

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

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.

Keywords: possessives; economy; Italian; Norwegian; variation in the input

## Statements and Declarations

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

## 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 reflection of what is given and what is new in the context (Clark et al. 1977; Mykhaylyk et al. 2013; Anderssen et al. 2014; Stephens 2015; Velníć 2018). In the current study, we focus on the variation in the 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 part 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 et al. 2011) acquire this variation with relative ease, but Norwegian children (Anderssen et al. 2010; Westergaard et al. 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.

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 et al. 1973; Cipriani et al. 1989; Antelmi 1997; Tonelli et al. 1998; D’Odorico et al. 2003; van Oosten 2005), and three for Norwegian (Anderssen 2006; Ringstad 2014; Garmann et al. 2019)<sup>1</sup>. Corpus data might not be ideal as it is a spontaneous and uncontrolled environment, but this is the first step for a series of experimental studies. Nevertheless, previous studies have found how corpus data is a realistic representations 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, which indicates that the same factor guides acquisition cross-linguistically, and that factor is syntactic economy.

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 (section 2), followed by an overview of the contexts in relation to the variants that should be used in (section 3). Following that, in section 4, we discuss the literature on the acquisition of possessive structures in Italian and Norwegian. The current study is outlined in section 5, followed by the description of the corpus data and methodology in section 6. The results of the statistical analyses are described in section 7. Section 8 and 9 contain the discussion and conclusion respectively.

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<sup>1</sup> The Anderssen corpus is not available on CHILDES.

## 2. Comparison of possessive structures in Italian and Norwegian

The use of possessive structures in Italian and Norwegian is 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  
                   the-F my-F car-F

                  b. La macchina mia  
                   the-F car-F my-F

A complete list of Italian possessives is given in table 1.

Person	Singular		Plural	
	Masculine	Feminine	Masculine	Feminine
1 <sup>st</sup>	mio	mia	miei	mie
2 <sup>nd</sup>	tuo	tua	tuoi	tue
3 <sup>rd</sup>	suo	sua	suoi	sue
1 <sup>st</sup> + 2 <sup>nd</sup>	nostro	nostra	nostri	nostre
2 <sup>nd</sup> + 3 <sup>rd</sup>	vostro	vostra	vostri	vostre
3 <sup>rd</sup> + 3 <sup>rd</sup>		loro		

Table 1: Italian possessive pronouns

In terms of derivation, Cardinaletti (1998) claims that the underlying structure is the postnominal one. This order is obtained by leftward raising of the noun, typical for Romance languages (Cinque 1994; Longobardi 1994). The prenominal possessive is then derived by movement of the possessive to the prenominal position (Cardinaletti 1998).

Regarding contextual use, the prenominal possessive is the unmarked variant while the postnominal is used in focal contexts, such as contrast (Cardinaletti et al. 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! Dio mio!*). 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, consequently the unmarked structure is used more frequently. Cardinaletti et al. (2011) analyzed possessive structures from the LIP corpus (Voghera et al. 2014) which contains adult spoken interactions, and found that 86% 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  
my-M car-M

b. Bilen min  
car-the-M my-M

A complete list of Norwegian pronouns is provided in table 2.

	Masculine	Feminine	Neuter	Plural
1 <sup>st</sup>	min	mi	mitt	mine
2 <sup>nd</sup>	din	di	ditt	dine
3 <sup>rd</sup> reflexive	sin	si	sitt	sine
3 <sup>rd</sup> M			hans	
3 <sup>rd</sup> F			hennes	
1 <sup>st</sup> + 2 <sup>nd</sup>	vår		vårt	våre
2 <sup>nd</sup> + 3 <sup>rd</sup>		deres		
3 <sup>rd</sup> + 3 <sup>rd</sup>				

Table 2: Norwegian possessive pronouns

In terms of derivation, the Norwegian possessive is considered to be generated above the head noun, i.e. in Spec-NP (Julien 2005). The postnominal possessive is thus realized by leftward movement of the noun past the possessor (Anderssen et al. 2010; Fábregas et al. 2019), while the prenominal possessive is in its surface position, but it is still considered to move to a higher position in the DP (Julien 2005). Nevertheless, this order 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 et al. (2010) discuss how this relates also to complexity as the derived possessive is more complex as it involves movement<sup>2</sup>. Lødrup (2012) analyses the two variants from both points of view: grammatical and information structure (context). He claims that from a grammatical point of 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); the prenominal is the only order possible in ellipsis; and it is also the forms that lexicalizes (*På min mate, gå sin vei*), 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 et al. 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 et al. (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 follows (table 3).

	Italian		Norwegian	
	Pre-nominal	Post-nominal	Pre-nominal	Post-nominal
Example	La mia macchina	La macchina mia	Min bil	Bilen min
Derivation	Derived	Basic	Basic	Derived
Article	Yes	Yes (no in some contexts)	No	Yes
Complexity	Complex	Simple <sup>a</sup>	Simple	Complex

<sup>2</sup> Complexity is never discussed as a factor in the studies on Italian, but there are contexts (such as the vocative) for which the postnominal possessive does not require the article. Additionally, if complexity is defined in terms of derivation, then the derived form, the prenominal, is the more complex one.

