



## Article

# Argument Marking and Verbal Agreement in the Speech of Georgian Children

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**Abstract:** This paper describes the language acquisition and verb-forming processes related to the issue of argument marking for native-speaker Georgian children from 24 to 42 months of age, who were born and raised in Georgia. Because of the complexity of the Georgian verbal system, it is a challenge to study the acquisition process in this language. We attempted to observe how native-speaker children overcome this complexity during the acquisition process. The study is based on samples of four Georgian-speaking children from the developing corpus of Georgian-speaking children.

**Keywords:** language acquisition; morpho-syntax; children's speech; Georgian; acquisition of Georgian



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## 1. Introduction

In this paper, we consider the language acquisition and verb-forming processes of native-speaker Georgian children from 24 to 42 months of age, who were born and raised in Georgia. Specifically, we cover the issue of argument marking and verbal agreement. Georgian is a language with a rich verbal morphology. It morphologically marks verbal arguments that have proper cases in certain constructions when introduced by nominals. Thus, argument marking is one of the most important aspects of the Georgian language, and also an interesting case for language acquisition.

There is not much research on local children's speech and early language acquisition in Georgia, although some important studies have been conducted in recent decades. The study of the speech of Georgian-speaking children began in the second half of the 20th century, with Uznadze (1947), Avalishvili (1961), Chrelashvili (1965), Kakhadze (1969), Samkharadze (1966), Tuite (1988), Imedadze and Tuite (1992) and Imedadze (1957, 1960, 1967, 2017). These researchers provided general descriptions of children's speech in different contexts.

Uznadze (1947) and Chrelashvili (1965) evaluated this topic in the context of child psychology throughout the process of mastering the mother tongue. Chrelashvili (1965) made observations and conducted experiments on the speech of children of different ages and concluded that the emergence of grammatical changes in speech can be understood as a result of the variability of a child's attitude towards the environment. These views are fully consistent with Uznadze (1947), who tried to examine the psychological features of children in the process of acquiring language; however, all of these studies lacked in-depth analysis of the complex linguistic processes that accompany language acquisition, and their conclusions were made only from the standpoint of psychology.

On the other hand, Avalishvili, Kakhadze, and Samkharadze described only the linguistic features that were observed in different age groups of Georgian-speaking children. Avalishvili (1961) created a phonetic, morphological, and syntactic description of speech based on his diaries about his son Tamaz, from the age of 8 months to 3 years. Based on

these data, he singled out the following stages of speech acquisition: diffusive speech, which occurs from 9 to 18 months of age; objective relationships, which are observed from 18 months to 2 years; subjective relationships, which occur from 2 to 3 years; and interaction reflection, which occurs from 3 years and up. This study of speech acquisition was one of the first attempts to carry out a linguistic analysis of the phonetic, morphological, and syntactic features of speech, based on objective material, which accompanied the process of speech acquisition. Kakhadze also studied the peculiarities of a child's speech based on the diaries of his own three children. This author also observed the speech of four other children, for a total of seven children, aged from 2 to 5 years old. Methodologically, the research was based on diaries and produced reliable results. Nevertheless, all these works did not create a complete picture of the characteristics of language acquisition by Georgian-speaking children. These were fragmentary attempts to study the problem and needed further research.

A relatively complete picture of language acquisition by Georgian-speaking children was presented in the work of [Imedadze and Tuite \(1992\)](#), where the authors created a theoretical framework for the peculiarities of language acquisition by a Georgian-speaking child in a cross-linguistic context. The authors' opinions were based on the diaries of Avalishvili, Imedadze, and Kakhadze. According to the authors, at the first stage of language acquisition, the speech of Georgian-speaking children, in terms of grammar, does not differ from the speech of native-speaker children of other languages. Linguistic features characteristic of the Georgian language are formed from the stage of transition to sentence after the child tries to use many words in speech. At this stage, children face the biggest difficulties in mastering verbs, because, from a morpho-syntactic point of view, Georgian verbs are a difficult and complex phenomenon ([Shanidze 1980](#); [Makharoblidze 2012](#)).

The above-mentioned authors have discussed the acquisition processes concerning the several categories of Georgian verbal morphology. The most important issue concerns verbal persons (subject and objects) and their markers. The correct use of the first and second subject markers is mainly observed by 2 years of age, although this article provides examples to ensure that the process of a perfect mastery of this category continues at 3 years of age and appears to be completed by 4 years of age. The acquisition of third-person markers is a longer process because the subject marker in Georgian depends on the type of verb (see Section 2). Therefore, it is a common error for children to misuse third-person markers. In this case, the present study also confirms the conclusion of [Imedadze and Tuite \(1992\)](#) that such errors are still found at the age of 3 to 4 years old. The article also briefly describes the linguistic features that accompany a child's mastery of the Georgian language.

Later, [Imedadze \(2017\)](#) tried to study the peculiarities of speech acquisition in Georgian-speaking children from a psycholinguistic perspective. In her work, she relied on the idea, put forward by [Slobin \(1987, 1996\)](#), that every child bears the grammar of their own language. According to Slobin, in the process of language acquisition, the child uses so-called self-instructions to develop the grammar acquisition process. Imedadze's methodology was based on her own diaries and on the diaries of [Avalishvili \(1961\)](#). The result of this study of a child at the sentence-forming stage shows that in this period, the most common approach is to use three-member sentences with the subject–action–object or incomplete forms. The author also identifies the peculiarities of Georgian-speaking children with 'early marking of the subject in the form of the ergative case'. This opinion is confirmed by the material analyzed in the present article.

Despite such studies, the characteristics of the acquisition of Georgian have not been completely studied. Therefore, this paper presents an analysis of the corpus-based data and provides information about common errors made in the process of learning about verbs among Georgian children. This is one of the first corpus-based papers in the field of Georgian language acquisition by children.

The paper is structured as follows: the introduction (Section 1) is followed by Section 2, where we briefly introduce Georgian and some basic features of Georgian verbs related to

argument marking. In Section 3, the methodology is described. In Section 4, we discuss the morphological marking of verbal argument and verbal agreement among Georgian children of the selected age. We show argument case marking at the age of 24–42 months. In this section, we also offer observations of the wider acquisition process of argument marking from 24 months. Conclusions are laid out in Section 5.

