**ORIGINAL PAPER**

# The acquisition of grammatical alternates: a comparison of Italian and Norwegian possessives

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**Abstract** Possessive alternates (prenominal and postnominal) have mirrored properties in Italian and Norwegian when taking into consideration frequency, derivation, and markedness; i.e., the variant that is base-generated in one language is considered the derived one in the other language. Thus, in both languages there is a variant used for unmarked contexts (i.e., topic) and for marked contexts (i.e., contrast). Previous studies have shown that Italian children acquire the use of the variants with ease, whereas Norwegian children were found to overuse the marked variant, even in unmarked contexts. Here, we reanalyse the co-occurrences of the possessive and the noun in the monolingual corpora for the two languages available on CHILDES, by focusing more attentively on the contextual use of the variants, to reveal whether the same principles underly the acquisition process. Our findings contradict the previous claims on the acquisition of Italian but are in line with the previous findings for Norwegian. Both groups of children overuse the marked but base-generated variant, indicating the relevance of syntactic economy in language acquisition.

## 1 Introduction

Languages can have two grammatical variants for expressing a semantic relation. However, these variants are often only seemingly equal as there are contextual preferences for when each of them is used. Take, for example, word order alternations as seen through the dative alternation or scrambling: these are often a

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reflection of what is given and what is new in the context (Clark and Haviland 1977; Mykhaylyk et al. 2013; Anderssen et al. 2014; Stephens 2015; Velnić 2018). In the current study, we focus on the variation in the relative order of the noun and a possessive pronoun that modifies it, in relation to the context. The goal of the study is to use the structural variation of the order of the possessive and the noun to tease apart which among the following factors is the most relevant one in language acquisition: derivation (syntax), markedness (pragmatics), or overall frequency. For this purpose, we investigate the production of possessive constructions in Italian and Norwegian monolingual children. These two languages were chosen because of the presence of pre- and postnominal possessives, but more importantly, the distribution of the two variants is the opposite in the two languages in terms of derivation, markedness, and frequency with respect to linear order. Consequently, if children acquiring the two possessive variants are driven by the same factor(s), we should observe the opposite patterns of acquisition in terms of usage and potential target deviations. Thus, this crosslinguistic comparison can contribute to identifying the relevant factors for language acquisition when there is variation in the input.

For both of Italian and Norwegian, the acquisition of possessives has been investigated, and these analyses have shown that Italian children (Bernardini 2003; Cardinaletti and Giusti 2011) acquire this variation with relative ease, but Norwegian children (Anderssen and Westergaard 2010; Westergaard and Anderssen 2015) go through a phase in which the contextually marked, but syntactically base-generated structure is overused. If we assume that the same principles govern the dynamics of acquisition, why has the overproduction of the base-generated variant not been observed in Italian? For this reason, we will delve deeper into the patterns of acquisition of the possessive-noun combinations by focusing more on the context in which the structures under investigation appear. We also consider the occurrences based on the mean length of utterance (MLU) of the children, in order to gain a developmental perspective.

The data used is corpus data of monolingual Italian and Norwegian children that is available in the CHILDES database (MacWhinney 2000a), containing six corpora for Italian (Antinucci and Parisi 1973; Cipriani et al. 1989; Antelmi 1997; Tonelli et al. 1998; D'Odorico and Carubbi 2003; van Oosten 2005) and three for Norwegian (Anderssen 2006; Ringstad 2014; Garmann et al. 2019).[1] Corpus data might not be ideal as it reflects a spontaneous and uncontrolled environment, but this is the first step for a series of experimental studies. Nevertheless, previous studies have illustrated how corpus data can be a realistic representation of the children's competence (Yang 2011; Bates et al. 2018). We thus feel confident that investigating corpus data can reveal the factors relevant for the acquisition of a specific structure.

The results indicate an overuse of the marked structure, extended to unmarked contexts, in both languages, but more strongly for Norwegian. We conclude that the same factor guides acquisition cross-linguistically, and that factor is syntactic economy. The Italian children seem to acquire the contextual use of the variants by the time their MLU reaches 3.5, but for Norwegian children the misuse persists for

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[1] The Anderssen corpus is not available on CHILDES.

the duration of the corpora. This entails that Norwegian children acquire the contextual use more slowly than their Italian peers, and we attribute that to a greater difference in complexity between the two variants in Norwegian (when compared to Italian).

The paper is structured as follows: In the following section, the distribution and use of the prenominal and postnominal possessive variant in the two languages are outlined (Sect. 2), followed by an overview of the contextual uses of the variants (Sect. 3). Following that, in Sect. 4, we discuss the literature on the acquisition of possessive structures in Italian and Norwegian. The current study is outlined in Sect. 5, followed by the description of the corpus data and methodology in Sect. 6. The results of the statistical analyses are described in Sect. 7. Sections 8 and 9 contain the discussion and conclusion respectively.

## 2 Comparison of possessive structures in Italian and Norwegian

The uses of possessive structures in Italian and Norwegian are comparable as they both have pre- and postnominal variants, and these are contextually dependent. There are nevertheless key differences between the two languages, which ultimately result in the possessive structures in the two languages being mirror images of one another according to the considered features. In the next section, the Italian possessives will be outlined in terms of derivation, markedness, and frequency; following that, Norwegian possessives will be described according to the same parameters.

### 2.1 Possessive structures in Italian

The two Italian variants are displayed in (1). The article is the first element in both structures; thus, the only difference is the position of the possessive in relation to the noun.

(1) a. la　　mia　macchina　　　　b. la　　　macchina mia
　　　　*the.F　my.F　car.F*　　　　　　　*the.F　car.F　　my.F*

In terms of derivation, Cardinaletti (1998) claims that the underlying structure is the postnominal one as the noun moves to the functional head before spell-out[2] whereas the prenominal possessive is derived by movement to the prenominal position occurring in a prenominal specifier below D.[3] The postnominal order is obtained by leftward raising of the noun, typical for Romance languages (Cinque 1994; Longobardi 1994). For more information see Cardinaletti (1998), who provides a thorough analysis of the two variants in terms of deficient/strong possessives, which is outside of the scope of this paper.

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[2] [$_{DP}$ *la* [$_{XP}$ ... [$_{YP}$ *macchina*$_k$ [$_{NP}$ *mia* [t$_k$ ...]]]]]

[3] [$_{DP}$ *la* [$_{XP}$ *sua*$_i$ [$_{YP}$ *macchina*$_k$ [$_{NP}$ t$_i$ [t$_k$ ...]]]]]

Regarding contextual use, the prenominal possessive is the unmarked variant while the postnominal is used in focal contexts, such as contrast (Cardinaletti and Giusti 2011). There are some other uses that are exclusive to the postnominal form, more specifically vocatives (e.g., *Tesoro mio* 'my precious'), and exclamations (e.g., *Mamma mia!* 'my mother!' *Dio mio!* 'my God!'). Note that these are used without an article. Additionally, the prenominal possessive cannot be used to identify a new discourse referent (Cardinaletti 1998), which may be related to what we refer to as emphasis. This contextual distribution also impacts frequency, as unmarked contexts are more frequent than marked contexts, and consequently the unmarked structure is used more frequently. Cardinaletti and Giusti (2011) analyzed possessive structures from the LIP corpus (Voghera et al. 2014), which contains adult spoken interactions, and found that 86% of occurrences were the prenominal possessive.

## 2.2 Possessive structures in Norwegian

The two Norwegian variants are displayed in (2), which reveals that these two variants differ not only regarding word order, but also because the prenominal possessive does not have an article, unlike the postnominal construction.

(2) a. min   bil          b. bilen        min
       *my.M  car.M*          *car.the.M   my.M*

In terms of derivation, the Norwegian possessive is considered to be generated above the head noun, i.e. in Spec-NP (Julien 2005) but below the position of the suffixal article.[4] The postnominal possessive is thus realized by leftward movement of the noun past the possessor and merges with the suffixal article[5] (Anderssen and Westergaard 2010; Fábregas et al. 2019). The prenominal possessive is in its surface position (i.e., preceding the noun), but it is still considered to move to a higher position: the specifier of the DP[6] (Julien 2005; Fábregas et al. 2019). Nevertheless, the prenominal is considered as basic (Fábregas et al. 2019), especially because in the early stages of acquisition the movement of the possessive higher in the DP is not necessary, and it is thus considered the base-generated possessive. Anderssen and Westergaard (2010) discuss how this relates also to complexity as the derived possessive is more complex as it involves movement.[7] Note also that the two variants differ for their co-occurrence with the definite article, as the prenominal possessive does.

Lødrup (2012) analyses the two variants from both points of view: grammatical and information structure (context). He claims that, from a grammatical point of

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[4] [$_{DP}$ ... [$_{XP}$ ... [$_{YP}$ *min* [$_{NP}$ *bil* ]]]]

[5] [$_{DP}$ bilen$_i$ [$_{XP}$ ... [$_{YP}$ *min* [$_{NP}$ t$_i$ ]]]]

[6] [$_{DP}$ ... [$_{XP}$ *min*$_i$ [$_{YP}$ t$_i$ [$_{NP}$ *bil* ]]]]

[7] Complexity is never discussed as a factor in the studies on Italian, but if complexity is defined in terms of derivation, then the derived form, the prenominal, is the more complex one.

view, the prenominal possessive is unmarked (what we refer to as basic here). Several pieces of evidence are provided: some combinations of the possessive and the noun are only possible with the prenominal possessive (e.g., *mitt Norge/\*Norge mitt* 'my Norway'); and it is also the forms that lexicalizes the NP (*På min måte* 'my way', *gå sin vei* 'go his-REFL way'), to name a few. For the postnominal variant, Lødrup (2012) claims that it is more natural and easier to contextualize. Thus, contextually, in Norwegian the postnominal possessive is considered the unmarked form and it is used in topical contexts (Lødrup 2011); conversely the prenominal possessive is used in cases of contrast and emphasis (Anderssen and Westergaard 2010) and is thus used for focal information. Again, contextual markedness relates to frequency, and consequently the postnominal possessive is the more frequent variant. Westergaard and Anderssen (2015) investigated the frequencies of the two variants in the NoTa-Norwegian Spoken Corpus (Bondi Johannessen et al. 2008), where the distribution was 73% in favor of the postnominal structure.

## 2.3 Summary of differences

The relevant differences between Italian and Norwegian possessives can be summarized as in Table 1. Both the derivational analyses provided for the target languages are uncontroversial, and there is consensus in the field regarding the derivational relationship of the two possessive variants. It is beyond the goals of this study to analyze those in depth.

