

Auxiliaries and Verb Classes in Child Italian: A Syntactic Analysis of the Development of Aspect

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Abstract:

In this paper we will analyse the production and interpretation of the forms of the present perfect (*passato prossimo*) in children's Italian. Young children use past or perfective forms mainly to refer to telic predicates and present or imperfective forms mainly to refer to atelic predicates: the *Aspect First Hypothesis* (Antonucci and Miller 1976). We will focus on the distribution of auxiliaries in the first forms of the present perfect. First, since in Italian there are two auxiliaries, *be* for unaccusatives and *have* for transitives, we will show that *be* is mastered earlier than *have*: children properly assign *be* to unaccusatives which are inherently telic predicates and *have* to transitives and unergatives which are atelic. Second, we will test the validity of the *Aspect First Hypothesis* by presenting the results of two experimental tasks: the production and the comprehension of the perfective forms of *have* with telic and atelic predicates. The results will show that the *aktionsart* of verbs is relevant to account for the production of early auxiliaries till the age of 5. Furthermore, the perfective reading is not interpreted properly with atelic unergatives till later stages (7 years). We propose that telicity is not matched with the perfective morphology, but the presence of an overt direct object, that measures out the event denoted by the verb, triggers the production of the present perfect in child Italian. The syntax of verb classes influences the early aspectual interpretation.

Keywords: Acquisition, Aktionsart, Auxiliaries, Telicity, Verb Classes

1. Introduction

Different authors have investigated the appearance of auxiliaries in child Italian (Pizzuto and Caselli 1992; Snyder, Hyams, and Crisma 1995; Antelmi

1997; Nelli 1998; Caprin and Guasti 2009). Most of them have found that when children start to use the auxiliary forms, they almost never substitute *be* and *have* (Pizzuto and Caselli 1992; Snyder, Hyams, and Crisma 1995; Antelmi 1997; Nelli 1998). Other studies show that the use of *be* as an auxiliary emerges later than the use of *be* as a copula (Antelmi 1997; Nelli 1998; Caprin and Guasti 2009) and this happens because auxiliary forms are used in compound past tenses that emerge later than the present tense or, in the terms of Caprin and Guasti (2009), children are able to check in the earliest stage just the features of a single verb, as for copulas, and not of two verbs, as for the biclausal auxiliary constructions.

Auxiliaries are mainly found in the forms of the present perfect tense: in Italian, the *passato prossimo* perfective past tense. Several studies have focused on the first productions of perfective past tenses. Antinucci and Miller (1976), in a longitudinal study of 7 Italian children (aged between 1;6 and 2;5), found that children do not produce forms of *passato prossimo* with unergatives but that they only use such tenses with change of state verbs such as *diventare* 'become'. This led them to claim that children in the early stages are cognitively not ready to entertain abstract, temporal relations. At this point of their development they lack an abstract conception of time that would allow them to construct the relation "event x precedes event y" for any two events. Instead, they claim that children can use the form of *passato prossimo* in order to refer to the resulting characteristic of some predication, for example the end state of a verb relating to a change of state. Children are able to observe states in the present that have the characteristic of being linked to a preceding event of which they are the result (only telic representations). This led Antinucci and Miller to formulate the so-called *Aspect First Hypothesis* (AFH), whereby children present a cognitive deficit which is the underlying cause of why tense inflection cannot mark temporal relations. Children use the past form in order to refer to aspectual characteristics of the verb and not to the temporal ones: that is, children use the perfective morphology of *passato prossimo* in order to refer to *telicity*.

Research on the acquisition of tense in the past thirty years has shown that young children (under the age of 26) use their tense and aspect forms in the restricted pattern of the *Aspect First Hypothesis*: past or perfective forms are used mainly with telic predicates while present or imperfective forms are used primarily with atelic predicates. Different analysis of production data confirms the pattern in a number of languages, including English (Bloom, Lifter, and Hafitz 1980; Shirai and Andersen 1995), French (Bronckart and Sinclair 1973), Hebrew (Berman 1983), Italian (Antinucci and Miller 1976; Van Hout and Hollebrandse 2011), and Turkish (Aksu-Koç 1988), among others. However, research on the comprehension of tense morphology has cast some doubt on the *Aspect First Hypothesis*, in particular on the role of the lexical aspect in the interpretation of tense morphology. Children seem not to

have any problem with the production and comprehension of past tenses. For example Beherens (1993) found in early German productions clear instances of the child's ability to refer to past events before the onset of linguistic tense marking, suggesting that children have a basic temporal orientation of the past long before its morphological tense marking. Smith and Weist (1987) in their studies on Polish acquisition found that children are able to refer to the past properly and in earlier stages. Children aged between 1 year and 2 years were able to refer to events happening two weeks before the second experimental session by using past tense forms without referring to particular aspectual notions of the class of verbs.

In this paper we investigate the validity of the *Aspect First Hypothesis* in child Italian by analysing a corpus of spontaneous production of 4 Italian children aged between 18 and 36 months and by testing Italian-speaking children's production and comprehension of perfective aspectual entailment. The basic goals of our study are: 1) to explore longitudinally the role that lexical aspect (verb classes) plays in children's early production and comprehension of auxiliaries with the present perfect; 2) since Italian is an auxiliary-split language, to survey the syntactic and the aspectual features of early verb classes that determine both the selection and the distribution of auxiliaries in the earliest stage of acquisition; 3) to identify the stages of acquisition that lead to the adult-like production and comprehension of the perfective aspect. In Section 2 we review the theoretical background on aspect and auxiliary selection in Italian. Section 3 is devoted to the data from the corpus of spontaneous speech: namely, we will show the pattern of distribution of first auxiliaries. In Sections 4 and 5 we present respectively a production and a comprehension task of perfective forms with telic and atelic predicates. The data will confirm that the telicity of verbs influences the aspectual reading that children assign to the perfective forms of the present perfect. In Section 6 we will resume the findings of the present work and we will outline the data in contrast with *Aspect First Hypothesis*. We will propose a model of child grammar in which the lexical parameterization encoded in the auxiliary split is acquired early on: the syntactic features of verb classes influences at an early stage auxiliary distribution with transitives and unaccusatives. The non-adult like behaviours are restricted to some predicate selected by the *have* auxiliaries: the verbal predicates whose lexical aspect can not be retrieved directly by the presence of an overt direct object, that is, to unergatives.

