

**Syntactic
Complexity
from a
Language
Acquisition
Perspective**

Edited by Elisa Di Domenico

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PART I

CHAPTER TWO

ON THE ACQUISITION OF COMPLEX
DERIVATIONS WITH RELATED
CONSIDERATIONS ON POVERTY OF THE
STIMULUS AND FREQUENCY*

ADRIANA BELLETTI

1. Introductory Considerations

This article is dedicated to some reflections on the complexity of syntactic computations, prompted by recent results on the acquisition of Italian in different empirical domains such as relative clauses, types of passive, types of post-verbal subjects with unaccusatives.¹ To the extent that we adhere to the idea that if some syntactic construction is properly mastered by young children, this construction should be valued as not especially complex as for the computations that it involves, we will review some results from typically developing Italian speaking young children which indicate that constructions that may look pre-theoretically complex – as they involve e.g. various steps for their derivation or more words than other relatively close ones – should probably not count as such in the relevant formal sense since young children appear to master the necessary computations from relatively early on². We will also point out that, in some of the cases that we will review, appeal cannot be made to the frequency in the input of the constructions investigated as these constructions appear not to be that frequent in naturalistic corpora and are thus likely not to be present

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¹ See Belletti & Guasti (2015) for detailed discussion of most of the results and data presented here.

² Constructions are in fact the result of the combination of a number of formal computations. The term is used here in its descriptive sense, as is usual practice.

in the children's primary data in a critical amount. These findings thus stimulate some poverty of the stimulus considerations in a novel fashion, based on data not previously appealed to in this context.³

The findings to be (re)discussed here are also relevant for the poverty of the stimulus considerations that they prompt in another complementary respect, as they indicate that sometimes children make use of constructions that are not only rather rare in the linguistic input, but also not resorted to by adults in the same elicitation experimental conditions; conversely, children do not make use of constructions that are widely resorted to by adults in the same conditions. This point will be especially clear in discussing use of types of passive in relative clauses. We will see that complexity is at stake here in a non-trivial way, as (passive) constructions which look pre-theoretically complex may not be actually so, as children master them quite early and relatively easily, and, conversely, (passive) constructions which may look simple as, e.g., shorter, may instead count as complex at the appropriate level of analysis as they involve some reduction operation still demanding for the (young) developing children's grammar. These results contribute new evidence for the conclusion that children do not always do what they are likely to hear most nor do they do what looks intuitively, pre-analytically, simpler.

We will attack the complexity/poverty of the stimulus issues through the (re)consideration of previous results from the literature in three domains:

1. Presence of infrequent Passive Object Relatives/PORs in children's productions in place of the elicited active Object relatives.
2. Presence of the infrequent *si*-causative passive in young children's early productions of passives.
3. Early sensitivity to the Definiteness Effect/DE in the VS order with unaccusative verbs.

We will start by considering point 1 and 2 in the following section 2. Section 3 is dedicated to point 3. Section 4 summarizes the discussion and draws some general conclusion.

2. Infrequent Constructions in Children's

³ See Berwick et al. (2011) for recent reconsideration of the poverty of the stimulus issue.

Elicited Productions

2.1. PORs in Children's Elicited Productions

Whereas Subject relatives (SRs) are both produced and comprehended by Italian speaking children already at around age 3 and 4 (e.g. 79% correct SRs productions in the age range 3 – 3;11 in the elicitation experiment of Belletti & Contemori 2010; further similar results in Contemori & Belletti 2014), Object relatives (ORs) are hardly produced in the same experiments. Although we will focus on production here, it is worth mentioning that comprehension is also rather poor; in the average ORs are not comprehended beyond chance by young children (e.g. Contemori & Garraffa 2010 for Italian, in the age span 3 to 5;5; see also Adani 2011, and the review in Belletti & Guasti 2015, chapter 5).