   When these features are laid out in a table, it is obvious that the possessive structures in the two languages are the mirror image of one another. This is not unexpected as markedness is an adaptive cognitive strategy for economy of processing, according to which salient experiences are filtered (marked), and frequent experiences are accorded with more automated processing (unmarked) (Givón 1991, 31). The choice of word order thus relates to both saliency and frequency: what is more salient is marked, and what is more frequent is unmarked.[8] If universal principles are at play in the acquisition of contextual variants such as the position of the possessive pronoun in these languages, then we should expect to see the same dynamics of acquisition of these variants in Italian and Norwegian, which would result in opposite surface structures being acquired first when the two languages are compared.

## 3 Markedness and the contextual uses of possessive variants

It has been mentioned in the previous section how a certain possessive variant is the unmarked one and the other one is used in several marked contexts. The terms *marked* and *unmarked* have been used to denote various aspects of the language; for a full overview see Haspelmath (2006). It is thus essential to clarify how the terms are used

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[8] Givón (1991) uses the term *marked* in terms of processing, whereas we are referring to markedness from a discourse-pragmatics point of view. Thus, we link markedness in Givón's terms to *saliency*.

**Table 1** Summary of main differences between Italian and Norwegian possessives

| | Italian | | Norwegian | |
|---|---|---|---|---|
| | Possessive-Noun | Noun-Possessive | Possessive-Noun | Noun-Possessive |
| Example | la mia macchina | la macchina mia | min bil | bilen min |
| Derivation | Derived | Basic | Basic | Derived |
| Article | Yes | Yes (no insomecontexts) | No | Yes |
| Complexity | (Complex) | (Simple) | Simple | Complex |
| Markedness (contextual) | Unmarked | Marked | Marked | Unmarked |
| Frequency | More (86%) | Less | Less | More (73%) |

here. The two terms are used in their pragmatic sense: The unmarked variant is the one produced in neutral and topical contexts, whereas the marked variant is used in contexts such as contrast, emphasis, and focus. Vocatives also fit the definition as they require the unmarked variant in the two languages, but in Italian these are uttered without the article (i.e., *Amore mio* lit. 'love my') which may indicate a different underlying structure. Thus, these will be excluded from the study.

We classified the occurrences as topic when the NP with the possessive was either the discourse topic or the sentence topic,[9] whereas a neutral context includes NPs with possessives that are not the topic but also not marked in any way. We take examples from the adult speakers in the corpora to illustrate these contexts. Note that throughout the paper the target child is CHI, and all other participants are adult speakers: MOT (mother), FAT (father), OBS (observer), INV (interviewer).

(3) CHI: la      mi'    palla,  la      mi' [: mia]  palla.                    Italian, topic
         *the.F my     ball.F the.F  my          ball.F*
         'My ball, my ball.'
    FAT: tieni  **la     tua     palla.**
         *hold   the.F  your.F  ball.F*
         'Here, **your ball**.'
    Location: Calambrone/Guglielmo/020201.cha": line 22.[10]

(4) CHI: brum        brummmm.                                Italian, neutral
         *brumm       brummm*
         'Brum brum.'
    CHI: vieni,      chi     vo'     salire     qui ?
         *come.IMP    who     wants   come.up    here*

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[9]  The full DP is considered the topic because if only the possessive is the topic, this is likely to be emphasized and will thus require a marked structure.

[10]  The corpora queries were conducted on downloadable sets and thus the line is reported as appearing in those. The corpora on CHILDES have a slightly different enumeration of lines, and thus the location does not match.

　　　　　'Come, who wants to get on here?'

CHI:　chi　　　　vo'　　　　salire　　　qui ?

　　　*who*　　　*wants*　　　*come.up*　　*here*

　　　'Who wants to get on here?'

MOT:　ecco,　　　　due　　　passeggeri　per　　**la**　　**tua**　　**macchinina**,　vai !

　　　*here*　　　　*two*　　　*passengers*　*for*　　*the.F*　*your.F*　*car.F*　　　*go*

　　　'Here, two passengers for **your car**, go.'

CHI:　venite,　　　　passeggeri.

　　　*come.2PL.IMP*　　*passengers*

　　　'Come here passengers.'

Location: Antelmi/020904.cha": line 255.


(5)　CHI:　finn　　　Ina　　　boka.　　　　　　　　　　　　　　　　　Norwegian, topic

　　　　　*find.IMP*　*Ina*　　*book.the*

　　　　　'Find Ina's book.'

　　INV:　skal　　　vi　　　finne　　boka　　　til　　　ho　　　Ina?

　　　　　*shall*　　*we*　　*find*　　*book.the*　*of*　　*her*　　*Ina*

　　　　　'Shall we find the bookbelonging to Ina?'

　　FAT:　skal　　　vi　　　finne　　**Donald**　**boka**　**di**　　kanskje?

　　　　　*shall*　　*we*　　*find*　　*Donald*　　*book.the*　*your*　*maybe*

　　　　　'Shall we find **your Donald book** maybe?'

　　CHI:　ja.

　　　　　*yes*

　　　　　'Yes.'

　　FAT:　finne　　Donald　bok?

　　　　　*find*　　*Donald*　*book*

　　　　　'Find the Donald book?'

　　CHI:　Donald　bok!

　　　　　*Donald*　*book*

　　FAT:　ei　　　Donald　bok?

　　　　　*one.F*　*Donald*　*book*

　　　　　'Donald book!'

Location: Anderssen/INA/Ina07.cha": line 252.


(6)　CHI:　Ann　　　(s)torbilen.　　　　　　　　　　　　　　　　Norwegian, neutral

　　　　　*Ann*　　*big.car*

　　　　　'Ann's big car.'

　　MOT:　storbilen　skal　　　være　　med?

　　　　　*big.car*　*will*　　*be*　　*with*

　　　　　'The big car is joining?'

　　CHI:　ja.

|        |        |       |        |       |      |     |       |      |    |               |        |
|--------|--------|-------|--------|-------|------|-----|-------|------|----|---------------|--------|
|        | *Yes*  |       |        |       |      |     |       |      |    |               |        |
|        | 'Yes.' |       |        |       |      |     |       |      |    |               |        |

MOT:   kanskje   du               heller   skal   ta    nån   bøker   med   i   **lillesekken**   **din**?
*maybe*    *you*             *rather*  *shall* *take* *some* *books*  *with* *in* *little.backpack* *your*
'Maybe you should ratherbring some books in **your little backpack**?'

CHI:           ja

*yes*

'Yes.

Location: Anderssen/ANN/Ann04.cha": line 1740.

The following types of contexts are the marked ones and yield the opposite noun-possessive order in each language from the order in topic/neutral contexts. Focus is seen as the opposite side of the coin from topic. Focus is a pragmatic category, and it has a multitude of definitions, since there are numerous contexts that may trigger focus (Büring 2009), but according to many definitions it is the new and informative part of the clause (Pereltsvaig 2004). Among the various types of focus, Büring (2009) specifies the existence of *answer focus*, which is the type of focus that we are taking into consideration in the current analysis. Gundel (1999) defines this type of focus as new information that is being asserted or questioned, an implicit or explicit answer to a wh-question. Here, focus is counted as a possessive NP that was the answer to a question that explicitly asked about the possession, as this places the possessive itself (and not the noun denoted by the possessive) in focus. The occurrences of this type were very scarce, and thus for Italian we present one from a child speaker.

(7)   OBS:   una         scarpa ?                                        Italian, focus
one.F       shoe.F
'A shoe?'

OBS:   e          di      chi    è ?
*and*      *of*    *who*  *is*
'And whose is it?'

CHI:   è          mia !
*is*        *my.F*
'Mine!'

CHI:   è          tua     è    **tappa**   **tua**.
*is*        *your.F*  *is*  *shoe.F*   *your.F*
'It is **your shoe**.'

OBS:   ma         non     è    un    pochino   piccola ?
*but*       *not*    *is*  *one*  *bit*      *small.F*
'Isn't it a bit small?'

Location: Calambrone/Rosa/020629.cha": line 261.

(8)   MOT:   kemmes   bokstav   er        det   der?                   Norwegian, focus
*whose*    *letter*   *is*       *that*  *there*
'Whose letter is the one over there?'

| CHI: | xx | xx | sin. | | | |
|------|-----|------|------|---|---|---|
| | *xx* | *xxx* | REFL | | | |
| | 'Xx's.' | | | | | |
| INV: | **min** | **bokstav** | og. | | | |
| | *my* | *letter* | *and* | | | |
| | '**My letter** and.' | | | | | |
| CHI: | den | og | sånn. | | | |
| | *that* | *and* | *like.this* | | | |
| | 'That one also like this.' | | | | | |
| MOT: | og | så | er | det | Merete | sin. |
| | *and* | *also* | *is* | *that* | *Merete* | REFL |
| | 'And also it is Merete's.' | | | | | |

Location: Anderssen/ANN/Ann21.cha": line 159

Contrast, or contrastive focus, is a contextual category that deals with alternates (Richter and Mehlhorn 2006). It is what Kiss (1998) calls identification focus: "a subset of the set of contextually or situationally given elements for which the predicate phrase can potentially hold" (p. 245). As we are investigating possessives, this refers to possessive alternates: occurrences that contrast the possession of the target occurrence with another NP. For the marked order to be triggered, the contrast must be in the possession (*my ball* vs. *your ball*), not the NP (*my ball* vs. *my car*).

| (9) | MOT: | questo | è | tutto | il | pelo | della | pancia | loro | della mamma. | Italian, contrast |
|-----|------|--------|---|-------|-----|------|-------|--------|------|--------------|-------------------|
| | | *this* | *is* | *all* | *the.M* | *fur.M* | *of.the.F* | *belly.F* | *their* | *of.the.F mother.F* | |
| | | 'All this is the fur of their mother's belly.' | | | | | | | | | |
| | CHI: | loro | cosa | fanno ? | | | | | | | |
| | | *they* | *what* | *doing* | | | | | | | |
| | | 'And they, what are they doing?' | | | | | | | | | |
| | MOT: | e | loro | stanno | prendendo | il | latte. | | | | |
| | | *and* | *they* | *are* | *taking* | *the.M* | *milk.M* | | | | |
| | | 'They are drinking milk.' | | | | | | | | | |
| | MOT: | chi | è | che | prendeva | il | latte | **dalla** | **mamma** | **tua** ? | |
| | | *who* | *is* | *that* | *took* | *the.M* | *milk.M* | *from.the.F* | *mother.F* | *your.F* | |
| | | 'And who was drinking milk from **your mother**?' | | | | | | | | | |
| | CHI: | io | lui | e | Gherardo. | | | | | | |
| | | *I* | *him* | *and* | *Gherardo* | | | | | | |
| | | 'Me, him, and Gherardo.' | | | | | | | | | |

Location: Calambrone/Guglielmo/020517.cha": line 143.

| (10) | CHI: | skal | du | ha | han | på | fingeren? | | Norwegian, contrast |
|------|------|------|------|------|------|------|-----------|---|---------------------|
| | | *will* | *you* | *have* | *him* | *on* | *finger.the* | | |
| | | 'Will you have him on the finger?' | | | | | | | |
| | INV: | skal | eg | ha | han | på | fingeren? | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | *will* | *I* | *have* | *him* | *on* | *finger.the* | | | |

'Will I have him on the finger?'