2. Background on Aspect in Italian

When we talk about aspect we distinguish between two basic notions of aspect: *lexical aspect* and *grammatical aspect*. *Lexical aspect* (or *Aktionsart*) deals with the temporal contour of a situation that is independent of time; it

describes whether an eventuality is stative or dynamic, punctual or durative, telic or atelic. We will be dealing mainly with telicity as the principal feature of the lexical aspect. Verbs, depending on their internal structures, may have different lexical aspectual interpretation and, since Italian is an auxiliary split language, involve the selection of different auxiliaries.

On the other hand *Grammatical aspect* (or viewpoint aspect) operates on top of lexical aspect. The use of grammatical aspect implies that a speaker chooses a certain perspective to report on an event. This aspect “[...] focuses on the temporal perspective of the event” (Rosen 1999: 3) and it is usually determined by tense morphology. Tense inflections locate the described eventuality at a time that can be before, overlapping or after speech time (Arosio 2011).¹ We will be dealing mainly with the perfective grammatical aspect encoded in the present perfect (*passato prossimo*) in Italian. The perfective feature interacts with the lexical feature and gives a reading of finished action for both types of predicates: telic or atelic. We will analyse both as lexical and grammatical aspect are encoded in Italian.

2.1 Lexical Aspect

Lexical aspect is a property of a verb and it is derived in languages like Italian by two elements at work in the VP:

- 1) The semantic properties resulting from the structural configuration of the VP and of the morpho-syntactic elements in the VP.
- 2) The features attributed to each lexical root that enter into the syntactic derivation, independently from the structural configurations.

A predicate has telic interpretation when the event that it denotes reaches its point of culmination; in other words, when it entails the completion of an event as in *build the house*, *write a letter*. A telic predicate has a natural endpoint, while a predicate is atelic when the event that it denotes does not reach its culmination or does not encode any natural endpoint. Telicity is coded both structurally and lexically in Italian. Italian encodes the (a)telicity in the verb phrase through the presence of a definite or indefinite object as in (1).

¹ Arosio's (2011) in his review of Romance tense system defines aspect as concerning a temporal relation between the time at which the eventuality described by the VP holds and the time introduced by tense (Klein 1994).

- (1) a. Il cavallo ha mangiato pane per ore/#in un'ora (uncountable/mass)
 The horse has eaten bread for hours/#in an hour
 'The horse has eaten bread for hours/#in an hour'
- b. Il cavallo ha mangiato la mela #per ore/in un'ora (countable)
 The horse has eaten the apple #for hours/in an hour
 'The horse ate #for hours/in an hour'

Lexical aspect can also be determined directly by the lexical root of the verb. Each verbal root may include its own lexical features like [\pm stative], [\pm durative], [\pm telic]. For example in (2) and (3) below, we have two Unergative verbs that are compositionally atelic, since no direct object is involved in the event they denote. Nevertheless while *dormire* 'sleep' in (2) is non stative, durative and atelic, a verb such as *partorire* 'give birth to' (3) is non stative and non durative but telic.

- (2) Maria ha dormito per ore/*in un'ora.
 Maria has slept for hours/ *in one hour.
 'Maria has slept for hours/ *in one hour'
- (3) Maria ha partorito *per ore/in un'ora.
 Maria has given birth*for hours / in one hour.
 'Maria has given birth (to a baby) *for hours/ in one hour'

Both examples do not have an explicit endpoint in object position that determines telicity. The contrast is given by the fact that *partorire* in (3) is telic because of the presence in its lexical root of the world *parto* that means *birth* in Italian and is a *bounded* root in the terms of Harley (2005).² Both lexical specification on the lexical root of the verb and an overt definite object may determine telicity in Italian. Nevertheless, in the present work we will deal mainly with the telicity derived compositionally by the presence of an internal object because it is the main mechanism at work in the attribution of

² Harley (2005) distinguishes between two types of roots. The first one is the *bounded* root that denotes things that are delimited and determines telic reading: for example verbs of births such as *foal*, *calve* are derived by the incorporation of NPs like *foal* and *calf* that measure-out the event of birth due to their finite spatial extent. The second type of roots is the *unbounded* root that denotes things that are not delimited and determine atelic reading. Incorporating an *unbounded* root produces an activity due to the inherently infinite extent of the event or thing named by the root: for example *dance*, *drool* and *sleep* refer to NPs that are not delimited. For a discussion about boundedness vs unboundedness in nouns, verbs and events see Harley (2005).

lexical aspect.³ In the following Sections we will check whether the presence of an internal object has a role in the acquisition of verbs: that is, whether verbs select an internal argument, as transitives and unaccusatives in (4), and verbs that do not, as unergatives in (5) are found with the same pattern of distribution of auxiliaries in child Italian.

- (4) Verbs with Internal Argument
- | | |
|---|---------------|
| $[_{vP} DP v [_{VP} DP \textit{Internal Argument} [_{VP} V XP]]]$ | Transitives |
| $[_{vP} \text{---} v [_{VP} DP \textit{Internal Argument} [_{VP} V XP]]]$ | Unaccusatives |
- (5) Verbs with no Internal Argument
- | | |
|-------------------------|-------------|
| $[_{vP} DP v [_V V N]]$ | Unergatives |
|-------------------------|-------------|

Our goal is to investigate how and when children relate the “compositional” telicity to the grammatical aspect encoded in the present perfect. In Italian the structural configuration of VPs, and their *aktionsart*, also implies the selection of different auxiliaries involved in the formation of the present perfect.

2.1.1 Verb Classes and Auxiliary Selection

Languages vary on the basis of the auxiliary that verbs select in the formation of compound tenses. There are languages that do not show a split in the selection of auxiliaries. Some languages like English, Spanish, some varieties of Catalan, Swedish and a number of Italo-Romance dialects select just *have* while others select only *be* such as Scottish Gaelic (Adger 1996), Welsh (Roberts 2005), modern Terracinese (an Italo-Romance dialect discussed by Tuttle 1986), several Slavic languages (e.g. see Pancheva 2003 on Bulgarian) and Shetland English (Melchers 1992).⁴

Other languages differ on the type of properties that determine the split in auxiliaries: on the one hand there are clause-level properties, on the other hand there are predicate-level properties. In the clause-level set there are the languages that split their auxiliaries on the basis of the person and number of the subjects, or on tense and mood such as many Italian and Germanic dialects (Manzini and Savoia 2005 and 2011; McFadden and Alexiadou 2006).⁵

³ Telicity is specified by the lexical root of the verb only in few delimited cases. For a discussion see Lorusso (2014).