The obvious question to ask is: What do children produce instead when they are asked questions eliciting an OR? Results indicate that they typically deliver various types of non-target productions, especially in the youngest ages⁴; as they grow older, they tend to resemble adults and produce more and more PORs (see references quoted for detailed quantification of the data). As discussed in detail in particular in Belletti (2014), Contemori & Belletti (2014) adopting the system developed in Friedman et al. (2009), the crucial factor leading to the production of a POR instead of an active OR can be identified in locality, more specifically featural Relativized Minimality (Rizzi 1990, 2004). In a nutshell, intervention of a lexically restricted subject is considered problematic in the derivation of a headed object relative due to the inclusion of a nominal [+NP] feature of the intervener (the subject of the relative clause) within the feature composition of the target (the relative head) as is illustrated in (1):

(1) OR:


 (...) [Il bambino [che **la mamma** pettina <il bambino>]] (...)

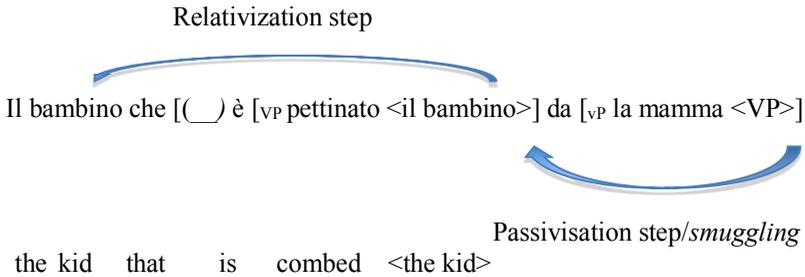
+R,+NP +NP
 the kid that the mum combs <the kid>

In contrast, in the derivation of a POR, in which passive is derived through

⁴ As is the case in several other languages also investigated through similar experimental designs, mostly from Cost Action/A33; among several others, French/Délagé (2008), EPortuguese/Costa et al. (2011), Hebrew/Novogrodsky & Friedmann (2006); Friedmann, Yachini and Sztermann (2015) on children with syntactic SLI.

so-called *smuggling* (Collins 2005), with movement of a chunk of the verb phrase containing (at least) the verb/past participle and the direct object, no intervention locality problem arises anymore. The relevant steps of the derivation of a POR are illustrated in (2):

(2) POR:



Thus, passive completely eliminates intervention in the derivation of a POR; hence, no issue of inclusion of relevant features arises in this case at all, as the (lexical) relative head is raised from the *smuggled* position.

In a corpus study of Italian undertaken by Belletti & Chesi (2014), the very clear conclusion has been reached that PORs are rather rare in the naturalistic input in Italian.⁵ On the other hand, a robust set of experimental results presented in the reference quoted above (and also in the further adaptation of the same elicitation experiment in Belletti & Chesi 2014) has indicated that Italian-speaking adults systematically resort to PORs when an (active) OR is elicited. The conclusion must then be reached that it is not the frequency of the construction that leads to the production of a POR instead of an active OR in the elicited production. In the spirit of the references quoted, we endorse the view that resort to POR is favored by grammatical factors, ultimately the complete elimination of the intervention configuration illustrated above. Interestingly, the same grammatical factor appears to play a role for young children. Belletti (2012) points out that initially very young children try to produce active ORs, but, as soon as they start mastering passive, they start producing PORs, and more and more so as they grow older. The following table adapted from Contemori & Belletti

⁵ Corpora analyzed in Belletti & Chesi (2014): files (children and adults' child directed speech) from the CHILDES database (MacWhinney & Snow 1985); SUT corpus (Siena University Treebank, Chesi et al. 2008); CIT corpus (Corpus di Italiano Televisivo, Spina 2005). See Belletti & Chesi (2014) for all further details on the corpora utilized and the analysis performed on them.

(2014) illustrates the development of PORs in children of different ages (results from a Picture Description task, adapted to Italian from Novogrodsky & Friedmann 2006); in (3) PORs are divided according to the type of passive that they contain:

(3) (Types of) PORs in children's productions

PORs	3:4-3:11	4-4:11	5-5:11	6-6:11	7-7:11	8-8:10
Si-causative passive	0.4	3.2	16.8	20.4	8.75	40.4
Copular	-	-	4	6.9	10.8	31.5
Reduced	-	-	-	0.4	7.5	0.9

Table (3) is interesting in various respects; we indicate two of them. First of all it shows the main point under discussion so far: as children grow older they tend to produce more and more PORs, thus approaching adults' performance, which reaches up to 90% production of PORs in similar experiments. Hence, although passive may be a relatively complex computation *per se*, as also revealed in (3) by the fact that young children initially produce passive object relatives only to a very limited extent, yet as soon as it is properly mastered, the passive computation is adopted more and more. We may then reasonably propose that it is favored over a computation involving the problematic intervention configuration of active ORs illustrated in (1). Hence, despite their infrequency in the naturalist input mentioned above, also relatively young children tend to opt for the production of a POR, the optimal derivation as far as locality is concerned (Belletti 2012, 2014).