Markedness (contextual)	Unmarked	Marked	Marked	Unmarked
Frequency	More (86%)	Less	Less	More (73%)

Table 3: summary of main differences between Italian and Norwegian possessives

<sup>a</sup> If we consider derivation the base for complexity. No observations regarding complexity of the Italian variants were made in the literature

When these features are laid out on a table, it is obvious that the possessives 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 complexity and frequency: what is marked is more complex, and what is unmarked is more frequent (Givón 1991). 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.

What we call markedness and context in table 3 are two sides of the same coin, as marked structures are used when the context is marked, and as we will see in the next section, neutral and topical contexts are considered unmarked, whereas contexts in which contrastive focus or emphasis is denoted are considered marked. Vocatives are also part of marked contexts as in both languages the marked structure is used to signal a vocative.

### 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 here. 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, focus, and vocatives.

What is intended by topic here is both the NP with the possessive as a discourse topic and the sentence topic, 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, all other participants are adult speakers.

(3)<sup>3</sup> CHI: la mi' palla , la mi' [: mia] palla . Italian, topic

FAT:tieni **la tua palla** .

My ball, my ball. /here, **your ball**.

Location: Calambrone/Guglielmo/020201.cha": line 22.

(4) CHI: brum brummmm . Italian, neutral

CHI: vieni , chi vo' salire qui ?

CHI: chi vo' salire qui ?

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

CHI: venite , passeggeri .

Brum brum. / come, who wants to get on here?/ who wants to get on here?/ here, two passengers for **your car**, go./ come here passengers.

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

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

INV: skal vi finne boka til ho Ina?

FAT: skal vi finne **Donald\_boka di** kanskje?

INA: ja.

FAT: finne Donald\_bok?

INA: Donald\_bok!

FAT: ei Donald\_bok?

Find Ina's book./ Shall we find the book belonging to Ina?/ Shall we find **your Donald book** maybe?/ yes/ find the Donald book?/ Donald book!

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

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<sup>3</sup> Since the language here is quite simple, and we are focusing on the context to represent the use of the variants, only the translation of the examples is provided, but not the gloss.

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

MOT: storbilen skal være med?

ANN: ja.

MOT: kanskje du heller skal ta nån bøker med i **lillesekken din**?

ANN: ja.

Ann's big car./ The big car is joining?/ Yes./ Maybe you should rather bring some books in **your little backpack**? 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

OBS: e di chi è ?

CHI: è mia !

CHI: è tua pè **tappa tua** .

OBS: ma non è un pochino piccola ?

A shoe?/ And who's is it?/ Mine!// It is **your shoe**./Isn't it a bit small?

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

(8) MOT: kemmes bokstav er det der? Norwegian, focus

ANN: xx xx sin.

INV: **min bokstav** og.

ANN: den og sånn.

MOT: og så er det Merete sin.

Who's letter is the one over there?/ Xx's./ **My letter** and./ That one also like this./ 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 et al. 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 possession needs to be contrasted (*my ball* vs. *your ball*) not the NP (*my ball* vs. *my car*).

(9) MOT: questo è tutto il pelo della pancia della loro mamma . Italian, contrast

CHI: loro cosa fanno ?

MOT: e loro stanno prendendo il latte .

MOT: chi è che prendeva il latte **dalla mamma tua** ?

CHI: io lui e Gherardo .

All this is the fur of their mother's belly./ And they, what are they doing?/ They are drinking milk./And who was drinking milk form **your mother**?/ Me, him, and Gherardo.

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

(10) CHI: skal du ha han på fingeren? Norwegian, contrast

INV: skal eg ha han på fingeren?

CHI: ja du må vente litt.

INV: sånn.

INV: må sætte den litt fast så han ikkje dett av.

INV: satt litt laust.

INV: ops.

CHI: den kunne ikkje på din.

INV: kunne vi ikkje sætte han på min?

CHI: nei.

INV: nei han var lettare å få til å sætte fast på **din finger**.

Will you have him on the finger?/ Will I have him on the finger?/ Yes but you must wait a little. /Like this./

Must fix it a bit so he doesn't fall off./ It's a bit loose./Oops./ It cannot go on yours./ Cannot we put it on mine?/np./ No, it is easier to make him sit tight on **my 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 et al. 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 et al. (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 et al. (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 to which the target-possessive is being compared to or contrasted with, and it is the whole NP that is emphasized.

(11) MOT: e lo so non sei mai stato in Austria , Marco . –

Italian, emphasis

MOT: fino che non ti faccio **il documento tuo** .

I Know you have never been to Austria, Marco. / until I make **your document**.

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

(12) MOT: det der er gaffelen.

Norwegian, emphasis

MOT: den høre til.

MOT: det der er jo **din gaffel**.

MOT: nei ho kan jo ikke få +//.

That over there is the fork./ it belongs to./ It is indeed **your fork**./ No she cannot have it.

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

Vocatives are examples of calling out, but with a possessive, and these use the marked order in the respective languages.