## 2. Background Information: Argument Marking and Verbal Agreement in Georgian

The Georgian verb is the most intricate facet of Georgian grammar and poses challenges for language learners and linguists. It exhibits considerable morphological complexity (Cherchi 1999, pp. 12, 14). Not surprisingly, the acquisition of this system is accompanied by certain errors.

A Georgian verb can have markers for the subject and both direct and indirect objects. Every verbal person or argument (except the third-person direct object) can be marked in a verb. The Georgian verbal frame is provided in Tables 1 and 2 and is as follows (Makharoblidze and Leonard 2022).

**Table 1.** Prefixal domain of Georgian verbs.

#	−3	−2	−1	0
Inflectional	Preverb	Prefixal	Version	
		agreement marker	marker	
Lex/Derivational	(PREV)	(SBJ/OBJ)	(VER)	VERB ROOT (v)

**Table 2.** Suffixal domain of Georgian verbs.

	0	+1	+2	+3	+4	+5	+6	+7	+8
Inflectional			Thematic suffix (TH)		Imperfective marker (IM)	Mood (row) marker (RM)	AUX	Suffixal nominal marker	Plural marker
Lex/Derivational	v	Passive marker (PASSV)		Causative marker (CAUS)				(SBJ/OBJ)	(PL)

We will consider only those slots that are related to argument marking in Georgian. These are Slot −2 from the prefixal domain and Slots +6, +7, and +8 from the suffixal domain.

Most scholars agree that there are four classes of verbs in Georgian. Table 3 below describes the Georgian verb classes according to Cherchi (1999, pp. 16–17).

It is noteworthy that the verbs in Georgian have one prefix and one suffix slot for verbal argument morphological marking. Thus, Georgian verbs can have a maximum of two markers for verbal persons/arguments (Makharoblidze 2009). These markers are presented in Table 4.

The subject marker in Georgian depends on the type of verb, and verbal exponents vary depending on tenses and moods. Interestingly, the choice between the third-person subject markers is conditioned by verb class and screeve (see the explanations below, next second paragraph), while the options for second-person subject markers and third-person indirect object markers are determined by phonetic conditions (for more details, see Shanidze 1980; Aronson 1990, and Cherchi 1999).

The Georgian language has a strong tendency to lose the markers of the second subject (*h-* and *s-*). Meanwhile, the *kh-* marker occurs with only the two verbs: *kh-ar* ‘you are’ and *mo/ts’a-kh-val* ‘you will come/go away’. The same tendency to lose *h-* and *s-* is observed with marking the third indirect object.

**Table 3.** Verb classes in Georgian.

Class of Verbs	Class 1	Class 2	Class 3	Class 4
<b>Formal properties</b>	The Future is formed from Present by adding of preverbs. The patterns of case government and cross-referencing verbal morphology shift from one series to another.	The Future is formed from Present by adding of preverbs. The patterns of case government and cross-referencing verbal morphology are the same throughout all the series.	The Future is formed from Present with the character (version) vowel <i>i-</i> and present/future stem formant <i>-eb</i> . The patterns of case government and cross-referencing verbal morphology shift from one series to another.	The Future is formed from Present with the character (version) vowel <i>e-</i> and present/future stem formant <i>-eb</i> . The patterns of case government and cross-referencing verbal morphology are the same throughout all the series.
<b>Broad semantic characteristics</b>	Transitive; Display aspectual opposition	Intransitive/passive Display aspectual opposition	Depict atelic activity, and do not display aspectual opposition	Often depict emotion, feeling and bodily sensations or states and possession-almost always involuntary and unintentional. Do not display aspectual opposition.
<b>Examples</b>	<i>khat'av</i> '(s)he is painting/paints it'; <i>ak'etebs</i> '(s)he is doing/making/does/makes it'	<i>k'vdeba</i> '(s)he dies/is dying'; <i>emaleba</i> '(s)he is hiding/hides away from him/her'	<i>mgh'eris</i> '(s)he is singing/sings'; <i>t'ir is</i> '(s)he is crying/cries'	<i>Sts'q'uria</i> '(s)he is thirsty'; <i>akvs</i> '(s)he has it (inanimate)'

**Table 4.** Verbal person markers in Georgian.

Subject/Object	Singular	Plural
I person Subject	v- (slot: -2)	v- — -t (slots: -2,+8)
II person Subject	kh-, h-, s- Ø- (slot: -2)	kh-, h-, s-, Ø- — -t (slots: -2,+8)
III person Subject	-s,-a,-o (slot: +7)	-en, -nen, -n, -es, -an (slot: +7/8)
I person Object (Direct, indirect).	m- (slot: -2)	gv- (slot: -2)
II person Object (Direct, indirect).	g- (slot: -2)	g- — -t (slots: -2,+8)
III person Object (indirect)	h-, s-, Ø- (slot: -2)	h-, s-, Ø- — -t (slots: -2, +8)

Georgian verbs have a complex conjugation system. A screeve is a set of forms varying only in person and number (Shanidze 1980, p. 215; Aronson 1990, p. 41). It is a paradigmatic set. Screeves differ from each other with respect to what they convey about time, mood, aspect, confirmativity or evidentiality, resultativity, or other categories. Various screeves are organized into three series according to morphological and syntactic properties (Cherchi 1997, p. 13). In much literature, the first series is referred to as 'Present/Future', the second one is referred to as 'Aorist series', and the third series as the 'Perfect series' (Cherchi 1997, p. 13). Thus, there are three series and 11 screeves for conjugation of Georgian verbs. In Table 5 we provide the example of conjugation:

Table 6 presents one example of the conjugation of a second-person transitive verb *khat'av*—'(s)he paints' (Present indicative).

Table 6 above shows a combination of morphologically marked arguments<sup>1</sup> (subject and object), and this model is the same for any type of verb in general terms. Thus, it can be taken as a frame for subject–object combinations in Georgian verbs.

