷, respectively.

²⁷ Our Persian example, involves the *ezafe* (-e) morpheme (translated here as *of*) as a possible KP (Case Phrase, see Samiiian 1994, Larson & Yamakido 2008, cf. also Etxeberria & Etxepare 2012 for similar data from Basque). We

(3) 30 axuz-im me-ha-maskoret holxim /holexet le-sxardira.

Hebrew

30 percent-m.pl of-def-salary.f.sg goes.m.pl /goes.f.sg to-rent

‘30% of the salary goes to (paying the) rent.’ (Danon 2013: 56)

(4) guruh-e navâzande-hâ bar gašt/gašt-and.

group-lnk(of) musician-pl up turn.pst.3sg/3pl

‘A group of musicians came back.’

Relational nouns employed in analogous constructions (i.e. as kind of an approximate quantifier) as Italian *branco* (herd), *parte* (part), *sciame* (swarm) and so on, sometimes display similar facts, as illustrated in (5), where the verb may choose to target the gender/number features of the relational noun or the embedded one (the latter pattern being marginally degraded for some speakers).²⁸

(5) a. Una manciata_j di riso_k è stata lanciata_j/??stato
a.f handful.f of rice.m is be.pst-ptcp.f thrown.f/be.pst-ptcp.m
lanciato_k alla sposa

assume the identity between PP and KP (Fillmore 1968, Emonds 1985), since both form part of the extended functional projection of the noun (Grimshaw, 1991). More recently, research on spatial expressions has led to the proposal that case suffixes expressing spatial relations in many languages belong to the category P (van Riemsdijk and Huybregts 2001, den Dikken 2003, Manzini & Savoia 2011, among others).

²⁸ An anonymous reviewer suggests that in Standard Italian the divergent types of agreement might depend on the type of quantifying noun heading the construction, namely, the presence of an approximate numeral (like *dozzina*, dozen) would trigger agreement with the tail, while the presence of a collective noun (like *branco*, pack) would triggers optional agreement. Nevertheless both traditional usage-based analyses (cf. Berruto 1983, Serianni 1989, among others) and an informal survey conducted among (linguistically naïve) native speakers of Italian confirm that both patterns of agreement are equally well-formed with either approximate numerals or collective nouns, without any relevant difference, at least in the contexts considered in this work. Furthermore, both approximate numerals and collective nouns can host a noun phrase on their own (e.g. *Il mucchio selvaggio* ‘the wild bunch’; *Quella sporca dozzina* ‘that dirty dozen’), confirming that both are nominal in nature. Also functionalist research (e.g. Mirto & Necker 2007, Masini 2016), despite providing fine-grained lexical analysis of the items involved in these NP-PP-NP constructions, does not acknowledge different agreement patterns for approximate quantifiers/numerals vs. relational/collective nouns.

thrown.m to.the bride

‘A handful of rice has been thrown on the bride’

- b. Uno sciame_i di cavallette_k ha devastato_i / hanno devastato_k il campo
a swarm.m of grasshopper.f has wasted/ have wasted the field
‘A swarm of grasshopper has wasted / have wasted the field.’ *Italian*

Similar data are available for Spanish, despite our informants somewhat prefer agreement with the approximate quantifier/relational noun (i.e. the head of the construction), finding the tail agreement marginally degraded²⁹.

- (6) Un centenar_i de niños_k entona_i / ? entonaron_k una canción
a hundreds of children sang.3sg / sang.3pl a song
‘A dozen of children attacked the bank’
- (7) Una manada_i de lobos_k atacó_i / ? atacaron_k la granja
a pack.sg of wolves attacked.3sg / attacked.3pl the farm
‘A pack of wolves attacked the farm’ *Spanish*

Individual and regional differences are found in both Spanish (Brucart 1997) and in Italian.³⁰

²⁹ In Spanish, Demonte and Perez-Jimenez 2015 showed that there is no effect of the ‘notional’ type of the head NPs (see footnote 3): there is no preferential pattern of agreement for either approximate numeral or collective nouns. They provide a statistic analysis (significance $p > 0.05$) based on a survey that they conducted among native speakers of different varieties of Spanish: they found that there is no statistical significance in the distribution of the agreement patterns found with either the approximate numerals or the collective/relational nouns. A lot of variability is found across the varieties of Spanish and, within each variety, across individuals.

³⁰ Demonte & Perez Jimenez (2015) precisely suggest a lexical micro-parametric variation approach (cf. Borer 2005) for Type A languages: the approximate numerals/quantifiers encode both semantic index features and morphological concord features (cf. Danon 2011, 2013). The differences would depend on whether the index features are checked or not against the embedded NP, as we will show in some details in section 4.3.

3.2.2. Language where agreement targets the QP/RelNounP only: Type B languages

There are Romance varieties that do not allow agreement alternations (cf. also section 2.3): in some of them the verbal agreement invariably targets the higher QP/RelNounP, as in the example from the Bari dialect in (8), or in French (9).³¹ A similar pattern is at work in German and American English, as shown, respectively in (10) and (11).

- (8) Na crosckə_i d puèrcə_k s' ha_i mangiatə/*han_k mangiatə i bastenacə
 A gang of pigs cl.refl has eaten/ have eaten the carrots
 'A gang of pigs ate the carrots'

Bari, Apulia

- (9) Une meute de loups a /??ont attaqué la ferme.
 A pack of wolves has/have attacked the farm
 'A pack of wolves has attacked the farm'

French

- (10) Ein Rudel Wölfe hat /*haben einen Bauernhof
 gegriffen
 A pack of.wolves has/have a farm
 attacked
 'A pack of wolves has attacked the farm'

German

³¹ Note that constructions with the partitive quantifier *plupart* 'most of' are reported by the reference grammars of French (e.g. Grevisse and Goosse 2011) as accepting both patterns of agreement. Grevisse and Goosse (2011:§ 342b) set out that also pseudo-partitive constructions can display agreement with the nominal complement (e.g. un million d'habitants ont été déportés 'one million people have been deported'). Nevertheless our French informants seem to consistently reject tail agreement in pseudo-partitive constructions.

(11) A flock of birds is/*are flying *American English*

3.2.3 Language where agreement targets the tail only: Type C Languages

Conversely, in other Romance varieties agreement targets only the embedded NP, as in Occitan (12), in the Southern Italian dialect of Matera (13), and in (Campidanese) Sardinian (14)-(16) (the latter data have been provided by Rosangela Lai, who kindly conducted a survey among native speakers on our behalf).

(12) Una ardada_i de lops_k *ataquèt_i/ataquèron_k la bòria
a pack of wolves attacked.3gs/attacked.3pl the farm
'A pack of wolves has attacked/ *have attacked the farm'
Occitan (Sichel Bazin, p.c.)

(13) Na band_i d'uagnun_k *i giut_i/so giut'_k a suna'
a group of guys is gone.sg/are gone.pl to play
'A group of guys went to play music'
Matera, Basilicata (Ditaranto, p.c.)

(14) unus centu senatoris sindi *est sculau / funt sculaus
about hundred senators refl. be.3sg defeated.sg be.3pl defeated.pl
'A hundred senators have resigned.'
Sardinian (Lai, p.c.)

(15) un arei de canis *at / ant assartau su koili
a pack of dogs has / have attacked the farm
'A pack of wolves attacked the farm'
Sardinian (Lai, p.c.)

(16) unu muntoni de pippius *est andau / funt andaus a iscola
a lot of children is gone.sg/ are gone.pl to school

In these languages it seems that the ‘of’ PP is transparent so that the features of the embedded NP are always checked by/interpreted through the verbal morphology. Very interestingly we are not aware of previous works that report the existence of this pattern.

3.3 The puzzle

The existence of different routes of agreement raises some theoretical problems. On the one side, current assumptions about agreement in Minimalism (cf. Chomsky 2000, 2001, Pesetsky and Torrego 2004, 2007) do not account for the agreement relation between T and the (different sets of) phi-features of the (non-nominative) embedded NP, ignoring the QP/NumP/RelNounP. Indeed, in the framework of Chomsky (2000, 2001), it is assumed that a head such as T can only agree with the closest matching goal, namely Agree does not allow for optionality of sort (a view present also in Preminger 2009, 2011, 2014). On the other side, some psycholinguistic studies on the typical mistakes on subject verb agreement (Vigliocco et al. 1996) have shown that the semantics of the higher noun influence the likelihood that the verb agrees with the embedded NP (cf. also Corbett 2006, for some typological considerations). Given the existence of languages like Occitan and Sardinian allowing tail agreement only, it seems reasonable to assume that agreement with embedded NP is a (syntactic) parametric option, undergoing micro-parametric variation across Romance varieties. Hence, we must admit that Agree allows for optionality to some extent. Furthermore, although an analysis implying the optional spell out of *index* features (Danon 2013, Perez-Jimenez and Demonte, 2015) at the lexicon-syntax interface (cf. section 3.4.3) can account for the optionality of agreement, the mechanism of agreement with the embedded NP only (as in Occitan, Matera dialect, Sardinian) cannot be straightforwardly accounted by such a model. Crucially, we will also show that embedded agreement in languages allowing for the double pattern (Type A), as Italian (cf. section 3.2.1), is sensitive to different syntactic environments, so that that the semantics of the nouns involved is not the main (or the

sole) factor responsible of the pattern of distribution of agreement.

A supplementary issue concerns the minimalist relationship of Agree with Case. In nominative-accusative languages, if T agrees with a given XP, it is with a nominative one (cf. Pesetsky and Torrego 2004, 2007, Bobaljik 2008, Béjar 2008, among others). A standard Minimalist model of Case and agreement derives this picture by assuming that (at least) nominative case is a collateral effect of Agree with a finite T. Nonetheless, the embedded NPs triggering agreement seen so far are all generated below genitive *de* adpositions. In our analysis (section 5) we will precisely concentrate on their role.³² That the genitive preposition plays a role in determining the pattern of agreement of such constructions is intuitively shown by the behavior of (British) English, which is mixed in terms of P presence with Qs/numerals and where the pattern seems to be that the verb agrees with the N(P) when P is absent (17 a,b), and variable when P is present, as illustrated in (17c,d,e).³³

- (17) a. A dozen fans *has/have tried to attack me.
 b. A million fans *has/have tried to attack me.
 c. A dozen of eggs costs/cost two dollars
 d. A pack of wolves has/have tried to attack me.
 ('has' would be the prescriptive option but speakers accept both)
 e. A group of protestors has/have tried to attack me.

³² Consider further the following data. In Persian, constructions with approximate quantifiers plus a noun embedded under the (source) preposition *æz* (employed in both partitive and pseudo-partitive structures) are sensitive to the thematic structure/grid, namely an embedded direct object retains the accusative marker *-ra* in such context, as shown in (i). Note that the 'nominal' nature of (at least) the quantifier *edde-i* (some, [human]) is shown by the fact that it bears the indefinite enclitic determiner *-i*, as Persian nouns usually do.

(i) man do-ta/hic-kodum/edde-i æz bæcce-ha-ro did-æm
 I two-cl//none/some-ind from child-pl-acc saw-1sg
 'I saw two/none/some of the children' Persian

Hence, we have evidence from Persian that not only T, as in Romance, but also v/V (concerning internal argument agreement, see Baker 2008, Baker and Vinokurova 2010, among many others) can be insensitive to the higher QP/Rel NounP, targeting the (theta marked) items embedded under an adpositional phrase (here the ablative/source adposition *æz*).

³³ As shown in Quirk et al. 1972 (cf. also Leclercq & Depraetere 2016), an approximate numeral like *dozen* can appear also with a PP tail e.g. a dozen of fans. In this case, the agreement can be with either the head or the tail of the construction (cf. ex. 17c,d,e). Hence, the role of the preposition appears to be quite crucial in conditioning the possible patterns of agreement.

(again 'has' would be the prescriptive option but speakers accept both)

3.4 Previous accounts of the phenomenon

3.4.1 The structural ambiguity approach

One family of analyses of these differential routes of agreement is the one proposed in Pesetsky (1982) for Russian, further adapted and refined by Franks (1994), with a cross-linguistic survey of Slavic languages. Basically Pesetsky (1982) assumes that in Russian there is a categorial difference (NP/DP *vs.* QP) between agreeing and non-agreeing noun phrase (cf. Danon 2013). Namely, these authors argue that agreement mismatches are based on a structural ambiguity phenomenon of sort. Basing on a series of diagnostics – for instance non agreeing embedded NP fails to bind anaphora as illustrated in (18) – these authors argue that QPs/RelNP occupy two different subject positions – one giving rise to agreement with the embedded noun, and one giving rise to default agreement.

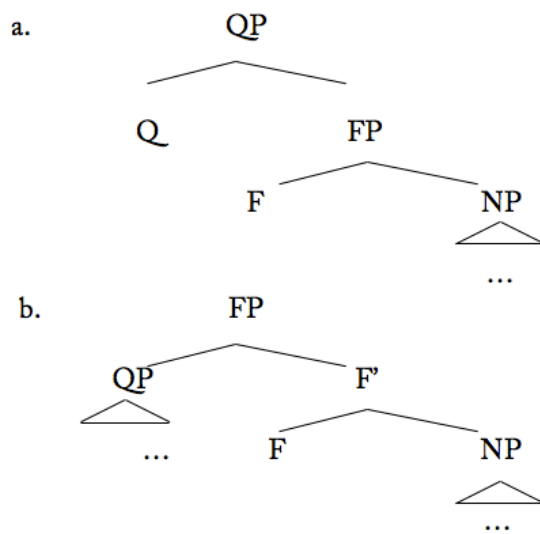
- (18) a. Pjat ženščin smotreli / smotrelo na Ivan
five women looked.pl/ looked.n.sg at Ivan
'Five women looked at Ivan.'
- b. Pjat ženščin smotreli / *smotrelo na sebja
five women looked.pl/looked.n.sg at themselves
'Five women looked at themselves.'
- Russian* (Franks 1994: 659)

Note that Italian seems to be insensitive to such diagnostics, as shown in (19) (similar facts are also reported for Hebrew in Danon 2013, who provide a sharp set of arguments against such a model), leading to the rejection of a potential structural difference.

(19) Un centinaio_i di senatori_k ha votato per sé stesso/hanno votato per sé/loro stessi a hundred of senators has voted for himself/ have voted for themselves ‘A hundred senators have voted for themselves.’

The following two rough structures can be used to illustrate the structural ambiguity approach. In (20a) the QP/RelNP c-commands the embedded NP, and this kind of configuration leads to the agreement of the higher item (non-agreement, where the Q does not display nominal features; on the contrary in (20b) Q/RelN does not c-command the noun’s maximal extended projection (for example, assuming that QP occupies a specifier position within the noun’s extended projection), leading to embedded agreement.

(20)



3.4.2 Percolation of features

A second (more recent) family of accounts may be labeled as the ‘Percolation’ of features hypothesis. When agreement shows up in cases where (non-nominative) NPs are embedded under a QP/RelNP, one way to overcome the locality (and case) issue is in fact to assume that what looks like direct agreement between T and the embedded NP is actually the result of two

successive local agreement operations. An analysis along these lines of thought has been first proposed for Standard Arabic by LeTourneau (1995), who basically assumed that when embedded agreement takes place, we face a mechanism of feature sharing between Q/RelN and the lower NP (cf. Danon 2013). Hence, Agree between T and the entire NP (actually headed by Q) gives the impression of agreement between T and embedded NP. Otherwise, as the Q–NP agreement/concord step is assumed to be optional, lack of agreement leads to Q bearing default features, with which T subsequently agrees. In both cases, T agrees with the full noun phrase, avoiding both the locality problem and the case problem raised by the agreement with the embedded constituent. A similar analysis has been proposed by Bošković (2006), who argue that embedded agreement is actually agreement with the QP, whose features happen to match those of the embedded NP whenever they are not set to default.

This analysis seems problematic for Romance languages allowing for optional agreement. Indeed, the existence of a non-default/fully specified Q-agreement (and RelNoun-agreement) pattern, which is apparently the one which requires no special attention (being Q the head of the NP), means that in Italian Q and N can really display different features. Hence, an explanation of embedded agreement based on forming a simple two step agreement/concord ‘chain’ does not appear to work, since the ‘percolation’ step happens to be blocked due to the fact that Q/RelN has its own lexically specified features (cf. also Danon 2013, Demonte & Perez Jimenez 2015).

3.4.3 Two different sets of features (*index* and *concord*) for Q/Rel N and the embedded N

The problems of the percolation of features approach have been recognised by e.g. Danon (2013) for Hebrew and Perez Jimenez & Demonte (2015) for Spanish. Danon still assumes a sort of ‘cyclic’ Agree analysis, but in order to let the features of NP be copied to QP (while co-existing with Q’s own lexically-specified features), he argues for QP to have two separate feature sets/slots.

Building on of Wechsler & Zlatić (2000, 2003), Danon (2013, cf. also Perez Jimenez and

Demonte 2015, who adopts a similar approach) specifically proposes that an NP carries not one, but two sets of syntactic agreement features, referred to as index and concord features:

- a) *Index features* constrain the NP's referential index, and are relevant to pronoun binding and subject-predicate agreement.

- b) *Concord features* are more closely related to the noun's morphology, and are relevant to NP-internal concord.

The main steps of the 'double feature set' analysis of Danon (2013) can be summarized as follows:

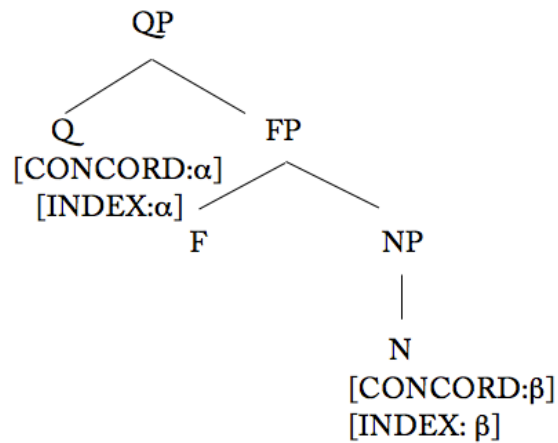
- a) Subject-verb agreement is always index agreement with the entire noun phrase; thus, even embedded agreement involves no direct agreement relation between T and N/NP (an idea which is actually shared with the percolation of features account).

- b) The index features of the whole noun phrase (which are the same as those of its head, the approximate quantifier) do not always match the Q's concord features; specifically, embedded ('semantic') agreement is the result of such a mismatch.

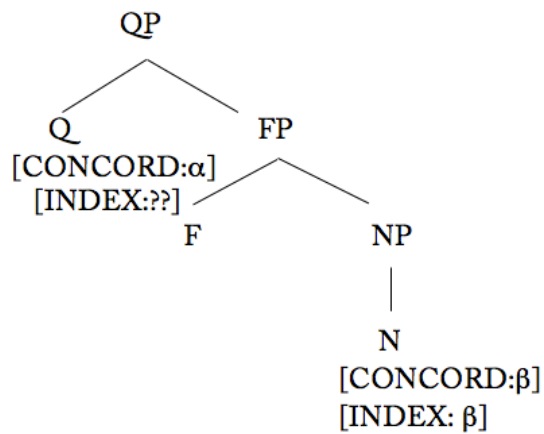
- c) Different agreement patterns follow from different mechanisms for assigning values to the whole NP index features; while the grammar itself has no preference for one mechanism over another, the resulting structures differ in their feature composition in a way that might be relevant at the interface with semantics.

The possible differential routes of agreement are represented in (21a,b).

(21) a. Head Agreement



b. Embedded (tail) agreement



In (21a) the derivation results in a Q-agreement pattern, proceeding as follows:

- i) Q enters the derivation with lexically specified index features which match its concord features;
- ii) the full noun phrase gets the index features from its head, Q.
- iii) T agrees with the full noun phrase, and matches the index features of Q.

In (21b) the derivation results in embedded agreement and proceeds as follows:

- i) Q enters the derivation with unvalued index features;
- ii) the index features of the Q probe for the index features of NP (the ‘percolation’ applies); following this Agree operation, Q’s index features may not match its concord features, inheriting the index features of the embedded NP;
- iii) the whole noun phrase gets the index features from its head, Q;
- iv) T agrees with QNP.

For what specifically concerns Romance languages, Demonte & Perez Jimenez (2015) assume that the ϕ concord features (Gender, Number, Case) are inflectional features interpretable at PF (i.e. the verbal agreement morphology), while the ϕ index features (Gender, Number, Person) are semantic properties interpretable at LF (i.e. the interpretation as a group, as an individual or as a subatomic plural, Borer 2005). Both sets of ϕ features are formal syntactic features and are present on the head and on the tail of the complex nominal constructions. For them we have:

a) Agreement with the head: when the head (approximate numerals/quantifiers/RelNs) has its own index features, (generally a singular index-feature), the complex NP is interpreted in their words as a ‘comitative’ group (Borer 2005) and the concord features of the head are interpreted at PF through the verbal morphology. The features of the embedded NP are not interpreted on the verb.³⁴

b) Agreement with the tail: when the head (approximate numerals/quantifiers//RelNs) has an uninterpretable index features, although it has a singular concord feature, the complex NP is interpreted as subatomic plural and the index feature of the embedded NP is interpreted (through its concord features) on the verb.

³⁴ In languages allowing agreement with the head only such as Barese in (9) there seem not to be two distinct semantic interpretations at LF for the complex NPs. In other words, following Demonte & Perez Jimenez terminology, it seems that no index features on the head are computed, but the concord features alone are interpreted on the verb. No subatomic plural interpretation would be available.

Hence, according to this kind of approach, languages with double route of agreement allow for two different interpretations at LF. Nevertheless, the double route of agreement does not seem to be available in all syntactic configurations. In Italian, for instance, the double route of agreement does not always work (at least for the majority of native speakers we have consulted) when a post-verbal subject position is involved (a similar agreement mismatch involving postverbal subjects has been reported in Roobbe 1993 for Russian), as in (22), when there is a small clause, as in (23), or with raising predicates, as in (24) (cf. Section 5 for more details on this). Here tail agreement is strongly preferred, if not obligatory.

- (22) a. ??è arrivata / sono arrivati una dozzina di amici
 is arrived.f/are arrived.m.pl a dozen.f of friend.m.pl

‘A dozen of friends arrived’

- b. ??è venuto/sono venute un sacco di studentesse
 is come.m/come.f.pl a bag of student.f.pl

‘A lot of female students came’

Post-verbal subject

- (23) a. Maria ritiene un centinaio di senatori *stupido /stupidi
 Maria believe.prs.3sg a hundred.sg of senator.pl stupid.sg/stupid.pl

‘Maria believes that a hundred of senators are stupid’

- b. Maria reputa un sacco di parenti ??stupido /stupidi
 Maria believe.prs.3sg a bag of relatives

dumb.sg/dumb.pl

‘‘Maria believes that a lot of (lit. a bag of) relatives are dumb’

Small Clause

- (24) a. Un centinaio di senatori sembrano stupidi / ??sembra stupido
 a hundred.sg of senator.pl seem.prs.3pl stupid.pl/seem.prs.3sg stupid.sg

‘A hundred senators seems stupid’

- b. Un sacco di parenti ??sembra stanco /sembrano stanchi
 a bag of relativesseems tired.sg/seem tired.pl
 ‘A lot of relatives seem stupid’

Raising

Interestingly, when the mismatch between the head and the tail is in gender and not in number we find the opposite pattern. Consider for instance the post-verbal subject in (25) (cf. 22 for the number mismatch). When the complex subject NP is in preverbal position both pattern of agreement are allowed (25b)³⁵, while when it is in the postverbal position the agreement with the head is preferred.

- (25) a. è crollata/?*crollato una parte di muro
 is collapsed.f.sg/collapsed.m.sg a.f.sg part.f.sf of wall.m.sg
 ‘A part of wall collapsed’
- b. una parte di muro è crollata / crollato
 a.f.sg part.f.sf of wall.m.sg is collapsed.f.sg/collapsed.m.sg
 ‘A part of wall collapsed’

³⁵ The judgments about the grammaticality of (25b) are not homogenous, while the big majority of our informants agree in accepting the double route of agreement, some of them (including an anonymous reviewer) prefer the agreement with the head. In our respect, it is important to note that for the majority of speakers the contrast between (25a) and (25b) is real: the preference of agreement in gender with the head (in a gender mismatch configuration of the complex NP) is stronger when the complex subject NP is post-verbal. The noun *parte* is non homogenous if compared with collective nouns such as *branco* (=pack): while *parte* represents a fraction of a set, a collective noun, *branco*, represents a set of individuals. The semantics of *parte* imply more restriction in agreement (preferring agreement with the head) for its individual interpretation, while collective nouns imply a group interpretation (Demonte & Perz-Jimenez 2015). In the present work we will not address issues on the semantics of the head nouns, although it is a crucial point that needs further analysis. We are interested in the syntactic pattern that influences the overt agreement with the verb: in this respect, noun likes *parte* are found in the same pattern of agreement configuration as other collective nouns in both our survey in Italian and in Demonte & Perez-Jimenez. 2015 for Spanish. Furthermore, with collective nouns as *manciata* (ex. 5a) we have more clear-cut grammatical judgements concerning the post-verbal variant as in (i), with a strong preferential agreement with the tail.

(i) È stata lanciata / *stato lanciato una manciata di riso alla sposa.
 Is be.pst-ptcp.f thrown.f/be.pst-ptcp.m thrown.m a.f handful.f of rice.m to.the
 bride

‘A handful of rise has been thrown on the bride’

3.5 Lorusso & Franco (2017) proposal : a phase parameter on P and the role of predication

We repeat here the proposal of Lorusso & Franco (2017). The authors claim that the so-called semantic agreement found in *committee*-like NPs (for which see Den Dikken 2001, Costa & Pereira 2005 among others) cannot account for these data since there seems to be genuine syntactic factors disentangling between the two agreement routes involved here.