Table (3) is also interesting in another respect concerning the type of passive resorted to by children. We now turn to a more detailed discussion of this aspect in the following section.

2.2. *Si-causative Passive in Children's Productions and the Comparison with Adults*

Table (3) indicates that the first type of POR produced by children already in the earliest ages contains a *si-causative passive*, i.e. a passive in the causative voice. An example of this type of passive is given in (4)a, and the example of a POR containing the *si-causative passive* is given in (4)b:

- (4) a Il bambino si fa pettinare dalla mamma
 the kid makes himself(-CI) comb by the mum
- b Il bambino che si fa pettinare dalla mamma
 the kid that makes himself(-CI) comb by the mum

Si-causative passive is not frequent in the naturalist input in Italian. This is very clear to the intuition of any native speaker⁶. Interestingly, a quantitative measure confirms the intuition. A first counting of the occurrences of types of passive in Italian spontaneous conversations (from the LIP Corpus)⁷ indicates the following distribution of occurrences in the same conversational context:

- Copular passive:	443
- <i>Venire</i> passive:	296
- <i>Si-fa</i> causative passive:	22

Passive with auxiliary *be* is the most commonly used type of passive; passive with auxiliary *venire* is also very commonly used⁸; in contrast, *si*-causative passive is extremely rare. What we want to focus the attention on here is the striking fact that (even very) young children appear to access with ease a construction that is fairly rare indeed.

The rarity of the construction is also confirmed by the fact that the types

⁶ This is a difference with French. We do not have any quantitative data on French available, however the intuition of French native speakers is very clear in this respect (see Délage 2008): *se-faire* passive is a very common type of passive in French and does not require any clear causative meaning (cfr. Labelle 2002), as is instead the case in Italian. For space reasons we will not further elaborate on the French/Italian comparison here. On the early access to *si*-causative passive by Italian speaking children tested through a different syntactic priming technique, see Manetti & Belletti (2015).

⁷ LIP, *Lessico di Frequenza dell'Italiano Parlato*, 1990-1992 (corpus collected under the direction of Tullio De Mauro).

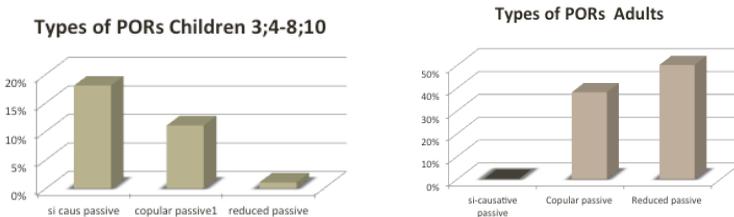
⁸The verb *venire* (come) can be used as a passive auxiliary in Italian; an example is given in i.:

- i. La porta viene chiusa dal controllore
 the door comes closed by the controller

Venire passive is only possible with non-compound tenses; hence, this limits its use and reduces its possible occurrences. On the restrictions in the use of auxiliary *venire* in the Italian passive and on its development, see Belletti & Guasti (2015, chapter 4).

of passive in the PORs produced by adults are rather different from those resorted to by children. This is clearly visible from the figures in (5) which compare the types of passives used by children (as described in Table (3)) with those used by adults – as reported in Contemori & Belletti (2014) (from a Preference task adapted to Italian from Novogrodsky & Friedmann 2006)

(5)



Whereas *si-causative* is the most common type of passive in children's PORs, there is no such passive at all in the adults' productions. Hence, once again we can conclude that children do not select the type of construction they use on the basis of what is likely to be most frequently present in their input data: *si-causative* passive is indeed likely to be rather rare in the naturalistic input data accessed by children, and it is also very rare, in fact absent, in adults' elicited productions (see 2.2.1 for further relevant considerations).