**Table 5.** Series and screeves of Georgian verbs.

I Series	II Series	III Series
<i>ats'mq'o</i> 'Present Indicative' ( <i>vkhat'av</i> 'I paint')	<i>ts'q'vet'ili/aorist'i</i> 'Aorist Indicative' (( <i>da</i> ) <i>vkhat'e</i> 'I have painted/I painted')	<i>I turmeobiti</i> 'Perfect' (( <i>da</i> ) <i>mikhat'avs</i> '(It seems) I've painted')
<i>uts'q'vet'eli</i> 'Imperfect' ( <i>vkhat'avdi</i> 'I was painting')	<i>II k'avshirebiti</i> 'Optative' (( <i>d</i> ) <i>avkhat'o</i> '(if) I'll paint')	<i>II turmeobiti</i> 'Pluperfect' (( <i>da</i> ) <i>mekhat'a</i> 'If I would paint')
<i>ats'mq'os k'avshirebiti</i> 'Present Subjunctive' ( <i>vkhat'avde</i> 'If I paint')		<i>III k'avshirebiti</i> 'Perfect Subjunctive' (( <i>da</i> ) <i>mekhat'os</i> 'I wish I (will) paint')
<i>mq'opadi</i> 'Future Indicative' ( <i>davkhat'av</i> 'I will paint')		
<i>kholmeobiti</i> 'Conditional' ( <i>davkhat'avdi</i> '(If) I would paint')		
<i>mq'opadis k'avshirebiti</i> 'Future Subjunctive' ( <i>davkhat'avde</i> 'If I would/will paint')		

**Table 6.** Verb forms in the Present tense (*khat'avs*).

Subject // Object	I Obj. sg.	II Obj. sg.	III Obj. sg.	I Obj. pl.	II Obj. pl.	III Obj. pl.
I Subj. sg.	—	<b>g</b> -xat'av	<b>v</b> - xat'av	—	<b>g</b> -xat'av-t	<b>v</b> - xat'av
II Subj. sg.	<b>m</b> -xat'av	—	xat'av	<b>gv</b> -xat'av	—	xat'av
III Subj. sg.	<b>m</b> -xat'av-s	<b>g</b> -xat'av-s	xat'av-s	<b>gv</b> -xat'av-s	<b>g</b> -xat'av-t	xat'av-s
I Subj. pl.	—	<b>g</b> -xat'av-t	<b>v</b> - xat'av-t	—	<b>g</b> -xat'av-t	<b>v</b> - xat'av-t
II Subj. pl.	<b>m</b> -xat'av-t	—	xat'av-t	<b>gv</b> -xat'av-t	—	xat'av-t
III Subj. pl.	<b>m</b> -xat'av-en	<b>g</b> -xat'av-en	xat'av-en	<b>gv</b> -xat'av-en	<b>g</b> -xat'av-en	xat'av-en

Verbs of Class 1 and Class 3 have the inersive forms in Series 3. The subject appears with object markers and the object is expressed by subject markers; for example, in the form of the perfect screeve *da-m-i-khat'av-s*, 'I have painted it', prefix *m-* is the first-person object marker, but now it marks the subject, and *-s*, which is a marker of the third-person subject, marks the object.

Certain classes of Georgian verbs have double marking for verbal arguments using the form of auxiliary *q'opna*, 'to be' (Shanidze 1980, pp. 169–80). This auxiliary verb usually appears at the end of the verb with the first- or second-person subject and it contains the subject prefix markers and the suffix *-t* for plural forms. 'I am (we are)'—*v-ar-(t)*. 'You are'—*kh'ar-(t)*. The form of the third-person, '(S)he is'—*aris*, and when it appears as an auxiliary verb, is mostly reduced to *-a* or *-s*. Below are examples of auxiliary verbs<sup>2</sup>, which are mostly used in the III series screeves for absolutive (mono-personal) verbs of Class 2.

Table 7 provides information about the auxiliary verbs in Georgian. It must be mentioned that auxiliaries also occur in the Present tense in the verbs of Class 4: *v-c'e-var* (ISBJ-lie-1AUX) 'I am lying', *v-zi-var* (ISBG-sit-1AUX) 'I am sitting', and in some verbs of Class 3, as alternative forms: *vt'iri* (1SBJ-cry-RM)—*vt'irivar* (1SBJ-cry-1AUX) 'I cry/am crying', *mghe* (sing-RM)—*mghe* (sing-2AUX) 'You sing/are singing'.

**Table 7.** Auxiliary verbs in Georgian.

Screeve	Marker	Examples
Perfect	-v . . . . . -vart . . . . . -khar(t) . . . . . -a(n)	gavcherebulvar(t) 'It seems, I/we stopped' gacherebulkhar(t) 'It seems, you stopped' gacherebula(n) 'It seems, (s)he/they stopped'
Pluperfect	-v . . . . . -iq'av(it) . . . . . -iq'av(it) . . . . . -iq'o(vnen)	gavcherebuliq'av(it) 'If I/we would stopped' gacherebuliq'av(it) 'If you would stopped' gacherebuliq'o(vnen) 'If (s)he/they would stopped'
Perfect Subjunctive	-v . . . . . -iq'av(it) . . . . . -iq'av(it) . . . . . -iq'os(vnen)	gavcherebuliq'av(it) 'I wish, I/we stopped' gacherebuliq'av(it) 'I wish, you stopped' gacherebuliq'os(vnen) 'I wish, (s)he/they stopped'

In Table 8 we present the Georgian declensional patterns of Georgian, with examples of consonant-ending (*k'atsi* 'man') and vowel-ending (*bu* 'owl') words, as there are only two formal distinctions in this system whether the stem ends in a consonant or a vowel.