Semantic interpretation, although fully developed in syntax through *index* features (cf. Wechsler & Zlatić 2000, 2003, Danon 2013, Demonte and Perez Jimenez 2015), cannot account alone for the syntactic patterns of distribution of agreement in languages allowing for the double route type. Lorusso & Franco (2017) propose that two main factors intervene in accounting for this pattern:

- a) A parameter on the PPs/KPs, which connects the two nominal elements (the head and the tail) involved here;
- b) The role of predication or more broadly the operation derived by the θ marking of arguments within the VP. We roughly assume predication to be a relation between an argument and a non-argumental maximal projection (the predicate), in the sense of Williams (1980, 1994) (cf. also Higginbotham 1985).

Apart from the data illustrated above in (22)-(24), which points toward a configurationally constrained distribution of agreement, we see two further main problems in the recent index/concord approach to the puzzle of optional agreement. First, while assuming that approximate quantifiers may have underspecified index features can have sense, such idea cannot account for the behavior of those relational nouns (e.g. Italian *sciame*, *mandria*, *branco* and so on) which appears in analogous constructions and have *bona fide* fully lexically nominal

features (*mandria*, *branco* or the like can easily be pluralized, can occur without a tail, etc.). Second, the idea that T always agrees with the full noun phrase is questioned by the existence of varieties (Type C languages, e.g. Sardinian) in which agreement invariantly targets the embedded nominal item. It is quite unlikely the case of a language in which a relational noun have consistently unspecified T-agreement (i.e. index) features (cf. examples (15)-(16) above). In our view, such an approach would (wrongly) predict (as with the percolation of features approach reviewed in section 4.2) that structures with (stand alone) relational NP invariantly result in default agreement, as in (26) (assuming 3rd person singular as default in Romance, cf. D'Alessandro & Roberts 2010).

- (26) a. Le mandrie *è arrivato/ sono arrivate
 the herd.f.pl is arrived.m/are arrived.f.pl
 ‘The herds are arrived’
- b. I branchi *ha/hanno un leader
 the pack.pl has/have a leader
 ‘Packs have a leader’

Note that recently Preminger (2011, 2014) deploys invariable/default inflections as an argument against Agree making any contribution to LF. He proposes that when an unvalued probe fails to find a suitable goal, values are simply filled by default in the morphology. This explanation is not possible if Agree plays a role in insuring Full Interpretation at LF, as we believe (following e.g. Manzini & Savoia (2007, 2011), Manzini et al. (2015) (cf. also Svenonius 2006).

All in all, the idea of an agreement mechanism relying on different sets of features on nominals is costly also from the viewpoint of language acquisition. How can a child acquire a set of rules that account for different flavors of phi-features? Children see number and gender on nominals, person on verbs, not abstract (somehow ad hoc) index/concord features (cf. Pires and Rothman 2009). Hence, in what follows, we propose what seems to us a simpler solution.

Many recent works on the topic of agreement ambiguities in quantified phrases (we should mention Croitor & Dobrovie Sorin 2011 and Etxeberria & Etxepare 2012, in addition to the works cited in the previous section) basically resort to the assumption that QPs/NPs have different (bundles of) features that can trigger different patterns of agreement. Broadly, this

seems to be a parametric option across languages. In fact, in many languages, it is not possible to agree in ϕ features with NPs that bear an inherent case (or precisely are embedded under adpositional phrases), or case that is assigned with a theta-role (Chomsky 1986: 193, Nevins 2011). Rezac (2008: 83) states this constraint as *Case Opacity* (see also Preminger 2011:103ff, Toosarvandani & van Urk 2012, among others). Rezac takes Case Opacity to result from a PP structure that blocks ϕ -agreement. Given the intervention of a PP, or a case projection, that we can label KP (cf. Bittner & Hale 1996) - assuming that P/K introduce a phase boundary (cf. Abels 2003, Chomsky 2008, Gallego 2010, Citko 2014, among others),³⁶ then the (oblique/theta marked/embedded) DP will be syntactically invisible to agreement outside the PP/KP. Nevertheless, some languages (e.g. many Indo-Iranian varieties, see Deo & Sharma 2006), allow ϕ -agreement with DPs bearing an oblique (i.e. inherent) case, as shown in (27) for Nepali. In Nepali transitive verbs always agree in person and number with (ergative marked) subjects (27a). Unaccusatives do not select ergative subjects (27b).

- (27) a. mai-le mero lugā dho-en
 I-erg my clothes.nom wash-prf.1sg
 ‘I washed my clothes.’
- b. ma bas-en
 I.nom sit-prf.1sg
 ‘I sat.’
- Nepali* (Deo and Sharma 2006)

Rezac himself notes that in some varieties of Basque agreement in ϕ -features is possible with DP bearing dative/oblique inflections (Rezac 2008: 101ff).

By the data we present, we assume that the Case Opacity constraint is subject to parametric variation. In fact, given the cross-linguistic variation in the behavior of agreement in quantified noun phrases, we may assume that the Case Opacity constraint is at work in that constructions

³⁶ We assume that P/K introduce a phase boundary, although this is not absolutely crucial in our analysis. What is relevant to us is that PP/KP represents a unique derivational constituent that can move (i) and can block agreement (Rezac 2008). The debate about the phasal/non-phasal nature of PP/KP is beyond the scope of the present work.

(i) *di senatori* ne ho incontrati un centinaio
 of senators ne-partitive clitics have1sg met.m.pl a hundreds (= I have met a hundreds senators)

and is subject to parametric variation: if P or K are not a phase barrier and the verbal agreement is the realization of ϕ -features on T, then the ϕ -features can be displayed by the (theta-marked) noun embedded under the PP; otherwise if P or K are a phase barrier, the ϕ -features will be invariantly displayed by the numeral/quantifier/RelNoun item. The previously unrecognized existence of languages like Occitan or Sardinian where agreement is found just with the embedded NPs suggest that in such varieties the P head is not a phase barrier, and that agreement obligatorily targets the NP bearing a theta role (consistently ignoring the higher QP/RelNounP).³⁷

On the contrary, Barese (or French), have P as a barrier for agreement,³⁸ forcing agreement with the QP/RelNounP eventually bearing its own phi-features. Italian (and Spanish, cf. Perez Jimenez and Demonte 2015) allows for both types of agreement. Here, the reason for embedded agreement can rely again on the fact that agreement is sensitive to theta marked (i.e. agent) NPs (which bears theta-features unavailable on QPs/RelNounPs), leading to optionality.³⁹ We assume that the primitive content of the preposition *de/di* ‘of’ in such constructions (and elsewhere) can be minimally characterized in terms of inclusion (part-whole), following Manzini

³⁷ Note that some scholars have assumed theta roles as (interpretable) features (cf. Manzini & Roussou 2000, Fanselow 2001, Hirose 2003, Hornstein 2003, among others). The fact that the embedded item is consistently the theta-marked one in such constructions could in principle drive agreement if theta-features have actually a role in the syntax. We will not pursue such an idea any further here.

³⁸ The view that Ps are phase domains has been strongly assumed in Abels (2003), Gallego (2008), among others. Gallego (2008) precisely assume that P can act as barrier for agreement in the nominal domain, as shown in (i):

- (i) Ministros (*de) argentinos. (Spanish)
 minister-masc.pl of Argentinian-masc.pl
 ‘Ministers of Argentinian’

³⁹ Another possible implementation of syntactic agreement in such constructions concerns the possible role of equidistance in the sense of Chomsky (1995). The equidistance principle originally allows elements to cross a position where they could have landed, provided the target position is in the same minimal domain as the position which is crossed and can be stated as follow:

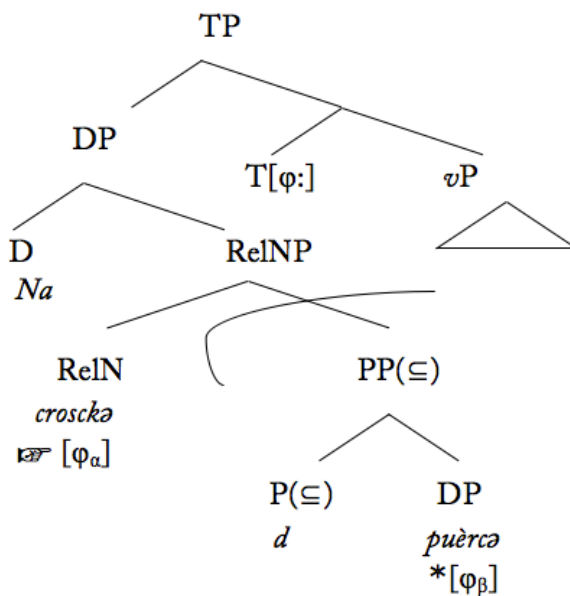
- (i) Equidistance Principle: If x and y are in the same minimal domain, they are equidistant from z.

If we apply Equidistance to the realm of agreement it is possible in principle to assume that if the QP and the tail NP are actually generated in the same minimal domain, T may probe both (precisely due to the fact that they happen to be equidistant). Such state of affairs would be favoured if we have a situation in which QP/RelNP does not c-command the embedded NP, as for instance in the case of the tree represented in (16b) and originally argued by Pesetsky (1982), Franks (1994) for Slavic.

and Savoia (2011), Manzini & Franco (2016), Franco & Manzini (to appear) among others.⁴⁰ In accordance with this stream of literature, we notate the relevant relational content of the genitive/partitive preposition with (\subseteq), though inclusion is to be construed not mathematically but as looser zonal inclusion (in the sense of Belvin & den Dikken 1997). In a nutshell, we assume the same morphosyntactic \subseteq template for partitives and genitives. In fact, a \subseteq (superset-of) denotation is obvious in the case of partitives (e.g. *three of the boys*, where the boys specifies a larger set to which the three singled out belong). Genitives of inalienable possession and attribution of mental states are equally clear cases since, for instance, in *John's nose* or *John's fears*, the *nose* or *fears* are part of the collection of properties that we call 'John'. A possible rough representation of the patterns of agreement attested in Romance is sketched in (28).

(28) a.

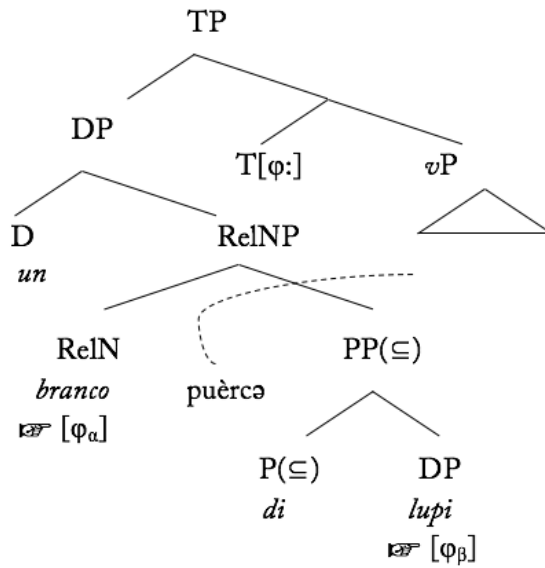
Barese Type B languages



⁴⁰ The literature on pseudo-partitives takes the P involved to assume different flavours when such item appears in a partitive vs. pseudo-partitive construction. For Stickney (2004) the P in pseudo-partitives is the head of a functional projection connecting a measure phrase (the head in our terminology) and the tail lexical noun. Schwarzschild (2006:82), who builds on Giusti (1997) assumes that partitives pattern with the pseudo-partitives in being monotonic, namely a measure function must track the part-whole relation described by the construction. He takes the genitive preposition to be akin to a copula (cf. Corver 1998, Den Dikken 2006, among others) and to be the head of a Mon(tonic) projection. We follow here a lexicalist perspective and we assume that the genitive P consistently has a basic relational part-whole content (cf. Franco & Manzini, to appear for a set of arguments against the copular nature of genitive adpositions).

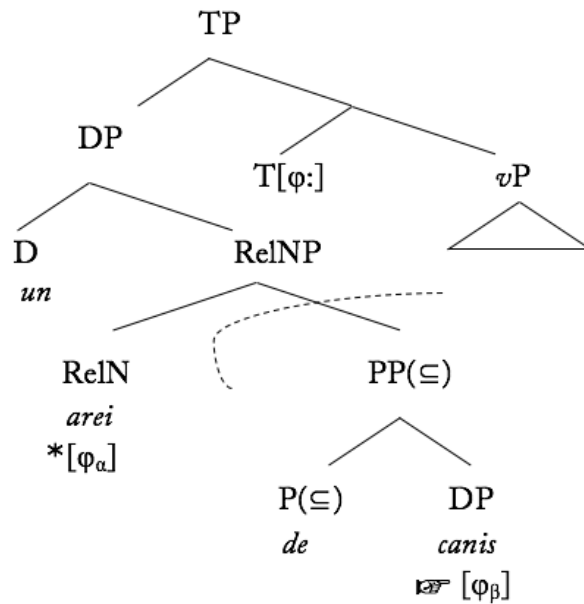
b.

Italian Type A languages



c.

Sardinian Type C languages



Varieties such as Barese in which agreement target only the Q head have P(\subseteq) as a full Phase barrier, as in (28a). T is forced to Agree in phi-features with the higher nominal, being the theta-marked item invisible for such an operation. Italian and other varieties, as we have seen, allow for agreement optionality. In Materano/Occitan/Sardinian (28c) T probes and checks the phi-

features available on the embedded NP. This is because in these varieties the elementary predicate (\sqsubseteq) linking the head to the tail of the DP does not behave as a Phase barrier for agreement, and Agree is consistently linked to the item bearing a theta-role interpretation. Notice that in Italian agreement with an item embedded under a genitive adposition is allowed in case of past participle agreement (29b) (cf. Kayne 1989, Manzini & Savoia 2004, D’Alessandro & Roberts 2010). Again the PP does not seem to act as a barrier for agreement. Namely, the constructions focus of the present study are not the only ones in which embedded agreement is at work, at least in Type A languages.

- (29) a. Ho visto delle ragazze in città
have.prs.1sg seen.m.sg of.the girl.f.pl in town
‘I saw girls in town’
- b. Di ragazze ne ho viste in città
of gir.f.pl cl.part have.prs.1sg seen.f.pl in town
‘I saw girls in town’

We can further notice that in Italian (cf. 28b), where P is evidently not a phase barrier, agreement does not always target in the same way the embedded noun and the QP/RelNounP: we argue that there are syntactic environments that strongly favor agreement with the embedded NP. Indeed, it is clear that a parameter on the phase status of P is not sufficient to disentangle alone Type A from Type C languages.⁴¹ Thus, we stress the role of predication as a relevant parameter

⁴¹ Rezac (2008; cf. also Alexiadou et al. 2014) proposes that ‘oblique’ DP arguments (as the ones investigated here) are always embedded within a PP shell, unlike structural nominative /accusatives which are bare DPs. Being complements of P, such DPs are often invisible to an outside probe, (e.g. T), for Agree. Under certain conditions, however, oblique DPs become visible for Agree. According to Rezac, this specifically happens whenever P has a phi-probe that enters Agree with the DP below it, allowing the transmission of the features of the DP outside the PP. According to Rezac PPs are phases (a quite standard view, at least since Abels 2003). This is the reason why the ϕ -features of the embedded DP are normally not visible for Agree to a probe beyond PP (here T). As a result, Opacity obtains. For what concerns Transparency, however, Řezáč (2008) is not explicit on how the transmission of ϕ -features takes place as a result of P-DP Agree. One may postulate that the ϕ -probe on P is valued by the embedded DP and still remains active for further Agree with a higher probe, namely T in the language considered here. We could consistently follow this stream of literature, but we think that assuming that the ‘transparency effects’ arise by means of a parameter on (the phasal/barrier-like nature of) P in connection with the predicational environment

for determining agreement in Type A languages (i.e. those with a double route of agreement), as well as in Type C languages. Consider the following Italian data. When the QP is in the subject position of a small clause complement, only the embedded noun can agree in gender and number, as in (30)⁴² below (cf. (23)).

- (30) Marco ritiene quella dozzina_j di tifosi_k ??aggressiva_j / aggressivi_k
 ‘Marco believes that a dozen of supporters are aggressive’

The subject of the small clause selected by the verb may undergo some animacy restriction (as suggested in Harley & Folli 2006 for causative), or simply we may assume that the primitive predication within the small clause has syntactico-semantic overt effects. Indeed, in a VP shell analysis, the relation between the NP *senatori* and the predicate *stupidi* is given in the lower VP (Hale & Keyser 1993, 2002, Mateu 2002).

- (31) v_{[NP[senatori] AP[stupidi]]}

A possibility here is that the original predicative relation in (31) is preserved independently when higher layers of derivation are computed. Fox & Pesetsky (2005), in their analysis of the cyclic linearization of syntactic structures, highlight the assumption of Chomsky (2000, 2001) that the

involved is somewhat more reliable (and less *ad hoc*), especially in accounting for the ‘mixed’ behaviour of Type 2 languages.

⁴² The opposite pattern is found with the collective noun *branco*, (i) the agreement in the small clause configuration is preferred with the head.

- (i) Marco ritiene quel branco di lupi pericoloso / *pericolosi.
 ‘Marco considers that pack of wolves dangerous.’

The noun *branco* has a peculiar semantic status that influences the preferred pattern of agreement within a small clause configuration. *Branco* has a strong referential prominence in comparison with other collective nouns (such as *gruppo* =group). It implies a group interpretation (not a subatomic plural, as also in Demonte & Perez-Jimenez 2015) with a strong denotation, as the semantic restriction on the PPs that *branco* selects confirms. *Branco*, in fact, selects, in non-metaphoric uses, for a particular class of individuals (+ animate, -human, -flying). Its strong referential ‘group’ status favors the instantiation of a direct predicative relation that do not refer to the (restricted class of) individuals presented in the embedded PP. The semantics of the head NPs has a crucial role in determining the preferred pattern of agreement since it is directly involved by the predication itself (see also fn. 10). A fine graded analysis on the semantics of the head NPs would confirm our proposal, since when the agreement is optional the element more prominent referentially is more likely to enter into the predication mechanism which is signaled by agreement, since Agree plays a role in insuring Full Interpretation at LF (Manzini et al. 2015)

mapping between syntax and phonology takes place at various points in the course of the derivation rather than at a single point. A spell-out domain is each maximal projection that is mapped from syntax to phonology. The predication introduced by QP and the preposition applies on the top of the original predicative relation (as defined in Williams 1980 and subsequent works).

The same mechanism can be assumed to be at work with raising verbs (albeit individual differences are attested with this pattern), as illustrated in (24) and repeated below in (32), for ease of reference. Here in Italian the agreement pattern is strongly preferred with the embedded NP.

- (32) Un centinaio di senatori sembrano stupidi / ??sembra stupido
 a hundred.sg of senator.pl seem.prs.3pl stupid.pl/ seem.prs.3sg stupid.sg
 ‘a hundred senators seems stupid’

As in the small clause complement of the verb *ritenere* (believe) in (23) and (30), also in the case of raising predicates overt agreement morphology tracks back the relation instantiated within the original nucleus of predication.

Furthermore, as we have seen above, the preverbal status of the QP seems to favor the ‘double’ route of agreement, while post-verbal subjects do not. This is due to the fact that the mechanism of probing for the ϕ features on the embedded noun is sensitive to the original predicative-thematic relation between the embedded NP and the verb (a factor which seems to be crucial for Type C languages) with almost no effects of the QP (indefinite) head. In Sardinian (a Type C language), in fact, the postverbal subjects in general, when indefinites, do not agree with the verb (33-34).

- (33) ‘dromminti is ppip’piuzu
 sleep the children
 ‘The children sleep’

- (34) ‘drommi ppi’piuzu
 sleeps children
 ‘Children sleep’ *Orroli, Sardinian* (Manzini & Savoia, 2005)

Moreover, at least in Italian unaccusatives (35) seem to show a relation with the embedded NP stronger than unergatives (36).

- (35) ?? È partita/sono partiti_k una dozzina_i di amici_k *Unaccusative*
 ‘A dozen of friends (postverbal) left’

- (36) Ha corso/hanno corso_k una dozzina_i di amici_k *Unergative*
 ‘A dozen of friends ran’

Also in this case, the internal argument of unaccusative predicates favor a realization of agreement strictly related to the theta marking of the argument (which takes place at the level of VP), while the external argument of the unergatives is projected directly onto the Spec position of the ν P: the agreement with the QP/RelNP is better with unergatives than with unaccusatives.

3.6 A note on Person features in embedded agreement

Above, we have been referring generally to ϕ -features, but the features mismatch involved in the examples we provided so far for the different pattern of agreement with the embedded NPs were mainly examples involving gender/number mismatches. Person features can also play a role in these environments. In Turkish, for example, while there is a preferential number agreement with the head (37), when complex NPs involve an embedded item marked for person (here 2pl) the preferred agreement is with the tail (38) (Ince 2007).

- (37) Biz-Ø Türk-ler-Ø ok alış-ır-ız.

1sg-nom Turk-pl-nom very work-aor-1sg

‘We Turks work hard.’

- (38) Sinema-ya birka**ı**nız/ikiniz -Ø gidecek-siniz.
 cinema-dat a.few/two.of.you-nom will.go-2pl

‘A few/two of you will go to the theatre.’

In Romance, we register micro-variation on the agreement patterns triggered by person features. In fact, we can see that while Italian does not allow agreement with (the person features -here 1pl- of) the tail (39), Spanish (cf. Rivero 2004) allows it, as shown in (40).

- (39) Una dozzina di noi *siamo andati /sono andati / è andata al mare
 a dozen of us * have gone 1pl / 3pl/ has gone to the sea

‘A dozen of us has gone to the sea’

- (40) Una docena de nosotros hemos ido a la playa
 a dozen of us have gone 1pl to the sea

‘A dozen of us went to the beach’.

In a nutshell, it seems that parametric variation within Romance is found for: i) the typology of the head NP (Q/RelN), ii) the ‘phase opacity’ of the preposition introducing the embedded NP; ii) the φ -features involved in the agreement with the verb. To complete the picture, further studies on the variation across languages of the φ -features targeted by the verbal agreement are needed.

3.7 Psycholinguistic data and beyond

As outlined above, some authors found that agreement with complex NP may involve some mistakes depending on the semantics of the QP/ head NP (Vigliocco et al. 1996): speakers

produce verbs that agree with the conceptual number of the subject instead of its grammatical number (i.e. notional concord, for which see the seminal work of Quirk et al. 1972).

Our analysis suggests that there are clear syntactic patterns of distribution of so-called notional concord. For instance, we showed a difference between number mismatch and gender mismatch (cf. (22)-(25)).

Psycholinguistic researches of the last decades have stressed the differential role of the features of gender and number: while the feature of gender/nominal class are more ‘embedded’ in the lexicon of the noun, number seems to be more (cognitively/computationally) salient than gender, as in some results of electrophysiological studies (Molinaro et al. 2011). The fact that in some cases we can have embedded agreement when the difference between the QP and the embedded NP is linked to number features, and not when only gender is at work, may be linked to the cognitive saliency of number over gender.

A further puzzle concerns definiteness effects. Almost only indefinite QP/RelNP seems to allow for a double route of agreement in Italian, as shown in (41) below:

- (41) a. Il branco di lupi si è fermato/*si sono fermati
‘the pack of wolves has stopped/*have stopped’

It seems that (in)definiteness of the head can be a feature sensitive to Agree relations (as originally explored for Amharic in Kramer 2009). Following Chung & Ladusaw (2005) indefinites can be interpreted as denoting a property rather than an entity (as definites do). It means that the indefinite head NP is a (quantificational) property of a group of individuals. The languages that show optionality or a preferential agreement with the tail may differ on a parametric value : how indefiniteness is computed (whether as a mere denotational property or as a clear referential quantification) and then be targeted by the agreement configuration. So when the P/K barrier is transparent, a parametric option on the interpretation of indefinites as properties or as a denoted quantity would further explain the difference found across languages (for example Type A vs. Type C languages). We will not develop this point any further in this paper, leaving it for future works since we need more data on indefinites in type C languages

(but see the Sardinian data in (33)-(34)) and on the different semantics of the (indefinite) head NPs (cf. fn. 10 and 17).

3.8 Concluding Remarks

We can conclude that agreement with an embedded NP (with a theta role interpretation) is subject to parametric variation:

- i) Languages may allow or not an agreement relation with an embedded NP, depending on the presence of lexical Ps/Ks that are more or less 'transparent' for agreement with T;
- ii) In languages like Italian where genitive PPs are not a phase barrier the pattern of distribution of agreement relations seems to be mainly a syntactic phenomenon, showing that the preferential target is the theta-marked item/argument. In languages like Occitan such preference leads to agreement with the embedded NP only. These data lead to an analysis of Agree in the minimalist framework in which the notion of Phase has a crucial definitional role.
- iii) The φ -features involved in the double route of agreement vary across languages. Within the same language the φ -features targeted by the verbal agreement may show variation depending on their cognitive salience and/or markedness.

Part Two

Agreement Features in Psycholinguistics

Chapter 4

Lexical Parametrization and early subjects in L1 Italian: person and indefiniteness.