(13)INV: ma vuole stare un po' in braccio. Italian, vocative

INV: **piccola mia.**

INV: vuoi cantare la ninnananna?

But she wants to be held for a bit./ **My little one.** / Do you want to sign a lullaby?

Location: Klammler/010927.cha": line 400.

(14) p1: Kan du si Nina? – Norwegian, vocative

p2: Skrape.

p1: Du sier ingen ting, **din tullekopp!**

p3: Ikke så lett med eplebit i munnen.

Can you say “Nina”?/ You say nothing, **your silly head!**/ Not so easy with an apple piece in your mouth.

Location: Garmann/Olav/010429.cha": line 290.

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 et al. 2011), it appears that Italian children do not face difficulties in acquiring the two possessive variants. Bernardini (2003) and Cardinaletti et al. (2011) reported that the prenominal possessive is overall more frequent, as we would expect based on the adult usage. Cardinaletti et al. (2011) conclude 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 et al. (2010) noticed an initial stage (from 1;9-2;0) in which the prenominal possessive is 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 et al. 2015). Anderssen et al. (2010) observed 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 et al. (2010) conclude that, since the unmarked and more frequent structure to which the children are exposed to 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.

Based on the findings of the studies above, it seems that Italian children acquire the possessive variants with more ease than Norwegian children. However, based on the properties of the two languages, we would expect Italian and Norwegian children to face the same difficulties. This could be a consequence of the complexity difference related to the presence/absence of the definite suffixal article that the two Norwegian variants have. However, complexity in the two Norwegian variants is also dependent on the basic-derived relation as the derived variant (postnominal) undergoes movement which also makes it more complex. 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. So, 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. 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 session, we will explain the purposes of this study and how context will be the key factor for determining target like usage of the 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 et al. 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 correct. Anderssen et al. (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 onto 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. 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 no occurrences of the alternate. If the children's sensitivity to context, i.e., markendess, 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* affecting 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 et al. 2010). Finally, if children over-use the base-generated variant, which is also the less-frequent one and used for marked context in both languages: postnominal in Italian and prenominal in Norwegian. 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 et al. 2010; Westergaard et al. 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. Still, there is a fourth possible outcome: if children acquire the variants based on their surface position, then we should find the same overused variant in both languages, irrespective of its derivation and markedness.

## 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 4. Note that the Anderssen corpus (Anderssen 2006) is not available on CHILDES. We calculated the types, tokens and TTR for child speakers only for each corpus using the *freq* function in CHAT.

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

Norwegian	Federica	1;05-2;00	3	156	613	0.254	
		1;04-2;00	3	228	1072	0.213	
		1;08	2	196	1226	0.160	
		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				
	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				

Table 4: List of all the corpora used in the study

The search in the corpora was conducted in the following way: we have searched for all forms of possessive pronouns in the two languages (cf. tables 1 and 2). 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:

kwal	+smio	+f	+w2	-w2	+tCHI	-/tCHI	@
command	keyword	output_on_file	two_lines_above	two_lines_below	child_utterances/adult_utterances	input_files	

For Italian, the ungrammatical forms *\*sui* (3<sup>rd</sup> person possessive) e *\*tui* (2<sup>nd</sup> person possessive) were also searched for as children might use those instead of the correct terms. The 3<sup>rd</sup> 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. Large portions of the context were read to establish the contextual use of the occurrence (topic, neutral, contrast, emphasis, vocative) which were then classified into the overarching classifications of marked and unmarked. The instances which context was more difficult to determine were then checked by two independent raters, one for Italian and one for Norwegian, each of which was a native speaker of the respective language.

The searches yielded a total of 699 collocations of noun and possessive in Italian and 2622 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 have checked for this by searching for possessives in the adult corpora of the respective languages. VoLIP (Voghera et al. 2014) is a corpus of Italian spoken language that includes diaphasic, diatopic and diamesic varieties, with a size of 500,000 tokens. A 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) which is a spoken corpus from the Oslo area and contains 957,000 tokens. We found 3489 tokens of possessives, which amounts to 0.3% of the corpus. According to this, there do not seem to be differences in the frequency with which the possessives are used in adult spoken languages. Thus, we cannot attribute the difference in quantity of possessives in the CHILDES corpora to varying frequencies in the adult spoken language.

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. But we feel confident 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) shows that a corpus can be accounted for as an output of a productive grammar; although the data points may be 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 total number of possessive-noun combinations in Italian corpora was 214 in the child data and 485 in the adult data, in Norwegian there were 739 possessives in the child data and 1883 in the adult data.

### 7.1 Raw numbers

Let's first look at the raw numbers and percentiles divided purely per possessive order, a somewhat similar display to what the previous studies have done. This is illustrated in tables 5 and 6.

Italian	Adults	Children
Prenominal	383 (79%)	168 (79%)
Postnominal	102 (21%)	46 (21%)
Total	485	214

Table 5: number of possessives divided per structure in Italian corpora

Norwegian	Adults	Children
Prenominal	315 (17%)	199 (27%)
Postnominal	1568 (83%)	540 (73%)
Total	1883	739

Table 6: number of possessives divided per structure in Norwegian corpora

By looking at the proportions, the Italian children have a strikingly similar distributions of the variants as their caregivers, while the Norwegian children, as already been noticed in Anderssen et al. (2010), use the prenominal, marked, structure slightly more than the adults. However, it is important to note that this disproportion still holds even with the addition of two Norwegian corpora.