⁴ Interestingly enough, many of the languages in this group do not actually have a lexical verb corresponding to *have*. Possession is expressed by *be* combined with oblique marking on the possessor. For a discussion of this typology of languages see McFadden *et al.* (2006).

⁵ Kayne (1993), for example, attempts to handle both splits based on argument structure and those based on person and number. Recall that, for him, the difference between

In the predicate-level set there are the languages that have formed the basis for much of the discussion about auxiliary selection in literature, namely Dutch, French, German, Italian and several other Romance and Germanic varieties. The factors involved are: the argument structural status of the main predicates and consequently the aspectual structure or *Aktionsart* of the denoted eventuality. In Italian, the argument structure and its lexical aspect have been invoked to be responsible for the auxiliary selection since the formulation of the Unaccusative Hypothesis (Perlmutter 1978). The central premise of the Unaccusative Hypothesis is that intransitive verbs fall into two classes depending on the locus of generation of their single argument: unergatives and transitives project an external argument while unaccusatives an internal argument. The motivation for this idea comes from the behaviour of intransitive verbs on a series of syntactic tests which distinguish transitive subjects from objects: for example the *ne* Italian partitive clitic that is possible only with internal arguments. Crucially, in languages like Italian, the distribution of auxiliaries across intransitives seems to coincide with the split determined by the syntactic tests like *ne*-cliticization. Perlmutter, thus, suggested that the syntactic representation distinguishes unergatives/transitives from unaccusatives in terms of the underlying grammatical roles borne by their subjects. Consequently he proposed rules for the auxiliary selection that refer to the underlying grammatical roles. Burzio (1986) accordingly argues that the selection of the auxiliary in Italian is an Unaccusative diagnostic:⁶ Unaccusatives select the auxiliary *essere* 'to be' while unergatives and transitives select *avere* 'to have'.

Focusing on the structure and the interpretation of the present perfect, it is derived by an auxiliary verb in the present combined with an embedded perfect participle. Following the conception of English auxiliaries of Chomsky (1995), for which the present perfect is not monoclausal and it consists of a verb associated with an auxiliary functional projection, various authors (Kayne 1993; Manzini and Savoia 2007 and 2011) assume that the matrix auxiliary and the embedded verbs are two separate sentential units. These biclausal structures have monoclausal properties, such as the fact that the perfective properties of

have and *be* reduces to whether or not a preposition incorporates into *be*. One circumstance under which incorporation will fail is if the structure simply lacks the P in the first place. He proposes that this is possible in unaccusatives, but not in unergatives or transitives, hence the familiar auxiliary split based on predicate-level proper Boies. Alternatively, incorporation can be made unnecessary even if the P is present, if the subject can escape the prepositional structure in some other way. Simplifying greatly, this possibility is related to participial agreement with the subject, and thus can be sensitive to the subject's person and number. This leads to the attested person- and number-based splits. Manzini and Savoia (2005 and 2011), D'Alessandro (2012), Arregi and Nevins (2012) implement and reformulate the proposal of Kayne in explaining the person and number split languages.

⁶ For a discussion on the Unaccusative Diagnostics at work in Italian and in other languages see Burzio (1986), Grimshaw (1987) and Levin and Rappaport Hovav (1995).

the embedded verb are attributed to the complex biclausal predicate. In this perspective they conclude that *have* and *be* are the same verbs that appear in different constructions. On the one hand, the *be* auxiliary shares some property with the copulas (Moro 1997) since it selects a predication as its complement and no external argument. The subject of the embedded predicate becomes the subject of the entire complex predicate, as for example with unaccusative structures where the internal argument becomes the sentential subject. On the other hand, *have* is a possession verb and a transitive predicate. When it is used as an auxiliary it still preserves a modal/deontic reading and it selects a full sentence with an external argument: namely, transitive predicates. Nevertheless while Kayne (1993) defines *have* as an applicative of *be*, derived through the incorporation of a preposition, Manzini and Savoia (2007 and 2011) assume that *have* and *be* are two independent lexical entries.

Regarding this research needs, when children learn a language they assign to the lexical entry of the auxiliary *be* unaccusative and defective predicates, while to the auxiliary *have* transitive predicates. Whether the two auxiliaries are derived by the same form through incorporation is not relevant in our regard, we are interested in the different predicates that each auxiliary selects. When children start to use auxiliaries they have already learnt the argument structure of the embedded verb and its *aktionsart* (4-5).

In a perspective of lexical parameterization: “values of a parameter are associated not with a particular grammar but with particular lexical items” (Manzini and Wexler 1987: 424) by children. They have fixed the parameter for which *have* selects transitive and unergative predicates and *be* unaccusatives. Unaccusative structures involve an internal argument and are telic. Both transitives and unergatives project an external argument. On the one hand, transitives, in (6) below, involve an overt direct object, that may yield telicity. On the other hand unergatives, in (7), do not involve an overt object. Hale and Keyser (1993) first proposed that the unergatives (beside the external argument in Spec, *v*P) have a structure similar to the transitives in the sense that they project an internal argument position: the internal argument is a nominal head, thus capturing the denominal character of most unergatives. This fact allows many unergatives (in sentences like *sing a song* or in consumption verbs) to take an overt complement of a restricted semantic class (hyponymous) linked to the verbal root.⁷

- | | | |
|-----|--|-------------|
| (6) | $[_{vP} DP \ v \ [_{VP} DP \ [_{VP} V \ XP]]]$ | Transitives |
| (7) | $[_{vP} DP \ v \ [_V V \ N]]$ | Unergatives |

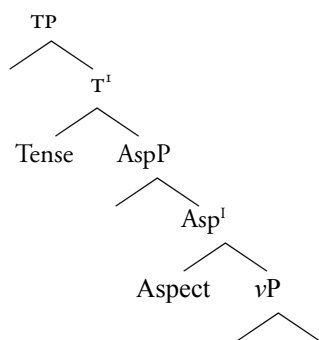
⁷ For an analysis and a review of cognate object with Unergatives see Mateu (2002), Ramchand (2008), Haugen (2009), Berro (2012). Furthermore, not all unergative verbs can take hyponym objects (Levin and Rappoport Hovav 1995; Folli and Harley 2007).

