Acquisition of Dialect in Oromo Children: A Phonological Analysis

Samson Fantu[1] and Ronny Meyer[2]

Abstract

This study investigates the variations of Oromo phonological development in typically developing four-year old monolingual children in Ethiopia, where a broad range of Oromo dialects exist. The children's phonological development was measured using picture naming test. Speech samples were collected from 70 children from Arero, Dera, Baate and Kamisee. These subjects formed two groups: Oromos who speak Oromo and live outside of Oromia (Baate & Kamisee), and Oromos who speak Oromo and live in Oromia (Arero & Dera). Independent and relational analyses were conducted to obtain phonological inventories as well as phonological patterns from children in Arero and Baate. Children across sites demonstrated similar sizes of consonant inventories, suggesting a common progression of sound acquisition in all dialectal areas, with few variations that impacted namely /kˈ/, /ʤ/, /s/, and /r/. The absence of statistical differences in children's consonant accuracy across dialectal areas could be attributed to the minimal dialectal variation of adult Oromo. An unusual observation arising from the phonological pattern analysis was children acquiring the language deleted the first unstressed cluster and repeated and geminated the second stressed cluster. The phonological pattern analysis also provided insight on possible dialectal variations in Arero and Baate including gliding and stopping errors.

Keywords: [Acquisition of dialect variations, Cushitic, Oromo, Phonological development,]

[1] Samson Fantu PhD candidate at Addis Ababa University, College of Humanities, Language Studies, Journalism and Communication, Department of Linguistics and Philology, Addis Ababa, Ethiopia. Email: samsonfantu@yahoo.com

[2] Ronny Meyer PhD (Associate Professor) at Institut national des langues et civilisations orientales, Paris, France. Email: rmeyer.addisababa@gmail.com

1. Introduction

Dialects of a language do not reflect a language disorder. Examining dialectal differences from disorders, for instance, Velleman & Pearson (2010) found that when children who enter General American English (GAE) kindergarten speaking African American English (AAE) are assessed in grade 5, key phonological features of AAE continue to be produced. Therefore, exploring children's acquisition of variable linguistic structures provides an important piece of the puzzle in language development research. The evidence to date is that doing so does have a significant impact on timetable for mastering the skills of language. Unfortunately, there have been no published studies on the acquisition of dialect variations for languages spoken in Ethiopia including Oromo.

Therefore, this study deals with the way Oromo sound units vary in their phonetic shape in conjunction with and as conditioned by geographical factor as well as by phonological context. Within Cushitic family, Oromo is the language with the most speakers and the largest geographic scope (Appleyard 2012: 199, Griefenow-Mewis 2001: 9, Mous 2012: 343). In addition, Oromo is the fourth most widely used language in Africa (Mohammed & Zaborski 1990: 9). The present study uses "Oromo" referring to both the language and the people as this is commonly used in the literature.

Traditionally, it is assumed that the extensive geographic dispersion of Oromo-speaking area caused the development of numerous dialect areas (Blazek 2010: 27). This article deals with varieties of Oromo spoken in Borena and Showa zones of Oromia region and the varieties spoken in the Wollo zone of Amhara administrative region. The present study will examine and compare the Oromo phonological development of typically developing monolingual four-year-old children across the study areas contributing to a more comprehensive understanding of their speech sound acquisition in various sociocultural contexts.

This study contributes to the acquisitional studies due to the scarcity of study on Cushitic languages. It provides a much-needed diagnostic tool for assessing phonological development of Oromo-speaking children and identifying dialectal variations and developmental processes. The information on the dialectal variations and developmental error patterns is

essential in designing intervention schemes. No previous studies meet this essential criterion.

Based on these observations, we will examine if these children produce a range of allophonic variants, the phonological accuracy globally and by position, and phonological patterns present between dialectal regions. The aim of the current study is to investigate the following research questions:

1. How do children in various dialectal regions compare in the size of their consonant inventories overall and by position?
2. Are there differences in children's PCC based on their site or the sounds' feature?
3. What are the main types of developmental and/or dialect-specific phonological pattern?