4.0 Introduction

In this chapter we will show that the distribution of overt subjects in Italian is linked to the morpho-syntactic features of the lexical elements found in each sentence. Italian is a pro-drop language which parametrically allows the subject drop. Overt subjects in Italian are more likely to be found with unaccusative verbs (Lorusso, Caprin and Guasti 2005) in postverbal position and with 3rd person indefinite subject (Lorusso 2014). This pattern of distribution of overt subjects seems to be generated by the parametric variation across the lexical items that are inserted in the morpho-syntactic derivation (Chomsky 2001, Borer 1984, Manzini and Wexler 1987, Wexler and Manzini, 1987). The Lexical Parametrization Hypothesis (Manzini and Wexler 1987, Wexler and Manzini, 1987) seems to be at work in the acquisition of Italian since the parametric variation between lexical items is acquired early on by children. We propose a corpus analysis of the spontaneous speech of four children and their parents and caregivers. We will show that both adults and children use overt subjects depending on the morpho-syntactic features of the lexical items involved in the sentences. Although the pro-drop parameter is set early on, different lexical and morpho-syntactic features influence the distribution of overt subjects. Indefiniteness has a central role within the different lexical parameters that interact in the determining the pattern of distribution of overt subjects. The definiteness of the subject DPs represents a subset condition for the postverbal subject with unaccusatives especially in child grammar. In section 4.1 we will propose the general data about the subject drop in the spontaneous speech in Italian. Italian verbal agreement paradigm expresses the φ -features

necessary for local recovery of the content of dropped subjects, subject drop is acquired early on by children (Hyams 1986, Bloom 1991, Valian 1991). Nevertheless, the dropped subjects are not found at the same rate in all sentences. There are pragmatic reasons, such as the informativeness and the recoverability of the subject DPs, that influence the pattern of omission in the spontaneous speech (Serratrice, 2005, Serratrice & Sorace, 2003). However, the pragmatic principles at work in the information structure operate within the boundaries imposed by grammar (Serratrice and Sorace, 2003). In section 4.2 we will show that the pattern of distribution of overt subjects depends on the lexical-syntactic class of the verbs they are found with. The loci of generation of the subjects within the VP shells (external /internal argument) influence the likelihood that a subject DP is overt. In section 4.3 we will consider how the syntax of pre and post verbal overt position of the subjects influence the pattern of distribution of overt elements. We will show that the person (1st and 2nd person vs. 3rd person) and the definiteness of the subject DPs play a central role in the appearance of overt postverbal subjects. This will lead us to propose that a subset condition is at work with indefinite subjects, especially in the earliest stages of the acquisition of Italian in section 4.4. Section 4.5 is devoted to conclusive remarks: the Lexical Parameterization Hypothesis is internal structure of the grammar and represent a powerful cognitive mechanism in the acquisition of language.

4.1 *Pro drop* parameter

Italian is a null subject language. The central idea is that languages allow pro drop to the extent that their verbal agreement paradigm expresses the φ -features necessary for local recovery of the content of dropped arguments (see Taraldsen 1978, 1980, Rizzi 1986 among others). Italian allows null subjects due to the rich verbal morphology that permit their identification through the overt features of person and number.

Children from the very early stage correctly fix the pro-drop parameter (Lorusso et al. 2005, Serratrice 2005, Hyams 2007, Orfitelli 2008). Early null subjects in Italian have been a matter of investigation especially in a comparative perspective with English. It is well known

(Hyams 1986, Bloom 1990, Valian 1991, Rizzi 1993/1994, among others) that young children learning English may omit referential subjects, albeit English is a non-pro-drop language. Valian (1991), for instance, compared the percentage of early null subjects in English with Italian productions. She found out that while in English early null subjects are the 30% in Italian they are the 70%. The difference in ratio between the two languages was taken by Valian as a proof of the fact that the two types of null subjects were linked to different phenomena.

Different studies have focused on the distribution of null subjects in the spontaneous speech of Italian learners (Lorusso et al., 2005, Serratrice 2005). Children from the very early stage correctly fix the pro-drop parameter. In tab.1 we report the data from Lorusso (2014) on the longitudinal corpus of spontaneous productions of four Italian children aged between 18 and 36 months (Calambrone corpus (Cipriani et al 1989): Diana, Martina, Raffaello, Rosa. CHILDES database, MacWhinney and Snow 1985): the production of null subjects is similar between adults and children (as also in Lorusso 2014, Serratrice 2005).

Tab.1 General data about the distribution of Null /Overt subjects across children and adults (Lorusso, 2014)

	Null Subjects		Overt Subjects		Total num.
	Number	Percentage	Number	Percentage	
Diana	430	71,67%	170	28,33%	600
Martina	368	66,79%	183	33,21%	551
Raffaello	471	76,34%	146	23,66%	617
Rosa	594	77,14%	176	22,86%	770
Children	1863	73,40%	675	26,60%	2538
Adults	688	73,50%	248	26,50%	936

Besides the general data in tab.1, the distribution of overt/null subjects in Italian has often been claimed to be determined by the pragmatics. Serratrice (2005) found out that children, after the MLUW stage of 2.0, use null and overt subjects in a pragmatically appropriate way: she

catalogued subjects on the basis of their informativeness. The subjects that are the most informative are realized overtly and conversely those that are the least informative are null. She investigated three parameters of informativeness: 1) the informativeness of the person morphology: 3rd person subjects are more likely to be realized overtly than first or second ones⁴³; 2) the activation state of referents⁴⁴; 3) disambiguation of the referent⁴⁵.

By the point of view of the acquisition of grammar, data like the ones in tab.1 can confirm that children use the null *pro* element early on, since the Italian rich verbal morphology permit their identification through the overt features of person and number. In other words, the Empty Projection Principle EPP (Chomsky 1981) is satisfied from the very first stage of the acquisition of Italian by the presence of the null *pro* element. The discussion about the existence of *pro* has been a central topic in recent years (Barbosa 1995, Nicolis 2005, Holmberg, 2005 among others) especially within the minimalist framework of Chomsky (1995). Ruling out the presence of *pro* is under the scope of the present work, but in our respect the inflection of the finite verb has a role both in identifying the phi –features of the referential subjects and to satisfy the EPP principle in language in Italian.

In the terms of Manzini and Savoia (2007), the EPP property corresponds to a D(efiniteness) closure requirement: the subjects DP or the finite verb morphology have the denotational content D(efiniteness)⁴⁶.

If we use the D(efiniteness) feature we can define the pro drop parameter as how different languages realize this feature (Manzini and Savoia, 2007). The D position of the sentential I domain can be lexicalized by a specialized head (such as subject clitics in northern Italian dialects), by a full noun phrase (English) or by either a specialized head or a full phrase (French). By contrast, in a language like Italian the D position of the sentential I domain is not lexicalized,

⁴³ We will argue that the split between 1st / 2nd person vs. 3rd person is a grammatical and cognitive split and not only a pragmatic one (see section 3 for data and discussion).

⁴⁴ 1st and 2nd person referents are always active by definition, while 3rd person are inactive/semi-active referents. (see Serratrice 2005, Serratrice and Sorace 2003).

⁴⁵ 3rd person active referents with more than one antecedent are more likely to be realized overtly than 3rd person unambiguous active referents.

⁴⁶ Following Manzini and Savoia (2005, 2007, 2011) D is, in fact, the same category that we find in the highest position of nominals, where so called definite articles are inserted.

while the D argument is lexicalized only at the morphological level by the inflection of the finite verb.

In terms of the parametric condition on the lexicalization of the D properties, Manzini and Savoia (2007) propose a schematization like in (1). The divide between (a) and (b) in (1) corresponds to the classical divide between null subject languages and non-null subject ones.

(1) Lexicalization of the D properties of the sentential I domain:

- a. i by clitic (e.g. northern Italian dialects)
- ii by clitic or noun phrase (e.g. Ladin dialects, French)
- iii by noun phrase (e.g. English)
- b. no lexicalization (e.g. Italian)

In our respect the pro drop parameter can be restated in the terms of Lexical Parametrization: the parameter is given depending on how the D feature are lexicalized.

So, Italian children seem to acquire early on that the D feature are given. Nevertheless, the distribution of overt subjects in Italian is not homogeneous for every syntactic frames (Serratrice 2005, Lorusso 2007, 2014): other lexical and morpho-syntactic features, which are in a Subset relation to the general pro drop (D) parameter, influence the distribution of the overt subjects. The verb classes, the scope discourse semantics implied by the pre or post verbal position of the overt subjects, the person morphology and the (in)definiteness of the subject DPs are the lexical(-syntactic) features that we will consider in the next sections. We will start by showing in the next section that verb classes imply different use of overt subject both in adults and children's spontaneous speech.

4.2 Null Subjects and Verb classes

The general data about overt null subject in the spontaneous speech shows that children fix the pro drop parameter early on: that is, they omit subjects at the same rate of the adults. However the distribution of overt subjects is not uniform across all the sentences of the spontaneous

speech. The first ‘subset’ that we analyze is the verbal class. We differentiate verb classes for the projection of an external argument in the ν P. Unaccusative do not project external arguments (2), while unergatives (3) and transitives (4) do project an external argument in spec ν P.

(2) Unaccusatives

$[_{\nu P} \text{---} \nu [_{VP} DP [_{VP} V XP]]]$

(3) Unergatives

$[_{\nu P} DP \nu [_{VP} DP [_{VP} V XP]]]$

(4) Transitives

$[_{\nu P} DP \nu [_{VP} DP [_{VP} V XP]]]$

External arguments are not true arguments (Pylkannen 2002, Kratzer 1996). In other words, Pylkannen and Kratzer argue that the external argument is not introduced by the verb, but by a separate predicate, which Kratzer calls ‘Voice’⁴⁷. Voice is a functional head denoting a thematic relation that holds between the external argument and the event described by the verb; it combines with the VP by a rule called Event Identification. Event Identification allows one to add various conditions to the event that the verb describes; Voice, for example, adds the condition that the event has an agent (or an experiencer or whatever one consider possible thematic roles for external arguments). Verbs are supposed to be parameterized in the lexicon whether they project an external argument or not.

Children (and adults) show a systematic behaviors depending on whether the subject is an external argument or an internal argument. In tab.2 we report the data of Lorusso (2014) about the distribution of overt subjects across verb classes in children and adults.

Tab.2 General data about the distribution of Overt subjects across verb classes in children and adults’ productions (absolut numbers and percentage) (Lorusso 2014).

⁴⁷ We represent Voice as a ν P following Chomsky (1995).

Overt Subject across Verb Classes						
	Unergatives		Transitives		Unaccusatives	
	N.	%	N.	%	N	%
Diana	12	23,53	113	26,40	45	37,19
Martina	24	26,97	115	32,67	44	40,00
Raffaello	22	25,00	70	18,23	54	37,24
Rosa	11	26,19	109	19,43	56	33,53
<i>Children</i>	69	25,56	407	23,59	199	36,65
<i>Adults</i>	35	39,77	129	20,00	84	41,38

The general results in tab. 2 show a tendency in both adults and children in produce less overt subjects with transitives and unergatives than with unaccusative. Children significantly ($p < 0,05$) produce more overt subjects with unaccusative than with other verb classes ($\chi^2 = 36,21$ $df=2$ for P-Value = 0.00001)⁴⁸. Each verb is stored in the lexicon with the information on whether it projects an external argument or not. The lexical information about verb class influences the syntactic configuration of the VP shells and has an effect on the pattern of distribution of overt subjects for both children and adults. Children seem to be sensitive to the lexical parameterization of verbs. But why should the verb class influence the pattern of distribution of overt subjects? Our hypothesis is that the lexical parametrization of verbs has an effect on the syntactic derivation and interacts on the one side with the position of the overt subjects and on the other with the morpho-syntactic features of the overt subject DPs. In order to confirm this general hypothesis, we will check the position (preverbal or postverbal) of overt subjects in the spontaneous speech, since each lexical-syntactic verb class involves different syntactic derivation for pre or post verbal overt subjects.

⁴⁸ If we look at each child, we notice that the pattern of more overt subjects with Unaccusatives is confirmed: the data is statistically relevant for Diana ($\chi^2 = 6,04$; $df=2$ for P-Value = 0.048801), Raffaello ($\chi^2 = 21,16$; $df=2$ for P-Value = 0.000067) and Rosa ($\chi^2 = 14,8$; $df=2$ for P-Value = 0.000611), while for Martina there is a strong tendency although not statistically relevant, since it is relevant at $P < 0.10$ ($\chi^2 = 3,9$; $df=2$ for P-Value = 0,142274).

4.3 Subject position

Following the formulation of the pro-drop parameter of Rizzi (1982, 1986), a pro-drop language, like Italian, also allows: 1) the possibility of free inversion of the subject and 2) the possibility of extracting a subject across a *that*-type complementizer. For the purpose of the present analysis we will focus mainly on the facts about free inversion in Italian. For what concerns the relation between the null subject parameter and the free inversion, different authors (Gilligan 1987, Homlberg, 2005, Newmeyer 2005, Nicolis 2005, Manzini and Savoia 2007, D’Alessandro 2014 among others) have shown that the null subject parameter and the free inversion of the overt subjects are independent or at least they stand in a subset relation (Manzini and Savoia 1997, 2007). Children have already acquired that Italian is a null subject language (tab.1), since the D feature are lexicalized at the morphological level by the inflection of the finite verb. Internal arguments, as the subject of unaccusatives, are more likely to be produced overtly (tab.2). But are they produced in a preverbal or postverbal position? On the one side, the postverbal subject may be read (Cinque 1993; Zubizarreta 1998) in the scope of the Nuclear Stress Rule and of Focus and in a language like Italian any inverted D element closes off the focus domain. On the other side, the lexicalization of the preverbal subject, which in Italian, by the hypothesis of Manzini and Savoia (2007) in (1), does not satisfy a syntactic requirement on the D position of the inflectional domain, corresponds to its interpretation as a topic. So while the postverbal subject receives a focused reading, the preverbal subject is included within the topic material of the sentence. When children use preverbal and postverbal subjects are lexicalizing the scope discourse semantic properties of topicalization and focalization respectively.

Lorusso (2014) checked whether children acquire early on the free inversion and if it is linked to the verb classes and their VP shells. In tab.3 we report the overall data (Lorusso 2014) about the percentage of preverbal and postverbal subjects across verb classes. We can see that the general tendency is producing preverbal subjects SV with unergatives and transitives and postverbal subjects with unaccusatives.

Tab.3 General data about the distribution of postverbal and preverbal subjects across verb class in both Italian children and adults' spontaneous production (Lorusso 2014)

Overt Subject Position across Verb Classes						
	Unergatives		Transitives		Unaccusatives	
	SV	VS	SV	VS	SV	VS
Diana	7 (58,3%)	5 (41,7%)	113 (57,4%)	84 (42,6%)	12 (26,7%)	33 (73,3%)
Martina	19(79,2%)	5 (20,8%)	84 (73 %)	31 (27%)	16 (36,4%)	28 (63,6%)
Raffaello	21 (95,5%)	1(4,5%)	45 (64,3%)	25 (35,7%)	20 (37%)	34 (63%)
Rosa	8 (72,7%)	3 (27,3%)	77 (70,6%)	32 (29,4%)	21 (37,5%)	35 (62,5%)
<i>Children</i>	55 (79,7%)	14 (20,3%)	319 (65%)	117 (35%)	69 (34,7%)	130 (65,3%)
<i>Adults</i>	29 (76,7%)	6 (20,3%)	81 (71,3%)	48 (28,7%)	36 (34,7%)	48 (65,3%)

The general data is quite clear: all children and adults show a pattern of preferential SV order with unergatives and VS for unaccusatives. Furthermore the percentages are very similar: both children and adults use in around the 70% of cases preverbal subjects when it is projected in the external argument position, while in the 65% of cases, postverbal subjects when it is projected in a direct object position. This distribution is statistically relevant for Children for $p < 0,05$ ($\chi^2 =$

41,80107122 df=1 for P-Value = 0.00001)⁴⁹ and Adults ($\chi^2= 15,948$ df=1 for P-Value = 0.00001).

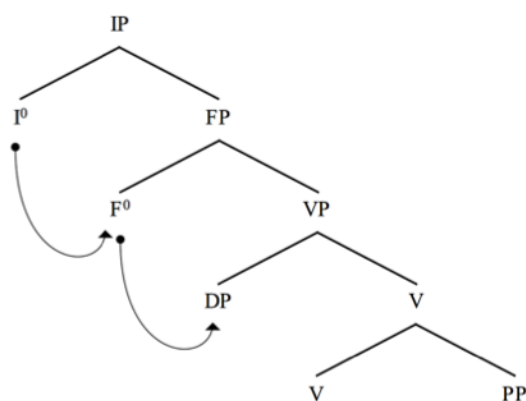
Preverbal topicalized overt subjects are found with all verb classes. Unaccusatives are also produced with preverbal subjects, albeit fewer, showing that the Unique Check Constraint (UCC) Wexler (1999) does not apply: children are able to move outside the ν P domain the internal subject DP⁵⁰.

Postverbal focused overt subjects, once more are found with all verb classes, but the higher number with unaccusatives suggest that these postverbal subjects may be left *in situ*. Following the original analysis of Belletti (1988), the position of licensing of the Object (an AgrOP position) is available. The case assigned in this position is not a proper nominative, but in terms of Belletti (1988) it is a partitive: the verb selects an indefinite meaning for the argument in internal argument position. In more recent analysis (Belletti 1988, 2001, 2004, Bianchi & Belletti 2014) Belletti proposes that the postverbal subjects with unaccusatives are licensed *in situ* through a Functional projection F that carries [gender] and [number] probe, independent of the I layer. This functional projection FP is a probe for the object F agrees (probe) in gender and number with the internal object and then is probed by the number agreement of the finite verb I.

⁴⁹ Each child show a statistically relevant preference ($p < 0,05$) for preverbals with unergatives and postverbals with unaccusatives: Diana ($\chi^2= 4,275$ df=1 for P-Value = 0.038677), Martina ($\chi^2= 11,39$ df=1 for P-Value = 0.000738), Raffaello ($\chi^2= 9,446538893$ df=1 for P-Value = 0.002116) and Rosa ($\chi^2= 4.6476$ df=1 for P-Value = 0.038677).

⁵⁰ Following Borer and Wexler. (1987) and more recently Wexler (1999), Hirsch and Wexler (2007) children's problems with passive or raising predicates are due to a deficit in the creation of an A chain or in more minimalist term children may interpret ν P as a phase so that at spell out they are not able to raise Subject DPs for passives and unaccusatives. For a discussion on the problems with the Chain A deficit hypothesis and the UCC with unaccusatives see Becker (2014) and Lorusso (2014)

(5)



Due to characteristics of the agree mechanism of this postverbal position, nominative case is not assigned since the VP barrier blocks it. The features assigned by the FP in the VP periphery assign only an indefinite reading (6) since these postverbal subjects represented a property of the event denoted by the Unaccusative verb and not a mere participant.

- (6) All'improvviso è entrato un uomo / *l'uomo/ *ogni uomo dalla finestra.
Suddenly is entered a man/ *the man/ *every man from the window

(Bianchi & Belletti, 2014)

Manzini and Savoia (2007, 2011) analogously proposes that postverbal subject may undergo some (in)definiteness restrictions and depending of the split of definiteness different pattern of agreement (as in Sardinian, Manzini and Savoia 2005, 2007) will be back on their analysis in section 4. In order to understand the subset relation instantiated by the different lexical parameters that have a role in the distribution of overt subjects we now introduce the concept of informativeness that is encoded in the subject DPs which interacts with the discourse semantic interface of focus and topic: that is, the person morphology. Person morphology has a preferential pattern of distribution depending on the position of the overt subjects and

consequently, as seen above, on the verb class. The informative status of 1st and 2nd person vs. 3rd person interacts with the lexical parametrization of verb classes.

4.3.1 Person morphology and overt subject

Different authors have showed that person marking across languages undergoes some morpho-syntactic pattern linked to the referential status of the person (Benveniste, 1966, Harley & Ritter, 2002 Bobaljik, 2008, Manzini and Savoia 2005,2007, 2011, Legendre, 2010, among others). In our respect, it is worth to remark that languages are sensitive to the person split between 1st and 2nd singular person and 3rd person⁵¹.

According to Manzini and Savoia (2005, 2007, 2010, 2011), the person split, in its various manifestations, depends on the fact that the speaker and the hearer (1st and 2nd persons) are anchored directly in the universe of discourse, independently of their role within the event; on the other hand, non-participants in the discourse (3rd persons) depend directly for their characterization on the position assigned to them within the structure of the event.

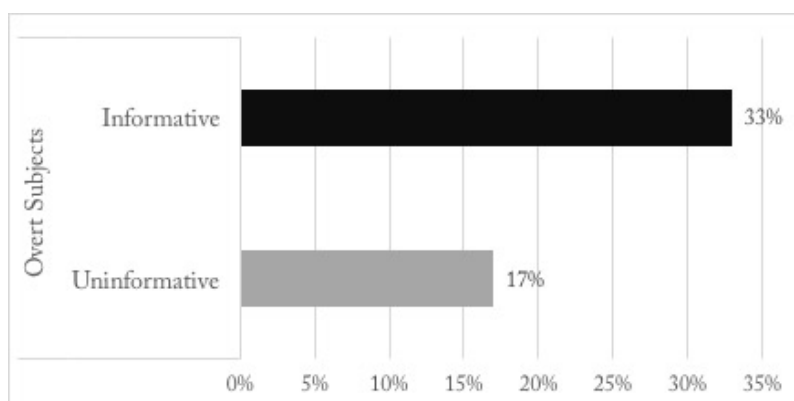
So 1st and 2nd persons are discourse anchored variables. In our respect they are easily recoverable from the universe of discourse. 3rd persons are event anchored variables. They are event participants but they are not -participants in the discourse, so they are mainly recoverable by the linguistic sentence context. In the distribution of overt subjects in Italian we expect that 1st and 2nd person subjects are omitted more than 3rd person subjects, since discourse anchored participants are more recoverable by the discourse than 3rd person subjects.

Serratrice (2005) (as Allen 2000, Serratrice and Sorace, 2003 among others) defines 1st and 2nd overt subjects as uninformative since they can be recovered by the discourse. 3rd person subjects are defined informative since there is no discourse cue to identify them. She finds very clear results: after the MLUW stage of 2.0, 3rd person (informative) overt subjects were produced

⁵¹ Manzini and Savoia 2007 showed that the person split is found, for example, in the morphological make-up (gender and Case distinctions) or in the agreement properties of the object clitics in Italian and the subject clitic in Northern Italian dialects or in the or in the lexical selection involved by the auxiliary selection in many Italian dialects.

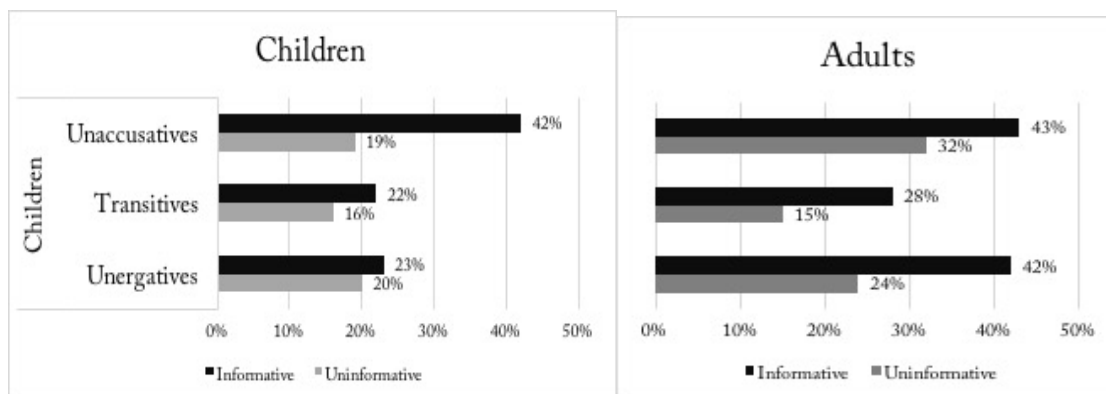
two times more than of 1st or 2nd (uninformative) person subjects. We checked in the same corpus and we analyzed the spontaneous speech of the parents and the caregivers (Calambrone corpus (Cipriani et al 1989): CHILDES database. MacWhinney and Snow 1985). In the chart in fig.1 we resume the results about the production of overt subject depending on the person in the adults 'spontaneous speech. Informative 3rd person subjects are produced overtly in the 33% of the sentences, while uninformative ones (1st and 2nd person are produced overtly only in the 17% of the sentences.

Fig.1 General data about the distribution of overt informative (3rd person) and uninformative (1st and 2nd person) subjects in the spontaneous production of Italian adults.



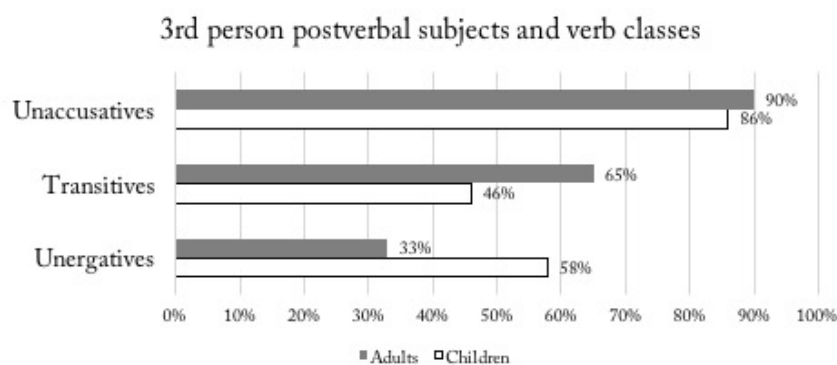
Then we checked we if there was any difference for the person of the overt subjects depending on the verb class. Children seem to use more informative subjects with unaccusatives. In fig.2 we report the data about the distribution of the person of the overt subjects across the verb classes.

Fig.2 General data about the distribution of overt informative (3rd person) and uninformativ (1st and 2nd person) across verb classes subjects in the spontaneous production of Italian children and adults.



While adults use more informative subjects with both unergatives and unaccusatives, children show a strong preference in using 3rd person informative subject just in the case of internal argument. The verb class seems to influence the co-occurrence with 3rd person overt subjects. The lexical parametrization of verbs (whether they project an external or an internal argument) seems to influence the general distribution of overt/null subjects (as in tab.2) on both children and adults. However, children, not adults, use more 3rd person overt subjects just with the internal arguments of the unaccusatives. But why should the argument structure of unaccusatives influence the appearance of more informative overt subjects? The answer is linked to the preferred postverbal position found for overt subjects with unaccusatives (see tab.3). We have been arguing that postverbal subjects represent are focalized and represent new information in a scope discourse semantic perspective. We checked the person morphology of the postverbal subjects in the spontaneous speech and we found, in fact, that both children and adults use almost 3rd person for postverbal subjects with unaccusatives, but not with other verb classes. In fig.3 we report the data about the distribution of 3rd person postverbal subjects across verb classes in the spontaneous speech of adults and children.