**Table 8.** Cases in Georgian.

CASE	MARKER	EXAMPLES
Nominative	-i; $\emptyset$	k'ats-i; bu- $\emptyset$
Ergative	-ma; -m	k'ats-ma; bu-m
Dative	-s	k'ats-s; bu-s
Genitive	-is; -s(i)	k'ats-is; bu-s(i)
Instrumental	-it; -t(i)	k'ats-it; bu-t(i)
Adverbial	-ad; -d	k'ats-ad; bu-d
Vocative	-o, -v; $\emptyset$	k'ats-o; bu-o

Different patterns are shown by the third-person personal pronouns by changing the stems in flexion (see Table 9), while the first- (*me*) and second-person pronouns (*shen*) use one stem and do not receive the case markers. Third-person pronouns also show deixis. *es* 'this' is the third-person pronoun, which is located closer to the first person, *eg* 'that' is closer to the second person, and *is* 'that' is far from the first and second persons. Children whose speech is investigated in this paper usually do not distinguish this spatial layout.

**Table 9.** Declension of third-person pronouns in Georgian.

Cases	The 3rd Person Pronoun Closer to the First Person	The 3rd Person Pronoun Closer to the Second Person	The 3rd Person Pronoun Far from the First Person
Nom.	<i>es</i>	<i>eg</i>	<i>is</i>
Erg.	<i>ama-n</i>	<i>maga-n</i>	<i>(i)ma-n</i>
Dat.	<i>ama-s</i>	<i>maga-s</i>	<i>(i)ma-s</i>
Gen.	<i>am-is(i)</i>	<i>mag-is</i>	<i>(i)m-is(i)</i>
Inst.	<i>am-it</i>	<i>mag-it</i>	<i>(i)m-it</i>
Adver.	<i>am-ad</i>	<i>mag-ad</i>	<i>(i)m-ad</i>

Cases for arguments depend on verbal classes and series, as presented in Table 10 below:

**Table 10.** Cases of arguments.

Arguments/Series, Classes	Transitive Verbs (Class 1, Class 3)			Intransitive Verbs (Class 2, Class 4)		
	I Series	II Series	III Series	I Series	II Series	III Series
Subject	NOM	ERG	DAT	NOM	NOM	NOM
Object indirect	DAT	DAT	DAT	DAT	DAT	DAT
Object direct	DAT	NOM	NOM	—	—	—

As can be seen from Table 10, Georgian has a split ergativity system, and the subject of Class 1 and Class 3 is in the ergative case only with forms of Series 2. The latter repeats the model of transitive verbs, and these verbs are named medio-actives.

All these complicated and complex features of the argument marking system make it hard to acquire Georgian. These difficulties are overcome step by step—starting with

errors and going through the grammatical structure of the native language, it is possible to improve speech patterns. Studying the errors made by children in the process of mastering these grammatical forms is essential.

### 3. Materials and Methods

From 24 to 42 months of age, children intensively work on the formation of grammatically correct speech when the speed of speech development is high. At the stage when children start producing their first words and phrases, children mostly learn lexical units, and this is also a period of deepening understanding of the grammar (Bannard et al. 2009; Bates and Goodman 1999; Dromi 1987). We selected the age from 24 to 42 months as a period when language perspective is opening and the most complicated categories are appearing. It is a period of widening communication when children try to go beyond 2–3-word sentences (Dixon and Marchman 2007; Imedadze and Tuite 1992).

This study is based on speech samples of two Georgian-speaking children from each age group: the age group of 24–36 months and two children from the age group of 36–42 months, making four children in total. Data are based on the developing corpus of Georgian-speaking children. This corpus is based on fundamental research at Ilia State University, founded by Shota Rustaveli National Science Foundation of Georgia (grant No. FR-18-782). It is organized using longitudinal speech samples of children which are recorded, transcribed, coded, and analyzed according to the guidelines of the CHILDES platform.

Data collection involves monthly video recordings of two children aged 24 months (Gabriela and Sandro) and two aged 36 months (Mate and Ana). The four children were videotaped for 3 h each month for 2 years at the time of their active period of talking: time of their feeding, playing, and book reading/listening in a natural environment. The recordings were made by caregivers. Obtained video data were transcribed and uploaded onto the corpus.

Participants' selection criteria:

- Age compliance: The age of children is 24 months and 36 months.
- Monolingual environment: The native language of the caregiver and family members is Georgian.
- Children are being raised in socially sustained families, from Tbilisi.
- At the start of the project, participants were checked to fit the criteria of age-appropriate development. The assessment tool was the Assessment, Evaluation, and Programming System for Infants and Children (AEPS), translated and adapted to Georgian.
- Gender balance was considered.

Video/audio sampling:

For the video recordings, TalkBank guidelines were used. The speech samples were transcribed in CHAT format (CHILDES) with adaptations to Georgian.

Data analyses:

We extracted the verb forms from the data. Table 11 shows the number of analyzed forms.

**Table 11.** Number of analyzed forms.

Numbers of Utterances	Numbers of Tokens	Numbers of Verbs
11,976	13,505	2860

We analyzed the data and made observations according to the following parameters:

1. VP correct/incorrect marking—morphological marking of the verbal persons (subject and objects) in verbal forms.
2. Auxiliaries correct/incorrect forms.
3. Arguments with correct/incorrect cases.
4. Plural/singular correct/incorrect forms.

The results were analyzed and the main difficulties in the acquisition of Georgian were highlighted.

#### 4. Results

##### 4.1. Verbal Agreement

As it is shown in Section 2, the Georgian verb has subject and object markers in a few slots, and this phenomenon is a challenge for children in the process of language acquisition.

The first-person subject marker until 36 months is exposed weakly, and in most cases, is not used as a marker at all. In the examples below, we insert Ø, where the marker is missing. Examples marked ‘a’ show the verb forms uttered by children; examples marked ‘b’ show the correct forms (or in other words, ‘adult forms’):

- (1a) *me da- Ø -d-o* (Gabriela, 24 months)  
I PREV- put-RM  
‘I should put’.
- (1b) Adult form: *me da- v -d-o*  
I PREV-1SBJ-put-RM  
‘I should put’.

The same type of error is seen in Sandro’s speech at 24 months:

- (2a) *me da-Ø-d-e* (Sandro, 24 months)  
I PREV-put-RM  
‘I put (it)’.
- (2b) Adult form: *me da-v-d-e*  
I PREV-1SBJ-put-RM  
‘I put (it)’.