Capturing monolingual children's phonological inventories allows researchers to better understand monolingual language development. See Table 1 below for the consonant phonemes present in Oromo. Best practices to capture phonological inventories for monolingual children includes administering a single word task as well as a connected speech sample. Advantages and limitations of single word naming task will be explored for the purpose of this study.

		Place of Articulation				
		Labial	Alveolar	Palatal	Velar	Glottal
Manner of Articulation	Stops	b pʼ	t d tʼ ɗ		k g kʼ	ʔ
	Fricative	f	s	ʃ		h
	Affricate			ʧ ʤ ʧʼ		
	Nasal	m	n	ɲ		
	Liquid		l r			
	Glide	w		j		

Table 1: Consonant phonemes of Oromo

A single word naming task allows researchers to quickly examine if all sounds are present in the child's inventory in a short period of time. These tasks also have been shown to reflect phonological patterns and similar percent consonant correct (PCC) in connected speech (Masterson et al. 2005). Therefore, administering a single word naming task to examine consonant inventories and patterns can be extrapolated to the child's overall phonological system. On the other hand, limitations of single word naming tasks include having a finite number of production opportunities of sounds and word shapes. Combined, the effectiveness and limitations of single word naming tasks demonstrate that they're effective tests that can be generalized to the child's overall phonological system.

Capturing consonant inventories is likely influenced by the level of transcription. The level of transcription for a single word naming task usually depends on the purpose of test administration, time constraints, or the goal of transcription. For example, narrow transcriptions have been shown to help differentiate dialectal variations from language difficulties (Pollock & Meredith 2001). Therefore, it is important to keep in mind the differences in administration purposes and how to interpret the differences in findings that may arise.

2. Literature review

The goal of this section is to elucidate the state of the art with respect to issues and questions in phonological acquisition, including recent findings and theoretical models.

2.1 Theoretical approaches to acquisition of variation

Like all aspects of language, phonology is dynamic and dialectal variations exist across regions. Social factors such as gender, ethnicity, and socioeconomic status influence discernible differences in dialect (Pennington 2007). Dialect change happens gradually and involves perceptual and social factors, with new language norms gaining functional and linguistic meanings (Pennington 2007). Several perspectives describe how variations in phonology arise, such as the classical phonological and sociolinguistic approaches. Classical phonology is based on efficiency, with variability seen as trivial and without structural implication. Sociolinguistics, on the other hand, pertains to phonological variability and its relationship to social factors

(Pennington 2007: 52). Therefore, phonological variability and dialect theories must reflect both internal language and social factors.

When children first begin to speak, their dialect/s typically mirror that of their primary caregivers' (Wagner et al. 2014: 2). As they enter school or daycare, dialectal differences may be mediated with a shift away from the home dialect and similarities to the dialect of peers and the community may emerge (Wagner et al. 2014: 2). Roberts (1997) found that from a young age, children learn allowable variable rules in their speech, which may change depending on context and listeners. Acquisition of the allophonic rule can explain children's abilities to produce variations of speech depending on different phonetic contexts (MacLeod & Fabiano-Smith 2015). MacLeod and Fabiano-Smith (2015: 4) explained that with the allophonic rule, the underlying representation of a sound does not change, however a different surface form or sound variant can be used depending on the context of input.

All things considered; exemplar theory seems to be the most promising framework to account for the tendencies observed in sociolinguistic studies concerning children. Contrary to variable rules and case-by-case learning, this theory considers the early link between linguistic and social information, explains how this link is constructed, and also highlights the impact of frequency of perceived forms within the linguistic environment. However, as conceded by Foulkes (2006, p. 25–26), the exemplar approach does not explain to what extent the store of traces is subject to abstraction and whether or what role this abstract representation plays in speech production.