CHI:  | ja | du | må | vente | litt. |
| *yes* | *you* | *must* | *wait* | *little* |

'Yes but you must wait a little.'

INV:  | sånn. |
| *like.this* |

'Like this.'

INV:  | må | sætte | den | litt | fast | så | han | ikkje | dett | av. |
| *must* | *sit* | *that* | *bit* | *fixed* | *so* | *he* | NEG | *fall* | *down* |

'Must fix it a bit so he doesn't fall off.'

INV:  | satt | litt | laust. |
| *sat* | *bit* | *loose* |

'It's a bit loose.'

INV:  | ops. |
| *Oops* |

'Oops.'

CHI:  | den | kunne | ikkje | på | din. |
| *that* | *could* | NEG | *on* | *yours* |

'It cannot go on yours.'

INV:  | kunne | vi | ikkje | sætte | han | på | min? |
| *could* | *we* | NEG | *sit* | *him* | *on* | *my* |

'Cannot we put it on mine?'

CHI:  | nei. |
| *no* |

'No.'

INV:  | nei | han | var | lettare | å | få | til | å | sætte | fast | på | **din** | **finger**. |
| *no* | *he* | *was* | *easier* | *to* | *get* | *to* | *to* | *sit* | *fixed* | *on* | *your* | *finger* |

'No, it is easier to make him sit tight on **your finger**.'

Location: Anderssen/ANN/Ann18.cha": line 624.

Emphasis is yet another elusive category of information structure as there is no common agreement on the exact meaning (Richter and Mehlhorn 2006). Winkler (2011) defines emphasis in terms of non-neutral, non-normal, non-standard (p. 331), which captures the vagueness with which emphasis has been described, including in the intonational domain. Richter and Mehlhorn (2006) claim that, according to their study on intonational contour, the emphatic stress is distributed at the sentence-level, and thus it is not part of information structure. Here we are interested in the syntactic components of emphasis, and we have observed how emphasizing the

possessive requires it to be in the marked order for the respective languages. However, Richter and Mehlhorn (2006) also specify how emphasis seems to be a blanket term for every kind of highlighting (p. 351), and we use it as such in this study. What we mark as emphasis in this study is somewhat similar to contrast, but unlike contrast, there is no alternate that the target-possessive is being compared to or contrasted with.

(11)  MOT:  e         lo         so               non        sei         mai        stato  in Austria. Marco    Italian, emphasis
            *and*      *that.CL*  *know.1SG.PRES*  *NEG*      *are.2SG*   *never*    *been  in Austria Marco*

            'I know you have never been to Austria, Marco.'

      MOT:  fino       che        non              ti         faccio      **il**       **documento**   **tuo**.
            *until*    *that*     *NEG*            *you.DAT*  *make.1SG*  *the.M*     *document.M*   *your.M*

            'until I make **your document**'

      Location: Tonelli/Marco/020413.cha": line 2101.

(12)  MOT:  det        der        er               gaffelen.              Norwegian, emphasis
            *that*     *there*    *is*             *fork.the*

            'That over there is the fork.'

      MOT:  den        høre       til.
            *it*       *belongs*  *to*

            'it belongs to.'

      MOT:  det        der        er               jo         **din**      **gaffel.**
            *it*       *there*    *is*             *PART*     *your*      *fork*

            'It is indeed **your fork**.'

      MOT:  nei        ho         kan              jo         ikke        få.
            *no*       *she*      *can*            *PART*     *not*       *get*

            'No she cannot have it.'

      Location: Anderssen/ANN/Ann08.cha": line 195.

For the purposes of analysis in this study, we establish a binary distinction of contextual use, referring thus to the contexts as either unmarked or marked.

# 4 Acquisition of possessive structures in Italian and Norwegian

According to the studies conducted on the acquisition of possessives in Italian (Antelmi 1997; Bernardini 2003; Cardinaletti and Giusti 2011), it appears that Italian children do not face difficulties in acquiring the two possessive variants. Bernardini and Egerland (2006) analyze the data in the Calambrone corpus regarding the development of the acquisition of the combination of the determiner and the possessive. They suggest three developmental stages: (i) postnominal possessive and article omission, (ii) mainly prenominal possessive and optional determiner, (iii) adult-like system. According to these stages, children would be

expected to have a higher production of postnominal possessive when they are younger.

Bernardini (2003) and Cardinaletti and Giusti (2011) report that the prenominal possessive is overall more frequent, as we would expect based on the adult usage. Cardinaletti and Giusti (2011) concludes that the fact that the prenominal possessive is distributed more frequently is a strong indication that the children understand the contextual use of this variant. While we do not disagree with this claim, a closer look at the contextual use is needed to determine how target-like the children really are as these grammatical alternates are contextually bound. Bernardini (2003) also states how the two variants of possessives are used correctly, the criteria being the type of noun (such as *casa*) and contrastiveness, although no explanation or example of contrastive use is provided in the study.

For Norwegian, Anderssen and Westergaard (2010) notice an initial stage (from 1;9–2;0) in which the prenominal possessive was the only variant produced, and in the following stage (2;0–2;4) the distribution of the two variants stayed approximately the same. The explanation provided is that this is an effect of *economy*. This is linked not only to the prenominal possessive being less complex because it does not have an article, but also to the fact that it is considered the base-generated form in Norwegian (Julien 2005) and thus no movement is required, as children are economical and resort to movement only when they have sufficient evidence from the input (Westergaard and Anderssen 2015). Anderssen and Westergaard (2010) observe that the development of the postnominal structure becomes increasingly more frequent and reaches a distribution similar to the adult one at around age 2;8. At a subsequent stage, the production of the postnominal possessives drops, settling on a 50/50 ratio of the two variants. The authors claim that this is not direct evidence for the children not being target-like, as they could be using more contrastive contexts than the adults, which would make the prenominal possessive target-like, but as the children's utterances are relatively short, the context is not always easy to determine. Anderssen and Westergaard (2010) conclude that, since the unmarked and more frequent structure to which the children are exposed is not overproduced, along with the initial overproduction of the prenominal possessive, children are economical in their productions but are also aware of contextual implicatures.

According to Grammatical Conservatism (Snyder 2007) children do not "try out" grammars, but they wait for obtaining enough evidence from the input. This means that children make errors of omission more frequently than errors of commission; however the latter are not being investigated in the current study, and we should thus not expect a wide range of errors of commission. Snyder (2007) also specifies how Grammatical Conservatism is more evident from spontaneous than from elicited production, and we thus have good grounds for noticing it in our data. Fodor (1998) raises the problem of ambiguous cues for parameter setting in the input and discusses three learning mechanisms claiming that the learning model used by a child is a *wait-and-see* device: no changes to the grammar are made when the input is parametrically ambiguous. She also claims that children are able to detect parametric ambiguity, in order to successfully abstain from making modifications to their grammar in the presence of such input. Westergaard (2014) builds on these

approaches (and others) by adding the concept of *micro-cues* which allow children to be sensitive to fine syntactic distinctions from an early age. Thus, according to Westergaard (2014), Universal Grammar provides children with principles and features, but the micro-cues come from the input; i.e. they are language-specific. The micro-cue approach can explain variation within language, such as the exposure to prenominal and postnominal possessives. Westergaard (2014) discusses the research conducted on Norwegian children in relation to verb placement, subject placement, and position of the possessor. Children's errors do not pattern with mis-setting of a parameter (strong overgeneralization of one order), since they use both variants of the investigated features from early on and, usually, in appropriate contexts (Westergaard 2014). The children's errors found for these structures lack syntactic movement (for a detailed overview see Westergaard 2014 in Section 3). This is attributed to economy, as it seems that children do not perform movement unless there is clear evidence for it. According to Westergaard (2014), children are exposed to variation in the input for a specific syntactic structure and analyze what the distinction is based on, thus becoming sensitive to the linguistic contexts that the variants appear in. Westergaard's micro-cue contains the context in which a particular syntactic structure should appear, thus making the micro-cue unambiguous as it is highly specific.

Based on the properties of the two languages, we would expect Italian and Norwegian children to face the same difficulties. However, the findings of the studies above suggest that Italian children acquire the possessive variants with more ease than Norwegian children, but both groups of children start with the base-generated variant (Bernardini and Egerland 2006; Anderssen and Westergaard 2010). In Norwegian the two variants differ in complexity both from a syntactic (movement, as the variants in Italian) and a morphological point of view (Westergaard and Anderssen 2015). This morphological complexity is related to the presence/absence of the definite suffixal article: the prenominal does not have an article (*min bil* 'my car') whereas the postnominal possessive requires a suffixal definite article (*bilen min* 'car.the my'). Differences in complexity have not been reported for the Italian possessives, but if we were to assume that movement creates complexity, the prenominal possessive (unmarked) should be the more complex variant, but we must keep in mind how the difference in complexity between the two variants may be greater for Norwegian than for Italian.

From the reports in previous literature, it does not seem that Italian and Norwegian children acquire the use of possessive variants in the same way, as this seems rather unproblematic for Italian whereas Norwegian children are argued to be syntactically economical (Anderssen and Westergaard 2010). However, since the studies did not have a strong focus on contextual use of the variants, a closer look and subsequent analysis is necessary. In the next section, we will explain the purposes of this study and how context will be the key factor for determining target-like usage of possessives.

## 5 The current study

In the current study we compare the acquisition of two grammatical variants across two languages: possessive structures in Italian and Norwegian. The aim of this study is two-fold: (i) to reanalyze the data from Italian and Norwegian children by taking context into account as this should reveal whether Italian children are as target-like as previously described and if the overuse of the marked form reported for Norwegian children can be explained by a correct contextual use of the variants; (ii) to investigate whether the same factors have an equal relevance in the acquisition process of both languages, as the process of language acquisition should proceed in roughly the same way cross-linguistically.

In relation to (i), we have outlined in the previous sections how children acquiring Italian have roughly the same proportion as adults, which entails that they understand the contextual differences in use (Cardinaletti and Giusti 2011). In our opinion this conclusion does not automatically follow from its premise as the children might, for example, be using more contrastive contexts than adults, and if the proportion of the variants is the same, the children are not as target-like as they seem. This brings us to the first aim of our study: to establish whether Italian children are target-like when the context is taken into consideration. We will do so by querying all the available corpora for the two languages and classifying each relevant occurrence by context. If Italian children are target-like, we expect to find that the previously reported frequencies of the possessive variants are matched with the contextual use of said variants. In Norwegian, on the other hand, children were found to overuse the base-generated order (prenominal). An explanation for that may be economy, as children are known to avoid complexity until they are sure that it is felicitous. Anderssen and Westergaard (2010) included contextual use as a factor in their analysis, but unfortunately due to short utterances the context intended by the child was not available for parts of the corpus. We will thus add more data by including what is available in CHILDES. With more data, we may have a window into the context in which the possessive structures are uttered for more occurrences. From there, we will be able to investigate whether the overuse of the prenominal is non-target-like or linked to a more substantial use of marked contexts.