Fig.3 General data about the distribution of overt informative (3rd person) postverbal subjects across verb classes in the spontaneous production of Italian children and adults.



So the preferential position of overt subjects found with the different verb classes shows that the scope discourse semantics overlap the aktionsart of verbs. External (agentive) argument are more likely to be old information and they are expressed preverbally or omitted, they are more likely to be recovered by the context: for the very same reason in children's speech informative and uninformative person are found at the same rate for the subjects of unergatives and transitives (fig.2). Internal arguments are more likely to be expressed overtly and in postverbal position, they are part of the eventive structure of the verb and they are strictly linked to the linguistic context, they can not be inferred by the discourse. Both children and adults, in fact, use mainly 3rd person DPs for postverbal subjects with unaccusatives (fig.3).

Nevertheless, the 3rd person postverbal subjects are not linked only to the scope discourse semantic but other grammatical features seem to be involved. While 1st and 2nd person are mainly definite DPs 3rd person DPs can be indefinite. The split of definiteness can have a role in explaining the pattern of early overt subjects in the Italian children's spontaneous speech (which is different from adults' productions): unaccusatives are found with more 3rd person subjects than other verb classes. Next section is devoted to some data and considerations on the indefinite postverbal subjects in children's speech and to the parametric variation that implies the split of definiteness which in a subset relation to the pro drop parameter.

4.5 (In)definiteness of the postverbal subjects.

The data of the preferential use of 3rd person overt subjects with unaccusatives is linked to the argument structure of unaccusatives. The internal argument is part of the event expressed by the predicate: it measures out the event and it determines an eventive closure (Ritter and Rosen 1998, Mateu 2002, among others). In other words, the theme or the patient arguments are ‘stucked’ in the eventive relation predicated by the verbal head. Postverbal subjects with unaccusatives are a crucial element in the configuration of the unaccusative verb class: their (in)definiteness plays a central role in the definition of the the eventive structure.

Chomsky (1995), about the expletive construction in a non pro drop language like English points out that a definite associate is connected to a different interpretation than an indefinite one. Thus an indefinite associate gives rise to the typical existential reading in (7a), while a definite associate gives rise to the list interpretation, as in (7b). Furthermore, in English the expletive constructions are restricted mainly to unaccusatives.

- (7) a. There is somebody outside
b. There is John for a start

For what concerns Italian, postverbal indefinite subjects are possible with all verb classes, but just with unaccusatives they may represent a closure of the event denoted by the predicates. Lorusso (2014) found out that children in the corpus of spontaneous speech of the earliest stage of acquisition of Italian (18-36 months), use indefinite postverbal subjects just with unaccusatives. They never use a postverbal indefinite DP with unergatives and transitives as in Tab.4. While adults do use indefinite postverbal subjects (in few cases) also with other verb classes.

Tab.4 Absolute numbers and percentage of indefinite postevrbal subjects across verb classes (Lorusso 2014)

Distribution of Definite Subjects in SV or VS order across Verb Classes				
	Preverbal Subjects		Postverbal Subjects	
	Indefinite	Definite	Indefinite	Definite
Unergative	2 (4%)	55 (96%)	0 (0%)	14 (100%)
Unaccusatives	3 (4%)	70 (96%)	23 (18%)	130 (82%)
Transitives	3 (1%)	290 (99%)	0 (0%)	117 (100 %)

Similar results are found also in a sentence repetition task (Vernice & Guasti, 2014) with older children (4;2 to 5;11 years of age): when children were presented with an unaccusative verb and indefinite subject, they showed a preference in repeating it in a VS order. The same pattern was not found with definite subject and with other verb classes.

The learning component of the Subset Principle, “which orders parameter values according to the subset relations of the languages that the values generate... (Manzini & Wexler, 1987: 414)” states that children must pick up the smaller subset of the language. Italian infants assume that the verb inflection introduces the D argument and satisfies the EPP principle. Then, with postverbal subjects with unaccusatives they pick up the smaller subset of the language, “..the variable introduced by the verb inflection is existentially closed [...] the identification of the variable by the argument in focus requires the argument itself to be compatible with existential quantification. An indefinite noun is straightforwardly predicted to satisfy this requirement, as it is itself in the scope of existential closure” (Manzini and Savoia 2007:75). So children set the agree mechanism with postverbal indefinite subjects just for unaccusatives that project internal arguments. Recall that following also Belletti (2004) and Bianchi and Belletti (2014) these postverbal subjects represented a property of the event denoted by the unaccusative verb and not only a participant. The subset principle at work is that indefinites are allowed in postverbal position just when they denote a property of the event or are under the scope of the existential

closure represented by the D properties of the verbal morphology (Manzini and Savoia 2007): that is, when they are internal argument of the verb and they represent a predication relation rather than a chain identification relation.

This kind of data follows by a real parametric option found across Romance languages. There is, in fact, a parametric variation involving null subject languages: the presence or absence of agreement of the I with postverbal subjects depending on the (in)definiteness of the postverbal DP.

Manzini and Savoia (2007,2011) report that data coming from many dialects which display (some degree of) interaction between the agreement pattern and the (in)definiteness of the postverbal subject. In (8) we report about the dialect of Monreale where a definite postverbal plural subjects agree with the I (8a) while an indefinite postverbal subjects do not (8b). Auxiliary selection may also vary depending on the instantiation for the predicative relation instantiated by the indefinite subject: in the Sardinian variety of Orroli the agreeing postverbal definite subject is introduced by the *be* auxiliary (9a) while the non-agreeing post verbal indefinite subject is introduced by the *have* auxiliary (9b).

(8) Montereale (Friuli)

a. i ' veN i no fi'oi
CLS come the our children
'Our children come'

b. a 'veN ka'nais
CLS comes children
'Children come'

(Manzini and Savoia 2007:72)

- (9) Orroli
- a. **funti** e'niuzu is pittSck'kEdduzu
 are come the children
 'The children came'
- b. dui **a** Be'niu pittSck'kEdduzu
 here has come children
 'Children came here'

(Manzini and Savoia 2007:73)

Indefinite postverbal subjects agree⁵² with the D properties of the verb although there is no lexicalization of the D properties within the postverbal indefinite DP (no chains identification): the postverbal indefinite can be the existential closure of the inflectional D morphology. The predicative relation between the unaccusative verbs and their internal argument is taken by children as the only syntactic environment where indefinite postverbal subject can be inserted. With unergatives and transitives there is no such a predicational relation within the subject and the event denoted by the verb.

Children have set the pro-drop parameter: D properties (1) of the sentential I domain have no lexicalization in Italian other than the inflectional morphology of the verbs. Then, the argument structure of verbs influences the distribution of the overt subjects: the predicative relation between unaccusative verbs and their internal argument is the only syntactic environment where children allows overt indefinite postverbal subject since the event expressed by the unaccusative requires an existential quantification. The argument structure of unaccusatives and the indefiniteness of DPs defines a restrictive subset for the distribution of overt postverbal subjects in child Italian.

⁵² Or not, in languages like the ones in (8) and (9) where the absence of D properties within the postverbal DP may determin parametric variation on the agreement mechanism, for a detailed discussion on it see Manzini and Savoia 2007, 2011.

4.6 Conclusion

In this chapter we accounted for the distribution of early and adult null subjects following the statement of the Lexical Parametrization Hypothesis (Manzini and Wexler, 1987). The lexical parameterization hypothesis states that: “values of a parameter are associated not with a particular grammar but with particular lexical items” (Manzini and Wexler 1987: 424) by children. By the data we have reported in the present work we found out that children set early on the pro-drop parameter, formulated as in (1) that we repeat here in (10), in the sense that they do not assign the D properties of the sentential to any lexical item other than the same inflectional morphology of the verb.

Lexicalization of the D properties of the sentential I domain:

- i by clitic (e.g. northern Italian dialects)
- ii by clitic or noun phrase (e.g. Ladin dialects, French)
- iii by noun phrase (e.g. English)
- iv no lexicalization (e.g. Italian)

Although children acquire early on the pro-drop parameter, it does not mean that the distribution of overt subject DPs is random. The lexical parameter associated with different lexical items intervenes in the creation of subset condition which allows to account for the distribution of overt subject in Italian. We have collected old and new data to account for the distribution of overt subjects as a reflex of different lexical parameters that interact.

The first lexical parameter at work is linked to the verb classes. When the verb projects external argument the omission of the subject DP is favored in children’s data, conversely when the verb projects an internal argument, subject DPs are more likely to be produced overtly (tab.2). The preverbal and postverbal position of overt subjects seems to be inherently linked also to their loci of generation within the VP shells: overt external argument are found

preferentially in a SV order, while overt internal arguments are found preferentially in a VS order in the spontaneous speech of both Italian children and adults.

This pattern matches the scope discourse semantic interface requirements: preverbal subjects are topic-like information while postverbal subjects are focus-like information. Agentive subjects found with unergatives and transitives are more likely to be omitted and recovered by the discourse than theme and patient subjects found with unaccusatives which measures out the event and are recoverable. The data about the informativeness of the person of the subject DPs (Serratrice 2005) also confirms that theta roles assigned to the subject by each verb influence the pattern of omission. While external argument in children's spontaneous speech are found with both uninformative (1st and 2nd singular) and informative (3rd singular) person, internal subjects of the unaccusatives are preferentially 3rd person DPs which are event related and not recoverable by the discourse. So informative persons are found with DPs that are focus-like: postverbal subject functions with unaccusatives, in fact, are mainly 3rd person DPs (around 90%).

The last lexical parameter is linked to the definiteness of the DP. Children produce indefinite postverbal subjects just with unaccusatives. In child Italian indefinite are allowed only when they are in the scope of the D properties and they are part of the eventive structure of the verb, that is when they are not derived through event identification (Pylkannen 2002, Kratzer 1996) as the external argument: they measure out (Ritter and Rosen, 1998) the event denoted by the verb and they allow a mechanism of agreement which does not involve the replication D properties on the indefinite DP, language may vary on the agreement mechanism with the postverbal indefinite DPs.

Lexical parametrization seems to be a predictive and powerful mechanism to account for the acquisition of a language for two main reasons. First because the parameters seem to be associated not with a particular grammar but with particular lexical items. In our respect for the distribution of overt subjects different parameters are set on lexical items: D properties on the verb morphology allow the omission of the subjects, the verb classes for the projection of the arguments and the definiteness of the DP influence the pattern of distribution of the overt

subjects depending on the informativeness (person) as it results by their morphos-syntactic properties.

Least but not last, the parameters associated with each lexical items defines some syntactic domains in a given language where lexical item are allowed (or not). They allow to have a subset of the sentences of the languages in which a given lexical item is allowed or banned. In our respect the interaction between verb classes and the (in)definiteness determines a subset within the Italian sentences. Children selects the value of a parameter that generates the smallest language that is compatible with the data (as for the Subset principle) so that indefinite postverbal subjects are found only with unaccusative.

Chapter 5

Hierarchy of Features: Psycholinguistic Data

5.0 Introduction

This chapter is devoted to overview some recent studies on the role of φ -features in language processing and introduce in the debate two recent studies we have been working in. The agreement operation of probe-goal should be blind to the intrinsically different information that each of the features carries, as proposed by Chomsky (2000,2001): person, gender and number are a feature set that during agreement computation is uniformly dealt with by the formal operation Agree. However, in language processing and in neurolinguistics different studies ((De Vincenzi, 1999; Carminati 2005; Barber & Carreiras, 2005, Molinaro et al.2008, Mancini et al. 2014, among others) have shown a functional dissociation between person gender and number mainly in comprehension. The issue is whether the dissociation of φ - features found in psycholinguistic study relevant at syntactic level or the different effect are totally linked to the interpretation of each feature at semantic interface. On the one hand many study (De Vincenzi 1999, De Vincenzi and Di domenico, 1999, Fassaurt at al. 1999) have showed that number is more salient than gender. On the other hand other studies, mainly involving electrophysiological measurement (such as Nevins at al.2007), have shown that the only person has an higher cognitive saliency over gender and number. We are farm to have an answer about the saliency of the features within the hierarchy, however we will try to sketch few considerations: person agreement is more likely to involve a different syntactic representation than number and gender for the interpretative effects linked to the universe of the discourse (since Benveniste, 1966). Number and gender involve a high degree of parameterization across languages (as described in the typological analysis of Greenberg, 1963) and both imply at

interpretative level similar semantic relation, although gender is generally considered to be more inherent to the agreeing lexical item than number (Faussart et al, 1999).

In section 5.1 we will introduce how the hierarchy of features enters in psycholinguistic. In section 5.2 we will analyze background study on the difference between gender and number and we will compare the studies in which the two features imply different responses to studies (mainly ERP) in which gender and number are processed similarly. Section 5.3 and 5.4 are devoted to the analysis of the psycholinguistic data of the prominent role of person within the hierarchy of feature: while in 5.3 we will report the results of previous study in both theoretical linguistics and psycholinguistics in 5.4 we will propose the preliminary results of an ERP study we performed on the role of person in a clitic + past participle agreement configuration in Italian (Lorusso, Manca, Franco and Grimaldi, forthcoming). In section 5.5 will resume the data presented all over the chapter and will allow us to confirm the central role of person in both syntax and semantic interface.

5.1 The hierarchy of features in psycholinguistics

Greenberg (1963), in his typological analysis primarily based on 30 languages, points to the presence of an implicational hierarchy among morphosyntactic features (as in (9) in (1.2)) we repeat in (1).

(1) Feature Hierarchy: Person > Number > Gender

The main characteristics of this hierarchy is the implicational status of it: that is, if the lowest one (gender) is present in a language, then the features on the top are also present in that language. A morphosyntactic feature is a property of words that the syntax is sensitive to and which may determine the particular shape that a word has. Features seem to be the core elements of languages that relate sound and meaning through the agreement configurations. The motivation for the Feature Hierarchy in (1) comes mainly from two types of linguistic evidence: the

frequency of occurrence and co-occurrence of the features in the world's languages and the observation that certain syntactic phenomena, for example split ergativity, or the pattern of optional agreement between 1st and 2nd person singular clitic + past participle we will describe in section 5.3 and 5.4.

In the theory of agreement developed by Chomsky (2000,2001) features are undifferentiated, they have been assumed to be organized in a bundle of feature, despite the intrinsically different information that each of them carries, as the typological literature maintain. Person, Number and Gender are a feature set that during agreement computation is uniformly dealt with by the formal operation Agree (Chomsky, 2000, 2001), which ensures the copying of the relevant feature information from the controller (goal) to the target (the verb). By the psycholinguistic point of view, this has a straightforward consequence in language processing: during feature checking, Person, Number and Gender are accessed as a bundle, presumably treated as a unit under this view.

However, a lot of studies on language comprehension have showed that there is a dissociation on the comprehension of the different features: the dissociation is mainly based on differences in the recognition time and the percentage of mistakes. Many of them focused on the difference in the comprehension of language of number and gender (Vigliocco et al., 1996. , De Vincenzi 1999, De Vincenzi & Di domenico 1999, Faussart et al. 1999, Igoa et al., 1999 Carminati, 2005, Barber and Carreiras, 2005; Molinaro et al., 2008, Igoa et al., 1999; among others).

Many other studies, both theoretical and psycholinguistic have focused on the difference in the comprehension of language for person and number and on the general cognitive saliency of person. On the one hand theoretical studies have unveiled: 1) the different interpretive properties associated with Person and Number information (Sigurson, 2004, Bianchi 2006); 2) the central role of person in grammar. The latter (Manzini & Savoia 2007, Manzini & Franco, 2016, Manzini Savoia & Franco, 2015, Bianchi 2006) contend that the split between 1st 2nd singular person vs 3rd person is represented directly in syntax following the insight of some classic formulation of the person split (Benveniste, 1966; Jakobson, 1971). The theoretical predictions are confirmed in many psycholinguistic studies involving self paced reading

(Carminati, 2005, among others) and the neurophysiological measurements of the ERP (Event Related Potential) (Nevins et al. 2007; Silva-Pereyra & Carreiras 2007; Mancini et al. 2011, Zawisze et al. 2016). All of them have proved that person (mainly 1st and 2nd person) imply a different pattern of computation compared to the other φ - features.

So, the Feature Hierarchy is a language universal which was originally put forward on the basis of purely (cross)-linguistic evidence, not psychological evidence. The psychological support for it is not surprising and it has some relevance in the syntactic representation that feeds the Agree operation. Next sections are devoted to describe in some details the psycholinguistic findings and their theoretical implications about the feature hierarchy. We start by the studies that have investigated the opposition gender vs number (5.2) and then the ones that have focused on the role of person (5.3).

5.2 Gender vs Number

Di Domenico and De Vincenzi (1995) and De Vincenzi (1999) using a cross-modal priming technique⁵³, studied Italian sentences where an object clitic pronoun was disambiguated towards one of two antecedents by the gender (2) or the number feature (3), and obtained significant priming effects only for the latter (3). Di Domenico and De Vincenzi found a significant priming effect 1000 ms after the offset of the pronoun in the experiment where number (3) was manipulated, but not in the one where gender was (2)

- | | | | |
|-----|--|---|---|
| (2) | Il lavoratore
The worker (masc) | disse alla cuoca
told the cook (fem) | che la padrona di casa
that the landlady |
| | non poteva sentirla/-lo .
could not hear her/ him | | |

⁵³ Cross-modal priming of lexical decision is a well-established method for probing the activation of competing interpretations of lexically-ambiguous spoken sequences (Zwitserslood, 1989; Gow & Gordon, 1995; Tabossi, Burani & Scott, 1995; Gaskell & Marslen-Wilson, 1996)

(3) Lo sposo disse agli alunni che
 The bridegroom (masc.sing) told the alumns (masc.plur) that

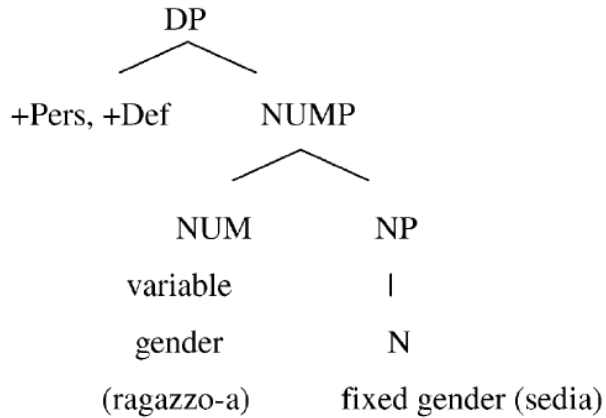
il vecchio generale in pensione voleva salutarlo/-li
 the old retired general wanted to greet him/them

On the basis of these facts, the authors argue for a modular theory of sentence processing whereby number is processed in an earlier, syntactic stage, and gender at a later stage when semantic information from the lexicon becomes available.

Carminati,(2005) in a self-paced reading experiment on Italian, indicates that the penalty for disambiguating the antecedent of a null subject is significantly reduced when the disambiguation relies on number (and person) compared to when only gender information is available. In particular, she compared (apart from the person feature) the disambiguating power of gender and number and use the superior performance of number over gender as evidence for a ‘Feature Strength Hypothesis’ according to which there is a correlation between the cognitive significance of a feature and its disambiguating power: the more cognitively important the feature is the better it should be at disambiguating the pronoun that carries it.

But why number is more cognitive salient than gender? Di Domenico and De Vincenzi (1995) assume a serial modular view of processing (Fodor,1983; Frazier, 1978) according to which the processor has an input module for syntactic analysis, which operates in the early stages of processing. They reason that because number heads an independent functional projection, it is part of the syntactic representation of the sentence and is therefore ‘visible’ to the syntactic processor. Their specific proposal is that number is represented autonomously in the lexicon because it carries an independent meaning, while gender is projected in the syntax either with number (variable gender) or with the noun (fixed gender, part of the lexical entry of the noun) as in the syntactic representation in (4) from Carminati (2005: 274)

(4)



For variable and fixed gender Carminati (2005) refers to what in psycholinguists define as the semantic and grammatical gender respectively. For semantic gender we refer, in fact, to the inflectional morphemes that refer directly to the sex of the referents⁵⁴: in Italian common gender divisions include masculine and feminine the gender assignment of nouns can be determined by their meaning biological sex as in (5). This semantic division is only partially valid, and many nouns may be used to refer to a gender category that contrasts with their morphological gender (5) since in many cases the attribution of grammatical gender is arbitrary (6) (see acuña Fariña 2008 for a review in psycholinguistic studies on the difference between grammatical and semantic gender).

- | | | | | |
|-----|--------------|----------|-----------|--------------|
| (5) | a. Il | ragazz-o | b. la | ragazz-a |
| | the mas.sing | ragazz- | masc.sing | the fem.sing |
| | | ragazz- | fem.sing | ragazz- |
| | 'the boy' | | | 'the girl' |

⁵⁴ For reason of simplicity we will be referring mainly to feminine and masculine gender all over this chapter, since the study we are referring to are mainly based on data about the difference of feminine and masculine.

(6)	a. <i>la</i>	<i>sedia</i>	b. * <i>il</i>	<i>sedi-o</i> ⁵⁵
	the fem.sing	<i>chair.fem,sing</i>	the masc.sing	<i>chair-masc.sing</i>
	'the chair'			

This higher cognitive strength of number over gender is faced by the typological generalization of Greenberg (1963) in the Universal 36 which states: “If the language has the category of gender, it always has the category of number” (Greenberg, 1963: 58). However, results coming from fine –grained methodologies such as electrophysiological studies using event related potentials (ERPs) show that the prominence of number over gender is not that clear, at least in language processing. Next section is devoted to an overview of these studies that suggest a similar role of gender and number.

5.2.1 Background ERP studies on Gender vs Number

Event Related Potential (henceforth ERP) has excellent temporal resolution and is therefore ideal for capturing the millisecond-by-millisecond time course of processing. For instance, the significant data that both Di Domenico and De Vincenzi (1995) and Carminati (2005) obtained for number using a priming methodology the former and a self pace-reading the latter cannot really compete with the array of electrophysiological measures ‘related to events’.

Typically, from the circa 200 ms (the N200 component, that is, a negative waveform peaking at around 200 ms after the onset of the anomaly), to the 600/700 ms (the P600 component, that is at 600 ms post-anomaly approximately signaling special syntactic difficulty or reanalysis, the differences in the average of the positive or negative waveforms give information on the characteristics of the violation/anomaly detected. For example, the N400 range of violations is normally associated with lexical processes and processes of semantic integration: Kutas and Hillyard (1983) found an increase in negativity between 200 and 500 ms

⁵⁵ We will not introduce here case like (11) and (12) in 1.2 (*‘il posto’* the place / *‘la posta’* the mail) where the difference in the gender morphology imply two totally different referents

in anterior areas of the brain for number agreement errors in S–V agreement. Similar effects have been described later and come to be known as left anterior negativity (LAN) effects (Friederici, 1995). Roughly, while LAN is usually synonymous with the malfunction of a syntactic analysis, the N400 registers malfunction of a semantic or lexical component⁵⁶. So, three main ERP component are reported in literature for agreement violations they are:

- LAN: Left anterior negativity is a negative wave form distributed over the anterior and the left part of the scalp, it occurs between 300 and 400 ms. It is traditionally (Münte, Heinze, & Mangun, 1993) associated with the processing of ungrammatical information (See Molinaro et al. 2011 for a review of the characteristics of the LAN across different experiments).
- N400: it is a centro-parietal negative wave form that has been considered to respond to semantic, pragmatic or thematic violations (Kutas & Hillyard, 1983, Brown & Hagoort 1993) or a general access to semantic memory (see Federmeier & Laszlo, 2009, for a comprehensive discussion on what N400 represents).
- P600: is a positive wave form appearing mostly on centro-parietal electrodes (but it is also found in the frontal part of the scalp Kaan & Swab, 2003). It has been generally interpreted in terms of reanalysis or integration effects (Osterhout & Holcomb, 1992) taking place when syntactically ungrammatical, ambiguous (Osterhout & Holcomb, 1992) or structurally complex information (see Gouvea, A., Philips, C., Kazanina, N. and D. Poppel. 2009 for an analysis of the different P600).

One of the most used technique to investigate the agreement processing has been to compare the response to the processing of grammatical and ungrammatical sentence involving agreement

⁵⁶ We are defining here in the traditional sense However, see Luck (2005) for an introductory account and discussion discussion of the principal ERP component.

mismatch. The typical pattern found in comparing the ungrammatical grammatical situation (ungrammatical sentence minus grammatical sentence) was a pattern of different component: a negative waveform at around 300/400 ms (LAN or N400) plus a positive waveform at around 600 ms (P600) after the detection of the agreement violation.

Different studies have investigated the difference between number and gender violations (see Acuña Fariña 2008 for a review). The general pattern pattern of LAN/N400 + P600 with some variation linked to the type of agreement configuration (Subject-Verb, Noun-adjective, or Determiner-Noun). To our knowledge, the majority of studies that compared number and gender agreement found no differences in their processing (Barber and Carreiras 2003; Barber and Carreiras, 2005 for Spanish; Osterhout and Mobley 1995, for reflexive pronouns and their antecedent in English; Hagoort and Brown, 1999, for Dutch; Gunter et al. 2000, for German, Nevins et al. 2007. for Indi)

Di Domenico and De Vincenzi (1995) argued for semantic gender as being equivalent to number, so the reason for which many ERP studies have not found any differences between number and gender could be linked because semantic gender was used in the experimental stimuli. Nonetheless, this is not the case: many studies also compared semantic and grammatical gender and no effect was found (Hagoort and Brown, 1999; Gunter et al., 2000; Barber et al., 2004). So, can we really conclude that number has a cognitive power stronger than gender as a disambiguating tool? We need to take a brief excursus on the morphosyntactic and semantic nature of gender and number inflectional class morphology in nouns to partially account for the uniform computation of gender and number.