These raw numbers give us however a very rough estimate of what is going on, and in the following sections, we will delve more closely into the details.

## 7.2 Analysis of the Italian data

The first step was to exclude fixed expressions. In the Italian corpora there are numerous exclamations such as *mamma mia!* which do not denote possession in the immediate physical environment. These amount to a total of 60 occurrences in the postnominal adult data and one occurrence in the prenominal (*mio dio-* my god). In the child data there are only three such occurrences.

Additionally, there is another limitation regarding the Italian dataset: prepositions, as prenominal possessives cannot occur with a simple preposition: *\*a mia casa* vs. *a casa mia*. Inflected prepositions, on the other hand, do not have this effect. These are formed by merging with the definite article with the preposition (i.e., *a+la=alla*), and allow both a pre and postnominal possessive: *alla sua casa/alla casa sua*. We have thus decided to exclude all the occurrences of prepositions which require a fixed possessive structure (n=15 child data, n=17 adult data) which ultimately does not have a heavy impact on the dataset.

The distribution of the occurrences with these exclusions is displayed in table 7.

Italian	Adults	Children
Prenominal	382 (92%)	166 (86%)
Postnominal	25 (8%)	28 (14%)
Total	307	194

Table 7: filtered number of possessives in the Italian corpora

Comparing the data from table 7 to table 5, it becomes evident how the distribution of possessives structures in adult and child data is no longer identical, and we can see a potential overuse of the postnominal order by the children.

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, emphatic information or vocatives; here we expect the use of the postnominal form. Examples produced by the children from the corpus for said contexts are provided in (15). The target example is marked with **boldface**.

(15) CHI: ehh@i (.) ade [//] adesso (.) nasconde la Mina .

Ehh-interjection now hide-3<sup>rd</sup>.sg the-F Mina

CHI: e io trovo .

And I find-1st.sg

CHI: sì (.) guarda c'è la mia borsetta .

yes see-IMP is the-F my-F purse-F

CHI: vuoi vede(re) la **mia borsetta** (.) mammina ?

want-2nd.sg see the-F my-F purse-F mommy

How (he/she) hides Mina./and I will find her./yes, there is **my purse**./ Mommy, do you want to see my purse?

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

Example (15) is categorized as topic because the 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.

(16) CHI: la strega viene quando (.) l' ora di dormire . -Neutral

the-F witch comes when the-F hour of sleeping

CHI: c' (.) 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

CHI: dalla casa con la porta (.) entra dalla porta ee +...

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

CHI: e buttala via dalla finestra .

And throw.her-imp away from-the-F window-F

The witch comes when it is bedtime./There is the witch **in my house**, throw her out, come in/ from the house with the door, enter through the door./ and throw her out form the window.

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

The possessive in (16) is considered neutral as the topic is the witch (*strega*) and the target *nella mia casa* (in my house) is only the location, it is not what is being talked about.

(17) CHI: questo è un treno lungo . - Contrast

this-M is a-M train-M long-M

MOT: lungo lungo .

long-M long-M

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

MOT: quale nonna ?

Which grandma

CHI: questo è [ / ] è il treno tuo , va a Roma .

This-M is. Is the-M train-M your-M goes-3<sup>rd</sup>.sg to Rome

MOT: questo è il treno mio ?

This-M is. the-M train-M my-M

MOT: che va a Roma .

that goes-3<sup>rd</sup>.sg to Rome

This is a long train/ Very long/ Like the one that is grandma's, this one is grandma's/ Which grandma?/ This one is **your train**, it is going to Rome./ This is my train?/ That goes to Rome.

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

The example in (17) 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 train.

(18) CHI: e il pastorino ha un casco . – Emphasis

and the-M shepherd-M has-3<sup>rd</sup>.sg a-M helmet-M

MOT: c' ha il casco ?

Has-3rd.sg the-M helmet-M

MOT: forse va in moto , eh ?

Maybe goes-3rd.sg in motorbike eh-interjection

CHI: dov' è la moto sua ?

Where is the-F motorbike-F his-F

MOT: la moto sua non c' è !

The-F motorbike-F his-F NEG is

CHI: e allora ?

And then

CHI: come fa ?

How does-3rd.sg

MOT: eh !

Eh-interjection

MOT: come fa !

How does-3rd.sg

MOT: l' ha portata a riparare dal meccanico .

It had-AUX brought-3<sup>rd</sup>.sg to repair at.the-M mechanic-M

The shepherd has a helmet/ He has a helmet?/ Maybe he is going by motorbike?/ Where is **his** motorbike?/ His motorbike is not here!/ how does he go?/ How does he go!/ He brought it to the mechanic to be repaired.

Location: Calambrone/Guglielmo/020906.cha": line 502.

For an example with emphasis, see (18) where the mother and child are discussing a shepherd figurine: he has a helmet on, but there is no motorbike. Thus, motorbike is emphasized in this context.