So children in the earliest stage may fix the parameter for which verbs with an external argument are selected by *have*, and verbs with internal arguments are selected by *be*. Nevertheless, the fact that *have* implies more complex predicates than the defective/unaccusative predicates selected by *be* may determine some differences in the distribution of the two auxiliaries in the earliest productions. We will check this prediction in the corpus of spontaneous speech in Section 3.

2.2 Grammatical Aspect

The attribution of grammatical aspect through tense morphology works on predicates with marked lexical-aspectual values (such as telicity/atelicity). The present perfect (*passato prossimo*) is a past tense and it interacts with lexical aspect in a representation *à la* Kratzer (1998), in (8), where T phrase selects different aspectual values in AspP.

(8)



For example, the *passato prossimo* in Italian encodes a perfective aspectual feature selected by a present tense.⁸ The perfective feature in AspP then interacts with the lexical feature and gives a reading of finished action for both types of predicates: telic or atelic. Thus, the *passato prossimo* on the one hand gives an entailment of completion for telic predicates such that the event has

⁸ The *passato prossimo* is a past tense even though the auxiliary is presented with the morphology of the present tense, and T head is present. Its interpretation as a past tense results from the incorporation of the perfective aspectual features. In opposition to *passato prossimo* in Italian there is the *passato remoto* (simple past) that is a past tense that is perfective and is selected by a past T head. For a discussion on Italian tense system see Bianchi and Bertinetto (2003), Giorgi and Pianesi (2007), Arosio (2011).

progressed to its natural culmination moment and, on the other hand, it establishes termination for atelic predicates (there is no natural culmination moment for atelic predicates; the final moment is an arbitrary moment). The *imperfetto*, for its imperfective feature, suggests ongoingness with the force of a conversational implicature and it applies in the same way to both telic and atelic verbs. All these interactions are summarized throughout Table 1.⁹

Table 1. Interaction between (a) Telicity and the Aspectual Tenses (adapted from van Hout and Hollebrandse 2001)

<i>Grammatical Aspect</i>		IMPERFETTO	PASSATO PROSSIMO
<i>Lexical Aspect</i>	TELIC	<i>Ongoing</i>	<i>Completed</i>
	ATELIC	<i>Ongoing</i>	<i>Terminated</i>

In our purpose, it is important to notice that the present perfect (*passato prossimo*) gives perfective entailment to all verbs it applies on. When children start to use the present perfect with all verb classes, they should assign the completed/terminated reading to all predicates. Since they fail in assigning perfective reading to all verb classes, it has been proposed that in acquisition children may rely only on the *aktionsart* of verbs to produce the morphology of the present perfect.

3. Corpus Analyses

In this Section we propose an analysis of the distribution of the forms of present perfect (*passato prossimo*) across verb classes, to confirm the early acquisition of the auxiliary split and to show that *have* and *be* are not used in the same way in the earliest stage.

Corpus: We used a longitudinal corpus of spontaneous productions of four Italian children aged between 18 and 36 months (Calambrone corpus: Diana, Martina, Raffaello, Rosa Cipriani *et al.* 1989; CHILDES database MacWhinney and Snow 1985). In the corpus we analysed just the declarative finite sentences. Over the 17.573 sentences in the corpus we analysed 2.838 declarative sentences. The same operations were performed on a corpus of adults' productions (children's parents and caregivers): initially we had 4.115

⁹ We will not refer to the *imperfetto* since in the present study we are referring to the verb forms with auxiliaries.

sentences resulting from the transcription of 10 files chosen randomly within the children's corpus, then we obtained 1.037 declarative utterances with lexical verbs. We looked for the forms of *passato prossimo* and the verb class they occurred with. We performed our analysis over three main general classes: unaccusatives, unergatives and transitives.

3.1 Results

The first data is about the distribution of form with auxiliaries across verb classes. Children do not use the same percentage of forms of *passato prossimo* for all verb classes and the same is true for adults. In fact, there is a tendency in children's production to use more compound tensed forms with unaccusatives and transitives than with Unergatives. Only 3% of the total of Unergative verbs shows an auxiliary morphology in children's productions. The percentage of occurrence of inflected forms of the *passato prossimo* along all the productions for each verb class is given in Table 2.

Table 2. Distribution of Forms with Auxiliaries across Verb Classes in both Children and Adults' Spontaneous Speech

Auxiliary Selection across Verb Classes			
	<i>essere</i> (to be)	<i>avere</i> (to have)	Omission
Unaccusatives	66 (95%)	0	4 (5)%
Unergatives	0	6 (67%)	3 (33%)
Transitives	0	158 (68%)	75 (31%)

Children do not use the same percentage of forms of *passato prossimo* for all verb classes and the same is true for adults. In fact, there is a tendency in children's production to use more compound tensed forms with unaccusatives and transitives than with unergatives. Only 3% of the total of Unergative verbs shows an auxiliary morphology in children's productions. We then checked if children select the auxiliaries correctly: Table 3¹⁰ shows the percentage of the *essere* and *avere* selected for the *passato prossimo*.

¹⁰ We do not present data from adults, since adults do not present any mistake in the selection of the auxiliary and no omission.

Table 3. Percentage of Selection of the Auxiliary in the Compound Tensed Form in Children's Productions

Distribution of Forms with Auxiliaries across Verb Classes				
	Children		Adults	
	Forms with Auxiliary	Simple Forms	Forms with Auxiliary	Simple Forms
Unaccusatives	89 (15%)	509 (85%)	18 (9%)	184 (91%)
Transitives	233 (12%)	1644 (88%)	130 (20%)	515 (80%)
Unergatives	9 (3%)	285 (97%)	8 (10%)	80 (90%)

Children do not show any problem in assigning the proper auxiliary in the compound-tense form with each verb class. Infants regularly select the right auxiliary *essere* for unaccusatives and *avere* for unergatives and transitives. These results are consistent with the ones of Snyder and Stromswold (1997).