Later, 3-year-old Ana makes the same type of error:

- (3a) *tma unda ga-Ø-u-shal-o* (Ana, 36 months).  
hair should PREV-VER-loose-RM  
‘I (should) loosen her (hair)’.
- (3b) Adult form: *tma unda ga-v-u-shal-o*  
hair should PREV -1SBJ -VER-loose-RM  
‘I (should) loosen her (hair)’.

The subject marker for first person is *v-*, and the correct forms are *da-v-do*, *da-v-de*, and *ga-v-ushalo*. Actually, at an early age, there is a tendency for this marker to disappear in any phonetic situation. After the age of 38–39 months, it gradually improves quickly. The first-person marker appears in an inter-vowel position in Ana’s speech, for example:

- (4) *mo-v-i-t’an-e* (Ana, 39 months)  
PREV-1SBJ-VER-bring-RM  
‘I brought (it)’.

The same person marker appears at the same age in Mate’s speech, and this time it is in the pre-vowel position:

- (5) *v-i-c-i* (Mate, 39 months)  
1SBJ-VER-know-RM  
‘I know’.

We can observe it at the same age in Ana’s speech in V-C positions, for example:

- (6) *da-v-khat’av* (Ana, 39 months)  
PREV-1SBJ-paint-TH  
‘I will paint (it)’.

The second-person subject is not marked. The exception is the *kh-* marker, which always appears, but only two verbs have this marker in modern Georgian (see Section 2). This rule is acquired well by children.

- (7) *saq’varel-i da k’arg-i megobar-i kh-ar.* (Ana, 42 months)  
nice-NOM and good-NOM  
friend-NOM 2SBJ-be  
‘You are a nice and good friend’

The third-person subject is usually marked well, but sometimes, a consonant marker is lost. Let us take the example of the verb *akv-s*—(S)he has (it). At the age of 36 months, Mate uses this form without a person marker:

- (8a) *ama-s panjara a-k-Ø* (Mate, 36 months)  
It-DAT window VER-have  
'It has a window'.
- (8b) Adult form: *ama-s panjara a-kv -s*  
It-DAT window VER-have -3SBJ  
'It has a window'.

Interestingly, children of the same age often use this verbal form with this suffix marker (*-s*), but meanwhile lose the last stem consonant *v*, using the form *ak-s* (*akvs* is a correct form). It should also be noted that if the caregivers speak in dialects, then the above-mentioned forms of this verb cannot be considered as the child's error.

The third-person subject markers can be confused in conjugated forms:

- (9a) *da- i-k'uz-eb-s*  
PREV -VER-lean down-TH -3SBJ  
'(S)he will lean down'.
- (9b) Adult form: *da -i-k'uz-eb-a*  
PREV -VER-lean down-TH -3SBJ  
'(S)he will lean down'.

The confusion concerns not only the issue of subject marking but also the conjugation frames and production of forms for the Future tense. The error (*daik'uzeb-s*) in this verb of Class 3 is caused by an analogy with the forms of Class 1.

Correct representation of object markers is a challenge for the acquisition of Georgian.

At the age 38–39 months, the first- and second-person object markers are well expressed, but the third-person indirect object is always zero in their speech. It is noteworthy that Georgian has a tendency to lose these markers (see Section 2).

The forms that are most often used are all correct in Mate's and Ana's speech from the age of 36 months:

- (10) *ar m-i-nd-a* (Mate, 36 months)  
not 1OBJ-VER-want-3SBJ  
'I do not want'.
- (11) *gv-i-nd-a* (Mate, 42 months)  
1OBJpl -VER-want-3SBJ  
'We want'.
- (12) *u-nd-a* (Ana, 36 months)  
VER-want-3SBJ  
'(S)he wants (alternatively, *unda* also means 'must')'
- (13) *m-t'k'iv-a* (Ana, 36 months)  
1OBJ-hurt/pain-3SBJ  
'It hurts'.
- (14) *m-i-k'ben-s* (Ana, 36 months).  
1OBJ-VER-bite-3SBJ  
'(S)he will bite me'.

In the corpus, there are examples where the object markers are not used properly, e.g., *m-t'k'iv-a* 'It hurts' (Ana, 39 months). Here, the first object marker is *m-* and it correctly expresses that 'I feel hurt', but in the early period, Sandro used this form without an object marker:

- (15a) *me mucel-i Ø-t'k'i[v]<sup>3</sup>-a* (Sandro, 24 months).  
I stomach-NOM hurt-3SBJ  
'I have a stomach-ache'.
- (15b) Adult form: *me mucel-i m-t'k'i[v] a*  
I stomach-NOM 1OBJ-hurt-3SBJ  
'I have a stomach-ache'.

The errors are only found with 'hurt' and similar verbs. The problem lies in the incorrect mapping between thematic roles and grammatical functions, and this causes

errors in the acquisition of object markers. The incorrect mapping here means that children do not follow the ‘Canonical mapping’ rules (Pinker 1982, 1984) when they decode semantic notions and map on the basis of subject and object. In example 15a, the child speaks about himself using the third person form instead of the first person, which is why the first-person marker is omitted.

The object marker of the first-person plural is *gv-* and *gv-inda*—‘We want (it)’ is an expected correct form, although we observed incorrect forms:

- (16a) *ege-ts m -i-nd-a -t* (Mate, 36 months)  
 It-also 1OBJ-VER-want-3SBJ-PL  
 ‘I/we want it too’.
- (16b) Adult form: *ege-ts gv -i-nd-a*  
 It-also 1OBJPL-VER-want-3SBJ  
 ‘We want it too’.

This error is caused by the combination of the plural morphemes for the first-person subject and object. The child combines these morphemes and the *m-t* (wrong) marker is obtained.

As we have seen from the examples, the acquisition of the object markers is a long process, and the errors are also manifested in the speech of children for a longer time. During the research period, we also observed confusion among the first and second persons, especially in sentences where children were trying to convey the other’s words.