Note that the new question opened by this comparison as to why children should select the rare *si-causative* passive in their PORs is an independent question, which we cannot address here in any detail. For some first speculations see Manetti & Belletti (2015) where early access to *si-causative* passive is confirmed also in simple declaratives, not involving any relative clause computation. In Belletti (forthcoming) the proposal is made that causativization of the Italian/Romance type involves a *smuggling* operation of the same kind described above for passive; it is furthermore proposed that this operation may be crucially triggered by the fundamental requirement of labeling of the syntactic structure (Chomsky 2013, 2015; Rizzi 2015a,b). The fundamental nature of this requirement, which is essential in general terms for the interpretability of syntactic structures may

⁹ 30% PORs overall in children's production (in Picture description task), when an OR was elicited, distributed as indicated. 90% of PORs overall in adults' productions (in Preference Task), distributed as indicated. For all detailed results the reader is referred to Contemori & Belletti (2014).

be a crucial factor in determining the early accessibility to this type of passive in young Italian speaking children¹⁰. We leave this central issue here as it would divert too much from the main focus of the discussion. We rather underscore the relevance for the present discussion, of the comparison in (5), which illustrates early accessibility of young children to the rare *si*-causative passive.

2.2.1 Further Comparing Children's and Adults' PORs

The comparison offered by (5) is interesting and revealing in other respects as well, directly relevant for the issue of complexity and the relation with frequency and poverty of the stimulus considerations. Looking at children's and adults' performances one next to the other a further striking observation can be made: children have a kind of mirror behavior with respect to adults, as indicated by the "u" shape of the figures in (5). Not only do they do what adults do not do, i.e. producing *si*-causative passives, they also do not do what adults do most, i.e. producing reduced relatives. Indeed, the majority of adults' PORs are in the reduced form, of the type illustrated in (6):

- (6) Il bambino ~~che è viene~~ pettinato dalla mamma
 the kid (who is) combed by the mum

In the example in (6) the missing part of the reduced relative clause is just simply erased. The reader should be warned that this is not an analysis of what the process of reduction should amount to; it is just a way to graphically picture the missing elements of the reduced relative (all assumed to be at the present tense for concreteness). Reduction, as is implicit in the term itself, leads to a shorter string than the unreduced one; in terms of number of words, there are clearly fewer words in the reduced form than in the unreduced one. If we go beyond the string, however, and consider the structural computations leading to reduction, it is likely that the overall process of reduction has some cost in terms of its complexity¹¹. The fact that

¹⁰ Another relevant factor may be presence of reflexive *si*. Although the precise role played by the reflexive in this construction needs to be clarified in further detail (Belletti forthcoming for a first proposal), it is a well known fact that children have early access to the interpretation of reflexive anaphors (Hamann 2011 for an overview). This issue is left open here, as it would take the discussion too far afield in the context of the present article.

¹¹ Be it a process or just the reflex of use of a reduced clausal structure (Siloni 1997 and, more recently, Harwood 2015, for a proposal couched within phase theory).

the children of our reviewed experiments almost never adopt reduced relatives in their PORs suggests this conclusion even more strongly.

An analysis of what reduction should amount to in the case of reduced relatives is beyond the scope of this article and will not be undertaken. The relevance however of the children-adults comparison in (5) is at its very core: Absence of the reduced relatives in children's productions indicates that one shallow factor that one may think could be crucial in determining complexity, i.e. number of words/overall length of a string, does not in fact enter into the relevant evaluation that children "instinctively" (Pinker 1994) do while selecting the structure to produce, i.e., in this case, the type of passive to use in their POR. This is an interesting conclusion, as it rules out any simple minded, pre-theoretical approach to define syntactic complexity¹².