5.2.2 Inflectional Noun Class Morphology

As we have mentioned before, Chomsky argues that in the Agree operation features are undifferentiated, they have been assumed to be organized in a bundle of feature. So the fact that no electrophysiological evidence is found for a differential processing of gender and number features seem to confirm Chomsky's proposal. However, as we will see in section 5.3, person is

crucially distinguished from gender and number also in ERP studies. So the fact that gender and number are not crucially differentiated in language processing can be linked to how both are interpreted: they represent nominal class morphology that are stored in the speaker's competence.

When we talk about gender specifications in Italian the inflectional pattern is the one reported in tab.1 for the root $\sqrt{\text{ragazz-}}$ (boy/girl).

Tab.1 Italian gender and number regular inflectional system for the root $\sqrt{\text{ragazz-}}$

$\sqrt{\text{ragazz-}}$	Singular	Plural
Masculine	ragazz-o	ragazz-i
Feminine	ragazz-a	ragazz-e

As first remark, Italian crucially differs from other romance languages such as Spanish where the plural number is lexicalized by $-s$ (*chic-o-s*, *boys*, *chic-a-s*, *girls*) and it forms a separate constituent from vocalic endings fixing inflectional class and gender. Plural number has a different inflection, i.e. $-i$ and $-e$.

Furthermore, inflectional classes and genders are not isomorphic. As suggested in Franco, Manzini & Savoia, 2005 (among others), nouns with different inflection $-a$ and $-o$, may belong to the same gender, for example the $-o$ for feminine (7a) $-a$ for masculine (7b). The inflection $-a$ can also refer to plurals. The same is true also for plural endings: the $-e$ can also be found for both masculine and feminine singular (8a-b), $-i$ for feminine plural (9)⁵⁷.

- (7) a. l-a man-o
 the fem.sing hand (feminine)
- b. il poet-a

⁵⁷ The lexical items found with this irregular inflection are quite common and are high frequency items as can be checked in the Italian frequency lexicon (<http://linguistica.sns.it/CoLFIS/Home.htm>).

- the masc.sing poet (masculine)
- c. le bracci-a
the fem.plur. arms
- (8) a. il pret-e
the masc.sing priest
- b. la madr-e
the fem.sing mother
- (9) le man-i
the fem.plur hands

Since Italian lacks a specialized *-s* morphology for plural, in many cases plurals are not predictable from singulars. Manzini & Savoia (2005) propose that Italian has a dedicated plural morphology *-i*, while other plurals correspond, as in Bantu languages (see Franco, Manzini & Savoia, 2015, Dechaine, Girard, Mudzingwa & Wiltschko, 2014) to a switch in nominal class morphology. Bantu languages, in fact, have a total 22 class of nominal classes distinguished for the characteristic feature of the referent (sex, animacy, shape, location etc.). So the syncretism, involving the the endings *-a*, *-e*, *-i*, takes place because they represent inflectional class vowels⁵⁸ as the nominal class morphology in Bantu: both Italian and Bantu nominal classed are meaningful (Manzini, Savoia 2005, 2007, 2011)⁵⁹.

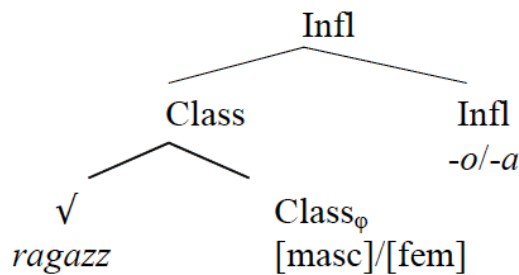
⁵⁸ We will not report here the different predictions of the Distributed Morphology framework (Harris, 1001) the model of Fabregas (2012), since it is out of the purposes of the present work: we are mainly reporting here the model of Manzini & Savoia because it is useful for accounting for the data of the experiments where no difference is found between number and gender. However the main difference is that while DM-like morphologies the late insertion of exponents has the effect of obscuring the abstract traditional categories associated to the syntactic structure, both the analysis of Fabregas and of Manzini & Savoia imply some interpretative operations. While Fabregas refers to a functional projection which converts the np predicates in kind, Manzini & Savoia define the morphological exponents as endowed with an interpretable lexical content (mass, aggregatem etc.) which is directly interpretable at semantic interface though the Agree operation. For a discussion on the noun class in romance refer to Franco, Manzini & Savoia, 2016.

⁵⁹ For the different meaning related to each class individuated by *-e* each endings please refer to Manzini & Savoia (2005, 2007, 2011, 2017): for example for what concerns the *-a* inflection, it is able to introduce a special type of plurality in many Italian varieties, Manzini and Savoia (2017). assume that it contributes to denoting a set whose

The inflectional morphological endings provide nominal descriptive content to the predicative base of the nominal root (i.e. *ragazzo*). If gender and number are alike they are both part of the nominal class morphology, they have to be interpreted at LF interface: their interpretation, in fact, in the model of Manzini & Savoia (2005, ff.), triggers the agree operation (not the uninterpretable features on the probe as in Chomsky, 2001). The idea is that the predicate represented by the nominal root has an open slot with has to be filled by its referential properties.

In sum, the so called semantic gender is the interpreted content of the N inflection but it is part of it as in a nominal class morphology. The representation for *ragazzo/a* boy/girl is like the one in (10)

(10)



But if there is no difference between gender and number why Di Domenico and De Vincenzi (1995) and Carminati (2005) found a difference in language processing? The first answer is that they use in the stimuli nouns involving the traditional inflectional paradigm in tab.1. Especially for the plurals if we use the approach of Manzini & Savoia (2010,2014) for Italian the exponent *-i*, connects its semantic value with its distribution in the Latin nominal paradigms: their proposal is that (\subseteq , the semantic operator indicating a subset relation we introduced in Chapter 2 and 3) supplies plurality to the noun by isolating a subset of all individuals that are defined by the predicative content of the nominal root (cf. Chierchia 2010). The *-i* morphology influence

members are rather more like parts of whole than like individuated atoms, characterizing it as [aggregate]. The notion of an aggregate of parts is used by Chierchia (2010) to characterize mass denotation.

the general amount of data, since it is the only Italian ‘nominal class’ that represent uniquely plural referents.

If the nominals used in the stimuli were chosen among the entire range of the Italian nominal class system, it is likely that the effect would have not been that strong. Furthermore the central role of the definite article inflected for gender and number (found in both experiment), which agree with the inflected nominal may also influence the general results since it implies a sort of reinforced prediction in long sentences like the ones used in the experiments. To our knowledge, no experiment was performed in this respect in Italian⁶⁰. One another factor that seems to interact with the processing of gender and number maybe linked to the position within the sentences of the disambiguating element: whether early or late.

5.2.3 Cue based model vs self organized parsing model

As for the example of the self paced reading experiment of Carminati (2005) which found an higher cognitive strength for number in disambiguation than gender, Acuña Fariña (2008) correctly argues that : Carminati “...set the self-paced reading to occur for regions of one clause per bar press: that is, one bar press introduced the whole of the subordinate clause, and the next introduced the whole of the main clause[...] and perhaps more importantly, in her materials number information is encountered early, i.e. at the verb, while gender information in appears later, i.e. after the verb” (Acuña Fariña, 2008: 406).

In both the experiment, priming (Di Domenico and De Vincenzi) and cue retrieval in a self paced reading (Carminati 2005) the gender and number cues were used in a configuration antecedent + pronoun. The disambiguation of the pronoun was linked to the difference in the

⁶⁰ The only exception is the ERP the work of Molinaro Vespignani & Jobs (2008) in which the authors found an increased P600 in gender mismatch depending on the article selecting the NP where the grammatical DP+NP sentence *lo scialle* (the shawl) is contrasted with two ungrammatical sentences :1) **il scialle*, where the article is masculine but violate a phonotactic constraint 2) with the feminine article **la scialle* traditional agreement mismatch. The author an incremented P600 for the violation of the phonotactic constraint.

antecedent. The position of the antecedent, at least in Carminati (2005) may have some effect on the results.

Current psycholinguistic model such as the the cue-based memory model (Lewis & Vasishth 2005) and the self-organized parsing model (Tabor & Hutchins 2004) make different predictions in this respect.

- The cue-based memory model assumes that comprehenders exploit cues for structure building operations, such as retrieval and reanalysis, when these features are realized on the verb, regardless of the processing stage at which these cues are made available.
- The self-organized parsing model assumes that late cues are less effective than early cues in structure building operations, because the more stable an analysis becomes, the harder to undo (*digging-in effect*).

Predictions are straightforward: the cue-based memory model predicts that late agreement cues will successfully trigger object reanalysis to the extent to which they are realised on the verb, while the self-organized parsing model predicts that late cues will be scarcely effective in triggering reanalysis.

In a preliminary self paced study on ambiguous Italian relative sentences (Villata, Franco & Lorusso, 2017) we found that when the gender disambiguating cue was late in the sentences it was no effective. For instance, Italian relative clauses are ambiguous between subject and object RCs since Italian permits post-verbal subjects (Arosio et al.2009, among others). The sentence in (11) is ambiguous between the subject reading in (12) and the object reading in (13).

(11) La bambina che disegna il pagliaccio ride
 The girl that draws the clown laughs

(12) Subject reading

[_{IP}[_{DP}La bambina]_{iCP}[che_i _{IP}[pro_i[_Idisegna [_{VP}ti_i[_{VP}... [_{DP}il pagliaccio]_j]]]]]]][_Iride_i...]]⁶¹

⁶¹ We are using in the syntactic representation null element *pro* for both preverbal and postverbal subject for ease of representation. Nevertheless we are aware that in the minimalist model we have been proposing in the previous chapters the existence of *pro* is redundant since the set of ϕ features in I is interpretable in Null-Subject Languages

The girl who draws the clown laughs
the cue of gender

(13) Object reading

[_{IP}[_{DP}La bambina]_{CP}[_{che}_{IP}[_{pro}_Idisegna [_{VP} il pagliaccio]_{VP}..[_{DPT}_i]]]]][_Iride_i...]]

The girl that the clown draws laughs

A robust finding from acquisition, adult processing and pathological populations is that object relative clause are harder to parse and comprehend than subject relative clauses (Rizzi 1990, 2004, Starke, 2001, Friedmann et al. 2009, Belletti & Contemori, 2010).

There are different cues that have been shown to trigger an object RC reanalysis: 1) word order (OSV) in (14) , and 2) number agreement (e.g., O-SG V-PL S-PL) (e.g., Arosio et al. 2009, Guasti et al.2012, Villata, Franco & Lorusso, 2017). However, both cues are available at early processing stages, namely in the relative clause.

(14) La bambina che il pagliaccio disegna
The girl that the clown draws

(15) La bambina che disegnano i pagliacci
The girl.sg who draw.pl the clowns.pl

Here we tested the effectiveness of a late gender cue appearing in a prepositional control sentence after the relative clause in triggering an object RC reanalysis.

The sentences are like (16) and (17).

(16) Subject reading

Il sindaco che consulta la giornalista prima di PRO essere ascoltato da tutti

like Italian.

The mayor.masc that consults the journalist.f before of being heard.masc by everyone
vive a Parigi
lives in Paris

(17) **Object reading**

Il sindaco che consulta la giornalista prima di PRO essere ascoltata da tutti
The mayor.masc that consults the journalist.f before of being heard.masc by everyone
vive a Parigi
lives in Paris

The results showed us that showed that participants were both slower at the spillover region and less accurate in answering the comprehension question in the object condition. Participants failed to access the object analysis 80% of the time.

So the fact that early number cue helps in disambiguating between SR and OR (Guasti et al.2012 and also Villata et al, 2017) while late gender cue does not support a cue based memory model in which the feature strength hypothesis plays its role (number over gender). However we do not have the complete data we miss experimental evidence of early gender cues and late number cues in disambiguating relative clauses.

However we performed an analysis on the early vs late pragmatic cue. We used pragmatic cue linked to the knowledge of the word, that is verbs that favour the object reading. So for example in (18) we have the classic subject reading example, but in (19) and (20) we selected two verbs representing two action more likely to be performed by the favoured subject of the relative clause: *the referee* (18-19-20) is more likely *to expel* or *to give a penalty* to a footballer than viceversa.

(18) Subject Reading

Il calciatore / che / chiama/ l'arbitro / nel secondo / tempo / ha / vinto / i Mondiali.
The footballer who calls the referee during the second half has won the World Cup

(19) Object Reading , early pragmatic cue

Il calciatore / che / **espelle** / l'**arbitro** / nel secondo / tempo / ha / vinto / i Mondiali.

The footballer who expels the referee during the second half has won the World Cup

(20) Object Reading, late pragmatic cue

Il calciatore / che / chiama/ l'**arbitro** / per /dare / l'**ammonizione** / ha / vinto/ i Mondiali.

The footballer that calls the referee to give the penalty has won the World Cup

The results confirmed that people accessed the object relative reading more often in sentences like (19) than in (20): when the pragmatic cue was found earlier it allowed the reanalysis more often (55%) than when the pragmatic cue was presented late in the sentence (42%)⁶².

These preliminary results about the pragmatic partially confirms that early cues appear to successfully trigger revision to a similar extent⁶³. So we can interpret that also the ineffectiveness of the late gender cue in triggering reanalysis is linked to a digging in-effect as predicted by the self-organized parsing model (Tabor & Hutchins 2004). However we need to confirm these heterogeneous data we collected in order be able to confirm this account.

In our discussion about the similarity effects of number and gender in language processing, this excursus on when the cue is presented (the *digging-in effect*) is relevant to account for the effects found in experiments like the ones of Carminati (2005). The fact that only priming and self-paced reading studies present different results for number and gender could be due on how the stimuli are presented and the experiments are designed: 1) for the computational mechanism responsible for language processing for which the early vs late appearance of the disambiguating cue is a remarkable aspect (Tabor & Hutchins 2014; Ferreira et al. 2004); 2) for the mental representation of number and gender as a nominal class in the the competence model about gender and number we have described (Manzini Franco et al 2015). In next section we will move on the top of the hierarchy of features: person. The effect of person over the other features

⁶² The detailed results and the statistical analysis will be available soon at <https://unifi.academia.edu/PaoloLorusso>

⁶³ Other authors agree with Tabor & Hatchins (2014) in that the repair part does not erase the initial feeling of ungrammaticality, which persists causing a drop in acceptability judgments (see also Ferreira et al. 2004, Bailey 2004, Lau and Ferreira 2005).

seem to be outstanding independently on the experimental technique and on the level of linguistic representation (syntactic or semantic interfaces).

5.3 Person

Person is a deictic category, interpreted relative to the speaker, encoding the participants in a speech situation. The cognitive foundation of the feature of person reflects the basic structure of a speech act and distinguishes the following speech act participants: the speaker and the addressee, and what is spoken about (cf. Benveniste 1966).

The category of person has often been assumed to be universal (Forchheimer 1953:1; Greenberg 1963:31,96; Benveniste 1971:225; Wierzbicka 1976, 1996; Zwicky 1977:715; Ingram 1978), and the claims have varied from a reference to a rather vague 'expression of person' (Benveniste) or 'the system of person' (Forchheimer) to specific remarks about the universal existence of 'distinct first and second singular independent pronouns' (Greenberg).

The universal 42 of Greenberg which states: 'All languages have pronominal categories involving at least three persons and two numbers' (Greenberg, 1963:60). The paradigm of person marking is, in fact, traditionally analyzed as one collapsed dimension together with number. Cysouw (2003) list linguists who have separated the two dimensions, and suggests that the paradigm of person includes: 'speaker' ('1'), 'addressee' ('2'), and 'other' ('non-participant'); based on these distinctions, groups of participants can be formed. Groups of participants consist of more than one participant and are thus necessarily semantically plural.

As for Person agreement processing, A recent study on the processing of Person, Number and Gender in Italian (Carminati, 2005) indicates that the penalty for disambiguating the antecedent of a null subject is significantly reduced when the disambiguation relies on Number and Person information together, compared to when only Number information. As we have been anticipating in section 5.2, Carminati proposes the 'Feature Strength Hypothesis' for which there is a correlation between the cognitive significance of a feature and its disambiguating power: the more cognitively important the feature is the better it should be at disambiguating

the pronoun that carries it. Person in the respect is the most cognitively important features facing the linguistic generalizations for which the reference to speech act make it more salient in both its representation across languages and in its disambiguating power in language processing.

Carminati (2005) in a self paced reading study found that when person in addition to number contributes to disambiguate a null pronominal element, the penalty for violating pro's antecedent was reduced as compared to the case in which only number does the disambiguation.

In two self paced reading experiments Mancini, Postiglione, Laudanna & Rizzi (2014) a found a greater processing penalty for person compared to number agreement violations which they interpret simply as a separate access to the two features. The difference in the two typologies (Carminati vs. Mancini et al.) of results is strictly linked to the design of the experiment. While Carminati (2005) was looking at the reading time at the disambiguating point, Mancini et al, have proposed grammatical and ungrammatical sentences involving agreement mismatch in person and number. So the reading time was higher when the experimental subjects encountered a person anomaly than when a number anomaly was found in the ungrammatical sentences. In other words, after encountering a person anomaly, the performance of repair operations appears to be more costly than in the presence of a number violation. Both studies Carminati (2005) and Mancini et al (2014) confirmed a qualitatively distinct patterns for the two types of agreement processing, confirming the difference between person and number.

5.3.1 Person split

Benveniste (1971) was one of the first linguists to point out the special status of 1st and 2nd person, as opposed to 3rd person. Benveniste argues that 1st/2nd person are 'true' grammatical persons, while 3rd person is a 'non-person', i.e. an unmarked, unspecified form of person.

Carminati (2005) in this respect defines the split between 1st and 2nd person as opposed to 3rd person as a sub-hierarchy that is faced in the Feature strength Hypothesis: 1st and 2nd person are more cognitively salient and imply. Once more, Carminati found, in a self pace-reading task in which there was a disambiguation of a null pronominal element involving 1st, 2nd and 3rd

person, that 1st and 2nd person were cognitively more salient than 3rd person. The penalty for violating pro's antecedent when 2st and 2nd person were involved was reduced as compared to the cases in which 3rd person was tested. There was non significant difference between 1st and 2nd person in terms of time of reading of the critical region of the sentence where the disambiguation took place.

Although in form 3rd person may parallel 1st and 2nd pronouns, the way in which they establish reference is entirely different. Determining the referent of a 3rd person pronoun (used in a non-deictic manner) depends on the underlying nominal expression plus the pronominalisation rules of the grammar; however, determining the referent of a 1st/2nd person pronoun depends on who the speaker and the hearer are at the moment the sentence is uttered.

In human languages many constructions involve crucial differences related to the person split between 1st and 2nd person. 1st and 2nd person seem to be encoded directly either in the lexicon or in the syntax in order to satisfy the interface requirements of distinguishing speech act participants (which represent always definite referents as we were describing in Chapter 4) and the mere linguistic event participant (3rd person).

Different pattern of case marking for 1st and 2nd vs 3rd is found in the ergativity splits⁶⁴ (i.e. alternations between the ergative /absolutive) which most commonly oppose 1st and 2nd to 3rd person (Manzini & Savoia, 2007, 2011, Manzini et al. 2015 for Indo-Aryan varieties). For example in the syntax of Punjabi, within the perfect, a person split is observed: whereby 1st/2nd person (1/2P) external argument are found in the absolute form, rather than in the ergative case obligatory with 3rd person referents (Manzini et al. 2015) as in (21)⁶⁵.

⁶⁴ Ergative split following the traditional description of Silverstein (1976) are an instantiation of the Person/Animacy hierarchy: ergative case mark subjects whose features are low in the person /animacy hierarchy

(1) Person animacy hierarchy
1st > 2nd > animate > inanimate

Similarly Dixon (1979, 85–86) bases his classical discussion of split ergativity on the 'potentiality of agency' scale, i.e., 1st person–2nd person–3rd person–Proper name–Human–Animate – Inanimate.

⁶⁵ We will not introduce here the topic of the person and aspectual splits in ergative languages (for a review, see Manzini et al. 2015, or Coon & Preminger 2015) since it is out of the scope of the presentation of person split here which is functional to introduce the different pattern of agreement found in Italian present perfect construction that we have tested in an experimental study (5.4). What is at issue here is that person hierarchy is a pervasive

- (21) mɛ:/o-ne/ muŋd-e-ne (ek) pətthərə dekkh-ea/-e
 I.ABS/he.ERG/boy-OBL.M.SG-ERG (a)stone.ABS.M.SG/M.PL see.PRF-M.SG/-M.PL
 ‘I/he/the boy saw a/the stone/(the) stones.’

(Manzini et al.2015)

Always with perfective constructions, in different Southern Italian varieties a person split is found in the auxiliary selection used in the perfective construction: *essere* (be) and *avere* (have) alternate as aspectual auxiliaries, according to the person. The best-known case in the literature (Rohlf's 1969; Tuttle 1986; Kayne 1993; Cocchi 1995, Manzini & Savoia 2011, D'alessandro & Roberts) has *essere* in the first and second person (both singular and plural) alternating with *avere* in the third person, as in the example in (22) ⁶⁶.

- (22) so / si / a manget la pastə *Conversano*
 be 1s / be 2s / has eaten the pasta

Roughly, perfective forms introduce an existential quantification (Bonomi, 1997 apud Manzini & Savoia 2011) in which the event is specific/definite and existentially quantified as opposed to imperfective (or counterfactual aspect and mood in general) in which the event is indefinite and generally/universally quantified (as we have also seen in progressives in Chapter 2). It is only in cases in which the event or the situation is specific (i.e. existentially quantified) that the distinction between event anchored (3rd person) and discourse anchored (1st and 2nd person) comes into play. Intuitively, the quantification over events/situations overtakes all other event based distinction: that's why event anchored 3rd person referent are more likely to show an ergative pattern and selects the *avere* (the possessive predicate) since they need to be existentially and overtly quantified within the specific event represented by the perfective morphology, while discourse anchored referent do not need such a quantification since the referents are existentially

phenomenon across languages in many constructions, in this part we are listing some of the linguistic constructions related involving person split which are close to the phenomenon investigated in our experiment.

⁶⁶ For the parametric variation of auxiliary selection in Italian varieties see Manzini & Savoia (2005, 2011)

within the discourse (for a complete discussion on the quantification over events and the discourse vs event anchored referents see Manzini & Savoia, 2011:Chapter 8).

5.4. Person Split Driven Pattern of Agreement in Italian Clitic Past Perfective Constructions

The person split is found also in the Italian (among the majority of Romance languages) accusative and dative clitic system. Italian presents the same clitic form for the accusative and the dative in the 1st /2nd person, despite the fact it distinguishes accusative and dative clitics in the 3rd person. Italian provides a typical example; thus the same 1st /2nd person clitic lexicalizes both contexts in (23a), while an accusative and a dative form of the 3rd person clitic are involved in (23 b) and (23 c).

- (23) a. Mi/ti ha colpito/parlato
 (to.)me/you he.has hit/talked
 ‘He hit/talked to me/you’
- b. Lo/*gli ha colpito
 him/ to him he.has hit
 ‘He hit him’
- c. Gli/*lo ha parlato
 to.him/him he.has talked
 ‘He talked to him’

In a recent study Manzini & Franco (2016) argues that the syncretism between dative and accusative (in 1st and 2nd person clitic) reflects a genuine syntactic generalization. Morphologically, in (23 a) the *mi, ti* 1st/2nd person forms have the same *-i* inflection as the 3rd person dative *gli* in (23 c). This inflection contrasts with that of the accusative in (23 b),

corresponding to the nominal class morphology (e.g. -o for the masculine singular). Thus *mi /ti* are morphologically dative, not accusative. Syntactically, two different structures of embedding are implied by the predicates ‘hit’ and ‘talk’ with 3rd person clitics, namely an accusative one in (23 b) and a dative one in (23 c) respectively. They suggest, in fact, that 1st /2nd person clitics are embedded as datives with both predicates; in other words, they conclude that 1st /2nd person clitics are inherently oblique wither thematic datives or Differential Object Marking datives, that is accusatives⁶⁷. This account correctly predicts that perfect participle agreement predicates perfective (present perfect) construction in Italian may follow a pattern for which the same structure of embedding for 1st and 2nd person (the dative one in 23 a with *parlato*) will be found also in transitive structure, although in Italian accusative clitics agree with past participle in the present perfect constructions. The pattern, is found in the example (24-26).

While 1st and 2nd person accusative clitics denoting a feminine referent allow agreement with both masculine (dative like constructions 23.a *parlato*) and feminine past participle in the proclitic constructions (expected pattern for the accusative constructions) with the present perfect in Italian as in (24), 3rd person feminine clitics do not (25). Conversely 3rd person masculine do not allow a feminine past participle (26).

- (24) a. *mi/ti* hanno vista
 pro me /you (CL acc. fem . sing) have (Present 3rd Pl) seen (P.Participle fem.sing)
- b. *mi/ti* hanno visto
 pro me /you (CL acc. fem . sing) have (Present 3rd Pl) seen (P.Participle masc.sing)
 ‘They have seen me/you’
- (25) a. *la* hanno vista
 pro her (CL acc. fem . sing) have (Present 3rd Pl) seen (P.Participle fem.sing)
- b. **la* hanno visto
 pro her (CL acc. fem . sing) have (Present 3rd Pl) seen(P.Participle. masc.sing)

⁶⁷ The prepositional accusative of Romance is part of a large spectrum of Differential Object Marking (DOM) phenomena (see Manzini & Franco, for a discussion).

‘They have seen her’

- (26) a. *lo hanno vista
 pro him (CL acc. fem . sing) have (Present 3rd Pl) seen (P.Participle fem.sing)
- b. lo hanno visto
 pro him (CL acc. fem . sing) have (Present 3rd Pl) seen(P.Participle. masc.sing)

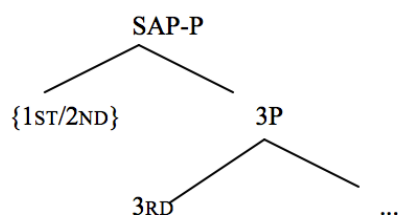
‘They have seen him’

Kayne (2000), at this respect, claims that first and second person clitics and pronouns lack full DP structure, while the latter characterizes third person clitics, as revealed by the presence of full agreement features.