Regarding point (ii), the outputs of the two variants should be different based on the relevance of the factors for acquisition. For this point we analyze the occurrences in relation to the context they are uttered in, but we also look at the occurrences with respect to MLU to observe the development.

The configuration of the factors allows us to observe the hierarchy of the factors and reveal whether the same relevance of factors holds cross-linguistically. The mirror-image distribution of the analyzed factors allows us also to observe the effects of linear order compared to the syntactic and pragmatic factors. Thus, observing mirror-image patterns in the acquisition of Italian and Norwegian children will reveal general mechanisms of the relevance of the factors in play. If absolute frequency guides acquisition, i.e., if children notice more prominently what is more frequent, then children should produce the most frequent variant

(prenominal for Italian and postnominal for Norwegian) with marginal, if any, occurrences of the alternate. If the children's sensitivity to context, i.e., markedness, guides acquisition, the unmarked variant is expected to be overproduced due to its wider contextual applicability: the marked variant is more specific than the unmarked one (Haspelmath 2006, 29), and unmarked terms have a less specific meaning and may thus be used to denote both poles of the opposition (Murphy 1994). Thus, it is not pragmatically inappropriate to use the unmarked variant in contexts where the marked one may be more appropriate, and in both languages the unmarked variant can be used in marked contexts with a specific intonational contour. If this is the case, we may assume something that we call *pragmatic economy* affects production. However, we already know that this is not the outcome for Norwegian, as previous studies have found an overuse of the marked variant (Anderssen and Westergaard 2010). While outcomes of frequency and pragmatic economy are similar, in case of the former we would expect either an overgeneralization of the most frequent variant or a mimic of the adult proportion but with no sensitivity to context: misuse of both the unmarked variant in marked context, and vice versa, to the same extent. In case of the latter, we would see an overuse of the unmarked variant in marked context, but not use of the marked variant in unmarked contexts. Finally, if children over-use the base-generated variant, which is also the less-frequent one and used for marked contexts, this will be an indication that children are syntactically economical, and aware of the deep structure in their respective languages, an outcome that has already been discussed for Norwegian (Anderssen and Westergaard 2010; Westergaard and Anderssen 2015). In any case, if the same factors guide acquisition cross-linguistically in the case of grammatical variants, we expect to see mirrored productions from the two groups of children.

Regarding the developmental perspective, we expect the children to become more target-like as MLU gets higher.

## 6 The data and methodology

For our analysis we will be using monolingual corpora of Italian and Norwegian children from the CHILDES database. A list of all the corpora and the details are given in Table 2. We calculated the types, tokens and TTR for child speakers only for each corpus using the *freq* function in CHAT.

The search in the corpora was conducted in the following way: We have searched for all forms of possessive pronouns in the two languages. The forms were searched with the CLAN program by using the *kwal* function, which outputs utterances that match the searched strings, and then lists all the utterances that contain that string (MacWhinney 2000b). In the query we have added two lines before and after the keyword in the output (+w2 −w2) and specified whether we wanted to search the child utterances by specifying the child speaker tier (+tCHI) or the adult utterances by excluding the child speaker tier (−tCHI); this way we categorized the utterances by speaker type. The search command is broken down below Table 2.

**Table 2** List of all the corpora used in the study

| Language | Corpus | Child | Age range | Nr. of files | Types | Tokens | TTR |
|---|---|---|---|---|---|---|---|
| Italian | Antelmi | Camilla | 2;02–3;04 | 7 | 1416 | 7611 | 0.186 |
| | Calambrone | Diana | 1;08–2;06 | 9 | 1327 | 7779 | 0.171 |
| | | Guglielmo | 2;02–2;11 | 9 | 1123 | 6574 | 0.171 |
| | | Martina | 1;07–2;07 | 13 | 2047 | 8114 | 0.252 |
| | | Raffaello | 1;07–2;11 | 17 | 1563 | 7605 | 0.206 |
| | | Rosa | 1;07–3;03 | 21 | 2385 | 15415 | 0.155 |
| | | Viola | 1;11–2;10 | 10 | 1085 | 4971 | 0.218 |
| | D'Odorico | Claudia | 1;11–2;06 | 2 | 238 | 1017 | 0.234 |
| | | Davide | 1;06–2;00 | 2 | 170 | 659 | 0.258 |
| | | Federica | 1;05–2;00 | 3 | 156 | 613 | 0.254 |
| | | Linda | 1;04–2;00 | 3 | 228 | 1072 | 0.213 |
| | | Lorenzo | 1;08 | 2 | 196 | 1226 | 0.160 |
| | | Veronica | 1;07–2;00 | 3 | 202 | 975 | 0.207 |
| | Roma | Francesco | 1;04–1;08 | 10 | 256 | 1428 | 0.186 |
| | Klammer | Delfina | 1;08–2;00 | 5 | 95 | 406 | 0.234 |
| | Tonelli | Elisa | 1;10–2;01 | 8 | 685 | 3999 | 0.171 |
| | | Gregorio | 1;07–2;00 | 8 | 457 | 1923 | 0.238 |
| | | Marco | 1;05–2;05 | 27 | 3207 | 18227 | 0.176 |
| | Tot | 18 | | 159 | | | |
| Norwegian | Anderssen | Ann | 1;08–3;00 | 21 | 2321 | 36519 | 0.064 |
| | | Ina | 1;08–3;03 | 27 | 2740 | 60979 | 0.045 |
| | | Ole | 1;09–2;11 | 22 | 2863 | 42637 | 0.067 |
| | Garmann | Alexander | 1;02–1;11 | 7 | 380 | 1838 | 0.207 |
| | | Emilie | 1;03–1;08 | 6 | 266 | 1968 | 0.135 |
| | | Iben | 1;01–3;10 | 8 | 350 | 1735 | 0.202 |
| | | Johanna | 1;02–1;08 | 7 | 283 | 1054 | 0.269 |
| | | Marius | 1;03–3;09 | 8 | 300 | 1992 | 0.151 |
| | | Mattis | 1;04–1;11 | 8 | 228 | 738 | 0.309 |
| | | Olav | 1;03–1;10 | 7 | 273 | 1109 | 0.246 |
| | | Stella | 1;02–1;07 | 7 | 300 | 1342 | 0.224 |
| | Ringstad | Idun | 2;03–2;09 | 38 | 1615 | 9229 | 0.175 |
| | | Tuva | 1;10–2;08 | 27 | 774 | 4824 | 0.160 |
| | | Ylva | 2;01–2;08 | 75 | 3328 | 30254 | 0.110 |
| | Tot | 14 | | 268 | | | |

| kwal command | +*smio* keyword | +f Output on file | +w2 Two lines above | −w2 Two lines below | +tCHI/−tCHI Child/adult | @ Input files |
|---|---|---|---|---|---|---|

For Italian, the ungrammatical forms *sui (3rd person possessive) and *tui (2nd person possessive) were also searched for as children might use those instead of the correct terms. The 3rd person plural possessive pronoun *loro* was excluded from the

analysis as it differs from the other possessives for a series of properties; for a detailed analysis about *loro* see Cardinaletti (1998).

The obtained occurrences were then checked by the author and categorized according to structure: prenominal or postnominal. Each reference was then accessed in the corpora to check for context. We are aware how navigating corpus data is arduous, especially because the transcripts were not linked to audio recordings. Large portions of the context were thus read to gain more understanding of the physical environment and what else might be salient in the context and based on that we established the contextual use of the occurrence (topic, neutral, contrast, emphasis) which were then classified into the overarching classifications of marked and unmarked. The instances in which context was more difficult to determine were then checked by two independent raters, one for Italian and one for Norwegian, each of whom was a native speaker of the respective language.

The searches yielded a total of 588 collocations of noun and possessive in Italian and 2420 in Norwegian for both speaker types, which is a striking quantitative difference. The corpus also contains possessive productions without a noun and in similar quantities for the two languages: 247 in Italian and 212 in Norwegian (child speakers only). Thus, we must consider that the possessives might be used in different quantities in the two languages. We looked at the overall frequencies in the adult corpora, and possessives seem to be used to the same extent: for Italian we searched the VoLIP corpus (Voghera et al. 2014) (size=500,000 tokens), and the search for each possessive pronoun yielded a total of 2114 tokens which amount to 0.4% of the corpus; for Norwegian, we investigated the NoTa corpus (Bondi Johannessen et al. 2008) (size=957,000 tokens) and found 3489 tokens of possessives, which amounts to 0.3% of the corpus. Thus, the difference in quantity of the obtained occurrences must be due to the size of the child corpora.

It is an empirical question if corpora can reveal the underlying linguistic competence of the speaker, as this might be challenging due to an uncontrolled setting and few datapoints. The sampling usually captures only a fraction of the speakers' output, which is why a certain level of caution is necessary when analyzing and interpreting corpus data, and why we have chosen not to look for and compare the first occurrences of a possessive and noun combination: we could never be sure if it was the first occurrence or if the first occurrence was simply missed by the sampling. But we feel confident in investigating the frequencies and contextual use and that an investigation of corpus data can give us a realistic representations of the children's competence, as some previous studies have shown that corpus data can assess the children's knowledge of syntactic categories: Bates et al. (2018) and Yang (2011) show that a corpus can be accounted for as an output of a productive grammar, although the data points may be too few to give high levels of statistical significance. The results obtained from this study will not be treated as a definite conclusion on the acquisition of possessives, but will serve as a baseline for future experimental design.

## 7 Results

The obtained data was filtered to exclude vocatives and structures which were syntactically fixed. The total number of possessive-noun combinations in Italian corpora was 186 in the child data and 402 in the adult data. In Norwegian there were 629 possessives in the child data and 1791 in the adult data.

### 7.1 Analysis of the Italian data

The distribution of the occurrences we will be analyzing is displayed in Table 3. However, context is key in this analysis, and we must thus look at these occurrences in relation to the context in which they appear, as the slightly higher proportion of postnominal possessives in the child data could be due to their higher use of contexts that require that order. We will thus divide the possible contexts into two categories, unmarked and marked. The unmarked contexts entail topical and neutral contexts in which the prenominal possessive should be used. The marked contexts denote contrastive, focal, or emphatic information; here we expect the use of the postnominal form. Examples produced by the children from the corpus for said contexts are provided in (13). The target example is marked with **boldface**.

(13)  CHI:  ehh                adesso.   nasconde   la       Mina.                          Italian, topic
            *ehh.interjection*   *now*      *hide.3SG*   *the.F*   *Mina*
            'How (he/she) hides Mina'

      CHI:  e                  io        trovo.
            *and*               *I*        *find.1SG*
            'And I will find her.'