The comparison in (5) is all the more interesting and potentially revealing if the following further considerations are also made. In the counting of the various naturalistic English corpora that they report, Roland et al. (2007) have provided a typology of different types of relative clauses in different corpora. One interesting finding in the context of the present discussion is that Roland et al.'s (2007) data indicate that reduced PORs are present, especially in written corpora, and that they are more frequent than unreduced PORs; this also holds in spoken corpora: 3118 unreduced PORs vs 10730 reduced PORs in the written British National Corpus; 1729 unreduced PORs vs 2886 reduced PORs in the spoken British National Corpus. See Belletti & Chesi (2014) for recent review and critical discussion of these data. We can assume that Italian is probably rather similar to English, with reduced PORs more frequently present than unreduced ones. This is also consistent with the adults' behavior in the elicited production task illustrated in (5) as well as with the results reported in Belletti & Chesi (2014) from an experiment adopting the same type of elicitation design, manipulating the "animacy" feature: in all conditions reduced PORs have been the most frequently produced structures by adults. The conclusion is also consistent with the counting of some naturalistic corpora that Belletti & Chesi (2014) also report from adult (spoken) Italian: although PORs are

¹² Children may disfavor use of reduced sentential structures more generally in non-root clauses (in contrast with root clauses, as in the so called "truncation stage", Rizzi 2006). This is indicated for instance by their preference (age 3 to 5) for full sentential complements over raising-to-object/ECM type structures, as in e.g. European Portuguese (Santos et al. 2015). The virtual absence of reduced relatives in the results reviewed in the text from children's productions may be a further manifestation of this general late access to reduced clausal structures. This is a topic currently under further investigation

relatively rare in these corpora as mentioned in 2.1, yet when they are present they are realized in the reduced form in the vast majority of cases: e.g. 1 unreduced POR vs 78 reduced ones in the adult child directed speech from the analyzed files of the CHILDES database (see the reference quoted for detailed results).¹³ Overall, all these considerations lead us to conclude that reduced PORs are relatively well represented in standard Italian, as they also occur, to a limited extent, in child directed speech. Hence, these results complement the conclusions reached in the previous section: children do not necessarily access first those structures that appear to be present - though to a relatively limited extent - in their primary input data, such as e.g. reduced relatives. Furthermore, a first new counting in the same files from CHILDES (footnote 14) of *si*-causative passive has indicated no occurrence at all (at most one unclear case) in the adult child directed speech¹⁴. To the extent that this corpus is a representative sample of some primary data available to Italian speaking children, we can conclude that reduced PORs are more frequent than *si*-causative passives (78 vs 0, or 1 if the unclear case is counted). Then, once again, it is not plain frequency that children are sensitive to; grammatical factors and more generally formal factors entering the computation of the different structures must play a crucial role for developing children. The challenge then becomes that of understanding what these factors are. The considerations developed in this section represent a first attempt in this direction: principled reasons may favor access to *si*-causative passive (e.g., among others, labeling, Belletti forthcoming), whereas the complexity of the reduction operation may lead to later access to PORs in their reduced form.

2.3. Concluding Discussion (1)

In closing this section 2, a number of conclusions can be drawn and a number of lines of research can be identified, which are listed below. It seems that they should all be taken into account in trying to make precise the interplay among different factors in development, such as formal/grammatical factors and frequency factors, and the role they play in shaping the poverty of the linguistic input and ultimately in determining the complexity of different syntactic computations.

¹³ All available Italian files in the CHILDES database have been analyzed, corresponding to a total of 177 files. Thanks to Cristiano Chesi for providing all relevant information.

¹⁴ Not surprisingly, some active causatives are present.