Manzini & Savoia (2002, 2005, 2007) argue in favor of a category P(erson) for first and second person clitics, a category N(oun) for third person clitics. Clitic categories correspond to denotational properties. Thus “Person implies reference to the speaker (first person singular), the hearer (second person singular)...; in turn, N identifies the so-called third person simply with the nouniness property N” (Manzini & Savoia, 2007: 80). P clitics are the participants in the discourse and are anchored to the universe of discourse independently of their role within the event. On the other hand, N clitics non-participants in the discourse depend directly for their characterization on the position assigned to them within the structure of the event⁶⁸. In cartographic literature the 1st and 2nd person are identifies as Speech Act Participant (SAP) and have a distinct categorical signature as opposed to 3rd person (Bianchi, 2006). They are represented in the functional structure of the clause (27).

⁶⁸ In this respect Nash(1997) argues that Person clitics are higher than N: the definite character of first and second person pronouns means that they will be ‘licenced higher than other pronominal arguments, at a level at which the ergative/absolute patterns is blocked’ (Nash 1997: 137).

(27)



Following Manzini & Franco (2016) the dative-like agreement in (24b) is due to the fact that *mi* and *ti* are pure oblique dative clitics also when they represent a direct object of transitive predicates. The optional agreement can not be accounted for by the proposal of Kayne (2000) that first and second person clitics lack a full DP structure since also a canonical agreement can be found (24a).

The optionality of agreement with the past participle can be accounted for only if we identify the 1st and 2nd person clitic as pure oblique clitics (as in Manzini & Franco, 2016), in this case with transitive predicates they are DOM datives: when they show no agreement (24.b) they are working as DOM datives and the agreement is like the one in pure dative constructions (23.a), while when they show agreement they work like other accusative clitic (25). So the fact that we find optionality in agreement is linked to the nature oblique nature of the accusative 1st and 2nd person clitics: they stand for DOM datives and for accusatives. No interpretative issues seem to favor one pattern over the other.

The agreement pattern of the past participle in present perfect construction in Italian is interesting in our respect since it is person driven: we can have grammatical gender (and number for plural person) mismatch that give rise to ungrammatical sentences with 3rd person clitics (25b -26a), while we can have some referential mismatch linked to the gender (semantic gender) of the referents. We tested this agreement pattern through an ERP (5.4.2) study in which the gender agreement is a reflex of the person-split. It allowed us to test the relation between number and gender in language processing. We expected that discourse anchored participants, due to their higher position in the person hierarchy (Carminati 2005) would be processed differently

than event anchored participant and this person-hierarchy effect could be faced in how the gender agreement is computed depending on the person of the clitics, the preliminary results has generally confirmed this expectations.

5.4.1 Previous ERP Studies on Person

To our knowledge no studies were performed for the interaction between on gender agreement driven for person, only four studies so far have addressed the question and provided direct electrophysiological evidence on whether person and number features are processed similarly or differently. The only study in which person and gender mismatch are compared is Nevins, Dillon, Malhotra & Phillips (2007), we report other three study in which the general results is linked to person mismatch, something that we are not measuring directly but we are interested in, since it is supposed to interact in the detection of the gender mismatch implied by the different person driven pattern of agreement in the construction under investigation.

1) Nevins, Dillon, Malhotra & Phillips (2007) investigated how agreement violations of different combinations of phi-features are processed in Hindi. More precisely, in a grammaticality judgment task, they examined the electrophysiological responses elicited by agreement violations of gender and number, as well as agreement violations of one (gender or number) vs. two phi-features (e.g. gender+number or gender+ person). ERP responses to all types of subject agreement violations elicited a P600 component (with no LAN/N400 components found). Interestingly, the P600 component elicited by the gender+person violations was larger than the ones elicited by all the other types of violations, while the gender+number violations did not differ from the responses to the individual gender or number violations. The authors conclude that the feature distance does not impact ERP responses since no amplitude differences were found among the gender, number and combined gender/number violations. On the other hand, larger P600 response to the violations involving the person feature are attributed to the greater saliency of this feature at multiple levels of representation.

In sum, P600 component (with no LAN/N400 components found) similar for all cases. P600 gender+person violations larger (gender+number). There were no cumulative effect of gender + number as the other studies on gender vs number. In our respect this is the most interesting study because it compares person and gender that are the main features that we manipulated in our experiment

2) Silva-Pereyra & Carreiras (2007) also used ERPs to explore how person and number agreement features are processed in Spanish. They visually presented native speakers with person, number and person+number violations, such as *tú juego* ‘You2SG play1SG (...)’, *nosotros juego* ‘We play1SG (...)’ and *vosotros juego* ‘You2PL play1SG (...)’. All violations elicited a P600 component while only person+number violations yielded anterior negativity. Although all three ungrammatical conditions showed larger P600 amplitudes than the grammatical condition, no differences between person and number were reported, failing to provide evidence that phi-features are distinctly processed during agreement computation. The authors investigated two phases of the P600 component: the early one (500–700 ms), related with syntactic integration difficulty or diagnosis, and the late one (700–900 ms), reflecting reanalysis or repair processes (Friederici, Mecklinger, Spencer, Steinhauer & Donchin, 2001). The combination of two ungrammatical features triggered larger P600 amplitudes during its early phase only (500-700 ms) indicating additive processing effects of both person and number agreement. A similar P600 effect was found in all the three violations in the later stage of processing (700–900 ms). The authors concluded that the mechanisms of diagnosis, reanalysis or repair processes appear to be similar for both features.

In sum, person and number do not differ in the evoked component.

3) More recently, Mancini, Molinaro, Rizzi & Carreiras (2011) investigated subject agreement computation by specifically targeting person and number features. Native speakers of Spanish read grammatical control sentences (i.e. *Los cocineros cocinaron (...)* ‘The cooks3PL cooked3PL’) as well as sentences containing number (i.e. *El cocinero *cocinaron (...)* ‘The cookSG cooked3PL’) and person violations (i.e. *El cocinero *cocinaste (...)* ‘The cook3SG

cooked2SG ’). Participants judged all three conditions with similar accuracy but they were significantly faster when judging number violations than when judging person violations and grammatical control sentences. ERP data for number agreement violations revealed a LAN component between 300 and 500 ms after the stimulus onset, and person agreement violations elicited an N400. The analysis of the 500–800 ms time window showed a P600 effect for both person and number violations; however, whereas number agreement violation effects were posteriorly distributed, person agreement violation effects were also significant over fronto-central sites. Finally, in the 800–1000 ms time window the analyses revealed larger positivity for person than for number violations, with the effects also spreading to fronto-central regions for person violations only. The authors interpreted the presence of LAN or N400 components as indicators of processing disruptions at different processing levels: the N400 component found in person violations would be a signature of a disruption at the semantic-discourse level, where interpretive relations among constituents are not preserved (i.e., when the subject is a speaker, 1st person; an addressee, 2nd person; or neither of the two, 3rd person); in contrast, the LAN components found in number violations would be a signature of a disruption at the morphosyntactic level. According to Mancini and colleagues, the increase of the P600 effect for person violations at the frontal regions suggests discourse-related integration difficulties, that is, the impossibility of integrating in the same discourse representations the incompatible speech participants (e.g., 3rd person vs. 2nd person addressee), as indicated by the anomalous subject-verb dependency. Additionally, the larger P600 amplitude for person than for number violations indicates higher repair cost for the former violation in comparison to the latter. Following this study, Molinaro et al. (2011) claim that agreement is sensitive both to the type of phi-features involved in the agreement relation and to the constituents that express the agreement dependency. According to the authors, this sensitivity is reflected by different ERP components: the LAN would reflect violation of expectancy elicited by the trigger, while the N400 would mirror additional, non-syntactic (discourse level) processes occurring during agreement computation.

In sum, there is a qualitative difference for person and number: the N400 component in person violations while a LAN component for number.

4) Zawiszewski, Santesteban and Laka (2016) focused on the core components of verb agreement: They used a sentence grammaticality task to explore the electrophysiological responses of Basque speakers when processing subject–verb person and number phi-feature agreement violations. They generated grammatical structures (grammatical control) and ungrammatical structures in which the verb disagreed with the subject in person (person violation), in number (number violation), or in both person and number features (person+number violation). Behavioral data revealed that, overall, participants were faster and more accurate detecting person and person+number violations than violations involving only number. Event-related potential responses revealed a N400–P600 pattern for all violation types. Person and person+number violations elicited larger P600 effects than number violations.

In sum: same component found for the violations of all features. Differences found in the amplitude of the P600 when person was implied in the processing

The common results on the ERP previous study is that when there is an overt feature mismatch there is always a P600 involved, that is a reanalysis linked to the mismatching cue retrieval. However the P600 found for person seems to be larger than the one found for number and gender (Nevins et al, 2007, Zawiszewski et al 2016). Gender agreement generally evokes a P600, we expect that depending on the person involved we should have some characteristics on the P600 component.

In all the experiments about agreement mismatch a negative component occurring at around 300/400ms is also found (except in Nevins et al. 2007). Interestingly Mancini et al. (2011) found a qualitative modulation in the LAN/N400 pattern in comparing person and number mismatches. Since we are dealing with a different type of gender agreement mismatch we expect that the features of person that introduce the frame in which the agreement is computed will also influence the pattern of LAN/N400.

5.4.2 ERP study on a Person Split Agreement Configuration

In this section we present the resume of the results of a preliminary ERP study in which we explored the interaction between person and gender in the object clitic + verb (past participle) configuration (cfr 24-26) (Lorusso, Manca, Franco & Grimaldi, 2017). Our purpose is to check if the gender agreement processing is influenced by the number of person expressed through the clitic: whether the higher cognitive saliency of 1st and 2nd person corresponds to a higher disambiguation power, as predicted by the Feature Strength Hypothesis (Carminati, 2005). The constructions under analysis are the form of present perfect in which the person feature of the accusative clitic agrees with the inflected past participle. The *person split* agreement configuration is given since while 1st and 2nd person clitics (discourse participants) with no overt inflection for gender allow both agreeing and non-agreeing past participle ((24) we repeated here as (28)), 3rd person (event participant) clitic with overt gender inflection allows just agreeing past participle (29).

- | | | | | |
|------|----|--|---|-----------------------------------|
| (28) | a. | mi/ti
me /you (CL acc. fem . sing) | hanno
have (Prs. 3 rd Pl) | vista
seen(Pst-Ptcp fem.sing) |
| | b. | mi/ti
me /you (CL acc. fem . sing)
‘They have seen me/you’ | hanno
have (Prs. 3 rd Pl) | visto
seen(Pst-Ptcp masc.sing) |
| (29) | a. | la
her (CL acc. fem . sing) | hanno
have (Prs. 3 rd Pl) | vista
seen (Pst-Ptcp fem.sing) |
| | b. | *la
her (CL acc. fem . sing)
‘They have seen her’ | hanno
have (Prs. 3 rd Pl) | visto
seen(Pst-Ptcp masc.sing) |

Aim. First of all we expected to repeat the findings of previous studies for the gender agreement mismatch with 3rd person clitics (29). Furthermore, in the computation of gender on the past participle, we expect to find some differences in how the optional gender agreement is computed with 1st and 2nd person clitic (28): this second pattern of agreement can be subject to variation of the referential properties of the discourse anchored variable, that is a sort of computation of semantic contextual gender. However the main point is that we aimed at testing whether the neurophysiological processing of gender is contrasted with the distribution of person morphology. The results will show that gender on the past participle has two different way of being computed and the person hierarchy influence the general computation of agreement also in the grammatical condition.

5.4.2.1 Materials

Methodology. Event Related Potential (ERP) (Luck, 2005). *Procedure.* The EEG activity was recorded with an ActiCAP 64Ch system. *Subjects:* 22 Italian voluntary healthy subjects (n=22, 11 females; 30 yrs ±3) recorded at CRIL (Centro di Ricerca Interdisciplinare sul Linguaggio) at the University of Salento. *Presentation of stimuli.* Visual, word-by-word, 350 ms and ISI (inter stimulus interval) = 250ms. *Task:* Grammaticality judgement task. *Stimuli:* 152 sentences in 4 conditions. 88 fillers. 240 stimuli per subject. *Target :*The trigger was when the past participle inflected forms were presented.

The sentences were divide in the following four condition: *Condition 1* (30) was the baseline in which the 1st and 2nd person clitics agree with masculine past participle, grammatical for every referential condition; *Condition 2* (31) we defined gender ambiguity condition since the 1st and 2nd person clitics agree with feminine past participle, the only referential possibility is a feminine discourse referent, depending on the sex of the subject some semantic agreement mismatch can be predicted; *Condition 3* (32) the control condition for 3rd person clitic agreement configuration in which the 3rd person clitics agree with past participle (both masculine and feminine) always grammatical but differing from Condition 1 since the checking is between the

clitic and past participle and no discourse referential are implied; *Condition 4* (33) is the gender violation condition in which the 3rd person clitics never agrees with past participle (features mismatch between masculine and feminine).

(30) **Condition 1 (Control 1st and 2nd person): masculine past participle (Baseline)**

Mi	hanno	guardato
Me (masc, fem) have (3 rd Pl.)		seen (P.participle masc.)
Ti	hanno	guardato
You (masc, fem) have (3 rd Pl.)		seen (P.participle masc.)

(31) **Condition 2 (Gender Ambiguity 1st and 2nd person): feminine agreement**

?Mi	hanno	guardata
Me (masc, fem) have (3 rd Pl.)		seen (P.participle fem.)
?Ti	hanno	guardata
You (masc, fem) have (3 rd Pl.)		seen (P.participle fem.)

(32) **Condition 3 (Control 3rd person): agreeing participle**

Lo	hanno	guardato
Him have (3 rd Pl.)		seen (P.participle masc.)
La	hanno	guardata
Her have (3 rd Pl.)		seen (P.participle fem.)

(33) **Condition 4 (Gender Violation 3rd person): agreement mismatch**

*Lo	hanno	guardata
Him have (3 rd Pl.)		seen (P.participle fem.)
*La	hanno	guardato
Her have (3 rd Pl.)		seen (P.participle masc.)

5.4.2.2 Predictions

The predictions linked to the comparison between conditions are the following:

1) *Detection of Gender violation: Condition 4 vs Condition 3.* Since in previous studies the gender violation evoked a LAN + P600 pattern for gender violation by Barber & Carreiras (2005) or a P600 alone (Nevins et al. 2007) we expect to find either a LAN+P600 or a P600.

2) *Gender ambiguity in Condition 2 vs Condition 1.* In previous studies semantic violations elicit a central negativity at 400ms. Lamers et al. (2006) reported central N400 effects for pronouns that did not match the biological gender of the antecedent (that is, a semantic gender violation as in our case depending on the sex of the subject).: We expect a N400 distribution for gender ambiguity: the gender interpretation available may depend on the sex of the experimental subjects, we expect to find results that are not comparable to the results of gender mismatch between clitic and past participle since although no ERP study found a difference between the mismatch in semantic gender and grammatical gender, we expect to find different results since there is no gender cue in the linguistic stimuli but it has to be recovered in the discourse.

3) *Person split in Condition 1 vs Condition 3 (controls),* This is a non canonical predication because it is not common to compare two grammatical conditions. However since the two operations of agreement checking are different we expect to find or a LAN or a P600 with 3rd person since the operation of cue retrieval to check agreement between the clitic and the past participle is not found with the 1st and 2nd person control condition.

5.4.2.3 Results

Behavioral results. The behavioral results linked to the grammatical judgement task, no mistakes were found with any of the four condition. The percentage of correct answer was: Condition 1 Control 1st and 2nd person (96%); Gender Ambiguity 1st and 2nd person (89%); Control 3rd

person (98%); Gender Violation 3rd person (99%). No statistically significant⁶⁹ effect was found across condition, however there are few mistakes in the gender ambiguity condition, probably meaning that the problem in identifying a discourse related referent in this experimental condition.

The ERP results are collected below and are divided depending on the comparison between condition.

1) ERP Results for the detection of Gender violation: Condition 4 vs Condition 3⁷⁰.

In the gender mismatch condition we found a frontal negativity on the frontal area of the scalp and a P600, as in the canonical pattern of agreement mismatch for gender.

300ms-400ms time window:

In the gender mismatch condition we found a frontal negativity component on the frontal area of the scalp. Although its distribution is not “classic”, since it is more central than left oriented (see Molinaro et al. 2011), due to its latency (300 ms), its negative waveform, and the frontal distribution, we labeled it as a LAN.

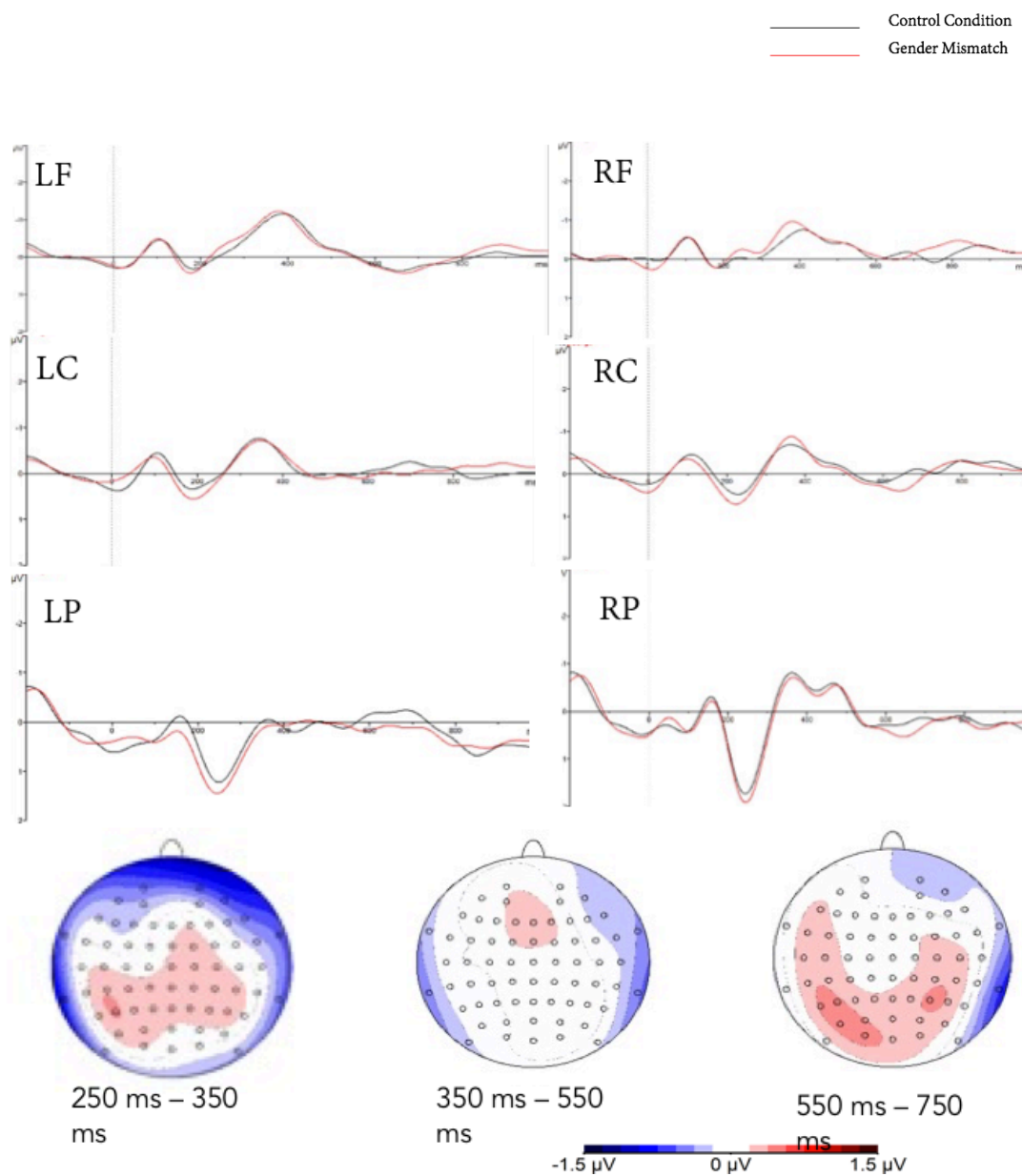
550ms-750ms

The gender mismatch condition (Condition 4) elicits a P600 (550-750ms): the positive wave person elicited a more positive effect compared to the Control Condition in the central-posterior electrodes.

⁶⁹ The detailed results and the statistical analysis will be available soon <https://unifi.academia.edu/PaoloLorusso>

⁷⁰ We will not produce in this manuscript the detailed analysis of the statistical results and the electrodes, to make the text easier to read. We will provide it an online appendix.

Fig.1 Comparison of the effects elicited by the Condition 3 and 4. The red line stands for the ungrammatical gender feature violations, the black line represents the control condition. The electrodes are grouped in 6 areas: Left Frontal (LF), Right Frontal (RF), Left Central (LC) Right Central (RC), Left Posterior (LP) Right Posterior (RP)⁷¹. Topographical amplitude difference maps calculated as the average difference amplitude between the ungrammatical gender violation condition and grammatical condition (gender mismatch – control condition).

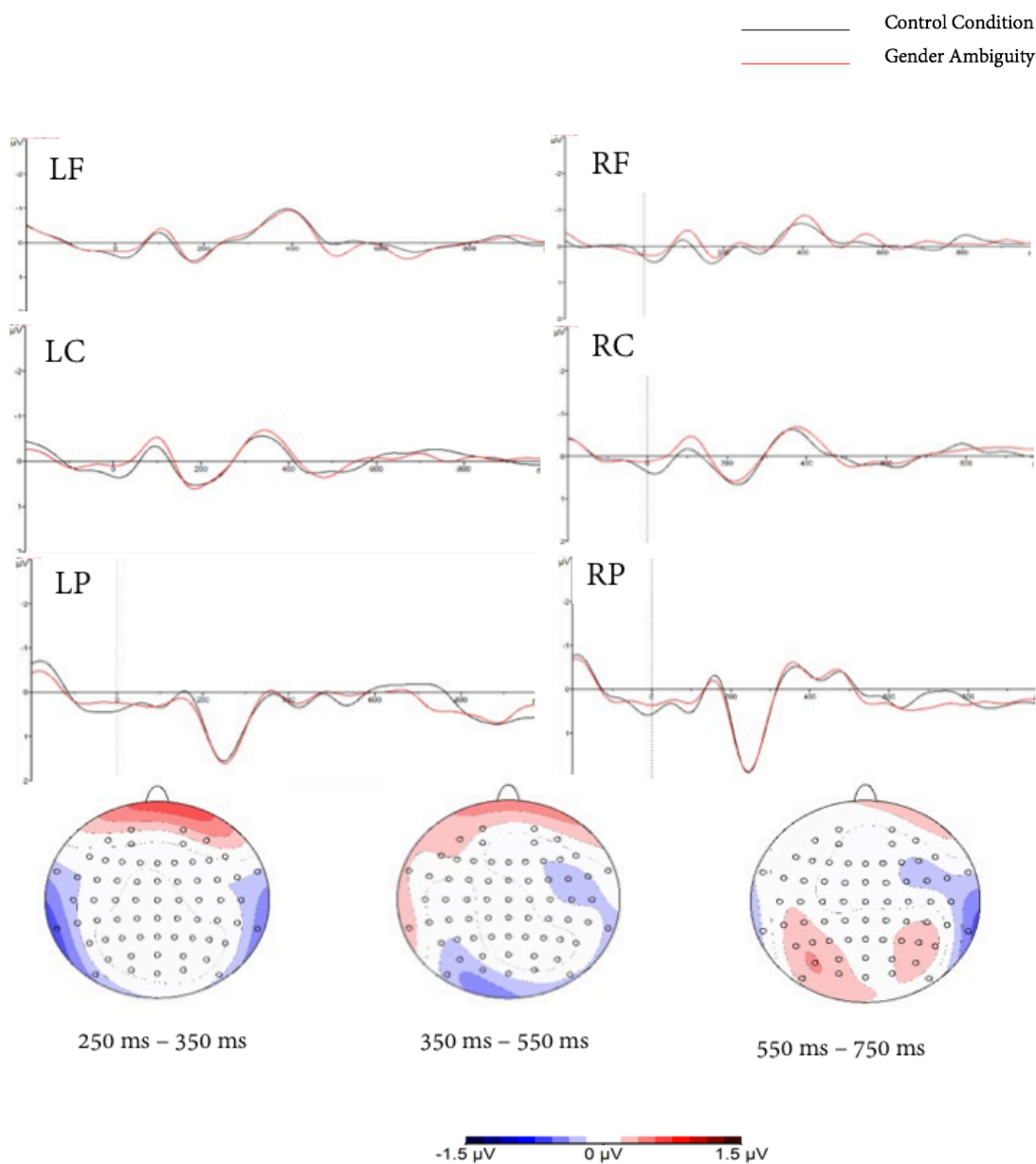


⁷¹ Actually we are considering different grouping of electrodes, for the preliminary characteristics of this study, we are collecting here the main result to show the main effects.

2) ERP Results for Gender ambiguity in Condition 2 vs Condition 1.

No semantic violation found at 300/400ms. Surprisingly we found a non predicted early positivity on frontal area of the scalp at around 200 ms (P200) lasting till around 400 ms. No other effects were found in the ambiguity condition (Fig.2).