      CHI:  sì                 guarda    c'è        la       mia      borsetta.
            *yes*               *look.IMP*   *is*        *the.F*    *my.F*     *purse.F*
            'Yes, there is my purse.'

      CHI:  vuoi               vede(re)   la       **mia**    **borsetta** (.)   mammina?
            *want.2SG*           *see*      *the.F*    **my.F**    **purse.F**       *mommy*
            'Mommy, do you want to see **my purse**?'

      Location: Tonelli/Elisa/020123.cha": line 164.

Example (13) is categorized as topic because *my purse* is what the discourse is about. The child first finds the purse, then she shows it to the mother and asks her if she wants to see the purse.

(14)  CHI:  la       strega    viene     quando    l'       ora   di     dormire.              Italian, neutral
            *the.F*    *witch*     *comes*     *when*      *the.F*    *hour*  *of*    *sleeping*
            'The witch comes when it is bedtime.'

      CHI:  c'é      la        strega    **nella**   **mia**    **casa**,   buttala         via      entra
            *is*       *the.F*     *which.F*   *in.the.F*   *my.F*     *house.F*    *throw.her.IMP*   *away*    *enter.IMP*
            'There is the witch **in my house**, throw her out, come in.'

      CHI:  dalla     casa      con       la       porta    entra    dalla       porta

**Table 3** Number of possessives in the Italian corpora

| Italian | Adults | Children |
|---|---|---|
| Prenominal | 382 (95%) | 165 (89%) |
| Postnominal | 20 (5%) | 21 (11%) |
| Total | 402 | 186 |

|  | *from.the.F* | *house.F* | *with* | *the.F* | *door.F* | *enter* | *from.the.F* | *door.F* |
|---|---|---|---|---|---|---|---|---|

    'From the house with the door, enter through the door.'

| CHI: | e | buttala | via | dalla | finestra. |
|---|---|---|---|---|---|
|  | *and* | *throw.her.IMP* | *away* | *from.the.F* | *window.F* |

    'And throw her out of the window.'

Location: Antelmi/020619.cha": line 348.

The possessive in (14) is considered neutral as the topic is the witch (*strega*) and the target *nella mia casa* (in my house) is only the location, not what is being talked about.

| (15) | CHI: | questo | è |  | un | treno | lungo. |  |  |  | Italian, eontrast |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | *this.M* | *is* |  | *a.M* | *train.M* | *long.M* |  |  |  |  |

    'This is a long train'

| MOT: | lungo | lungo. |
|---|---|---|
|  | *long.M* | *long.M* |

    'Very long'

| CHI: | come | quello | della | nonna, | questo | è | della | nonna. |
|---|---|---|---|---|---|---|---|---|
|  | *like* | *that.M* | *of.the.F* | *grandma.F* | *this.M* | *is* | *of.the.F* | *grandma.F* |

    'Like the one that is grandma's, this one is grandma's.'

| MOT: | quale | nonna? |
|---|---|---|
|  | *which* | *grandma* |

    'Which grandma?'

| CHI: | questo | è | è | **il** | **treno** | **tuo**, | va | a | Roma. |
|---|---|---|---|---|---|---|---|---|---|
|  | *this.M* | *is* | *is* | *the.M* | *train.M* | *your.M* | *goes.3SG* | *to* | *Rome* |

    'This one is **your train**, it is going to Rome.'

| MOT: | questo | è | il | treno | mio? |
|---|---|---|---|---|---|
|  | *this.M* | *is* | *the.M* | *train.M* | *my.M* |

    'This is my train?'

| MOT: | che | va | a | Roma. |
|---|---|---|---|---|
|  | *that* | *goes.3SG* | *to* | *Rome* |

    'That goes to Rome.'

Location: Calambrone/Guglielmo/020725.cha": line 981.

The example in (15) is a clear example of a contrast. The child is describing a train, and then says that another train belongs to the listener, so there is a contrast between the speaker's and the listener's trains.

(16)  MOT:  il          tuo         amico,       come        si          chiama?
            *the.M*     *your .M*   *friend .M*  *how*       *is.REFL*   *call.1SG*
            'Your friend, what is his name?'

      CHI:  France(s)co.
            *Francesco*
            'Francesco.'

      MOT:  no.
            *no*
            'No'

      MOT:  che         vediamo     ogni         mattina     andando     al          nido.
            *that*      *see.2PL*   *every*      *morning*   *going*     *to*        *kindergarten*
            'the one that we see every morning on our way to the kindergarten.'

      MOT:  una         cosa        così         in          alto,       azzurra.
            *one.F*     *thing.F*   *so*         *in*        *high*      *light.blue.F*
            'Something high up, light blue.'

      MOT:  diciamo     ciao,       buongiorno.
            *say.2PL*   *hi*        *good.day*
            'We say hi, good day.'

      MOT:  quel        pesce,      no,          azzurro.
            *that.M*    *fish.M*    *no*         *light.blue.M*

      CHI:  pesce       azzurro,       **amico**    **mio**?
            *fish.M*    *light.blue.M* *friend.M*   *my.M*
            'Light blue fish, **my friend**?'

      Location: Tonelli/Marco/020302.cha":_line_1507.

In (16) the NP with the possessive is emphasized because it is specifying the fish's role as the child's friend.

(17)  OBS:  una         scarpa?                                          Italian, focus
            *one.F*     *shoe.F*
            'A shoe?'

      OBS:  e           di          chi          è?
            *and*       *of*        *who*        *is*
            'And whose is it?'

      CHI:  è           mia!
            *is*        *my.F*
            'It is mine!'

      CHI:  è.          tua         **tappa**    tua [: scarpa tua].
            *is*        *your.F*    *shoe.-F*    *your.F*
            'It is yours, **your shoe**.'

OBS: | ma | non | è | un | | pochino | piccola? |
| *but* | *NEG* | *is* | *a* | | *bit* | *small.F* |

'But isn't it a bit small?'

CHI: eh?

*eh*

'What?'

OBS: | è | piccolina | quella | là. |
| *is* | *small.F* | *that.F* | *there* |

'That one is small.'

Location: Calambrone/Rosa/020629.cha": line 261.


Example (17) is in focus because the observer (OBS) asks whose shoe, requiring the possessive to be in focal position.

Observing the data through the lens of context will reveal if the children deviate from target structures or if they simply use more marked contexts and therefore (correctly) use more postnominal possessives. This distribution of occurrences is presented in Table 4, where the contextually appropriate uses are marked in **boldface**.

Note that the adults use the prenominal possessive in marked contexts a third of the time. The data points are not numerous, but this is an indication that the prenominal, which is the unmarked variant, can be extended to marked contexts. Unfortunately we do not have insight in how the possessive was accented in these occurrences.

Examples of non-target-like possessives in the child data are given in (18) and (19).

(18) CHI: | metti | chi | dentro | | mucche? |
| *put.IMP* | *here* | *inside* | | *cows* |

'Put the cows in here.'

CHI: | cosa | voio | pelle | là | mucchine. |
| *what* | *want.1SG* | *those.F* | *there* | *cows.F.DIM* |

'What, I want those cows over there.'

MOT: | vuoi | le | mucche | grosse? |
| *want.2SG* | *the.F* | *cows.F* | *big.F* |

'You want the big cows?'

CHI: | voio | pelle | là. |
| *want* | *those.F* | *there* |

'I want those ones.'

(...)

CHI: | me | l' | api? |
| *me* | *it* | *open* |

'Can you open it for me?'

CHI: | cosa, | (l)a | butta [: busta]? |
| *what* | *the.F* | *bag.F* |

'What (in) the bag?'

**Table 4** Distribution of possessives in Italian corpora in relation to context

|  | Adults | | Children | |
|---|---|---|---|---|
|  | Unmarked | Marked | Unmarked | Marked |
| Prenominal | **371 (99%)** | 11 (38%) | **163 (94%)** | 2 (17%) |
| Postnominal | 2 (1%) | **18 (62%)** | 11 (6%) | **10 (83%)** |
| Total | 373 | 29 | 176 | 12 |

The bold values signify a pragmatically accurate marking of the possessive

| MOT: | nella | busta | non | | c'è | nulla | è | vuota. |
|---|---|---|---|---|---|---|---|---|
| | *in.the.F* | *bag.F* | NEG | | *is* | *nothing* | *is* | *empty.F* |
| | 'There is nothing in the bag, it's empty.' | | | | | | | |
| CHI: | mucca. | | | | | | | |
| | *cow* | | | | | | | |
| | 'Cow' | | | | | | | |
| CHI: | **mucche** | **mia** | mette. | | | | | |
| | *cows.F* | *my.F.SG* | *put.IMP* | | | | | |
| | '**My cow** put.' | | | | | | | |

Location: Calambrone/Rosa/020726:_line_792.


There is a break of about 150 lines between the two sets of utterances, and without an audio recording it is difficult to extrapolate how much time has passed between the two sets, but it is nevertheless important to show how the cows (target) were mentioned in previous discourse. In the target sentence, the child uses the marked order, but there is nothing marked about the context in which it appears.

| (19) | MOT: | c' è | qua | una | lumachina | che | | va | sulla | bilancia? |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *is* | *here* | *one.F* | *snail.F.DIM* | *that* | | *goes* | *on.the* | *scale* |
| | | 'Is there a snail that is going on the scale?' | | | | | | | | |
| | CHI: | eh , | bilancia. | | | | | | | |
| | | | *Scale* | | | | | | | |
| | | 'Eh, scale.' | | | | | | | | |
| | MOT: | no. | | | | | | | | |
| | | *no* | | | | | | | | |
| | | 'No.' | | | | | | | | |
| | MOT: | no, | c' è | questa | che | cammina | sulla | lama | del | coltello. |
| | | *no* | *is* | *this.F* | *that* | *walks* | *on.the.F* | *blade.F* | *of.the.M* | *knife.M* |
| | | 'No, there is this one that is walking on the blade of the knife.' | | | | | | | | |
| | CHI: | ah | **piede** | **mio**. | | | | | | |
| | | | *foot.M* | *my.M* | | | | | | |
| | | 'Ah **my foot**.' | | | | | | | | |
| | MOT: | cosa | è | successo | al | tuo | piede? | | | |
| | | *what* | *is* | *happened* | *to.the.M* | *your.M* | *foot.M* | | | |
| | | 'What happened to your foot?' | | | | | | | | |

MOT:  si        era        incastrato?
      REFL     *was*       *stuck.M*
      'Did it get stuck?'

CHI:  sì        sì.
      *yes*     *yes*
      'Yes yes.'

Location: Tonelli/Marco/020111.cha":_line_1487.

In (19) the child's foot is stuck and he draws the mother's attention to it. However, the more appropriate structure would have been the prenominal, as we see from the mother's following utterance.