Most errors in argument marking at Slot −2 (prefixed domain) have phonetic reasons, while the suffix domain errors (Slots +6, +7, +8) may be caused by phonetic and morphologic issues, such as using an incorrect morphological frame or relying on incorrect mapping. Such errors are characteristic of the two-word stage of language acquisition, especially at 24 months of age (Hirsh-Pasek and Golinkoff 1996), when children move from the stage of acoustic packaging to linguistic mapping and refer the words to the objects and events.

#### 4.2. Plural Forms

At the age of 24–42 months, the plurality of the subject is well represented by the suffixes shown in Table 4.

Mate at the age of 36 months uses subject plural markers correctly:

- (17) *v-ar-t* (Mate, 36 months).  
 1SBJ-be-1SBJPL  
 ‘We are’.
- (18) *ga-m-i-b[r]az-d-eb-i-an* (Mate, 36 months)  
 PREV-1OBJ-VER-angry-IM-TH-3SBJPL  
 ‘They will be angry at me’.
- (19) *mo-m-i-t’an-es* (Mate, 36 months)  
 PREV-1OBJ-VER-bring-3SBJPL  
 ‘They brought (it) to me’.

Some Georgian verbs have stem alternations for plural forms of the subject and the direct object, and this makes the acquisition process of plural forms more complex. There are two groups of verbs with stem alternation in plural forms:

A. Stem alternation for the plurality of a subject. Some verbs in Georgian change the stems for plural. This seems to be a quite challenging process for acquisition, and by the age of 42 months, Ana still has errors in these forms:

- (20a) *cha-ward-nen* (Ana, 42 months)  
 PREV -VER-fall-3SBJPL  
 ‘They fell down’.
- (20b) Adult form: *cha-tsvivd-nen*  
 PREV-fall/pl-3SBJpl  
 ‘They fell down’.

The verbal stem for singular is *vard*, and *tsviv* stands for plural forms. Sometimes, we observed the correct use of this alternation in the early period:

- (21) *sad da-a-ts'q'[v]-e isini?* (Ana, 39 months).  
 where PREV-VER-put/PL-RM they/NOM  
 'Where did you put them?'

B. Stem alternation for the plurality of a direct object, for example, *da-v-q'ar-e* 'I threw them down', where *q'ar* is a stem for the plural forms, and *gd* is a stem for the singular forms, as in *da-v-a-gd-e* 'I threw it down'. It is noteworthy that some verbs have stem alternations for the plural forms of the direct object, while the third-person direct object is not marked in Georgian verbal morphology either in singular or plural forms. Acquiring these forms is also difficult for children, and we observed some errors by the age of 42 months:

- (22a) *ak unda cha-v-a-gd-o esen-i* (Ana, 42 months).  
 here must/should  
 PREV-1SBJ-VER-throw-RM they-NOM  
 'I must/should throw them (in) here'.

Example 22b shows the incorrect usage of the verbal form, as it must be *chavq'aro* with the plural direct object:

- (22b) Adult form: *ak unda cha-v-q'ar-oesen-i*.  
 here must/should PREV-1SBJ-trow /PL-RM they-NOM  
 'I should throw them (in) here'.

In the early period, stem alternation forms mostly appear to be used incorrectly, while correct usage of the most frequent verbs with stem alternation for plural forms is around 82% at the age of 39 months.

Errors in marking argument plurality (Slot −2, Slot +7, +8) in most cases are caused by analogy or phonetic reasons. Some errors (examples 19a, 21a) are caused by the influence of adults using incorrect forms.

#### 4.3. Auxiliaries

Although verbal argument markers are learned at the age of 24–42 months, these forms are mostly produced correctly.

- (23) *ai, v-chan-var* (Mate, 36 months)  
 1SBJ-see-1AUX  
 'Here, I am seen'.
- (24) *chan-khar* (Mate, 36 months)  
 see-2AUX  
 'You are seen'.

The auxiliary forms are used correctly by Mate at the age of 36 months:

- (25) *ar a-v-sul-vart* (Mate, 36 months)  
 NOT VER-1SBJ-go/gone-1AUXpl  
 'We have not gone (up/above)'.

The errors appear while using the auxiliaries for the first and second persons. These forms are misused: the form of the first person stands for the second person, and vice versa. The confusion concerns the understanding of the roles of verbal arguments. This kind of misuse often appears while conveying the other's words.

It is noteworthy that at the age of 39–40 months, children rarely use the verbal forms with auxiliaries, avoiding them, feeling that something is wrong. However, it must be noted that some frequently used verbs take the forms with auxiliaries in the Georgian language, for example, 'I love you'—*me shen m-i-q'var-xar* (I you IOBJ-VER-love-2AUX), '(S)he likes me'—*mas me mo-v-ts'on-var* (S/he-DAT I PREV-1SBJ-like-1AUX).

From the data, it is evident that the usage of verb form with auxiliaries is complex and needs effort for complete acquisition.

#### 4.4. Inversion

In Series 3, the verbs of Class 1 and Class 3 are inersive, and exchange subject and object markers. At the age of 30 months, the form *damich'eria* appeared in Gabriela's speech, which shows the correct usage of inersive markers:

- (26) *da-m-i-ch'er-i-a* (Gabriela, 30 months)  
 PREV-1OBJ-VER-catch-RM-3SBJ  
 'I caught/have caught it'.
- (27) *ga-m-i-k'et-eb-i-a* (Mate, 36 months)  
 PRV-1OBJ-VER-do/make-TH-RM-3SBJ  
 'I have done it'.

Interestingly, our data do not show errors in inversive forms. This can be caused by a later acquisition of these forms when the main morpho-syntactic rules are already acquired.

#### 4.5. Speed of Acquisition of Verbal Agreement

The acquisition process of subject markers increases in speed, especially after the age of 24 months. Although children at this age mostly use verbs of Series 1 and 2, the use of these forms are accompanied by a different type of errors. Table 12 shows the number of correct and incorrect verbs used.