In order to investigate further the higher omission of *have* we considered the age at which the first forms are found with the different verb classes. The age at which children use the first forms of *passato prossimo* does not seem to be the same for all verb classes. The results from the four children show that none of them use compounds in the earliest stage. Furthermore, though there are strong individual differences regarding the first compounds with unaccusatives and transitives, all of them presented the same temporal pattern for the appearance of the first compound with unergatives¹¹: these are the last compound forms appearing in children's production as Table 4 shows.

Table 4. Age of First Appearance of *passato prossimo* (yy,mm,dd)

First Forms of <i>Passato Prossimo</i> (yy, mm, dd) across Verb Classes for Each Child			
	Unaccusatives	Unergatives	Transitives
Diana	01; 08, 05	02; 06	01; 10, 07
Martina	No forms	02; 04, 14	01; 07, 18
Raffello	02; 03, 14	02, 05, 13	01, 11
Rosa	02; 01, 14	03; 00, 24	02; 05, 25

¹¹ Martina does not use auxiliaries with unaccusatives. The analysis performed on the same corpus in Lorusso (2014) shows that she is, however, able to use the auxiliary with unaccusatives in interrogative contexts.

3.2 Interim Discussion of Corpus Analysis

The general data about the selection of the auxiliary confirms that children correctly choose it depending on the verb class. Nevertheless, children omit significantly more *have* than they do *be*: the fact that *have* selects transitive predicate with an external argument seems to influence the data of omission. Caprin and Guasti (2009) argued that the use of *be* as an auxiliary emerges later than the use of *be* as a copula because children are able to check in the earliest stage just the features of a single verb, as for copulas, and not of two verbs, as for the biclausal auxiliary constructions. This explanation can not account for the data about the distribution of *have*: both *have* and *be* imply biclausal sentences, the fact that *have* is omitted more and appears later than *be* resides in the type of predicates selected by *have*: namely, *have* is a possession verb that selects a full sentence with an external argument (as in Manzini and Savoia 2011).

Furthermore, the present perfect with unergatives is the last to appear for all children. The prediction of the *Aspect First Hypothesis* are confirmed by this result: children in the earliest stage use present perfect mainly with telic predicates (i.e. unaccusatives and transitives) and not with atelic predicates (i.e. unergatives). We checked the interaction between the use of perfective morphology with compositionally telic transitives and atelic unergatives through two experimental tasks in order to understand: 1) until which age children do not produce the perfective morphology of the *passato prossimo* with unergatives; 2) whether the delay with unergatives is due to the fact that these verbs are produced without an overt direct object which in Italian yields telic interpretation. In the next two Sections we present the results of two experiments on the production and comprehension of the present perfect with telic transitives and atelic unergatives.

4. Experiment 1: Production

This experiment is designed to recognize the pattern of expression of perfective/imperfective forms along ages and verb classes. Children are presented with a video in which both telic transitives and atelic unergatives are completed/terminated and then they are asked to describe the video using past tenses. The first goal of the production task is to investigate whether and when children start produce *passato prossimo* with both unergatives and transitives at a similar rate. Our proposal is that children in their early stages may have problems in deriving perfective (*passato prossimo*) with unergatives, because they are not able to identify the telicity through an overt object/endpoint that would measure out the event and its completion. Children, then, would prefer *passato prossimo* (the perfective form) with telic predicates and imperfetto (the imperfective form) with atelic verbs. Thus, our predictions coincide with the ones of the

Aspect First Hypothesis, since we both assume that children will use perfective forms with transitives and imperfective forms with unergatives. However, while *AFH* assumes that the cause of such behaviour is linked to the tense=aspect mapping, our proposal anchors this distribution to the relevance children give to the role of overt object to derive aspectual past tenses.

Subjects: Ten mother-tongue adult Italian speakers and fifty children participated in the study: ten three-year-olds, ten four-year-olds, ten five-year-olds, ten six-year-olds and ten seven-year-olds. The ten adults were tested at their homes in Conversano (Bari, Italy) and the children were tested at school 1° Circolo didattico “Giovanni Falcone” also in Conversano (Bari, Italy).

Stimuli and Procedure: the materials consisted of 8 silent digital videos in which a story was presented: the story involved three telic transitive verbs with an overt quantified object and three atelic verbs without overt objects. The example (9) below illustrates an example of telic transitive and Fig. 1 is a screenshot of the content of the video showed to the children. In (10) we provide an example of atelic unergative and in Fig. 2 a screenshot of the video.

(9) Telic transitive with overt objects in the experimental session

a. Marta fa la torta

‘Marta makes the cake’

[The girl starts to prepare a cake in the kitchen using pots, spoons and milk and fruit. Then, after a few seconds she shows a cake to the camera.]

Figure 1. A Screenshot of the Video in which the Character “makes a Cake” (from the author’s personal files)



- (10) Atelic unergative in the experimental session
- a. Marta dorme
 'Marta sleeps'
 [The girl is seen while she sleeps, then she wakes up.]

Figure 2. A Screenshot of the Video in which the Character "sleeps" (from the author's personal files)



Atelic events were represented with an endpoint as a specific design of our experiment (contrary to what happens in others experiment for Spanish such as in Hodgson (2003) where atelic verbs were represented in ongoing situations). The endpoints are given in our experiment to force a completed reading and, consequently, the use of *passato prossimo*. All events (telic and atelic) were presented in the same video in a random order. The actions represented were chosen in order to evoke familiar activities for the children. Infants, before watching the video, were introduced to the character in the story and they were asked to pay attention to what she had done the day before in order to describe it. The video presented the six actions sequentially as in (11).

- (11) Sequence of actions in the experimental session
- i. Marta sleeps
 - ii. Marta makes the cake
 - iii. Marta phones
 - iv. Marta washes the dishes
 - v. Marta eats the cake
 - vi. Marta sings

After watching the video, children were presented with six pictures representing the actions they had just seen in the video. Then, they were asked to describe such actions in the past with the request: *Describe what Marta did yesterday*. They were helped with some pictures presenting the resulting states.

Results: The first general result we present is the attribution of perfective and imperfective morphology to the general verb classes of telic transitives on one hand and atelic Unergatives on the other. The absolute numbers and the percentage of the responses are summarized in tab. 5.