To check if the uses of the pre- and post-nominal possessive are distributed differently in relation to context, we ran a generalized linear model in R with the structure value (0 for prenominal and 1 for postnominal) as the dependent variable, and speaker type (adult vs. child) and context markedness (unmarked vs. marked) as the independent variables. We will refer to this as the *structure model*. The model checked for interaction between speaker and context. The intercept is set to prenominal, adult, and unmarked.

The results reveal that children use significantly more postnominals than adults in the unmarked context ($p < 0.001$). Nevertheless, as highly significant as this result may appear based on the $p$-value, the effect size is minimal (0.0053). A possible reason for the small effect size is the quantity of data points in the child data, especially in the postnominal order. The model also clearly shows how adults use significantly more postnominals in the marked context than they do in the unmarked context ($p > 0.001$), which is what we would expect. Here we find an effect size in the medium range (0.615), which gives us a strong reason to claim that adults indeed use the two possessive orders differently based on the context. The model also found a significant interaction between speaker usage and context ($p < 0.05$), which entails that the structure is affected differently by the way adults and children use context. The interaction shows a significantly higher use of postnominals by the children in marked contexts, which would suggest that they are more target-like than the adults. This is an unlikely explanation, but it is nevertheless a strong indication of the children's enhanced used of the postnominal variant, when compared to the adults.

To get a full overview of the data, we have computed another model with context markedness as the dependent variable (0 for unmarked and 1 for marked). We will refer to this as the *context model*. Speaker type (adults vs. child) and structure (prenominal vs. postnominal) were set as dependent variables, with the intercept being unmarked, adult, and prenominal. Again, we checked for an interaction between structure and speaker type. The model shows that children do not have a significantly different proportion of contexts used than adults ($p=0.33$). Thus, the significantly higher use of postnominals in the child data cannot be due to a different proportion of contexts; i.e. children do not use marked contexts more than adults. The model also revealed that adults use more postnominal structures in marked contexts ($p < 0.001$), as we would expect them to. Here we also find a high effect size (0.87), feeding into the significance of the finding. Lastly, the model reveals

that there is indeed a strong interaction between the speaker type and how the structures are used in the different contexts ($p < 0.001$, effect size=0.4): children use the postnominal significantly more in unmarked contexts.

These models together suggest that Italian children are not target-like in their possessive productions as they differ from adults in some key factors. Firstly, as we can see from the structure model, children produce more postnominal possessives than adults. We have speculated on how this may relate to the children's more frequent use of the marked context, but the context model shows that children do not use either context more frequently than adults. Consequently, it follows that the higher use of postnominal possessives is simply a case of overuse. This is confirmed by the interaction of speaker type and possessive structure use in the context model.

Thus, the current investigation has confirmed how important it is to investigate contextual use, as the raw frequencies provide a rather limited picture of the children's productions. Nevertheless, some of the results have rather small effect sizes, which may be an indication that there are too few data points to obtain strong evidence. Nevertheless, it seems that Italian children are not as target like as previously described.

## 7.2 Analysis of the Norwegian data

The data set of Norwegian that was available to us had more data points than the Italian set and suffered less data loss. We have excluded from the count the non-applicable data points which consisted of lyrics or reading from books, as these do not reflect the ongoing contextual situation;[11] fixed expressions that include possessives; and occurrences with a non-intelligible referent. Some files ($n$=15) from the Anderssen corpus (Anderssen 2006) contained only the transcriptions from the child and were thus excluded from our analyses as it is not possible to infer the context. The updated distribution of occurrences is presented in Table 5.

In Table 6 we have divided the variants based on the context in which they appear. We have divided the context between unmarked, which includes topic and neutral contexts (20 and 21), and marked which includes contrast, emphasis, and focus (22–24). The contextually felicitous variants are marked in **boldface** in the table. Recall that in Norwegian the unmarked contexts should yield a postnominal possessive (e.g., *bilen min*); conversely the marked contexts should yield a prenominal possessive (*min bil*).

(20)  INV:  får      eg    se      bandasjen?                                   Norwegian, topic
            *got*    *I*   *see*   *bandage.the*
            'Can I see the band aid?'

      (...)

      CHI:  da       får   du      se           bandasjen.
            *then*   *got* *you*   *see*        *bandage.the*
            'There, you have seen the band aid.'

---

[11] Books do represent an accurate use of the possessive variant in relation to the context in the book, but we wanted to focus on the immediate physical surroundings and have thus excluded those occurrences.

**Table 5** Possessives in the Norwegian corpora

| Norwegian | Adults | Children |
|---|---|---|
| Prenominal | 248 (14%) | 156 (25%) |
| Postnominal | 1543 (86%) | 473 (75%) |
| Total | 1791 | 629 |

**Table 6** Distribution of possessives in Norwegian corpora in relation to context

| | Adults | | Children | |
|---|---|---|---|---|
| | Unmarked | Marked | Unmarked | Marked |
| Prenominal | 28 (2%) | **220 (98%)** | 50 (10%) | **105 (96%)** |
| Postnominal | **1539 (98%)** | 4 (2%) | **469 (90%)** | 4 (4%) |
| Total | 1567 | 224 | 519 | 109 |

The bold values signify a pragmatically accurate marking of the possessive

| CHI: | da | får | æ | kle | på | | av | da. | |
|---|---|---|---|---|---|---|---|---|---|
| | *then* | *got* | *I* | *clothes* | *off* | | *on* | *then* | |

‘I have pulled my clothes off it.’

| INV: | ja | du | må | kle | på | | av | og | på. |
|---|---|---|---|---|---|---|---|---|---|
| | *yes* | *you* | *must* | *clothes* | *off* | | *on* | *and* | *off* |

‘Yes, you have to dress it off and on’

| CHI: | ja. |
|---|---|
| | *yes* |

‘Yes.’

| INV: | *ja.* |
|---|---|
| | *yes* |

‘Yes.’

| CHI: | da | må | vi | se | **bandasjen** | **min** | da. |
|---|---|---|---|---|---|---|---|
| | *then* | *must* | *we* | *see* | *bandage.the* | *my* | *then* |

‘Then we must see **my band aid**.’

| INV: | Ja. |
|---|---|
| | *yes* |

‘Yes’

Location: Anderssen/INA/Ina17.cha“: line 545.

| (21) | CHI: | vet | | du | ka | æ | har | fått | hos | **mammaen** | **min**? | Norwegian, neutral |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *know* | | *you* | *what* | *I* | *have* | *got* | *at* | *mother.the* | *mine* | |

‘Do you know what I got when I went to **my mother**?’

| | INV: | nei | | ka | du | har | fått | hos | mammaen | din? |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *no* | | *what* | *you* | *have* | *got* | *at* | *mother.the* | *your* |

‘No, what did you get from your mother?’

CHI:    solbrilla.

*sunglasses*

'Sunglasses.'

Location: Anderssen/ANN/Ann16.cha": line 129.

The example in (20) is classified as topic because the bandage is what is being talked about in the discourse, whereas (21) is classified as neutral because the sunglasses are the topic and the mother is merely the patient from whom the sunglasses have been taken.

(22)  CHI:    kan    du      tælle    fingran      mine?                          Norwegian, contrast

*can    you     count    fingers.the  my*

'Can you count my fingers?'

FAT:    ja    jeg    kan    telle      du      må    telle    tror     Jæ [: jeg].

*yes    I     can    count    you     must   count   believe  I*

'Yes I can count, but you should be the one counting I think.'

CHI:    jeg    kan    telle    **dine**      **fingre.**

*I     can    count   your      fingers*

'I can count **your fingers**.'

FAT:    ja    okei.

*yes   ok*

'Yes ok.'

Location: Ringstad/Idun/020812.cha": line 80.

In (22) there is a clear contrast, and we can see the child transitioning from an unmarked word order to the prenominal one: The child asks the father if he can count her and tells proceeds telling him that he can count her fingers.

(23)  CHI:    xxx    hente.    nokka.                                  Norwegian, emphasis

*get        something*

'(I need to) get something.'

CHI:    xxx    hente      bare      nokka.

*only       get       something*

'Just go get something.'

CHI:    et      skrujern.

*a       screwdriver*

'A screwdriver.'

INV:    skal    du        hente      et        skrujern?

*shall   you       get       a        screwdriver*

'Are you going to get a screwdriver?'

CHI:    **mitt**    **skrujern.**

*my       screwdriver*

'**My screwdriver**.'

INV:   ditt      skrujern.
      *your    screwdriver*
      'Your screwdriver.'
Location: Anderssen/OLE/Ole21.cha": line 781.

Similarly, (23) involves emphasis because the child first mentions that he will go fetch a screwdriver and then specifies that it will be his screwdriver; the example here is emphatic because it is not contrasted next to somebody else's screwdriver, but the possession is nevertheless emphasized.

(24)  MOT:  kemmes   seng    skal    du      sove    i    i    natt?   Norwegian, focus
           *whose    bed     shall   you     sleep   in   in   night*
           'In whose bed will you sleep tonight?'

     CHI:   **min      seng.**
           *my       bed*
           '**My bed.**'

     MOT:  i        din      seng?
           *in       your     bed*
           'In your bed?'

     CHI:   nei.
           *no*
           'No.'

     MOT:  ja       kem     si      seng?
           *yes      who     REFL    bed*
           'Yes in whose bed?'

     CHI:   Ann xx.
           'Ann's.'
Location: Anderssen/ANN/Ann04.cha": line 461.

Lastly, example (24) involves focus because it is the possession that is the focal information as it is explicitly being asked about: the mother asks the child specifically in whose bed she will be sleeping.

In (25) and (26) we see some of the inappropriate occurrences in the child data.

(25)  MOT:  skal     æ      hente    joggeskoan    dine    så      du      kan     vise dem
           *should   I      get      running.shoes  your.PL  so      you     can     show them*
           til      ho     Marit?
           *to       she    Marit*
           'Should I get your tennis shoes so you can show them to Marit?'

     CHI:   ja.
           *yes*
           'Yes.'

     INV:   skal     æ      få       se            dem?
           *should   I      get      see           them*

'Do I get to see them?'

| CHI: | og | og | og | skal | | vise | xxx. | til | | til | de | joggeskoan. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *and* | *and* | *and* | *should* | | *show* | *xxx* | *to* | | *to* | *you.DAT* | *running.shoes* |

'And and will show you tennis shoes'

(...)

| CHI: | det | det | det | er | | best | at | | voksne | spraye | **mine** | **joggesko**. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *it* | *it* | *it* | *is* | | *best* | *that* | | *adult* | *sprays* | *my.PL* | *running.shoes* |

'It it it is best that a grown-up sprays **my tennis shoes**.'

| CHI: | det | er | best | det. |
|---|---|---|---|---|
| | *it* | *is* | *best* | *it* |

'It is best.'

| INV: | det | er | best | at | | voksne | spraye | joggeskoan | | dine | ja. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *it* | *is* | *best* | *that* | | *adult* | *sprays* | *running.shoes.the* | | *your.PL* | *yes* |

'It is best that a grown-up sprays your shoes yes.'

| INV: | det | er | æ | enig | | med | dæ | i. |
|---|---|---|---|---|---|---|---|---|
| | *that* | *am* | *I* | *agree* | | *with* | *you* | *on* |

'I agree with you on that.'