(19) OBS: una scarpa ? -Focus

a-F shoe-F

OBS: e di chi è ?

And of who is

CHI: è mia !

Is my-F

CHI: è tua pè **tappa tua** [: scarpa tua].

Is your-F ? shoe-F your-F

OBS: ma non è un pochino piccola ?

But NEG is a bit small-F

CHI: eh ?

eh

OBS: è piccolina quella là .

Is small-F that-F there

A shoe?/ and whose is it?/ it is mine! / it is yours, **your shoe**. / but isn't it a bit small? /what?/ That one is small.

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

Example (19) is in focus because the observer (OBS) asks whose shoe that is requiring the possessive to be in focal position.

(20) CHI: mamma , tieni un attimino mia bambina . - Vocative

mommy hold-imp a moment-dim my-F girl-F

CHI: ecco , ora dammela .

allright now give.me.her-imp

CHI: aiuto , mamma prendi .

help mommy take-imp

CHI: bididibodidibu .

#babbling

CHI: (as)petta bambina , **tu bambina mia** .

Wait-imp girl you girl-F my-F

Mom, hold my baby for a moment./ there, now give her to me./ help mommy, take./ Wait baby, **you my baby**.

Location: Antelmi/030409.cha": line 885.

In (20) the target possessive is a vocative. The girl (*bambina*) is also the topic of this segment, but in that specific instance the target child calls out to her (*tu bambina mia*) and thus the postnominal possessive is used.

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 8, where the contextually appropriate uses marked in **boldface**.

		Adults		Children	
		Unmarked	Marked	Unmarked	Marked
Prenominal		<b>371 (99%)</b>	11 (33%)	<b>163 (94%)</b>	3 (17%)
Postnominal		2 (1%)	<b>22 (66%)</b>	11 (6%)	<b>15 (83%)</b>
Total		373	33	176	18

Table 8: Distribution of possessives in Italian corpora in relation to context

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.

To check if the use 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 ( $p<0.005$ ). Nevertheless, as highly significant this result may appear based on the p-value, the effect size is minimal (0.057). 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 (0.661), which gives us a strong reason to claim that adults indeed use the two possessive orders differently based on the context. Regrettably, the model did not find a significant interaction between speaker usage and context which was at  $p=0.066$ . This entails that the structure is not affected differently by the way adults and children use context.

To get a full overview of the data, we have computed another model with context markendess as the dependent variable (0 for unmarked and 1 for marked). We will refer to this as the *context model*. Structure (prenominal vs. postnominal) and speaker type (adults vs. child) were set as dependent variables, with the intercept being unmarked, prenominal, and adult. Again, we checked for an interaction between structure and speaker type. The model is summarized in table 10.

This model shows the children have more unmarked contexts with the prenominal possessive than adults, but not significantly ( $p=0.54$ ). The model also revealed that adults use more postnominal structures in marked contexts ( $p<0.001$ ), as we would expect them to. 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 ( $p<0.001$ ), thus context affects adults and children differently when it comes to production of possessive structures, and children use the postnominal more than adults 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 how children do not use either context more frequently than the 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 proven 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 datapoints to obtain strong evidence. Nevertheless, it seems that Italian children are not as target like as previously described.

### ***7.3 Analysis of the Norwegian data***

The data set of Norwegian that was available to us had more datapoints than the Italian set and suffered less data-loss. We have excluded from the count the noun-applicable data points which consisted of lyrics or reading from books as these do not reflect the ongoing contextual situation<sup>4</sup>, fixed-expressions that include possessives, and occurrences with a non-intelligible referent. Some files ( $n=11$ ) from the child Ole from the Anderssen corpus (Anderssen 2006) contained only the transcriptions from the child; these are excluded from our further analyses as it is not possible to infer the context. The updated distribution of occurrences is presented in table 9.

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<sup>4</sup> 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.

Norwegian	Adults	Children
Prenominal	254 (14%)	158 (25%)
Postnominal	1542 (86%)	475 (75%)
Total	1796	633

Table 9: filtered number of possessives in the Norwegian corpora

In table 11 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 (21 and 22), and marked which includes contrast, emphasis, vocatives, and focus (23-27). 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*).

(21) INV:        får eg se bandasjen? – Topic  
                   Got I see bandage-the  
                   (...)  
 INA:        da får du se bandasjen.  
                   Then got you see bandage-the  
 CHI:        da får æ kle på av da.  
                   Then got I clothes off on then  
 INV:        ja du må kle på [//] av og på.  
                   Yes you must clothes off on and off  
 CHI:        ja.  
                   yes  
 INV:        ja.  
                   yes  
 CHI:        da må vi se **bandasjen min** da.  
                   Then mist we see bandage-the my then  
 INV:        ja.  
                   yes

Can I see the band aid?/ There, you have seen the band aid./ I have pulled my clothes off it./ Yes./Yes./

Then we must see **my band aid**./Yes.

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

(23) CHI: vet du      ka æ har    fatt hos **mammaen min**? -Neutral

Know you what I have got at mother-the mine

INV:      nei ka du har fatt hos mammaen din?