**Table 12.** Verbs in children's speech.

Verbs Used	24 Months	36 Months	39 Months	42 Months
Correct	675	268	331	304
Incorrect	16	24	34	27
Proportion of errors	2%	8%	10%	8%

Marking of the direct and indirect objects is presented in Table 13.

**Table 13.** The verbs with object markers.

Verbs with Object Markers	24 Months	36 Months	42 Months
Correct	16	64	123
Incorrect	12	7	3
Proportion of errors	75%	9%	2%

According to these tables, it is obvious that the acquisition process for verb person (VP) marking is hard and lasts for a long time.

Sometimes there are errors in screeve forms. For example, Mate at the age of 36 months says the form:

- (28a) *kon -d -eb -a*  
 have-IMP-TH-3SBJ  
 '(S)he will have'.
- (28b) Adult form: *e -kn -eb -a*  
 VER-have-TH-3SBJ  
 '(S)he will have'.

In this example, instead of the Present stem, the Aorist stem is used to produce the Future form of the verb 'to have'. The verb 'to have' is irregular and changes the stem for each tense form. This type of error indicates that children have problems acquiring Slot 0 (Table 1) forming tensed forms for irregular verbs.

#### 4.6. Argument Case Marking

Argument case marking is also formed gradually. Table 14 shows the numbers of verbal agreements with correct and incorrect argument case markers.

**Table 14.** Argument case markers.

Argument Case	24 Months	36 Months	42 Months
Sbj. correct	26	61	62
Sbj. incorrect	2	0	1
Obj. dir. correct	11	45	49
Obj. dir. incorrect	2	1	0
Obj. indir. correct	1	8	3
Obj. indir. incorrect	0	1	0

The results presented in Tables 12–14 display the rate of errors made by children acquiring the verb person marking system. These results contradict the expectation—errors do not decrease with age, and the rate of errors is low: at the age of 24 months, it is 0.2%, and at the age of 36 months, instead of decreasing, the rate becomes 0.8%. The low rate of errors was also observed in the cross-sectional study of Caprin and Guasti (2009), analyzing the peculiarities of Italian-speaking children acquiring verbal morphology.

In our study, we started analyzing the verbal forms from the age of 24 months when the average MLU of children was 2. They used 2–3-word sentences with limited verbal vocabulary, and the number of errors was low. Later, at the age of 36 months when the MLU was 3.2, the vocabulary was enriched, and more complex verbal forms were used. Thus, the number of errors increased. The dative, as a case for the indirect object, is mostly correctly used from 36 months, but sometimes, this argument is formed by zero marking. Such word forms can also be understood as forms of the nominative case, especially because in Georgian, the nouns ending with vowels do not have the nominative case marker and are presented by the stems. At the age of 36 months, errors are made in using these forms:

- (29a) *gogona-Ø k'vertsx-i u-ch'ir-av-s* (Mate, 36 months)  
 girl egg-NOM  
 VER-hold-TH-3SBJ  
 'The girl is holding an egg'.
- (29b) Adult form: *gogona-s k'vertsx-i u-ch'ir-av-s*.  
 girl-DAT egg-NOM VER-hold-TH-3SBJ  
 'The girl is holding an egg'.

In the form of the indirect object *gogona*, the consonant *-s*—dative case marker—is missing, and the form is expressed by the stem. Thus, representing indirect objects, children tend to use nominative case forms instead of dative to mark indirect objects.

The subject also mostly appears in the nominative, while for transitive verbs (and medio-actives as well), it must be in the ergative for Aorist and optative (the second series), and it must be in the dative for perfect and pluperfect (the third series). During the period of the investigated age, the ergative begins to appear in the speech of Georgian children. Sometimes the nouns are in the ergative, but the adjectives and possessive pronouns that apply to these nouns are in the nominative instead. Since children of this age do not use the forms of the third series, the use of the dative case for the subject is not expected.

- (30a) *nino- Ø m-i-txr-a*. (Mate, 42 months)  
 Nino 1OBJ-VER-say-3SBJ  
 'Nino said to me'.
- (30b) Adult form: *nino- m m-i-txr-a*.  
 Nino-ERG 1OBJ-VER-say-3SBJ  
 'Nino said to me'.

In this sentence, the subject must be in the ergative case and must have the case marker *-m*, but a nominative case form is used, which is formed as a stem for the nouns ending in vowels, as it is in the first example.

- (31a) *chem-Ø jgupel-ma mi-m-a-rt'q'-m-evin-a* (Mate, 39 months)  
 my classmate-ERG  
 PREV-1OBJ-VER-hit-CAUS-3SBJ  
 'My classmate made me hit'.
- (31b) Adult form: *chem-ma jgupel-ma mi-m-a-rt'q'-m-evin-a*  
 my-ERG. classmate-ERG  
 PREV-1OBJ-VER-hit-CAUS-3SBJ  
 'My classmate made me hit'.

The sentence above shows that even when the subject is ergative, its possessive pronoun still has no ergative marker *-ma*. The correct sentence should be b-version with the ergative marker for the possessive pronoun. Thus, for children, this period is a beginning stage for producing the ergative case and the ergative constructions.

- (32a) *masts'avlebel-i me m-i-txr-a* (Mate, 36 months)  
 teacher-NOM I/me 1OBJ-VER-say-3SBJ  
 'The teacher told me'.
- (32b) Adult form: *masts'avlebel-ma me m-i-txr-a*.  
 Teacher-ERG. I/me 1OBJ-VER-say-3SBJ  
 'The teacher told me'.

In this sentence, the subject must be in the ergative, but it is in the nominative. Rarely, the subject appears with the correct case form for ergative constructions, as in the example below:

- (33) *k'ogho-m m-i-k'bin-a*. (Mate, 39 months)  
 mosquito-ERG 1OBJ-VER-bite-3SBJ  
 'A mosquito bit me'.

The ergative and dative are not formed yet when arguments are conveyed by the pronouns:

- (34a) *ese-ts mo-v-rch-i-t* (Mate, 36 months)  
 this-also PREV-1SUBJ-finish-RM-1SUBJPL  
 'We finished it/this too'.
- (34b) Adult form: *amasa-ts mo-v-rch-i-t*.  
 This-DAT-also PREV-1SUBJ-finish-RM-1SUBJPL  
 'We finished it/this too'.