Table 5. Responses with Telic Transitives

Distribution of Perfective/Imperfective Tense Morphology with Telic Transitives				
Telic verbs		Passato Prossimo	Imperfetto	Total
Age	3	31 (77,5%)	9 (22,5%)	40
	4	21 (52,5%)	19 (47,5%)	40
	5	29 (72,5%)	11 (27,5%)	40
	6	25 (62,5%)	15 (37,5%)	40
	7	32 (80%)	8 (20%)	40
	adults	33 (72,5%)	7 (27,5%)	40
Total		171	69	240

It seems clear that there is a systematic behaviour in attributing *passato prossimo* to telic transitives. The results in tab.5 give us the general percentage of perfective forms produced with telic verbs for all the individuals examined. At first sight, there are differences in the performance of the group of four- and six-year-olds. However, the statistical analysis performed does not indicate significant differences among the age groups. There is a tendency for all age groups to produce telic transitives in sentences with the *passato prossimo*.

Atelic unergatives have different distributions of perfective morphology depending on age. In Table 6 we give the absolute number and the percentages of the responses. The general percentage in Table 6 shows that there is a stronger variation for the production of the *passato prossimo* for atelic unergatives than with telic transitives. Children under the age of 5 produce the perfective with such verbs in less than half of the situations. They prefer to use imperfective forms in this context.

Table 6. Responses with Atelic Unergatives (absolute numbers and percentages)

Distribution of Perfective/Imperfective Tense Morphology with Atelic Unergatives				
Atelic verbs		Passato Prossimo	Imperfetto	Total
Age	3	19 (38%)	31 (62%)	50
	4	10 (20%)	40 (80%)	50
	5	23 (46%)	27 (54%)	50
	6	29 (58%)	21 (42%)	50
	7	28 (56%)	22 (44%)	50
	adults	34 (64%)	16 (36%)	50
Total		143	157	300

The likelihood ratio statistic performed on this data was 40.84 (p-value=0.024). That means that there is a significant difference among ages for the type of responses. Adults seem to behave in the same way with both verb classes: they show the tendency in selecting the *passato prossimo* without any differences among the two verb classes. Children aged between 5 and 7 years also show the tendency to select *passato prossimo* for both verb classes. So, adults and children aged between 5 and 7 years respond as the experiment requires. Three-year-olds show systematic difference in the responses for each verb class. Atelic Unergatives are expressed with a preferential imperfective morphology, while telic transitives are expressed with a preferential *passato prossimo*. This result is statistically significant by the Wilcoxon test: it is -1.92 (p-value=0.054). The same is true for four-year-olds. (The Wilcoxon statistic in this case is -2.23 (p-value=0.026)). That means that only three- and four-year-olds systematically attribute perfective morphology for telic transitives and imperfective for atelic unergatives. All the verbs within the same verb class present similar responses. The pattern we saw for the whole verb class is consistent with the results of each verb individually.

4.1 Interim Discussion of the Production Experiment

We found that only at the age of 3 and 4 children had used a systematic correlation between telic and perfective and atelic and imperfective. This means that after this stage they are able to use the perfective morphology of *passato prossimo* for all verb classes. We can also claim that in the early stage (three, four years) children do not pay attention to the fact that the action in the video is presented with an endpoint. The results of the experiment confirm the assumptions of the *Aspect First Hypothesis* since children use perfective morphology to refer to telic verbs and imperfective morphology to refer to atelic predicates. Our proposal can also be maintained since at least at three, four years the absence of

an object with unergatives generally blocks the systematic use of *passato prossimo*. The difference between our account and the *Aspect First Hypothesis* is based on the fact that we do not need to postulate knowledge about the lexical aspect of verb classes at the age of three, four. We propose that the mere presence of an overt object at spell out favours the perfective morphological derivations. In order to choose between these two competing accounts we need to understand whether all the forms of *passato prossimo* are understood as telic predicates, as *Aspect First Hypothesis* predicts, or whether the syntactic information of each verb class (i.e. the presence of overt objects) determines the available readings as we predict. The comprehension experiment below aims at answering this question.

5. Experiment 2: Comprehension

The aim of the comprehension task is to understand how the perfective forms of *passato prossimo* are interpreted by children. The variable of the experiment is the complete /incomplete reading children give to the perfective forms with different verb classes. The notion of completion implicit in the *passato prossimo* is not available until later stages according to Van Hout and Hollebrandse (2001). Thus, the first task of our experiment is to confirm that children do not have the same readings of *passato prossimo* available in adult grammar. If that is the case, the second task is to identify, if there are any, the VP features of the verb that trigger the complete/incomplete reading. The experiment consisted of a story followed by a *who* question in the *passato prossimo*. The answer to the question regarded the knowledge of the perfective features encoded in the *passato prossimo*. Children had to choose between two pictures representing a completed and a non-completed (ongoing) situation. The *passato prossimo* should trigger a reading of completion.

When faced with a *passato prossimo*, the *Aspect First Hypothesis* predicts that children are supposed to answer always choosing the completed/terminated situations since what they express and comprehend through the *passato prossimo* is the telicity of a verb. In this task children are supposed to have a telic reading, always choosing the situation with a clear culmination point. Our hypothesis predicts that children would be sensitive to the structural characteristics of verbs: the presence/absence of an overt object will trigger completed/uncompleted readings respectively. The aspectual information encoded in the tense morphology alone becomes available later.

Subjects: The subjects were the same as in the preceding experiment: 10 adults and 60 children aged between 3 and 7 years, all of them native speakers of Italian.

Stimuli and Procedure: The experiment is a sentence picture-matching task. Eight digital video stories were presented to the subjects. Then a question in the *passato prossimo* was asked. The task was to identify the (completed) event.

Subjects were introduced to the two characters in the story and referred to in the question. Then they were shown the videos. Each of the videos presented the two characters (character A and character B) performing the same action, but in each video one of the two girls completed the action (*completed situation*) while the other was still performing it (*ongoing situation*). While subjects were watching the video, the interviewer was describing the video. At the end of the video subjects were shown a picture representing the *ongoing/uncompleted situation* and a picture representing the *completed situation*. Then they were asked to choose the picture in order to answer the question “Who has *verb-ed*?”. The completed situation was the correct answer in all cases. The 8 stories represented telic transitive verbs in 4 cases (12) and in the other 4 cases atelic Unergatives (13). In Fig. 3 we present the pictures with the completed and the ongoing situation which were shown to the children after the video presenting the telic transitive “build the train”. In Fig. 4 we show the pictures of the completed and the ongoing after they were exposed to the video representing the atelic unergative to “walk”.