No what you have got at mother-the your

CHI:      solbrilla.

sunglasses

Do you know what I got when I went to **my mother**?/ No, what did you get from your mother?/

Sunglasses.

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

The example in (22) is classified as topic because the bandage is what is being talked about in the discourse; whereas (23) is classified as neutral because the sunglasses are the topic and the mother is merely the patient from whom the sunglasses have been taken.

(24) CHI:      kan du tælle fingran mine ? - Contrast

Can you count fingers my

FAT:      ja jeg kan telle du må telle tror jæ@d [: jeg] .

Yes I can count you must count believe I

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

I can count your fingers

FAT:      ja okei .

Yes ok

Can you count my fingers?/ Yes I can count, but you should be the one counting I think/I can count **your fingers**./ Yes ok./

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

In (24) 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.

(25) CHI: xxx hente nokka. – emphasis

Get something

CHI: xxx bare hente nokka.

Only get something

CHI: et skrujern.

A screwdriver

INV: skal du hente et skrujern?

Shall you get a screwdriver

CHI: **mitt skrujern.**

My screwdriver

INV: ditt skrujern.

Your screwdriver

(I need to) get something./ just go get something./ a screwdriver/ Are you going to get a screwdriver?/  
**my screwdriver.**/ your screwdriver.

Location: Anderssen/OLE/Ole21.cha": line 781.

Similarly, (25) 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.

(26) YLV: du **din tulling** . - Vocative

You your fool

YLV: grrrrrr .

MOT: tulla du me vanne ditt ?

Fool you with water your

You **your silly**/ are you teasing me with your water?

Location: Ringstad/Ylva/020206.cha": line 864.

Example (26) is a vocative because the child is referring to the mother and calling her silly (where *tulling* "silly" is a noun).

(27) MOT: kemmes seng skal du sove i i natt? -Focus

Whose bed shall you sleep in tonight

CHI: **min seng.**

My bed

MOT: i din seng?

In your bed

CHI: nei.

no

MOT: ja kem si seng?

Yes who REFL bed

CHI: Ann xx.

In who's bed will you sleep tonight?/ **My bed.**/ In your bed?/No./ Yes in who's bed?/ Ann's.

Location: Anderssen/ANN/Ann04.cha": line 461.

Lastly, example (27) is 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.

The occurrences divided by speaker, structure and context are displayed in table 10. The contextually felicitous variants are marked in **boldface**.

	Adults	Children		
	Unmarked	Marked	Unmarked	Marked
Prenominal	28 (2%)	<b>224 (98%)</b>	53 (10%)	<b>106 (96%)</b>
Postnominal	<b>1539 (98%)</b>	5 (2%)	<b>469 (90%)</b>	5 (4%)
Total	1567	229	522	111

Table 10: Distribution of possessives in Norwegian corpora in relation to context

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 use 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 (0.083). 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, how in marked contexts adults use 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. The significant interaction in the last line indicates how the structure is affected differently by context in children and adults ( $p<0.001$ ). 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) as independent variables. The context model shows that children do not use unmarked and marked contexts in different proportions than adults ( $p=0.41$ ). Combining this with the result from the structure model in which we have seen that children use significantly more pronominals, could indicate the overproduction of prenominal discussed in the previous literature. As expected, we also see how adults use 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). The last line indicates that there is a strong interaction between speaker type and structural choice in the different contexts ( $p<0.001$ ), more precisely, children use significantly more pronominals than adults in unmarked contexts. Thus, we hereby

confirm the overuse of the prenominal elaborated and discussed by Anderssen et al. (2010) by using a larger dataset and with a more attention to the contextual usage.

The implications of these findings will be discussed in the following section.

## 8. Discussion

In the current study we have investigated this by looking into adult and child productions of pre-and post-nominal possessives in Italian and Norwegian. Our first aims were language specific: check if Italian children are indeed target-like and check if the overuse of the prenominal 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 the postnominal and prenominal forms in Norwegian.

### 8.1 *The 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 et al. 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 (MacWhinney 2000a) 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 it has been previously claimed.

### ***8.2 A closer look to context in the Norwegian dataset***

Norwegian children overuse the marked possessive, this has already been discussed in previous studies (Anderssen et al. 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.

### ***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 that however the difference in the results may be due to fewer data points for Italian.

Recall that the marked form in each of those languages is also the one considered to be basic. Conversely, the unmarked form is more frequent, but since this form is clearly not the overused one, 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 is indeed the more frequent variant. The unmarked variant can in both languages be, with specific prosodic contours, used to express contrast or emphasis. It would thus not be pragmatically inappropriate to overextend the unmarked variant to marked contexts. Since our results show that children do not do this, we thus conclude that pragmatic economy does not guide acquisition. 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 et al. 2005). The authors argue that this happens because of the lack of a pragmatic concept in children, and claim that other areas of the grammar are affected by this. They refer to this phenomenon as the *concept of non-shared assumptions*. Since the choice of possessive structure in Italian and Norwegian is a

pragmatic one, the children's concept on non-shared assumption might cause them to consider what is marked for them to be marked in the conversation, thus 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 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 (Westergaard 2009) view, 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 their use of null/overt subjects which are used correctly following a number of pragmatic constraints from early on (MLUW at 2) (Serratrice 2005)<sup>5</sup>.