- Intervention locality plays a crucial role in determining the complexity of the active OR structure with a lexical head and an intervening lexical subject, following Friedmann et al. (2009) and much subsequent work. These structures are not produced in elicitation experiments by both children and adults in favor of PORs, i.e. relatives in the passive. As PORs are not frequent structures in the naturalistic input, plain frequency does not seem to be a crucial factor in accounting for children's (and adults') linguistic behavior (Belletti & Chesi 2014 for further relevant discussion).
- Resort to PORs in place of active ORs suggests that the computation at play in passive, which eliminates intervention of a lexically restricted subject, is favored hence, in the relevant sense, it is less complex than the computation of active ORs involving intervention of a lexically restricted subject.
- *Si*-causative passive in the causative voice does not represent a particularly difficult computation for (even young) children as it is accessed from very early on. This suggests that Italian/Romance type causativization (itself involving an instance of *smuggling* of the same type as passive), and its combination with other computations involved in passive (such as e.g. raising of the internal argument into the subject position) does not constitute a complex set of operations for children in the relevant sense.
- Frequency factors do not appear to play a crucial role in determining children's access to different constructions in both directions: a relatively rare construction like the *si*-causative passive is accessed with no special difficulty in the first PORs, whereas the reduced PORs which are present (though to a limited extent) also in naturalistic corpora of child directed speech are not resorted to by children in their PORs, in sharp contrast with adults' (elicited) productions.
- Children appear not to do what they hear most nor what would seem to be simpler since e.g. shorter (as shown by the case of reduced relatives). Even in their target consistent behavior, i.e. when they produce PORs similarly to what adults do, they typically have a behavior which contrasts with that of adults (as in their use of the *si*-causative passive). This is a strong challenge for any approach to acquisition in terms of general notions of analogy or imitation (Tomasello 2003; Yang 2012 for critical considerations in this domain). The challenge for the formal/grammatical approach consists in trying to tease apart the crucial relevant formal/

grammatical ingredients involved each time (and in formulating hypotheses to account for development).

3. Children's Sensitivity to the "Definiteness Effect/DE" and the Status of the VS Order

In a recent article Vernice & Guasti (2015) have provided interesting evidence indicating that children around age 5 (4;2-5;11) appear to be sensitive to the so called Definiteness Effect/DE (Belletti & Guasti 2015, chapter 6 for detailed presentation). It is impossible to summarize here the rich literature on DE, which dates back to the late seventies starting with Milsark's (1974, 1977) seminal work (Belletti & Bianchi forthcoming for an overview and some new thoughts on the issue). Here I only mention those aspects of the phenomenon, which will allow us to set the background for the discussion of some of Vernice & Guasti's results; these results are relevant to the main focus of this article dealing with complexity, poverty of the stimulus and frequency considerations, since these issues manifest themselves in a rather peculiar way in this domain.

Across languages the internal argument (IA) of unaccusative verbs, which characteristically ends up being the preverbal subject of the clause, is subject to an indefiniteness requirement when it remains in the IA position; for instance in English a sentence like (7)a¹⁵ is judged definitely better than (7)b; (7)c is fine with either a definite or indefinite subject:

(7) a There appeared a man on the screen

b *There appeared the/this man on the screen

c A/the man appeared on the screen

Similar data hold in French and other languages as well, including Italian. Since the post-verbal noun phrase can be a preverbal subject, the sentences in (7)a,b are often referred to as sentences containing a post-verbal subject. The possibility of sentences with a post-verbal subject is characteristically limited to sentences containing an unaccusative verb in non null-subject languages, as in the *there* sentence (7)a in English.

As already discussed in Belletti (1988), in Italian the DE phenomenology is obscured by the fact that, it being a null subject language,

¹⁵ Belonging to a special style in English. Interestingly, even at this peculiar stylistic level native speakers have clear judgments and make the relevant distinctions.

Italian admits post-verbal subjects with all verb classes, yielding a widespread occurrence of the order VS. A post-verbal subject appearing with transitive and intransitive verbs is not subject to any DE constraint; typically it is interpreted as the focus of new information (Belletti 2004, and the related discussion in Belletti & Bianchi forthcoming); a new information post-verbal subject is also possible with unaccusatives; with a new information focus post-verbal subject no DE is at work with unaccusatives as well. When the post-verbal subject is narrow focus, there is no constraint on definiteness on it since there is no such constraint affecting the relevant new information focus position. With unaccusatives the order VS may thus either correspond to the order derived through first merge, with S in the IA position (the same position as the direct object of a transitive verb; Burzio 1986) yielding DE and the sentence is associated with an all-new interpretation, or it can correspond to a sentence with a new information post-verbal subject, with S in the relevant new information focus position cartographically yielding the relevant interpretation¹⁶ and no DE. Hence, only in the former case is DE manifested. Finally, the order VS is possible in all-new sentences with all verb classes, unaccusative, transitive and intransitive (with DE arising only with unaccusatives in the way described).