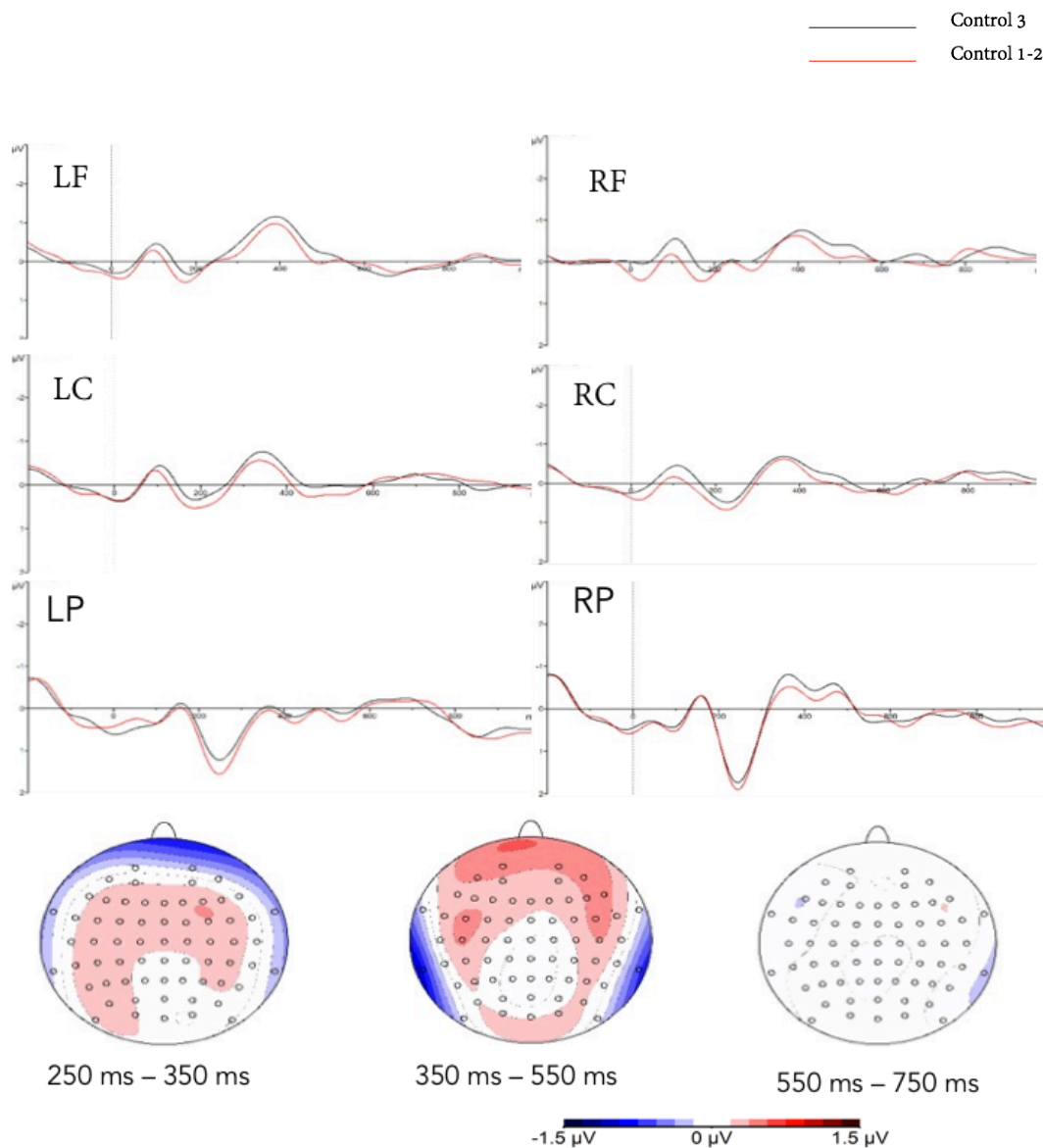
Fig.2 Comparison of the effects elicited by the Condition 1 (control condition) and Condition 2 (gender ambiguity). The red line stands for the gender ambiguity condition, the black line represents the control condition. Topographical amplitude difference maps calculated as the average difference amplitude between the ambiguous and grammatical condition (Gender ambiguity – control condition).



3) ERP Results for Person split in Condition 1 vs Condition 3 (controls)

While no late components were found (around 600ms) . For 3rd person were found: 1) a positive component lasting at 200 ms (similar to a P200) and a frontal/central non lateralized negativity rising at around 300/400ms similar to a N400. In the topographical map (fig.3) the colors of negativity and positivity are opposite since we subtracted the control condition 1-2 tp the control condition 3.

Fig.3 Comparison of the effects elicited by the Condition 1 (Control 1st and 2nd person) and Condition 3 (Control 3 condition). The red line stands for the gender ambiguity condition, the black line represents the cotrol condition. Topographical amplitude difference maps calculated as the average difference amplitude between the control condition1 and the control condition 3 (Control 3 condition – Control 1-2 condition) .



5.4.2.4 Discussion

The main results we found of gender violation are the ones relative to the 3rd person clitic + past participle pattern: the LAN + P600. This pattern of gender violation found in the comparison of agreeing /non agreeing clitic+past participle and is very similar to the ones found in literature for all the types of agreement mismatch (Silva-Pereyra & Carreiras 2007; Mancini et al.2011).

The pattern of semantic gender mismatch in 1st and 2nd person configuration (that is, condition 1 as opposed to condition 2) did not show any pattern of agreement mismatch: neither a LAN or a P600 were found. This is due to the fact that the mismatch is not within the sentence, it does not involve the processing of the person and cue of overt gender. In this condition we expected to find a semantic effect, since the reference of the 1st and 2nd person clitic has to be found in the discourse: the agreement checking had to be performed directly with the semantic gender of the referent in the discourse context. However, since the sentence were introduced in a grammatical judgment task, subjects were not forced to make any reference to the discourse context. They did not make any reference to themselves to check the reference at least of 2nd person clitic: no difference, in fact, were found between male subject and female subjects. So probably the design of the experiment has to include more contextual cue for the disambiguation of discourse referents or at least a change in the overt task of the experiment. One option is also to perform another experiment via auditory stimuli in which the voice of a woman alternated with the voice of a man, people will have to check the semantic gender expressed on the participle agreeing with the non inflected clitic whose reference will be given by the sex inferred from the voice.

Nevertheless, a difference between the two conditions was found: a P200 component emerges when people read the feminine past participle (condition 2) after a 1st or 2nd person uninflected clitic. As for the P200 is not clearly characterized in literature: traditionally the earliest component arising at around 100/200ms are traditionally studied in the context of perception, with specific emphasis on how stimulus evaluation takes place. P200 is associated, in general with visual paradigms and has been analyzed as being a part of cognitive matching

system that compares sensory inputs with stored memory (Luck & Hillyard 1994). Within experiments involving language, P200 component varied with the level of expectancy for a particular item in a sentence (Federmeier & Kutas, 2002). However the application of P200 studies to language research has shown that the amplitude of the P200 is sensitive to both the orthographic combinability and phonological consistency (Luck, 2005). In our respect, the fact that subjects encountered visually a grammatical but referential restricted and unexpected feminine form would, people start the comparison of the unexpected element with the referential information allowed to interpret it. Further researches are needed on this point: once more by adding more contextual information and presenting the stimulus by auditory channel may influence the appearance and the characteristics of the P200 in context were discourse anchored referents introduced an inflected element.

The last part of our discussion is linked to the comparison between the two control condition. This type of comparison is not usual, since control is subtracted to the condition in which a deviant element is presented. In our analysis we compared two grammatical sentence: one presenting an agreement checking based on cue retrieval within the sentence (3rd person) and other with no cue within the sentence and that could be used to refer to any kind of referent within the discourse (sex of the referents). The results showed a negative frontal/central wave form at around 400ms for the condition in which there is agreement checking between the clitic and the past participle. Mancini et al. 2011 already found a N400 linked to person as opposed to a LAN for numbers. Our study and the one of Mancini are not comparable at all since they were comparing person agreement mismatch with number agreement mismatch. Nevertheless the fact that person mismatch has an N400 effect, and no LAN (as also in Zawiszewski et al 2016) would support an analysis for which the agreement checking for person are more linked to the discourse event than on the linguistic cue found in the stimuli. Further analysis are obviously needed, but the fact that person is more discourse oriented influence both is saliency and then the grammatical operation in which it is involved.

This preliminary experiment is interesting in our discussion since it confirms that the person hierarchy (or the sub-person hierarchy in the terms of Carminati 2005) has a neurophysiological base. The fact that no P600 is not encountered when there is an agreement

ambiguity (Condition 2) confirm that 1st and 2nd are checked faster, they do not involve reanalysis. So the configuration involving 1st and 2nd person inflection or lexical element (our case) imply a faster and proficient disambiguation power as predicted by the feature strength hypothesis. The presence of an early component such as P200 which is usually linked with the surprise effect of the unexpected stimulus can also confirm that the presence of a 1st and 2nd person clitic force a quicker sensory check as compared to the 3rd person where the agreement cue are relevant since its referents has to be inferred within the linguistic stimulus.

5.5 Concluding Remarks

As for the opposition between gender and number different contrasting findings and theories have been reviewed. Although number seems to be a more reliable tool in disambiguating null pronouns and in predictive mechanisms (Di Domenico & De Vincenzi, 1995; Carminati, 2005), there is no stable neurophysiological pattern that identify a separate role for number and gender in language processing (Acuña Fariña 2008, Barber and Carreiras 2003; Barber and Carreiras, 2005; Osterhout and Mobley 1995). We proposed that this discrepancy is linked to the interpretation of gender and number features as unique feature: their apparent difference is due to inferential process for the full interpretation at semantic interface.

Gender and number seems to act alike within the syntactic competence of the speaker, a deeper analysis of the linguistic distribution of the nominal inflection of gender and number (Following Franco, Manzini & Savoia, 2005) has shown that they can both be accounted for in terms of meaningful nominal class morphology. Their semantic effects is given by the inference that are performed at the interpretative level and not in syntax, since syntax is blind to the gender and number opposition: we have seen, for example, that typical feminine *-a* inflection in Italian is found also to define masculine and plural referents. The so called semantic gender do not differ from the grammatical gender since both are given in the lexicon through the different inflectional class, the apparent semantic effect of gender and number are mainly an interpretative inference performed at semantic interface. The fact that gender and number have

a different power in language processing can be linked to the characteristics of cognitive tasks in which these effects are found: the position within the stimulus, the number morphology on the verbs among others.

As for the position within the stimulus we showed through the preliminary results of Villata et al, 2017 that the early or late presentation of a disambiguating cue may affect the performance of the linguistic parser for speakers.

Person feature has a central role in both language processing experiments and in syntactic representation: the fact that 1st and 2nd persons are interpreted at discourse level and not only within the linguistic event has strong computational and interpretative effects. We reviewed psycholinguistic studies in which ERP results (Mancini et al. 2011, Zawiszewski et al.) show results comparable to the ones found in self paced reading task (Carminati, 2005). Furthermore, person split can account for different pattern of distribution of case and agreement morphology (Manzini et al 2015). For example, languages correlate the definite character of the discourse participants (1st and 2nd person) with the definite existential quantification is involved such as perfective tense (as suggested by Manzini & Savoia, 2011), in perfective tenses are more likely to be found person split effect. Furthermore, the discourse anchoring of 1st and 2nd person implies pattern of agreement in which they are represented as oblique arguments for their referential status within the speech act (as DOM datives in the Italian clitic system) and not as participant totally defined within the linguistic event. In this respect, we proposed the preliminary result of an ERP study in which we checked how the person intervened in the computation of gender agreement. The results showed that while with 3rd person the pattern is similar to traditional responses found with agreement mismatch in literature, 1st and 2nd person implied a different mechanism agreement checking, probably linked to the disambiguation of the referents through the use of discourse contextual information (and not only through linguistic information as 3rd person). These facts are well accounted forms in the terms of the *Feature Strength Hypothesis* (Carminati, 2005) 1st and 2nd person imply a quicker sensory check due to their higher cognitive strength within the feature hierarchy.

On the one side the reviewed data confirm the idea of Chomsky (2001) that features are processed as a bundle of features by the Agree operation, since for example gender and number

are not clearly differentiated as implying distinct syntactic categories and operations. On the other side the central role of person in both language processing and descriptive linguistic data show that discourse referents need to be represented at semantic interface. However, this does not mean that we have to propose a different mechanism for person agreement but that the prominent role of person is/can be represented within the lexicon of a language and, through the orioer syntactic operation, is spelt out at semantic interface.

Chapter 6

Conclusion: Agreement at Semantic Interface.

In this manuscript we presented arguments in favor of a treatment of Agreement as a basic syntactic operation of probe-goal which is blind to the intrinsically different information that each of the agreement features carries as proposed by Chomsky (2000,2001) and that contributes to the full interpretation of a sentence at the semantic interface (LF) Manzini & Savoia (2007,2011).

We have proposed some theoretical and psycholinguistic data about non-canonical agreement configurations, that apparently do not fit in the computational mechanism of agreement. The aim of the present work was to address the answers to two main questions:

- Question 1
Are the non-canonical agreement configurations, we have been reviewing, linked to a failure of the computational mechanism or to the interpretation attributed to lexical items that enter into the derivation?
- Question 2
Do the different agreement features (gender number and person) have a similar role in the processing of agreement or do the different degrees of cognitive strength associated to each feature influence the syntactic output that is spelt out to the other cognitive interfaces/device (semantic/discourse-pragmatic)?

To answer to the first question, we have argued that the formal mechanism of agreement (agree in Chomsky, 2001) can be maintained in its structural essence: the non canonical pattern of agreement can be accounted for in terms of interpretational requirement at semantic interface.

The interpretative requirements at semantic interface that are at work in the non-canoninal agreement configuration under analysis are mainly linked to: 1) the referential status of the lexical element (goal) which enters into the agree relation 2) and the aspectual interpretation that is attributed to a construction involving more than one agreeing verbs.

As for the referential status that enters in the agreement relation in Chapter 3 we have analyzed the different patterns of agreement found cross-linguistically with complex NPs involving an approximate numeral/quantifiers and a preposition, which selects an embedded NP. There is parametric variation on which element is target by the verbal agreement: languages differ on whether they allow agreement just with the approximate numeral (French, German), with the embedded NP (Occitan, Sardinian) or with both quantifier and the embedded NP (Italian, Spanish). We have proposed a syntactic account for such variation: the Agree operation of Chomsky (2000, 2001) is the same across the different languages, but both the lexical quantificational element that enter into the construction and the PP that introduce the embedded NP determine the pattern of agreement across languages. For instance, the tight relation between the indefinite approximate numeral quantifier and the part whole (\subseteq) relation represented by the PP may represent at semantic interface an indefinite quantified amount (singular agreement) or a set of individuals (plural agreement). The variation across and within languages depends on the opaque/transparent status of the partitive preposition that allow the overt realization in syntax of the two possible interpretations at semantic interface.

As for aspectual interpretation of constructions presenting multiple verbal inflection, in Chapter 2 we have argued that the double inflected construction in the Southern Italian varieties under analysis show an overt biclausal syntax in which two verbs, an auxiliary and an embedded verb show, the same inflectional pattern to achieve the progressive aspectual interpretation at semantic interface. The double inflection we have described is mapped into a semantic representation in which the event denoted by the lexical embedded verb is introduced in a part-whole relation (\subseteq) with the inflection of the tense of the auxiliary which is related to the utterance time. Progressives, in fact, are semantic analyzed as aspectual constructions in which there is no implication that the end of the activity is reached, but the event structure of the verb

is taken in its relation with the utterance time. Once more, the double inflection found in syntax feeds the semantic interface.

The answer to the second question, we have argued that while gender and number have a similar role in language processing, person feature has a central role in both language processing experiments and in syntactic representation, since the discourse vs event opposition encoded in the hierarchy of person has a central role in interpretation at semantic interface.

The different status of 1st and 2nd person as discourse oriented and 3rd person as event oriented accounts for the data of subject omission in the spontaneous speech of the children acquiring Italian, as we have described in Chapter 4: children early on use more overt subject for third person than for 1st and 2nd persons. The data of spontaneous speech are representative of a general cognitive device represented in the person split: the opposition between the discourse referents and referents of the event which is linguistically represented.

Furthermore, as we argued in Chapter 5, while gender and number can be accounted for in terms of a unique feature, person has a central role in both language processing experiments and in syntactic representation. On the one hand, the difference between gender and number does not rely on stable electrophysiological results in ERP experiments: their apparent difference is due to inferential process for the full interpretation at semantic interface of different nominal classes. On the other hand, person feature is found to crucially influence language processing and has strong effects in ERP experiments. Furthermore, the person split is found in the lexicon of many languages (as in the Italian clitic system) and implies different pattern of case and agreement morphology across languages (Manzini et al 2015). Furthermore, in the ERP experiment we described, 1st and 2nd person implied a different mechanism of agreement checking with specific ERP responses: the agreement checking relies on the discourse contextual information (and not only through linguistic information as 3rd person). These facts are well accounted for in the terms of the *Feature Strength Hypothesis* (Carminati, 2005) 1st and 2nd person imply a quicker sensory check due to their higher cognitive strength within the feature hierarchy.

The reviewed data confirm the idea of Chomsky (2001) that features are processed as a bundle of features by the Agree operation, since for example gender and number are not clearly differentiated as implying distinct syntactic categories and operations. On the other side the central role of person in both language processing and linguistic constructions show that discourse referents need to be represented at semantic and other cognitive interfaces. However, this does not mean that we have to propose a different mechanism for person agreement but that the prominent role of person, represented within the lexicon of a language, through syntax is spelt out to feed the requirement of other cognitive devices, including the interpretative requirement of semantic interface.

References

- Abels, K. 2003. Successive cyclicity, anti-locality, and adposition stranding. Doctoral dissertation, University of Connecticut.
- Aboh, E. O. 2004. *The Morphosyntax of complement-head sequences: Clause structure and word order patterns in Kwa*. New York: Oxford University Press.
- Aboh, E. O. 2009. Clause Structure and Verb series. *Linguistic Inquiry* 40: 1–33 Languages.” *Linguistics and Philosophy* 33, 3: 171-214.
- Acuña Fariña, C. 2008. The linguistics and psycholinguistics of agreement: A tutorial overview. *Lingua*, 119 389-424
- Aikhenvald, A.Y. 2006. ‘Serial Verb Constructions in Typological Perspective’, in A. Y. Aikhenvald and R. M. W. Dixon (eds.), *Serial Verb Constructions: A Cross-Linguistic Typology*. Oxford: Oxford University Press, 1–68.
- Aikhenvald, A. Y. and R. W. Dixon, (eds.) 2006. *Serial Verb Constructions: A Cross-Linguistic Typology*. Oxford: Oxford University Press.
- Alexiadou, A., Anagnostopoulou, E. & C.Sevdali. 2014. Opaque and Transparent Datives, and How They Behave in Passives. *Journal of Comparative Germanic Linguistics* 17: 1–34.
- Allen, S. 2000. A discourse-pragmatic explanation for argument representation in child inuktitut. *Linguistics*, 38(3):483–521.
- Arosio, F, 2011. “Inflectum and perfectum. Two Faces of Tense Selection in Romance Languages.” *Linguistics and Philosophy* 33, 3: 171-214.
- Baker, M.1989. ‘Object sharing and projection in serial verb constructions’, *Linguistic Inquiry* 20: 513–53.
- Baker, Mark. 2008. *The syntax of agreement and concord*. Cambridge: Cambridge University Press.
- Baker, Mark, and Vinokurova, Nadia. 2010. Two modalities of case assignment in Sakha. *Natural Language and Linguistic Theory* 28: 593-642.
- Barber, H. and Carreiras, M., 2003. Integrating gender and number information in Spanish word pairs: an ERP study. *Cortex* 39, 465–482.

- Barber, H. and M. Carreiras, 2005. Grammatical gender and number agreement in Spanish: an ERP comparison. *Journal of Cognitive Neuroscience* 17 (1), 137–153.
- Barber, H., Salillas, E. and M. Carreiras, 2004. Gender or genders agreement? In: Carreiras, M., Clifton, C. (Eds.), *On-line Study of Sentence Comprehension; Eye-tracking, ERP and Beyond*. Psychology Press, Brighton, UK, pp. 309–327.
- Barker, C. 1998. Partitives, double genitives and anti-uniqueness. *Natural Language and Linguistic Theory* 16(4): 679–717.
- Barbosa, P. 1995. *Null subjects*. PhD dissertation: MIT.
- Béjar, S. 2008. Conditions on phi-agree. In D. Harbour, D. Adger & S. Béjar (eds.), *Phi theory: Phi-features across modules and interfaces*, 130–154. Oxford: Oxford University Press.
- Belletti, A. 1988. The case of unaccusatives'. *Linguistic Inquiry*, 19:1–34.
- Belletti, A. 2001. Inversion as focalization. In: *Inversion in Romance and the theory of Universal Grammar*, A. Hulk & J. Pollock, ed., (oxford university press (oup) ed.), pages 60–90. Oxford University Press (OUP).
- Belletti, A. 2004. Aspects of the low ip area. In: *The structure of CP and IP. The Cartography of Syntactic Structures*, L. Rizzi, ed., volume Volume 2, pages 16–51. New York: Oxford University Press.
- Belvin, R., and M. den Dikken. 1997. There, happens, to, be, have. *Lingua* 101(3/4): 151–183.
- Benveniste, E. 1966. *Problèmes de linguistique générale*, Gallimard, Paris.
- Berruto, G. 1983. L'italiano popolare e la semplificazione linguistica. *Vox Romanica* 42: 38–79.
- Bianchi, V. & Belletti, A. 2014. Indefinite subjects of unaccusatives. Talk at the workshop “Specificity in the grammar. Form and Interpretation”, held in Trento University of Trento, 12 February 2014.
- Bloom, P. 1991. Subjectless sentences in child language. *Linguistic Inquiry*, (21):491–504.

- Bobaljik, J. 2008 a. 'Missing persons: a case study in morphological universals', *The Linguistic Review, special issue Examples of Linguistic Universals* 25: 203–30.
- Borer, H. 1984 *Parametric Syntax*, Foris, Dordrecht.
- Borer, H. 2005. *In Name Only. Structuring Sense, Volume I*. Oxford: OUP.
- Borer, H., and K. Wexler. 1987. 'The maturation of syntax'. In T. Roeper and E. Williams (eds) *Parameter setting*. Dordrecht: Reidel.
- Bošković, Ž. 2006. Case and agreement with genitive of quantification in Russian. In C. Boeckx (ed.), *Agreement systems*, 99–121. Amsterdam: John Benjamins.
- Bouchard, D. 1995. *The Semantics of Syntax. A Minimalist Approach to Grammar*. Chicago / London: University of Chicago Press.
- Brucart, J. M. 1997. "Concordancia ad sensum y partitividad en español", In M. Almeida & J. Dorta (eds.), *Contribuciones al estudio de la lingüística hispánica. Homenaje al profesor Ramón Trujillo*, pp. 157-184. Tenerife: Montesinos.
- Cardinaletti, A and G. Giusti, 2003, "Motion verbs as functional heads" in C. Tortora., *The Syntax of Italian Dialects*, New York: Oxford University Press, pp. 31-49
- Carminati, M.N., 2005. Processing reflexes of the Feature Hierarchy and implications for linguistic theory. *Lingua* 115, 259–285.
- Chierchia, G. 1995. 'Individual-level Predicates as Inherent Generics'. In G.N. Carlson and F.J. Pelletier (eds.), *The Generic Book*. University of Chicago Press. Chicago and London. 176– 223.
- Chomsky, N. 1957. *Syntactic Structures*. The Hague: Mouton.
- Chomsky, N. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
- Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press.
- Chomsky, N. 1995. *The Minimalist Program*. Cambridge Mass.:MIT Press.
- Chomsky, N. 2000. Minimalist inquiries. In R. Martin, D. Michaels & J. Uriagereka (eds.), *Step by Step: Essays in Minimalist Syntax in Honor of Howard Lasnik*, 89–155. Cambridge, Mass: MIT Press.

- Chomsky, N. 2001. 'Derivation by phase', in M. Kenstowicz (ed.), *Ken Hale: A Life in Language*. Cambridge, Mass.: MIT Press, pp. 1–52.
- Cinque, G. 1999. *Adverbs and Functional Heads: A Cross-Linguistic Perspective*. Oxford Studies in Comparative Syntax, Oxford New York: Oxford University Press.
- Cinque, G. Forthcoming. "On the Status of Functional Categories (Heads and Phrases)." *Language and Linguistics*.
- Cipriani, P., Pfanner, P., Chilosi, A., Cittadoni, L., Ciuti, A., Maccari, A., Pantano, N., Pfanner, L., Poli, P., Sarno, S., Bottari, P., Cappelli, G., Colombo, C., & Veneziano, E. 1989. 'Protocolli diagnostici e terapeutici nello sviluppo e nella patologia del linguaggio.' *Protocollo n. 1/84*. Ministero della Salute della Repubblica Italiana: StellabMaris Foundation.
- Corver, Norbert. 1998. Predicate movement in pseudopartitive constructions. In *Possessors, Predicates and Movement in the Determiner Phrase*, ed. by Artemis Alexiadou & Chris Wilder, 215-257. Amsterdam: John Benjamins.
- Citko, B. 2014. *Phase Theory: an introduction*. Cambridge: Cambridge University Press.
- Corbett, G. 2006. *Agreement*. Cambridge: Cambridge University Press.
- Corver, N. 1998. Predicate movement in pseudopartitive constructions. In *Possessors, Predicates and Movement in the Determiner Phrase*, ed. by Artemis Alexiadou & Chris Wilder, 215-257. Amsterdam: John Benjamins.
- Costa, J. and S. Pereira. 2005. 'Phases and autonomous features: a case of mixed agreement in European Portuguese'. In *Perspectives on Phases*, ed. by Martha McGinnis, and Norbert Richards, 115–124. Cambridge, MA: MIT Press.
- Croitor, B. and C. Dobrovie-Sorin. 2011. The agreement of Collective DPs in Romanian. In *Romance Linguistics 2010: Selected papers from the 40th Linguistic Symposium on Romance Languages*, ed. by Julia Herschensohn, 239-255. Amsterdam: John Benjamins.
- Cruschina, S. 2013. 'Beyond the Stem and Inflectional Morphology: an Irregular Pattern at the Level of Periphrasis'. In: Cruschina, Silvio; Maiden, Martin; Smith, John Charles

- (eds.), *The Boundaries of Pure Morphology*. Oxford: Oxford University Press, pp. 262-283.
- D'Alessandro, R., and I.Roberts. 2010. 'Past participle agreement in Abruzzese: Split auxiliary selection and the null-subject Parameter.' *Natural Language and Linguistic Theory* 28: 41-72.
- Danon, G. 2011. Agreement and DP-internal feature distribution. *Syntax* 14: 297-317
- Danon, G. 2013. 'Agreement alternations with quantified nominals in Modern Hebrew.' *Journal of Linguistics* 49: 55-92.
- Di caro, V and Giusti, G. 2015, A Protocol for the Inflected Construction in Sicilian Dialects, *Annali di Ca' Foscari. Serie occidentale* Vol. 49 – September 2015
- Demirdache, H. & Uribe-Etxebarria M. 1997. 'The primitives of temporal relations.' In R. Martin, D. Michael & J. Uriagereka, eds., *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*. Cambridge: MIT Press
- Demonte, V. and I.Pérez-Jiménez. 2015. 'Construcciones partitivas y pseudopartivas en español.' In *Variación y diversidad lingüística*. ed. by Esther Hernández, and Pedro Martín Butragueño, 15-98. Ciudad de México: El Colegio de México.
- De Vincenzi, M., 1999. Differences between the morphology of gender and number: evidence from establishing coreferences. *Journal of Psycholinguistic Research* 28, 537-553.
- Di Domenico, E., De Vincenzi, M., 1995. Gender and number in the retrieval of pronoun antecedents: differences in use and representation. In: Nash, L., Tsoules, F., Zribi-Herts, A. (Eds.), *Actes du deuxie`me colloque 'Langues et grammaire'*. Paris, pp. 95-109.
- Déchaine, Rose-Marie. 1993. "Serial Verb Constructions." In *Syntax: An International Handbook of Contemporary Research*, vol. 1, ed. by Joachim Jacobs, Arnim von Stechow, Wolfgang Sternefeld, and Theo Vennemann, 799-825. Berlin-New York: Walter de Gruyter.