Children are known to be economical in their productions (Westergaard 2009), i.e. no structure building and no movement more than the input provides evidence for (Westergaard 2009; Westergaard et al. 2011); Snyder (2007) refers to this as *grammatical conservatism*. 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 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 et al. 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 a pragmatic one. Thus, there are theoretical grounds to assume that Italian children, along with Norwegian as argued by Anderssen et al. (2010), are economical in their productions which causes them to not move the possessive consistently, resulting in the overuse of the marked structure.

## 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

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<sup>5</sup> 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, we can safely assume that also the children our data set are as well.

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 markendess, 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 find is that the basic, marked, alternative is overused. If pragmatics was 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.

## REFERENCES

Anderssen, Merete. 2006. *The acquisition of compositional definiteness in Norwegian*. Doctoral Degree, Department of Language and Culture, UiT- The Arctic Univeristy of Norway.

Anderssen, Merete, Yulia Rodina, Roksolana Mykhaylyk, & Paula Fikkert. 2014. The acquisition of the dative alternation in Norwegian. *Language Acquisition* 21 (1). 72-102.

Anderssen, Merete, & Marit Westergaard. 2010. Frequency and economy in the acquisition of variable word order. *Lingua* 120 (11). 2569-2588.

Antelmi, Donella. 1997. *La prima grammatica dell'italiano: Indagine longitudinale sull'acquisizione della morfosintassi italiana*: Il mulino.

Antinucci, F., & D. Parisi. 1973. Early language acquisition: A model and some data. In *Studies in child language development.*, ed. C. Ferguson and Dan Isaac Slobin. New York: Holt.

Bates, Alandi, Lisa Pearl, & Susan Braunwald. 2018. I can believe it: Quantitative evidence for closed-class category knowledge in an english-speaking 20-to 24-month-old child. *Proceedings of the Berkeley Linguistics Society*.

Bernardini, Petra. 2003. Child and adult acquisition of word order in the Italian DP. In *(in)vulnerable domains in multilingualism*, ed. Natascha Müller, 41-81. Amsterdam/ Philadelphia: John Benjamins Publishing Company.

Bondi Johannessen, Janne, & Krisitn Hagen. 2008. *Språk i Oslo. Ny forskning omkring talespråk*. Oslo: Novus Forlag.

Büring, Daniel. 2009. Towards a typology of focus realization. *Information structure*. 177-205.

Cardinaletti, Anna. 1998. On the deficient/strong opposition in possessive systems. *Possessors, predicates and movement in the determiner phrase* 22. 17-53.

Cardinaletti, Anna, & Giuliana Giusti. 2011. The acquisition of adjectival ordering in Italian. In *Variation in the input: Studies in the acquisition of word order*, ed. Merete Anderssen, Kristine Bentzen and Marit Westergaard, 65-93. Dordrecht: Springer Netherlands.

Cinque, Guglielmo. 1994. On the evidence for partial n-movement in the Romance DP. In *Paths towards universal grammar. Studies in honor of richard s. Kayne*, ed.: Georgetown University Press.

Cipriani, P., P. Pfanner, A. Chilosi, L. Cittadoni, A. Ciuti, A. Maccari, N. Pantano, L. Pfanner, P. Poli, S. Sarno, P. Bottari, G. Cappelli, C. Colombo, & E. Veneziano. 1989. *Protocolli diagnostici e terapeutici nello sviluppo e nella patologia del linguaggio*. edited by (1/84 Italian Ministry of Health): Stella Maris Foundation.

Clark, Herbert H., & Susan E Haviland. 1977. Comprehension and the given-new contract. In *Discourse production and comprehension.*, ed. Roy O. Freedle, 1-40. Norwood, New Jersey: Ablex Publishing Corporation.

D'Odorico, L., & S. Carubbi. 2003. Prosodic characteristics of early multi-word utterances in italian children. *First Language* 23. 97-116.

Fábregas, Antonio, Merete Anderssen, & Marit Westergaard. 2019. A comparison of Norwegian and Spanish 11 acquisition of possessive constructions. *The Journal of Comparative Germanic Linguistics* 22. 115-140.

Garmann, N. G., P. Hansen, H. G. Simonsen, & K. E. Kristoffersen. 2019. The phonology of children's early words: Trends, individual variation and parents' accommodation in child-directed speech. *Frontiers in Communication* 4 (10).

Givón, Talmy. 1991. Markedness in grammar: Distributional, communicative and cognitive correlates of syntactic structure. *Studies in Language*. 15 (2). 335-370.

Gundel, Jeanette K. 1999. On different kinds of focus. *Focus: Linguistic, cognitive, and computational perspectives*. 293-305.

Haspelmath, Martin. 2006. Against markedness (and what to replace it with). *Journal of Linguistics* 42 (1). 25-70.

Julien, Marit. 2005. *Nominal phrases from a scandinavian perspective*: J. Benjamins Pub.

Kiss, Katalin É. 1998. Identificational focus versus information focus. *Language*. 245-273.