In conclusion, the order VS is possible in Italian with all verb classes in different guises; S can be new information narrow focus and no DE is at work with unaccusatives, as with any other verb class; in all new sentences, DE on the post-verbal subject is manifested with unaccusatives only, as S remains in the IA argument position of first merge (Belletti 1988, Belletti & Bianchi forthcoming); this does not happen with the other verb classes, since the post-verbal subject never was an IA with transitives and intransitives; and DE, as mentioned, is a property of the IA position.

The above essential description of a very articulated phenomenology (for more details the reader is referred to the references quoted) is sufficient to appreciate its complexity; ultimately, the status of post-verbal subjects is in principle rather opaque in a language like Italian; only some post-verbal subjects are constrained by DE, those of unaccusatives, but only under particular discourse conditions, i.e. in all new sentences. Intuitively, pre-theoretically this should not be an easy area to master for children. Specifically, DE with unaccusative verbs seems a rather complex constraint to induce from the Italian input data, where VS frequently appears with all verb classes, with the difference in interpretation discussed, crucially allowing for the presence of a definite new information post-verbal subject

¹⁶ Distinct from a left peripheral contrastive/corrective focus, Rizzi 1997 and subsequent work.

with unaccusatives as well (when it is new information narrow focus).

Yet, young children do not seem to experience special difficulties in distinguishing between the appropriate use of a post-verbal definite or indefinite subject with unaccusative verbs. This is what Vernice & Guasti's results from a repetition experiment clearly indicate. In the repetition task designed in their experiment which was set in an all new context, children (4;2-5;11) better repeated sentences with a post-verbal subject when the noun phrase was indefinite and the verb was unaccusative. Moreover, children experienced difficulties in providing identical repetitions of definite post-verbal subjects in that context, with unaccusatives.

Vernice & Guasti (2015) tested all new contexts with unaccusatives and intransitive verbs. Concentrating on unaccusatives, in that context, the order VS is felicitous only if S is indefinite, whereas it is very marginal if S is definite, as indicated by the following two examples from the experiment:

- (8) Context: *C'è un bel sole nel bosco. Poi....*
(there is a beautiful sun in the wood; then...)
- a Esce un orsetto con i suoi amici
comes out a little bear with his friends
- b *Esce l'orsetto con i suoi amici
comes out the little bear with his friends

(Recall that a definite post-verbal subject is possible with unaccusatives only in a different type of context, when it is new information narrow focus). Children were able to perform identical repetitions of sentences like (8)a in a significantly wider number of cases than for sentences like (8)b (52% vs 31%).¹⁷ The ability to perform identical repetitions is considered a good test of what the speaker's grammar can do (Friedmann 2007, Lust 2005). This result is thus revealing in various respects: first of all it shows that the unaccusative class is set apart by young children with one of its crucial defining properties clearly identified: the indefiniteness requirement on the

¹⁷ As presented in detail in Belletti & Guasti (2015), the order SV was preferred so that sentences were often produced as non-identical repetitions with both unaccusatives and intransitives, pre-posing the subject even when it was post-verbal in the target. However, only when the subject was indefinite and only with unaccusatives children were able to perform identical repetitions of VS. A PP following the post-verbal subject is present in the stimuli to ensure that the post-verbal noun phrase is indeed internal to the VP, in its IA position of Merge (Belletti 1988 on the relevance of these configurations).

internal argument of the unaccusative verb (see also Lorusso 2014 for converging evidence in younger children); second, it also shows that young children master the definite/indefinite distinction from very early on (see again Lorusso 2014 in this respect).

Both conclusions are very relevant for the issues addressed in this article. Let us spell out the reasons why it is so in some better detail. The early identification of the unaccusative class through the indefiniteness requirement on its post-verbal subject suggests a grammar driven acquisition: since post-verbal subjects are possible with all verb classes in Italian, as reminded in the description above, the naturalistic input is rather opaque to be plausibly able to drive the selection of the correct sentences containing a post-verbal subject with unaccusative verbs. Furthermore, the fact that young children master the definite/indefinite distinction from early on also suggests that this distinction is very well rooted in their internal grammar and does not really need to be learned. Intuitively, the definiteness/indefiniteness distinction is not a simple distinction to express; it is indeed a classical topic in formal semantics (Heim 1982, references cited therein and much subsequent work; Belletti & Bianchi forthcoming for relevant discussion). Yet young children master the distinction from early on, as their sensitivity to DE with unaccusatives clearly suggests.