- Den Dikken, M. 2001. "Plurilinguals", Pronouns and Quirky Agreement. *The Linguistic Review* 18: 19-41.
- Den Dikken, M. 2003. *On the syntax of locative and directional adpositional phrases*. City University of New York
- Den Dikken, M. 2006. *Relators and Linkers*. Cambridge, MA: The MIT Press.
- Deo, A. And D. Sharma. 2006. Typological variation in the ergative morphology of Indo-Aryan languages. *Linguistic Typology* 10:369-418.
- Di Caro, Vincenzo, and Giuliana Giusti. 2015. "A Protocol for the Inflected Construction in Sicilian Dialects." *Annali di Ca' Foscari, Serie occidentale* 49, 393-421.
- Etxeberria, U. and R.Etxepare. 2012. 'Number agreement in Basque: counting vs. measuring.' In *Noun phrases and nominalization in Basque*, ed. by Urtzi Etxeberria, Ricardo Etxepare, and Myriam Uribe-Etxebarria, 149-178. Amsterdam: John Benjamins.
- Fanselow, G. 2001. Features, theta-roles, and free constituent order. *Linguistic Inquiry* 32: 405-437.
- Federmeier, K. D., & Kutas, M. 2002. 'Picture the difference: electrophysiological investigations of picture processing in the two cerebral hemispheres.' *Neuropsychologia*, 40, 730-747.
- Ferreira, F. 2003. The misinterpretation of noncanonical sentences. *Cognitive Psychology*, 47(2), 164-203.
- Ferreira, F., & Henderson, J. M. 1991. Recovery from misanalyses of garden-path sentences. *Journal of Memory and Language*, 30(6), 725-745.
- Frazier, L. 1979. On comprehending sentences: Syntactic parsing strategies. Doctoral dissertation, University of Massachusetts.
- Folli, R and H Harley. 2007. 'Causation, obligation and argument structure: On the nature of little v.' *Linguistic Inquiry* 38: 197-238.
- Fox, D. and D.Pesetsky. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31: 1-45.

- Franck, J., Lasso, G., Frauenfelder, U., Rizzi, L., 2006. Agreement and movement: a syntactic analysis of attraction. *Cognition* 101, 173–216.
- Franco, L., & M. R. Manzini, (to appear). Instrumental prepositions and case: contexts of occurrence and alternations with datives *Glossa*.
- Franks, Steven. 1994. 'Parametric properties of numeral phrases in Slavic.' *Natural Language & Linguistic Theory* 12: 597–674.
- Gallego, Ángel. 2010. *Phase Theory*. Amsterdam: John Benjamins.
- Gilligan, G. M. 1987. *A cross linguistic approach to the pro-drop parameter*. PhD dissertation: University of Southern California.
- Giusti, Giuliana. 1997. The categorial status of determiners. In *The new comparative syntax*, ed. by Liliane Haegeman, 94–113. Cambridge: Cambridge University Press.
- Grevisse, M. and A. Goosse. 2011. *Le Bon Usage — Grammaire, langue française*. Paris–Louvain-la-Neuve: DeBoeck - Duculot.
- Hale, K. and S. J. Keyser 1993. 'On Argument Structure and the Lexical Expression of Syntactic Relations». In Hale, K.; Keyser, S. J. (eds.). *The View from Building 20*. Cambridge, MA: MIT Press.
- Hale, K, and S. J. Keyser. 2002. *Prolegomenon to a theory of argument structure*. Cambridge, MA: MIT Press.
- Halle, M. & A. Marantz. (1993). Distributed morphology and the pieces of inflection. *The View from Building 20*, edited by K. Hale & S.J. Keyser, 111–176. Cambridge, Mass.: MIT Press.
- Harford Perez, C. 1985. *Aspects of complementation in three Bantu languages*. Ph.D. dissertation, University of Wisconsin-Madison.
- Harley, H. and E. Ritter 2002. 'Person and number in pronouns: a feature geometric analysis' ms., University of Arizona and University of Calgary.
- Higginbotham, J. 1985. On semantics. *Linguistic Inquiry* 16: 547-593.
- Higginbotham, J. 2009. *Tense, Aspect, and Indexicality*. *Oxford Studies in Theoretical Linguistics*. Oxford: Oxford UP.
- Hirose, T. 2003. The syntax of D-linking. *Linguistic Inquiry* 34: 499-506.

- Hirsch, C. and K. Wexler (2007) “The late acquisition of raising: What children seem to think about seem,” in S. Dubinsky and B. Davies (eds.) *New horizons in the analysis of control and raising*. NY: Springer.
- Holmberg, A. 2005. Is there a little pro? Evidence from Finnish. *Linguistic Inquiry* 36: 533–64.
- Hornstein, N. 2003. ‘On control’. in *Minimalist Syntax*, ed. by Randall Hendrick, 6-81. Oxford: Blackwell.
- Hyams, N. 1986. *Language acquisition and the theory of parameters*. Dordrecht: Reidel.
- Hyams, N. 2007. Aspectual effects on interpretation. *Language Acquisition*, 14(3):231–268.
- Ince, A.. 2007. “Non-Wh Phrases in Sluicing in Turkish”. In *University of Maryland Working Papers in Linguistics (UMWPiL)* ed. By A. Omaki, I. Ortega-Santos, J. Sprouse and M Wagers Volume XVI, pp. 1-22.
- Ingram, David. 1978. Typology and universals of personal pronouns, in Joseph H. Greenberg (ed.). *Universals of Human Language*, vol. III: Word Structure, Stanford University Press, Stanford, pp. 213-248.
- Jackendoff, R.. 1977. *X' Syntax: A Study of Phrase Structure*. Cambridge, MA: MIT Press.
- Kayne, R.. 1989. “Facets of Past Participle Agreement.” In *Dialect Variation and the Theory of Grammar*. ed. by Paola Benincà, 85–103. Dordrecht: Foris.
- Kayne, R. 1991. “Romance Clitics, Verb Movement and PRO.” *Linguistic Inquiry* 22: 647-686.
- Kayne, R. 1993. ‘Toward a modular theory of auxiliary selection’, *Studia Linguistica* 47:3–31.
- Kayne, Richard. 2010. *Comparisons and Contrasts*, 190-227. New York: Oxford UP.
- Koptjevskaja-Tamm, M. 2001. "A piece of the cake" and "a cup of tea": partitive and pseudo-partitive nominal constructions in the Circum-Baltic languages. In *The Circum-Baltic Languages: Typology and Contact*, vol. 2, ed. by Östen Dahl and Maria Koptjevskaja-Tamm, 523-568. Amsterdam/Philadelphia: John Benjamins.
- Kramer, R.. 2009. *Definite Markers, Phi-features, and Agreement: A Morphosyntactic Investigation of the Amharic DP*. Santa Cruz: University of California dissertation.

- Kratzer, A. 1996. Severing the external argument from the verb. In J. Rooryck and L. Zaring (Eds.), *Phrase Structure and the Lexicon*, pp. 109–137. Dordrecht: Kluwer.
- Kutas M and Federmeier 2009 KD. N400. *Scholarpedia*, 4: 77e90, 2009.
- Kutas, M., Hillyard, S.A., 1980. Reading senseless sentences: brain potentials reflect semantic incongruity. *Science* 207, 203--205.
- Kutas, M., Hillyard, S.A., 1983. Event-related brain potentials to grammatical errors and semantic anomalies. *Mem. Cognit.* 11, 539--550.
- Laka I. 2006. Deriving Split-ergativity in the progressive: the case of Basque. In A. Johns, D. Massam, & J. Ndayiragije (Eds.). *Ergativity: Emerging Issues*, pp.173-195, Dordrecht/Berlin: Springer. ISBN:978-14-020-4186-0.
- Landau, I. 2004. "The scale of finiteness and the calculus of control." *NLLT* 22:811-877.
- Landau I. 2013. *Control in generative grammar. A research companion*. Cambridge: Cambridge University Press
- Landman, Fred. 1992. "The Progressive." *Natural Language Semantics* 1: 1-32.
- Leclercq, B. and I. Depraetere. 2016. Verbal Agreement with Partitive Noun Phrases. *Studia Linguistica* doi:10.1111/stul.12059.
- Legendre, G. 2010. 'A formal typology of person-based auxiliary selection in Italo-Romance', in R. D'Alessandro, A. Ledgeway and I. Roberts (eds.), *Syntactic Variation: the Dialects of Italy*. Cambridge University Press, pp. 86–101.
- Ledgeway, A. 1997. "Asyndetic Complementation in Neapolitan Dialect". *The Italianist*, 17, pp. 231-273.
- Ledgeway, Adam. 2015. "Reconstructing Complementiser-drop in the Dialects of the Salento: A Syntactic or Phonological Phenomenon." In *Syntax Over Time: Lexical, Morphological, and Information-structural Interactions*, ed. by Theresa Biberauer and George Walkden, 146-162. Oxford: Oxford University Press
- Ledgeway, Adam. 2016. "From Coordination to Subordination: The Grammaticalisation of Progressive and Andative Aspect in the Dialects of Salento." In *Coordination and Subordination. Form and Meaning. Selected Papers from CSI Lisbon 2014*, ed. by

- Fernanda Pratas, Sandra Pereira, and Clara Pinto, 157- 184. Newcastle: Cambridge Scholars Publishing.
- LeTourneau, M. S. 1995. 'Internal and external agreement in quantified construct states.' In *Perspectives on Arabic Linguistics: Papers from the Annual Symposium on Arabic Linguistics. Volume VII*, ed. by Mushira Eid, 29–57. Amsterdam: John Benjamins.
- Lorusso, P., forthcoming "A person split analysis of the progressive forms in Barese", in *Local and Non-Local Dependencies in the Nominal and Verbal Domains'* ed. by Ludovico Franco, Mihaela Moreno Marchis & Matthew Reeve. Language Science Press
- Lorusso, P. 2007. The acquisition of aspect in l1 italian. In: *Proceedings of the 2nd Conference of GALANA*, A. Belikova, L. Meroni, & M. Umeda, ed., pages 253–264. Somerville: Cascadilla Press.
- Lorusso, P. 2014. *Verbs in Child Grammar The Acquisition of the Primitive Elements of the VP at the Syntax-Semantics Interface*. PhD Dissertation, Universitat Autònoma de Barcelona.
<http://www.tdx.cat/bitstream/handle/10803/283726/pl1de1.pdf?sequence=1>.
- Lorusso, P., Caprin C. and M.T. Guasti, 2005. Overt subject distribution in early italian children," in BUCLD 29 Proceedings Supplement. BU Boston,MA.: Online Publishing <http://www.bu.edu/linguistics/APPLIED/BUCLD/supp29.html>.
- Lorusso P. and L. Franco (2017) "A double pattern of agreement with embedded NPs", *Lingua*, 195 39-6.
- Lorusso P., A.D. Manca, L.Franco & M.Grimaldi. (2017) "The features of Person and Gender: an ERP study on a Person Split in Italian" talk at Experimental Psycholinguistics Cinfrence Menorca 29-06-2017
- Lorusso P., A.D. Manca, L.Franco & M.Grimaldi. (forthcoming) "The features of Person and Gender: an ERP study on a Person Split in Italian" in Escobar, Torrens & Parodi (eds.) *Language Processing and Disorders*. John Benjamins.
- Luck, S. J., & Hillyard, S. A. 1994. 'Electrophysiological correlates of feature analysis during visual search.' *Psychophysiology*, 31, 291-308.

- Lyons, J. 1968. *Introduction to Theoretical Linguistics*, Cambridge University Press, Cambridge.
- MacWhinney, B. & Snow, C. E. 1985. The child language data exchange system. *Journal of Child Language*, (12):271–296.
- Mancini, S., Molinaro, N., Rizzi, L. & Carreiras, M. 2011. A person is not a number: discourse involvement in subject-verb agreement computation. *Brain Research*, 1410, 64–76
- Manzini, M. R. and L. Franco. 2016. Goal and DOM datives. *Natural Language & Linguistic Theory* 34: 197-240.
- Manzini, M. R., and A. Roussou. 2000. A minimalist theory of A-movement and control. *Lingua* 110: 409-447.
- Manzini, M.R. and L. Savoia 2003. The nature of complementizer. *Rgg, Rivista di Grammatica Generativa* vol. 28, pp. 87-110, ISSN:1122-4428
- Manzini, M. R., and L. Savoia. 2004. The nature of the agreement inflections of the verb. *MIT Working Papers in Linguistics* 47: 149-78.
- Manzini, M. R. and L.Savoia, L., 2005. *I dialetti italiani e romanci. Morfosintassi generativa*. Alessandria: Edizioni dell'Orso.
- Manzini, M. R. and L.Savoia, L., 2007. *A Unification of Morphology and Syntax*. London: Routledge.
- Manzini, M. R. and Savoia, L., 2011. "(Bio)linguistic diversity: Have/Be alternations in the present perfect". In Di Sciullo, A., and C. Boeckx (eds.) *The Bilingual Enterprise* 222–265. Oxford, UK: Oxford University Press.
- Manzini, Rita, L. Savoia, and L Franco. 2015. Suffixaufnahme, oblique case and Agree. Ms. Firenze/Lisboa.
- Manzini, M. Rita and Wexler, Kenneth 1987. 'Binding theory, parameters and learnability', *Linguistic Inquiry* 18: 413–44.
- Martins, A. and Nunes, J. 2005. "Raising issues in Brazilian and European Portuguese." *Journal of Portuguese Linguistics* Vol. 4:53-77.
- Masini, Francesca. 2016. Binominal constructions in Italian of the N1-di-N2 type: towards a

- typology of Light Noun Constructions. *Language Sciences* 53: 99-113.
- Mateu, J. 2002 *Argument Structure: Relational Construal at the Syntax Semantics Interface*. PhD thesis, Universitat Autònoma de Barcelona.
- Mateu, J. & L. Amadas 1999. 'Extended argument structure: Progressive as unaccusative.' *Catalan Working Papers in Linguistics*, Barcelona, 159-174.
- Milner, J. 1978. *De la syntaxe à l'interprétation*. Paris: Editions de Seuil.
- Mirto, I.M., and H. Necker. 2007. Complex nominal determiners. A contrastive study. In Paolo Ramat, & Elisa Roma (eds.), *Europe and the Mediterranean as Linguistic Areas: Convergencies from a historical and typological perspective*, 215-243. Amsterdam: John Benjamins.
- Molinaro N., Barber H. and M. Carreiras. 2011. 'Grammatical agreement processing in reading: ERP findings and future directions'. *Cortex* 4:908-930.
- Molinaro N, Vespignani F, and Job R. A deeper reanalysis of a superficial feature: An ERP study on agreement violations. *Brain Research*, 1228: 161e176, 2008a.
- Müntz, T.F. and Heinze, H.J., 1994. ERP negativities during syntactic processing of written words. In: Heinze, H.J., Müntz, T.F., Mangun, G.R. (Eds.), *Cognitive Electrophysiology*. Birkauser, Boston, pp. 211-238.
- Nevins, A. 2011. 'Multiple agree with clitics: Person complementarity vs. omnivorous number.' *Natural Language & Linguistic Theory* 29:939-971.
- Nevins, A., Dillon, B., Malhotra, S. & Phillips, C., 2007. "The role of feature-number and feature-type in processing Hindi verb agreement violations". *Brain Research* , 1164 , 81-94.
- Newmeyer, F. J. 2005. *Possible and Probable Languages: A Generative Perspective on Linguistic Typology*. Oxford: Oxford University Press.
- Nicol J, and Greth D. 2003. Production of subject-verb agreement in Spanish as a second language. *Experimental Psychology*. 2003;50:196-203.
- Nicol J, Teller M nad Greth D. 2001. Production of verb agreement in monolingual, bilingual and second-language speakers. In: Nicol J, editor. *One mind, two languages: Bilingual language processing*. Malden, MA: Blackwell; 117-133.
- Nicolis, M. 2005. *On pro-drop*. PhD dissertation: Università degli Studi di Siena.

- Noyer, R. 1997. *Features, positions and affixes in Autonomous Morphological Structure*, Garland Press, New York.
- Nunes, J. 2008. "Inherent Case as a licensing condition for A-Movement: The case of hyper-raising constructions in Brazilian Portuguese." *Journal of Portuguese Linguistics* Vol. 7.2: 83-108.
- Orfitelli, R. M. 2008. *Null subjects in child language: The competing roles of competence and performance*. Master's thesis, UCLA, Los Angeles, California.
- Parsons, Terence. 1989. "The Progressive in English: Events, States and Processes." *Linguistics and Philosophy* 12 (2): 213-241.
- Pesetsky, D. & E. Torrego. 2004. Tense, Case, and the nature of syntactic categories. In Jacqueline Guéron & Jacqueline Lecarme (eds.), *The syntax of time*, 495–537. Cambridge MA: MIT Press.
- Pesetsky, D and E. Torrego. 2007. The syntax of valuation and the interpretability of features. In Simin Karimi, Vida Samiian & W. K. Wilkins (eds.), *Phrasal and Clausal Architecture: Syntactic Derivation and Interpretation*, 262–294. Amsterdam: John Benjamins.
- Pesetsky, D. 2013. *Russian Case Morphology and the Syntactic Categories*. Cambridge, MA: MIT Press.
- Pesetsky, D. 1982. Paths and categories. Ph.D. dissertation, MIT.
- Preminger, O. 2009. Breaking Agreements: distinguishing agreement and clitic-doubling by their failures. *Linguistic Inquiry* 40(4): 619-666.
- Preminger, O. 2011. *Agreement as a Fallible Operation*. PhD dissertation, MIT.
- Preminger, O. 2014. *Agreement and its failures*. Cambridge, MA: MIT Press.
- Pylkkänen, L. 2002. *Introducing Arguments*. Ph.D. thesis, MIT.
- Quirk, R., Greenbaum, S., Leech, G. and J. Svartvik. 1972. *A Grammar of Contemporary English*. London: Longman.
- Ramchand, G. 2001. *Aktionsart, l-syntax and selection. Perspectives on Aspect*. Utrecht Institute of Linguistics, Utrecht, The Netherlands.
- Ramchand, Gillian. 2008. *Verb Meaning and the Lexicon: A First. Phase Syntax*.

Cambridge: CUP.

- Rezac, M. 2008. Agree and theta-related Case. In *Phi theory: Phi- features across modules and interfaces*, ed. by Daniel Harbour, David Adger, and Susana Béjar, 83-129, Oxford: OUP.
- van Riemsdijk, H. and R. Huybregts. 2001. Location and locality. In *Progress in Grammar* ed. by Marc van Oostendorp and Elena Anagnostopoulou, pp. 1-23. Roccade, Utrecht and Meertens Institute Amsterdam.
- Ritter, E. and Rosen, S. 1998. Delimiting events in syntax. In: *The Projection of Arguments*, M. Butt & W. Geudee, ed., pages 135-164. CSLI.
- Rivero, M.L. 2004. Quirky subjects, person restrictions, and the person case constraint. *Linguistic Inquiry* 35(3): 494-502.
- Rizzi, L. 1982. *Issues in Italian Syntax*. Dordrecht: Foris.
- Rizzi, L. 1986. Null-objects in Italian and the theory of pro. *Linguistic Inquiry*, (17):501- 559.
- Rizzi, L. 1993/1994. Some notes on linguistic theory and language development: The case of root infinitives. *Language Acquisition*, 3:371-393.
- Robblee, K. E. 1993. Individuation and Russian agreement. *Slavic and East European Journal* 37: 423-441.
- Rohlf, G. 1969. *Grammatica storica della lingua italiana e dei suoi dialetti, vol. 3: Sintassi e formazione delle parole*. Torino: Einaudi.
- Schwarzschild, R.. 2006. The role of dimensions in the syntax of noun phrases. *Syntax* 9(1): 67-110.
- Selkirk, Elizabeth. 1977. Some remarks on noun phrase structure. In *Formal Syntax*, ed. by Peter Culicover, Tom Wasow & Adrian Akmajian, 285-316. New York: Academic Press.
- Serianni, L. 1989. *Grammatica Italiana: italiano comune e lingua letteraria*. Torino: UTET.
- Serratrice, L. & Sorace, A. 2003. Overt and null subjects in monolingual and bilingual Italian acquisition. In: *Proceedings of the 27th Annual BUCLD*, volume 2. Somerville: Cascadilla Press.
- Serratrice, L. 2005, "The role of discourse pragmatics in the acquisition of subjects in Italian," *Applied Psycholinguistics*, (26):437-462.
- Sigurdsson, H.Á. 2009. Remarks on features. In K. Grohman, ed., *Explorations of Phase Theory*:

- Features and Arguments (Interface Explorations)*, 21–52, Mouton de Gruyter, Berlin.
- Silva-Pereyra, J.F. and M. Carreiras, 2007. An ERP study of agreement features in Spanish. *Brain Research*, 1185, 201–211.
- Stickney, H. 2004. The pseudopartitive and its illusory projections. Manuscript, University of Massachusetts.
- Svenonius, P. 2006. 'Interpreting uninterpretable features'. *Linguistic Analysis* 33:375–413.
- Tabor, W., & Hutchins, S. 2004. Evidence for self-organized sentence processing: Digging-in effects. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 30(2), 431–450.
- Talmy, L. 1985. 'Lexicalization Patterns: Semantic Structures in Lexical Forms'. In Shopen, T. (ed.). *Language Typology and Syntactic Description III: Grammatical Categories and the Lexicon*. Cambridge, MA: CUP.
- Taraldsen, K.T. 1978. 'On the NIC, Vacuous Application, and the That-t Filter', ms., MIT
- Toosarvandani, M, & C. van Urk. 2012. Directionality and intervention in nominal concord: Evidence from Zazaki ezafe. Poster presented at the 43rd Annual Meeting of the North East Linguistic Society (NELS), City University of New York, Graduate Center, October 19th.
- Valian, V. 1991. Syntactic subjects in the early speech of american and italian children. *Cognition*, (40):21–81.
- Vendler, Z. 1967. *Linguistics in Philosophy*. Ithaca: Cornell University Press.
- Vernice, M. and M.T.Guasti, 2014. 'The acquisition of sv order in unaccusatives: manipulating the definiteness of the np argument', *Journal of child language*, pages 1–28.
- Vigliocco, G., Hartsuiker, R., Jarema, G., and H. Kolk. 1996. 'One or more labels on the bottles? Notional concord in Dutch and French.' *Language and Cognitive Processes*. 11:407-442.
- Villata, S. Franco, L and P.Lorusso, 2017 "Digging-in effects in Italian relative clauses" talk presented at Experimental psycholinguistic conference Minorca 28, 06, 2017
- Villata, S. and P.Lorusso, forthcoming "When initial thematic roles attribution lingers: evidence for digging-in effects in italian relative clauses" in Escobar, Torrens & Parodi (eds.) *Language Processing and Disorders*. John Benjamins.

- Wechsler, S. and L. Zlatić. 2000. A theory of agreement and its application to Serbo-Croatian. *Language* 76: 799–832.
- Wechsler, S. and L. Zlatić. 2003. *The many faces of agreement*. Stanford: CSLI Publications.
- Wexler, K. and Manzini, R. 1987. ‘Parameters and Learnability in Binding Theory’, in T. Roeper and E. Williams (ed.), *Parameter Setting*. Dordrecht: Reidel, 41–76.
- Williams, E. 1980. Predication. *Linguistic Inquiry* 11: 203-238.
- Williams, E.. 1994. *Thematic Structure in Syntax*. Cambridge MA: MIT Press.
- Zawiszewski, A., Santesteban, M. and I. Laka. 2016. ‘Phi-features reloaded: An ERP study on person and number agreement processing’, *Applied Psycholinguistics*.
- Zeller, J. 2006. “Raising out of finite CP in Nguni: The case of fanele.” *South African Linguistics and Applied Language Studies* 24.3, 255-275.