Location: Anderssen/OLE/Ole18.cha":_line_826._

The tennis shoes were first mentioned previously about 200 lines before the target utterance, and were never contrasted (no other tennis shoes in the context) or emphasized. We can see that the example is inappropriate as the adult then uses the unmarked postnominal variant two lines below.

(26)

| CHI: | det | var | kommet | igjen | nå | | på | munnen. | |
|---|---|---|---|---|---|---|---|---|---|
| | *it* | *was* | *came* | *again* | *now* | | *on* | *mouth.the* | |

'It had come again now on the mouth.'

| INV: | var | det | kommet | igjen | nå | | på | munnen | din? |
|---|---|---|---|---|---|---|---|---|---|
| | *was* | *it* | *came* | *again* | *now* | | *on* | *mouth.the* | *your* |

'Had it come back now on your mouth?'

| CHI: | kom | og | se | | her! |
|---|---|---|---|---|---|
| | *come* | *and* | *see* | | *here* |

'Come and see here!'

| CHI: | se | | her! |
|---|---|---|---|
| | *see* | | *here* |

'Look here!'

| INV: | ja. |
|---|---|
| | *yes* |

'Yes.'

| INV: | ja | eg | ser | det | kjem | opp | igjennom | sugerøret. |
|---|---|---|---|---|---|---|---|---|
| | *yes* | *I* | *see* | *it* | *came* | *up* | *through* | *straw.the* |

'Yes I see it coming up through the straw.'

| CHI: | i | **min** | **munn**. |
|---|---|---|---|
| | *in* | *my* | *mouth* |

'In **my mouth**.'

INV: ja       og       opp     i       munnen   din.
*yes      and      up      in      mouth.the  your*
'Yes, and up in your mouth.'
Location: Anderssen/INA/Ina20.cha":_line_1030.

In (26) the mouth is clearly neutral, as the topic of the conversation is the straw; we also see the adult interlocutor use the postnominal structure with *mouth* a few lines above. The adult uses the postnominal once again after the child has used the prenominal structure.

We conducted the same type of statistical analysis for the Norwegian data, but here we set the value of the postnominal possessive to be the default (0 for postnominal, 1 for prenominal), as it is the form used in unmarked contexts. So, in the *structure model*, we set the structure to be the dependent variable, with speaker type (adult vs. child) and context (unmarked vs. marked) as independent variables. The intercept is set to adult and unmarked.

The model found, as the previous studies already indicated, that children used significantly more prenominal structures than the adults in unmarked contexts ($p < 0.001$). As in the Italian data, this result is statistically significant, but it has a very low effect size (0.078). Again, the reason for this might be that there are fewer data points for the child than for the adult data. The model also shows, as expected, that in marked contexts adults used significantly more prenominal possessives ($p < 0.001$). The effect size here is large (0.96), which means that the result obtained here is very relevant, confirming that the descriptive grammars of Norwegian are indeed accurate. We found a significant interaction indicating how the structure is affected differently by context in children and adults ($p < 0.001$), but again with a low effect size (0.097). Based on these results, children use more postnominals in marked contexts, which is something we would expect if they were pragmatically economical. This result might also be caused by how the data is distributed and by the fact that there are very few non-target-like occurrences in the marked contexts for both types of speakers. The interaction means that the structures are affected differently by context, and given how the model is set, it can only clearly tell us about the structures used in the marked contexts, which does not exclude the possibility of structure being affected differently also in unmarked contexts between the two speaker types. For this, we will have to look at the context model.

In the *context model*, markedness is the dependent variable (unmarked vs. marked) and speaker type (adult vs. child) and structure (postnominal vs. prenominal) are the independent variables. The context model shows that children did not use unmarked and marked contexts in different proportions than adults ($p = 0.502$). Combining this with the result form the structure model, in which we have seen that children used significantly more prenominals, could indicate the overproduction of prenominals discussed in the previous literature. As expected, we also see that adults used significantly more prenominal possessives in marked contexts ($p < 0.001$), and like in the previous models, the indicated result has a large effect size (0.88). There is again a strong interaction between speaker type and structural choice in the different contexts ($p < 0.001$); more precisely, children used

significantly more prenominals than adults in unmarked contexts. The effect size here is medium (0.215), entailing the relevance of the finding. Thus, we hereby confirm the overuse of the prenominal elaborated and discussed by Anderssen and Westergaard (2010) by using a larger dataset and with more attention to the contextual usage.

The implications of these findings will be discussed in Sect. 8.

## 7.3 Use of the variants in relation to MLU

We calculated the MLU of the children in each file by using the MLU function on CLAN.[12] Since there was no morphological tier for all the files in the corpus, we simply ran it on words, thus obtaining an MLUw measure. The Ringstad corpus (Ringstad 2014) contained a number of separate transcripts of recordings recorded the same day. Here we ran the MLU command for all the recordings conducted the same day, thus obtaining a more realistic measure for the child's current development.

The obtained MLU was included in a generalized linear model on the child data in which the structure value was the independent variable and context markedness and MLU were set as dependent variables. The model was run separately on Italian and on Norwegian data.

From the Italian model we found out that the marked structure is used significantly more in the marked context ($p < 0.001$). This result also has a high effect size (1.26), indicating that Italian children indeed understand the contextual use of the variants. However, MLU affects the choice so that less marked structures are used in unmarked contexts as the MLU gets higher ($p < 0.01$). There is also a marginally significant interaction ($p < 0.05$) between context and MLU, indicating that age affects the marked and unmarked context differently: while it correlates with the postnominal being used less in unmarked contexts, the usage of the postnominal within the marked context is different, and as we can see from Figure 1, the postnominal continues to be used within the marked context.

Figure 1 clearly shows that most occurrences used in unmarked context are the target-like prenominal variant, but children also use the marked variant. This variant is used in unmarked contexts until MLU reaches about 3.5. At that same stage (from around MLU 2), they are also correctly using the postnominal in marked contexts. Interestingly, there seem to be no marked contexts before MLU is at around 2; thus the use of the marked variant predates its pragmatic necessity. The graph also shows that, after the children no longer use the postnominal in marked contexts, there are occasional overextensions of the unmarked variant to marked contexts. Thus, syntactic economy seems to take place earlier than pragmatic economy.

In the model for the Norwegian data, we again find that marked variants are more frequently used in marked contexts ($p < 0.001$). This also has a high effect size (0.988), entailing that Norwegian children also understand these contextual uses. Surprisingly, with increasing MLU, more marked variants overall seem to be used. There is no interaction between MLU and context, indicating that there is an

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[12] mlu +tCHI −t%mor +f *.cha
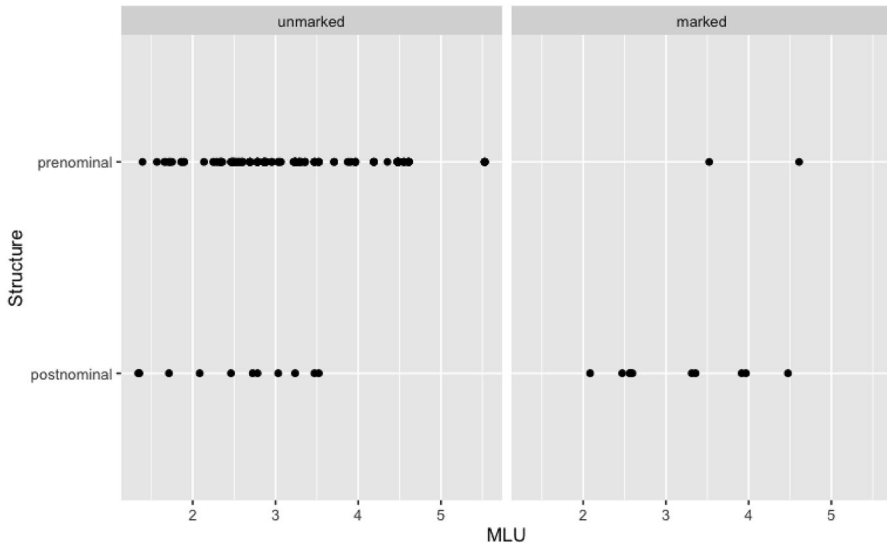
**Fig. 1** Use of the two possessive variants in marked and unmarked contexts in relation to MLU (Italian)

increase of marked variants used with increasing MLU, regardless of the context. This is an unusual finding, but as we can see from Figure 2, the reason behind it might be that the acquisition of the contextual use of the two variants takes more time in Norwegian. Disregarding the number of occurrences because we had more data points overall for the Norwegian data, it seems that Norwegian children use the prenominal variant in marked contexts for longer: we can see these uses when MLU is up to 4, and there is also one use when the MLU is around 5. This might entail that the available corpora have not yet captured the full process of contextual assignment of the variants. However, in parallel to this, the children are also appropriately using the prenominal variant in marked contexts. Norwegian children also show occasional uses of the postnominal variant extended to marked contexts, but no later than when the MLU is at 3.0.

## 8 Discussion

In the current study, we have investigated the pragmatic use of two grammatical variants by looking into adult and child productions of pre-and post-nominal possessives in Italian and Norwegian. Before we move on to a detailed discussion of the results, we need to specify that the children in the corpora are mostly target-like and use the two variants in a contextually appropriate way. However, the limited non-target-like occurrences can tell us something valuable about the acquisition process, especially when compared cross-linguistically. Children seem to acquire the contextual use of the variants with a very high competence, and the core discussion of this paper is based on marginal, yet significant deviations.
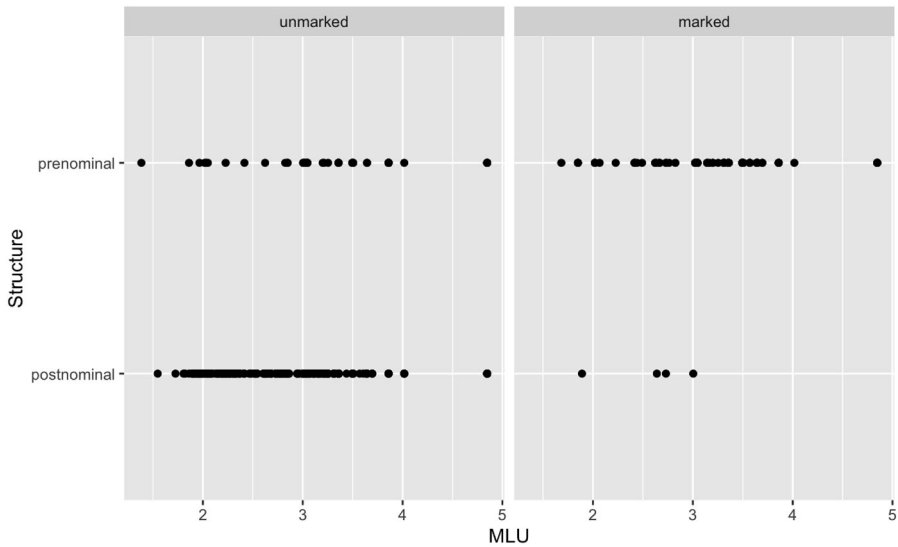
**Fig. 2** Use of the two possessive variants in marked and unmarked contexts in relation to MLU (Norwegian)

Our first aims were language specific: to check if Italian children are indeed target-like and if the overuse of the prenominal possessive in Norwegian children could be related to a higher use of marked contexts. Secondly, we have set out to investigate which principles underly the acquisition of the two possessive structures. We expected these principles to be the same across the two languages, and thus to observe mirrored results which would represent the mirrored factors.