In the example above, the correct form for the subject is *amasats*—the third-person pronoun in singular form (with the particle *-ts'*) with the changed stem for the ergative case, as shown in Table 4. It is noteworthy that the first- and second-person pronouns do not change their forms in flexion paradigms either in singular or in the plural.

According to Imedadze and Tuite (1992), children's errors in assigning the ergative case reflect different initial hypotheses concerning the type of split-intransitive case system in use (aspect-based or agency-based); there is no evidence that they ever actively try out a transitivity-based pattern (nominative-accusative or ergative-absolutive) in assigning the case to the subjects of Aorist-series verbs.

In the speech of the Georgian children of the investigated age, the direct object argument is mostly in the nominative case (as seen in Example 29a), even for the present indicative verbal forms, when it should be in the dative case. At this stage, children begin correctly using this case alternation for the direct object argument.

## 5. Conclusions

The acquisition of verbal morphology is one of the most important and challenging aspects in Georgian because of its complex and rich system. The verb is the most important part of speech for Georgian morpho-syntax. Therefore, it is important to investigate the errors that children make in the process of acquisition.

The process of learning argument marking begins at the stage when children start to utter their first sentences. From this period onwards, they learn and master complex verbal categories. The first task is to learn the marking of the verbal persons, plural and singular forms, combinations of subjective or objective persons, auxiliary verbs, and argument cases. The child copes with this difficult task with different rates of success at different stages.

The period of 24–42 months of age is the most active in terms of language acquisition, as the speed of grammar acquisition is high. Children face a rather difficult task. They must correctly produce quite complex grammatical categories such as subject and object markers, and this occurs from 24 months to 36 months.

The present research shows the complex verbal features causing the errors in the forms of all three series, with each age period having certain peculiarities. In the forms of Series 1, errors are mostly found with the third-person subject markers. The suffix *-s* in the Present tense is often lost in children's speech. This type of error in Slot +7 is caused by phonetic reasons, because the reduction of the last consonant is characteristic of Georgian phonotactics. These errors often occur in the forms of verbs 'to be' *aris* and 'to have' *akvs*. The reason for this error may also be the influence of adults' incorrect input forms. Unlike literary Georgian, such forms are found in dialects, and children may hear these forms from the people around them. The cross-linguistic studies of this topic show that the acquisition of third-person markers in the Present tense is a challenge also for English-speaking children. Theakston et al. (2003) analyzed this phenomenon in English and concluded that the non-finite forms are the result of the influence of input forms. The influence of the input forms can cause errors in Georgian-speaking children's forms as well. Our data do not include the analysis of adults' speech. So, we can only hypothesize that children's errors are influenced by adult's incorrect forms.

In spite of the complexity of the system, in our dataset, children acquired it well. We should point out that we analyzed the longitudinal data of only four children. Additional research is needed to confirm our findings. There are cases of loss of the first-person subject markers at Slot −2. It is especially common to lose the prefix *v-* in a pre-vowel position, and this is characteristic of Georgian phonotactics. From a cross-linguistic perspective, we may notice that Pinker (1984) and Valian (1991) point out that the usage of non-finite forms is affected by the limitation of children's ability to produce verbal agreement forms correctly. Examples 1a, 2a, and 3a show that from the early period of language acquisition, the prefix *v-* is reduced in a pre-vowel position and this can be caused by the limitation of the child's ability to produce this person marker. In the later stage (examples 4, 5, 6), the limitation does not affect the production of this consonant any longer and the marker of the first-person subject can be observed in pre-vowel and pre-consonant positions.

There are errors in producing forms of Future in Slot 0, as children sometimes mistakenly use the stem of Aorist instead of Present to form Future, especially with irregular verbs.

In Series 2, the most common errors concern the formation of screeve forms. Children misuse the imperfect marker (Slot +4) in Series 2.

The errors made in Series 3 generally are related to the frame of this series, but children do not make errors with inversive forms.

Acquisition of argument plural markers takes a longer period and improvement is observed until the age of 42 months. The main errors are misinterpreting subject–object roles and their marking models. Our data show examples of incorrect combinations for marking argument plurality (examples 16a, 20a, 22a).

Errors are observed using the case markers for subjects and objects. In Georgian, children of the target age mostly prefer to use the nominative case for subject and object (examples 29a, 30a, 31a, 32a). This phenomenon is characteristic of many languages. The omission of argument case markers is frequent in Japanese children's speech. As Tanaka (2011) states, 'The case markers are often dropped in Japanese and do not play a critical role in the acquisition of verb argument structure.'

The data from Russian (Artoni and Magnani 2015) also prove that the nominative case plays an essential role in the acquisition process. In the early stage of acquisition, children use nominative for subjects and objects in Russian. In an overview, Slobin and Bever (1982), Slobin (1985) pointed out that in the early stage of language acquisition, the use of the nominative case for argument marking is typical for children in many languages. Finally, Goldberg (2005) observes the acquisition process of different languages and concludes that

languages tend to develop fixed case marking to avoid rampant ambiguity. In conclusion, we have discussed different types of errors that children make both at the level of the verbal system and argument marking. The process of acquisition takes time, but there are areas where children do well in spite of the complexity.

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## Notes

- <sup>1</sup> *g-xat'-av* (2OBJ-paint-TH) 'I paint you', *v-xat'-av* (1SBJ-paint-TH) 'I paint it/him/her', *g-xat'-av-t* (2OBJ-paint-TH-PL) 'I paint you/pl'
- <sup>2</sup> *ga-v-cher-eb-ul-var-(t)* PREV-1SBJ-stop-PARTIC-1AUX-(PL); *ga-v-cher-eb-ul-khar-(t)* PREV-1SBJ-stop-PARTIC-2AUX-(PL); *ga-v-cher-eb-ul-a-(n)* PREV-1SBJ-stop-PARTIC-3AUX-(PL).
- <sup>3</sup> In square brackets are restored the missing sounds.

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