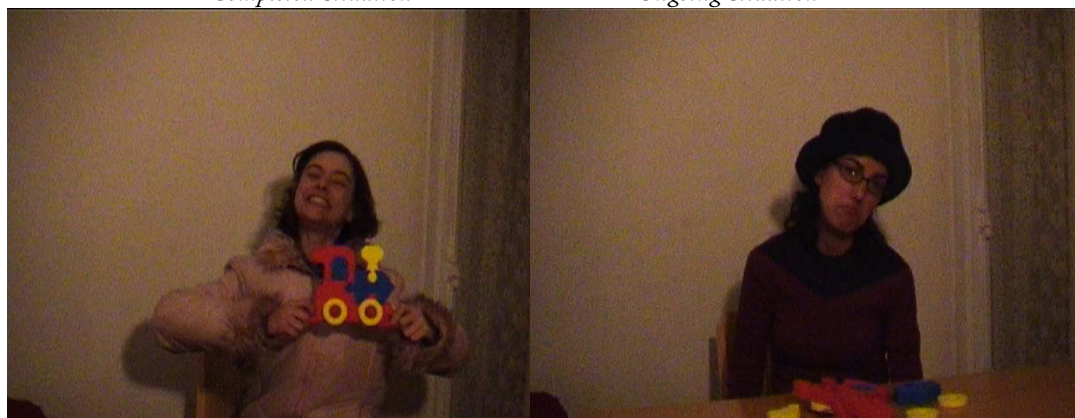
(12) Telic Transitives

- a. Bere il latte
'Drink the milk'
- b. Costruire il trenino
'Build the train'
- c. Mangiare il panino
'Eat the sandwich'
- d. Rompere i palloni
'Break the balloon'

Figure 3. The pictures that were shown to children after the video involving the telic transitive “build the train”: in the picture in the left the event is represented as *completed* while in the picture in the right is presented as ongoing /uncompleted (from the author's personal files).

Completed Situation

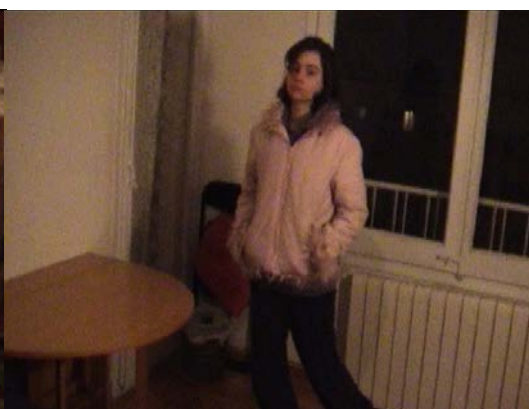
Ongoing Situation



(13) Atelic Unergatives

- a. Camminare
'Walk'
- b. Dormire
'Sleep'
- c. Ridere
'Laugh'
- d. Telefonare
'Phone'

Figure 4. The pictures that were shown to children after the video involving the atelic unergative “to walk”: in the picture in the left the event is represented as *completed* (the girl is sitting down after walking) while in the picture in the right it is presented as ongoing /uncompleted (the girl is still walking)

Completed Situation*Ongoing Situation*

Results: The first general result we present is relative to the interpretation assigned to telic transitives. In Table 7 we show the absolute number and the percentage of the responses assigned to this verb class: we present the total percentage of complete/terminated situations chosen with telic transitives. Telic transitives with an overt object have triggered very similar answers for all age groups. Children of all ages and adults have preferentially chosen the picture that represented the completed situations. We find a systematic completed reading attributed to the situations in which telic transitives were presented in the *passato prossimo*.

Table 7. Responses with Telic Transitives (absolute numbers and percentages)

Responses with Telic Transitives				
Telic verbs		Completed Situation	Ongoing Situation	Total
Age	3	38 (95 %)	2 (5 %)	40
	4	39 (97,5 %)	1 (2,5 %)	40
	5	40 (100 %)	0 (0 %)	40
	6	40 (100 %)	0 (0 %)	40
	7	40 (100 %)	0 (0 %)	40
	adults	40 (100 %)	0 (0 %)	40
Total		237	3	240

The same cannot be said for the atelic unergatives. Table 8 presents the absolute numbers and percentages of the responses: the general distribution of terminated reading with unergatives in the *passato prossimo*. We can see that there are strong differences related to age: till the age of seven, children show a high proportion of ongoing readings for atelic unergatives. The completed reading encoded in the *passato prossimo* is not available till the age of 7.

Table 8. Responses with Atelic Unergatives (absolute numbers and percentages)

Responses with Atelic Unergatives				
Atelic verbs		Completed Situation	Ongoing Situation	Total
Age	3	17 (42,5%)	23 (57,5%)	40
	4	19 (47,5%)	21 (52,5%)	40
	5	24 (60%)	16 (40%)	40
	6	17 (42,5%)	23 (67,5%)	40
	7	35 (87,5%)	5 (12,5%)	40
	adults	36 (90%)	4 (10%)	40
Total		148	92	240

The likelihood ratio statistic for the difference among ages in attributing terminated readings is 31.88 (p-value = 0.10), which means that there is a systematic differentiation for groups of age. Children attribute more non-terminated readings with unergatives than with telic transitive situations, in which a completed interpretation is given in almost all cases. The statistical analysis confirms that while adults and seven-year-olds do not show any different behaviour in attributing the completed reading to both verb classes,

children aged between 3 and 6 systematically attribute a non-terminated reading to the atelic verbs and a completed reading to the telic ones. The p-values of the likelihood statistic are all $p < 0,05$ for the children aged between 3 and 6 years. They distinguish between the tensed forms of the two verb classes for the different readings they attribute to them systematically.

5.1 *Interim Discussion of the Production Experiment*

The first result is that children do not systematically assign the perfective reading to the forms of *passato prossimo* with unergatives till the age of 7. This leads to two observations. First, children do not interpret the *passato prossimo* in the same way for the two lexical classes used in the experiment: they assign the completed readings preferentially to transitives. They are not sensitive to the feature of completion encoded in the verbal morphology with unergatives. Children do not recognize the grammatical aspect encoded in the verbal morphology as was previously claimed by Van Hout and Hollebrandse (2001). The second consideration is linked to the mechanism at work for the interpretation of the forms of *passato prossimo*. The different lexical information that each verb class encodes causes the different readings. Since the *passato prossimo* does not influence the interpretation, the children have direct access to the features of the verbs that determine their interpretation. The *aktionsart* of the verb is at work in children's responses since they attribute readings compatible with telicity: telic verbs are interpreted as completed situations, while atelic verbs are interpreted as describing non-terminated situations. This lexical aspect is not mapped in a one-to-one fashion to verbal morphology; otherwise children would have systematically chosen the completed reading for all the verb classes, since the stimulus is presented in a perfective tense that would have forced such a reading.