For coherence purposes and an easier crosslinguistic discussion, we will refer to the two possessive variants as the unmarked form and the marked form, which will refer respectively to the prenominal and postnominal forms in Italian, and to the postnominal and prenominal forms in Norwegian.

## 8.1 The use of the two variants in Italian children

The Italian children have been previously reported to be target-like in the production of the possessive variants (Antelmi 1997; Bernardini 2003; Cardinaletti and Giusti 2011) because the proportion in which the variants were used was the same in the child and adult productions. The analysis here was expanded to all available corpora on CHILDES and indeed found that the children and adults use the variants to the same extent. Nonetheless, when the productions were classified into unmarked and marked contexts, differences between the two types of speakers emerged. Our analyses suggest that the children overuse the marked form (structure model), and we found an interaction between speaker type and structure use, indicating that structure is used differently in adults and children, with children significantly overusing the marked structure in unmarked contexts (context model).

This result conflicts with previous studies on Italian monolingual acquisition of possessives, and it is due to our meticulous consideration of the contextual use of the variants. Nevertheless, the small effect sizes might weaken this conclusion, but we believe that this is due to the low number of datapoints found in the corpus. Thus, we conclude that Italian children are not fully target-like in their possessive variants as has been previously claimed. From a developmental perspective, Italian children stop overusing the basic structure when MLU reaches 3.5, thus before age 3;4, which is as far as we have data for. The corpus has very limited data points, but after MLU is at 3.5, the Italian children might be moving form a stage of syntactic economy to pragmatic economy, as there are a handful of overextensions of the prenominal possessive in marked contexts at around this stage.

## 8.2 A closer look at context in the Norwegian dataset

Norwegian children overuse the marked possessive; this has already been discussed in previous studies (Anderssen and Westergaard 2010). Our aim here was to check whether the overuse of the marked possessive could be related to a more frequent use of the marked context, in which case it would not be considered a non-target like use. Our analyses show that this is not the case, as children use significantly more marked possessives (structure model), but the proportion of the contextual usage does not differ from the adult one (context model). Moreover, we found an interaction in both models, which indicates that structure is used differently in the two contexts and that context has a different effect on structure use in adults and children. It is also obvious from the context model that children use more marked possessives in unmarked contexts. We thus confirm that Norwegian children are not fully target-like, as they overused the prenominal possessive in unmarked contexts. The overuse of the marked form persists until MLU 4, and it is not clear that the children cease to overuse the marked variant by the end of the recordings. This is an indication that there may be an additional factor affecting the development of the Norwegian children.

## 8.3 Overuse of the marked variant

From the answers to our language-specific research questions, we find out that children overuse the marked form in unmarked contexts in both languages, but this overuse is stronger in Norwegian. Note, however, that the difference in the results may be due to fewer data points for Italian. Children of both languages were mostly target-like; it is important to keep in mind that the core discussion is about fewer, but still significantly present occurrences.

Recall that the marked form in each of those languages is also the one considered to be the basic form. Conversely, the unmarked form is more frequent, but since this form is clearly not used exclusively and since the misuses of the variants are not random, we can exclude frequency as the main factor guiding the acquisition of these variants. Frequency is a relevant factor though, as the majority of children's productions consist of the more frequent variant. The unmarked variant in both languages can, with specific prosodic contours, be used to express contrast or

emphasis. It would thus not be pragmatically inappropriate to overextend the unmarked variant to marked contexts. We see from the results that children do not do this; thus, pragmatic economy does not guide acquisition, but Italian children seem to shift to pragmatic economy after their MLU reaches 3.5. Bearing in mind that the children use more unmarked forms overall, we find marked forms used in unmarked contexts more often than the other way around. The reason for this could be that the children's attentiveness to context is still not strong enough to account for the listener's perspective every time. For example, studies have observed the lack of systematic distinction between one's own and the interlocutor's beliefs in children's article use (Schaeffer and Matthewson 2005). The authors argue that this happens because of the lack of general pragmatic skills in children, and claim that other areas of the grammar are affected by this. Specifically, they suggest that children lack the concept that "speaker and hearer assumptions are always independent," known as the Concept of Non-Shared Assumptions (Schaeffer and Matthewson 2005, 69). Since the choice of possessive structure in Italian and Norwegian is a pragmatic one, they may thus treat what is marked for them as being marked in the conversation, resulting in a marked structure.

Since the unmarked form is intrinsically linked to frequency, we cannot be sure that this outcome provides proof for contextual sensitivity, as children might be mimicking the overall frequency of the two variants perceived from their caregivers. However, children were found to be sensitive to information structure and fine syntactic distinctions from a young age in other structures of Norwegian, such as positioning of the verb (Westergaard 2009), subject position (Westergaard 2011), and word order in *wh*-questions (Westergaard 2014). So, under the micro-cue view (Westergaard 2009, 2014), possessives should be no exception: the overuse of the marked/basic form can relate to syntactic economy. Also for Italian, pragmatics has been found to be acquired quite early for some linguistic aspects such as the use of null/overt subjects, which are used correctly following a number of pragmatic constraints from early on (MLUw at 2) (Serratrice 2005).[13]

As outlined in Sect. 4, children are known to be conservative/economical in their productions (Snyder 2007; Westergaard 2014); i.e., they demonstrate no structure building and no movement more than the input provides evidence for (Westergaard 2009, 2014; Westergaard and Bentzen 2011). Thus, economy of movement could explain the overproduction of the marked structure in both Norwegian and Italian children, as the marked structures discussed in this study do not involve movement (or involve less movement). This possibility is further corroborated by the fact that syntactic movement is not consistently applied at the earliest stage when the there are two grammatical word orders and the choice between these variants is dependent on information structure, such as lack of scrambling (Schaeffer 2000; Mykhaylyk et al. 2013), non-target like article use (Schaeffer and Matthewson 2005), or the use of the dative alternation (Anderssen et al. 2014). As has been extensively argued throughout this study, the choice between prenominal and postnominal possessive is

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[13] The children analyzed by Serratrice (2005) were children from the Calambrone corpus (Cipriani et al. 1989), which is a subset of the data we are using here. Thus, if these children were found to be sensitive to pragmatics in the context of null subjects, it is unsurprising that the children in the present study display a similar sensitivity.

a pragmatic one. Thus, there are theoretical grounds to assume that Italian children, along with Norwegian as argued by Anderssen and Westergaard (2010), are economical in their productions, which causes them to not move the possessive consistently, resulting in the overuse of the marked structure. This finding entails that the same underlying principles guide the acquisition of these two contextually related variants. The process seems to be easier for Italian children as the overuse of the marked variant clearly ceases at MLU 3.5 in our dataset. At that point, the Italian children might be becoming more pragmatically economical. For Norwegian children, the overuse persists for longer (MLU 4, possibly beyond). A possible reason might be the difference in complexity between the two variants. It has been claimed for Norwegian that the postnominal (unmarked) variant is more complex because it involves movement (Anderssen and Westergaard 2010).This difference in complexity should similarly hold for Italian, as the prenominal (unmarked) variant is obtained through movement. But there is an additional factor that contributes to the complexity of the variants in Norwegian and not in Italian: the definite article. In Italian, both variants are preceded by the article, but in Norwegian the prenominal (basic) variant does not have an article, but the postnominal variant requires a postposed definite article on the noun. This means that the derived variant is both syntactically (Anderssen and Westergaard 2010) and morphologically (Westergaard and Anderssen 2015) more complex. Nevertheless, economy can still explain the difference in timings that we have observed: Norwegian children persist in their overuse of the basic variant longer as the difference between the production of the two variants is more costly (the derived alternative requires both movement and an overt article), whereas in Italian both alternates require the article and children go through phases of possessive production without articles, then gradually add the articles in their productions, until they reach the adult-like system (Bernardini and Egerland 2006).

## 9 Conclusions

In the current study we aimed to reveal if the same factors influence both Italian and Norwegian child language. These languages are mirror images of one another when it comes to possessive structures; thus, if the same factors guide acquisition, we expect to see mirror-imaged results. And this is indeed what we find: the non-derived but marked structure being overextended to unmarked contexts by both Italian and Norwegian children, though the results are stronger for the latter. This entails that language acquisition is guided by internal properties of the language; thus, children are sensitive to these.

We may exclude frequency as the main factor, as it is the less frequent variant that is overproduced: postnominal for Italian, prenominal for Norwegian. Children are also not guided by pragmatic economy; i.e., they do not extend the unmarked variant to marked contexts.

However, most of the children's production is target-like; i.e., the more frequent and unmarked variant is used more often. Due to the correlation of frequency and markedness, we cannot tease these apart. However, Italian children have been found

to be sensitive to other pragmatic features (Serratrice 2005), and following the micro-cue model of acquisition (Westergaard 2009, 2014), children show an early sensitivity to pragmatic principles governing adult word order, as this is corroborated by the findings on other grammatical features (Westergaard 2009; 2011). Thus, according to the micro-cue model, children should also be sensitive to the pragmatics of the possessive variants.

Considering the similarities between the two languages, the status of syntactic economy in language acquisition is consolidated when it comes to syntactic structure, as we found that the basic, marked, alternative is overused. If pragmatics were the determining factor, the unmarked, derived order should be preferred and pragmatically economical. But this is not what we found, indicating thus that syntactic economy can explain the data that we have observed with the best precision.

Syntactic economy seems to be a persistent factor in child language acquisition, as it is a strategy employed by children cross-linguistically. It thus is a more relevant predictor than frequency and pragmatic economy when it comes to grammatical alternates whose choice of use is dependent on contextual factors.

**Declarations**

**Conflict of interest** We hereby declare that the author has no financial or non-financial interests in any way related to the submitted manuscript.

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