Lødrup, Helge. 2011. Norwegian possessive pronouns: Phrases, words or suffixes. *Proceedings of the LFG11 Conference*.

Lødrup, Helge. 2012. Forholdet mellom pronomiale og postnominale possessive uttrykk. *Grammatikk, bruk og norm. Festskrift til Svein Lie på 70-årsdagen, 15. april 2012*. 189-203.

Longobardi, Giuseppe. 1994. Reference and proper names: A theory of n-movement in syntax and logical form. *Linguistic inquiry*. 609-665.

MacWhinney, Brian. 2000a. *The childe project: The database*. Vol. 2: Psychology Press.

MacWhinney, Brian. 2000b. *The childe project: Tools for analyzing talk*. 3rd Edition ed: Mahwah, NJ: Lawrence Erlbaum Associates.

Murphy, M. Lynne. 1994. A note on pragmatic markedness. In *Pragmatics and language learning*, ed. Laurence F and Y. Kachru Bouton, 277-285. Urbana-Champaign: University of Illinois.

Mykhaylyk, Roksolana, Yulia Rodina, & Merete Anderssen. 2013. Ditransitive constructions in Russian and Ukrainian: Effect of givenness on word order. *Lingua* 137. 271-289.

Pereltsvaig, Asya. 2004. Topic and focus as linear notions: Evidence from Italian and Russian. *Lingua* 114 (3). 325-344. doi: [http://dx.doi.org/10.1016/S0024-3841\(03\)00029-9](http://dx.doi.org/10.1016/S0024-3841(03)00029-9).

Richter, Nicole, & Grit Mehlhorn. 2006. Focus on contrast and emphasis: Evidence from prosody. *The architecture of focus*. 347-371.

Ringstad, Tina Luise. 2014. *Byggeklossar i barnespråk. (building blocks in child language)*. Master's thesis, Language and Literature, Norwegian University of Science and Technology. Trondheim: NTNU.

Schaeffer, Jeannette C. 2000. *The acquisition of direct object scrambling and clitic placement: Syntax and pragmatics*. Vol. 22: John Benjamins Publishing.

Schaeffer, Jeannette, & Lisa Matthewson. 2005. Grammar and pragmatics in the acquisition of article systems. *Natural Language & Linguistic Theory* 23 (1). 53-101. doi: 10.1007/s11049-004-5540-1.

Serratrice, Ludovica. 2005. The role of discourse pragmatics in the acquisition of subjects in Italian. *Applied Psycholinguistics* 26 (3). 437-462. doi: 10.1017/S0142716405050241.

Snyder, William. 2007. *Child language: The parametric approach*. Oxford University Press.

Stephens, N. 2015. Dative constructions and givenness in the speech of four-year-olds. *Linguistics* 53 (3). 405-442. doi: 10.1515/ling-2015-0008.

Tonelli, L., A. De Marco, R. Vollmann, & W. Dressler. 1998. Le prime fasi dell'acquisizione della morfologia. *Parallelia* 6. 281-301.

van Oosten, A. 2005. *Lo sviluppo dell'acquizione del soggetto nei bambini bilingui ital-olandesi*. Master's, Univeristy of Utrecht.

Velnić, Marta. 2018. *Ditransitive structures in croatian adult and child language: The role of animacy and givenness*. Doctoral thesis Article based, Institut for Språk og Literatur, UiT, the Arctic Univeristy of Norway.

Voghera, Miriam, Claudio Iacobini, Renata Savy, Francesco Cutugno, Aurelio De rosa, & Iolanda Alfano. 2014. Volip: A searchable italian spoken corpus. Olomouc Linguistics Colloquium: Language Use and Linguistic Structure., Olomouc: Palacký University.

Westergaard, Marit. 2009. *The acquisition of word order: Micro-cues, information structure, and economy*. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Westergaard, Marit. 2011. Subject positions and information structure: The effect of frequency on acquisition and change. *Studia Linguistica* 65 (3). 299-332.

Westergaard, Marit. 2014. Linguistic variation and micro-cues in first language acquisition. *Linguistic Variation* 14 (1). 26-45.

Westergaard, Marit, & Merete Anderssen. 2015. Word order variation in Norwegian possessive constructions: Bilingual acquisition and attrition. In *Germanic heritage languages in north America: Acquisition attrition and change*, ed. Janne Bondi Johansen and Joseph C. Salmons, 21-45. Amsterdam/ Philadelphia: John Benjamins Publishing Company.

Westergaard, Marit, & Kristine Bentzen. 2011. The (non-) effect of input frequency on the acquisition of word order in Norwegian embedded clauses. In *Frequency effects in language acquisition*, ed. Insa Gölzov and Natalia Gagarina, 271-306. Berlin/ New York: De Gruyter Mouton.

Winkler, Peter. 2011. Interrelations between fundamental frequency and other acoustic parameters of emphatic segments. *Intonation, Accent and Rhythm: Studies in Discourse Phonology* 8. 327.

Yang, Charles. 2011. A statistical test for grammar. Proceedings of the 2nd workshop on Cognitive Modeling and Computational Linguistics.