3. 1 Concluding Discussion (2)

Children's early sensitivity to DE with unaccusatives reviewed in the previous section allows us to reach a number of conclusions relevant to the complexity/frequency/poverty of the stimulus issues central to the present work, which are summarized below:

- What looks intuitively, pre-theoretically complex is not necessarily complex in development; the definiteness/indefiniteness distinction is mastered by young children and obviously, no direct teaching or explanation is provided to them on this distinction. Hence, the relevant complexity is not an intuitive notion. What may look hard, or anyway not trivial, can be relatively easy for young children, presumably because their language faculty is prepared to master the relevant distinction; children are prepared to recognize the lexical items, i.e. the class of unaccusative verbs, in which it plays a role, due to the structural position of their internal argument. Hence, the relevant lexical, semantic and syntactic properties appear to be simultaneously mastered by young children's grammar and to interact in the target way from early on.

- Intuitively, the order VS is fairly opaque in the Italian naturalistic input, as it corresponds to different discourse pragmatic conditions and interacts with lexical properties of different verb classes (singling out unaccusatives in the way discussed). The word order VS in its different values is thus rather frequent in standard Italian.¹⁸ However, due to the different discourse pragmatics it may correspond to, it is associated with different structural representations and syntactic computations.¹⁹ Young children do not seem to be disturbed by these a-priori opaque input data, as witnessed, among other things, by the results discussed in this section 3.²⁰

4. Summary and Some General Conclusion

We have reviewed here a number of results from experimental work on the acquisition of some Italian (a-priori) complex constructions, which indicates that children's early linguistic behavior is not always easily predictable on the basis of frequency considerations; all of this suggests that complexity does not apply in the vacuum and it is not a pre-theoretical notion. Furthermore, non-trivial considerations on the status of the impoverished input that is (likely to be) available to children in their primary linguistic data are also suggested by these findings. On the one hand young children make (relatively) early use (in elicited production) of constructions which are not particularly frequent in naturalistic corpora of spontaneous production, such as PORs; on the other hand, children accessed the infrequent POR structures not through the kind most commonly found in (adult) naturalistic corpora nor in the analyzed child directed speech, i.e. reduced PORs, but through a kind which makes use of a very rare type of passive, seldom found in naturalist productions in standard Italian, i.e. *si-causative passive*.

We have proposed that grammatical considerations having to do with intervention locality combined with other factors to which we have alluded to, such as the labeling requirement, may play a crucial role in interpreting

¹⁸ A precise corpus study is yet to be done in this domain (but see Lorusso 2014). However, it is very clear to the intuition of any native speaker of Italian that the order VS is as "familiar" as the order SV in the language.

¹⁹ Which are well represented cartographically. Belletti & Bianchi forthcoming and references cited therein.

²⁰ And also in Lorusso (2014) corpus study quoted. See also Belletti & Contemori (2012) for relevant considerations based on the appropriate use of pronominal post-verbal new information subjects in young children's elicited productions.

the unexpected children's linguistic performance. Furthermore, early access to subtle properties of different verb classes that we have reviewed, such as the indefinite requirement on the IA of unaccusative verbs that Italian speaking children appear to master since their young age, constitutes a fairly inspiring and revealing indication that children are equipped from early on with the grammatical tools necessary to compute rather complex notions such as the definite-indefinite distinction on noun phrases, beside singling out the appropriate lexical class to which different verbs belong.

This is so despite the rather opaque status of the input they are likely to be exposed to, in which the same word order corresponds to different discourse values and consequently different structures and related computations, as in the case of the VS order in Italian.

All of this clearly points to the conclusion that internal grammatical factors play a crucial role in development. It constitutes an encouraging indication of the insights that can be gained from a detailed grammar-based study of (stages of) acquisition whereby subtle but not for that matter less important empirical distinctions manifest themselves in often unexpected and unexplored ways in children's early productions.

This often happens despite the rarity of the relevant structures investigated and their intuitive, pre-theoretical complexity.

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