The *Aspect First Hypothesis*, which claims that verbal tense morphology is used to refer to lexical aspect, is ruled out since children analyse the *passato prossimo* with unergatives as not giving information about the completeness of the event. Thus, the perfective features are not analysed by children and the interpretations are linked to the compositional telicity/atelicity of the verbs. If we go back to the results of the production task, we know that children after the age of 5 years start to produce the *passato prossimo* with all verb classes (unergatives included). Why do they fail at the same stage to correctly analyze the forms they are able to produce? Our answer is that children after 5 years old still do not master the complex aspectual interaction between the *aktionsart* of verbs and the grammatical aspect encoded in the perfective morphology. In production, after 5 years old, they are able to talk about the past and to tell whether the event by each verbs is ongoing or completed. Nevertheless, in comprehension they use the *compositional* lexical aspect alone: when an overt object is expressed, children rely on the telic entailment of the event to attribute a completed reading.

Further investigations are needed to understand the interaction between aspectual value of the auxiliary morphology and the lexical aspect as it is encoded in the vP of the embedded predicate: 1) the interpretation of the present perfect with unaccusatives, with telic unergatives such as *partorire* ('to give birth') and with transitives; 2) the interpretation of imperfective morphology with all verb classes. However, we can at least argue that in child Italian the difference from adults are mainly found in the mapping between the perfective grammatical aspect and the predicates that do not show any overt mark of telicity. Similar results were also found for aphasics (in Yarbay *et al.* 2009): the computation of overt (a)telicity interferes with the distribution of the perfective morphology.

6. Conclusion

The present study investigated the validity of the *Aspect First Hypothesis* in child Italian by the analysis of the distribution of the present perfect in spontaneous speech and by testing children's production and comprehension of the perfective reading encoded in the present perfect.

The predictions of the *Aspect First Hypothesis* can account for the majority of the data we presented. Children differentiate between verb classes from the very early stages, as the data about the distribution of the auxiliary across verb classes shows. They omit the *have* auxiliary more than *be*: *be* auxiliary, in fact, selects a mono argumental defective predicates while *have* selects full sentences with active predicates.

Have is more complex than *be* for the predicates that it selects: transitive and unergatives. Transitive verbs select both a subject and an object. Furthermore, at the same stage we analysed (19-36 months) transitive predicates undergo the phenomenon of object clitic omission in child Italian (Guasti 1993-1994; Hammann *et al.* 1996; Jakubovicz *et al.* 1998; Wexler *et al.* 2004; Caprin and Guasti 2009; Tedeschi 2009).¹² The acquisition of clitic parameter plays a central role in the early stage of acquisition. The complexity of the transitive predicates is also linked to the difficulties in mastering of the object clitic pronouns: these pronominal elements differ from subject pronouns due to locality issues and agreement with the past participle in the constructions involving the auxiliary. In order to complete the picture, further development of the present study will be the comparison of the data of the omission of *have* with transitives and the omission of clitics in the early stage.

Unergatives are the other "complex" predicates selected by *have*. A delay, in fact, is found in the production of the *have*-auxiliary perfective morphology

¹² Clitic omission is found in a similar rate in both languages with auxiliary split (French, Italian) and language without auxiliary split (Catalan). Cf Wexler *et al.* (2004).

with unergatives. Until the age of 5 children preferentially produce perfective forms with telic transitives and imperfective forms with atelic unergatives. As *Aspect First Hypothesis* predicts, children use past or perfective forms mainly to refer to telic predicates and present or imperfective forms mainly to refer to atelic predicates.

Nevertheless, *Aspect First Hypothesis* cannot account for the result of the comprehension task. Children do not assign to the present perfect a completed reading with unergatives till the age of 7: there is no one-to-one mapping between the present perfect and the compositional telicity. Moreover, in the production task some forms of the present perfect are used with unergatives before the age of 5: children are able to refer to the past and completed reading also with unergatives.

Our proposal is that the presence of an overt object triggers the production and the comprehension of the perfective morphology. Since in Italian telicity is compositional, an overt direct object is a syntactic clue for determining the telic lexical aspect of verbs.

We share with the *Aspect First Hypothesis* the idea that the *aktionsart* of the verbs strongly influence the distribution of the present perfect morphology in the earliest stage. But, while the *AFFH* implies a correspondence between the *aktionsart* of verbs and the verbal morphology in the earliest stage, we propose that the presence of an overt syntactic element, such as the direct object, influences the distribution of the present perfect. The direct object, in fact, entails the telic lexical aspectual readings of verbs: their *aktionsart*.

So children by the very early stage are sensible to the structural configuration of verb classes as represented in (14-15). The presence of an overt internal argument favors the mastering of the perfective auxiliaries with unaccusatives (lower percentage of omission of *be* with unaccusatives) and transitives (where *have* auxiliary is produced and comprehended earlier than with unergatives, but it is omitted in a high percentage in the earliest stage maybe for factors linked to the acquisition of the object clitic pronouns).

- (14) Verbs with Internal Argument

$$\begin{array}{l} [_{vp} DP \nu [_{vp} DP \text{ Internal Argument } [_{vp} V \text{ XP}]]] \text{ Transitives} \\ [_{vp} \text{ — } \nu [_{vp} DP \text{ Internal Argument } [_{vp} V \text{ XP}]]] \text{ Unaccusatives} \end{array}$$
- (15) Verbs with no Internal Argument

$$[_{vp} DP \nu [_{v} V \text{ N}]] \text{ Unergatives}$$

The resulting model of child grammar shows that the basic structural configuration of verb classes are acquired early on and therefore the lexical parameterization of auxiliary split is also mastered in the earliest stage. The non-adultlike behaviors are limited to the embedded predicate selected by *have* whose lexical aspect can not be retrieved directly by an overt direct object: specifically, to unergatives.

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