2.2 Phonology in early childhood

Language variability occurs at several levels including phonemic, lexical, and morphosyntactic. Variability at these levels can be governed by the language system as well as the social context, such as speaker identity and situation (Johnson & White 2020: 3). Therefore, it is important to consider the diverse cultural and linguistic implications when working with unique populations. Breton (2019) outlined strategies to implement when working with linguistically diverse populations to obtain a thorough understanding of abilities as tests are not typically normed on diverse speakers. These guidelines include engaging and establishing relationships with the community, collaborating with community members every step of the

assessment and treatment process, and assessing language abilities using a variety of measures. The present study focuses on monolingual Oromo children from Ethiopia. An overview of the phonological development for children acquiring Ethiopian languages are important for understanding their development.

Abebayehu (2013) found that Amharic-speaking children with cleft palate employed various strategies (clicks and implosives) in order to avoid nasal escape of air during segmental articulation. It is a very valuable contribution in the field due to the scarcity of research on the speech development in children with cleft palate speaking languages that have consonants produced with non-pulmonic airstream mechanisms (ejectives, clicks and implosives). Given the fact that the study was based on small sample (i.e., 20), however, few generalizations can be made from Abebayehu's study. Another weakness of his study was that his findings were based on children with cleft palate older than four years of age, which made it difficult to examine the relationship between early speech development and later speech.

Demeke (2015) found that from a young age, Sidaamu Afoo-speaking children's consonant inventory consisted of 9 phonemes (i.e. three plosives /b, t, ʔ/ and two nasals /m, n/ and two fricatives /ʃ, h/ and two glides /w, j/. Among the error patterns found were fronting, backing, stopping, gliding, and substitution of /l/, /r/, and /ɗ/, assimilation of voicing, devoicing, de-nasalization, de-ejectivization, and cluster reduction. An important limitation of the research lies in the small sample (i.e., 6 children aged between 3;6 - 5;0), which limits the trustworthiness of any generalizations.

In Oromo, the consonants /w, t, ɗ, ʃ, l, j/ were indicated near-perfect accuracy for the children at the age of three, while the children aged 4; 0–5; 11 still made errors with the consonants /b, s, r, tʃʼ, kˈ/ (Tariku 2019). Among the error patterns found were (1) replacing glottal sounds with non-glottal consonants; (2) replacing the flap sound /r/ with the lateral sound; (3) cluster substitution of the speech in the words went through the stages of the deletion and gemination; (4) final consonants tended to be deleted at the early stage of acquisition. As the study was based on children acquiring only Mecha variety (spoken in the Wellegga area), however, some findings warrant replication with samples of children acquiring other dialects of Oromo.

The study's aim is to provide descriptive information about the way Oromo sound units vary in their phonetic shape in conjunction with and as conditioned by geographical factor as well as by phonological context. It may clearly outline the range of common trends identified in certain regions, to fill the gap in the literature and to provide appropriate services to children with diverse linguistic backgrounds. The study was consequently devoted towards developing the basis for a speech assessment tool to assess the variations of speech production skills among normally developing four-year old monolingual Oromo children across the study areas.

3. Research methods

This study employees both qualitative and quantitative research designs to collect data for the analysis of phonological development in children speaking Oromo with a variety of dialects. The following section describes participant recruitment and tasks that were used. Procedure and analyses are specific to the current analysis.

3.1 Participants

Data collected from a total of 70 typically developing monolingual Oromo–speaking children aged from 46 to 62 months. To avoid the effects of standardization on children, participants included in the study were out-of-school children. To explore these issues further, children in smaller, relatively isolated, rural communities were targeted. Children were recruited from Amhara and Oromia administrative regions. These individuals make up Oromos who speak Oromo and live outside of Oromia, and Oromos who speak Oromo and live in Oromia. Among the children from Oromia region, 20 were from the district of Arero as the source of Borena-dialect informants and 20 from the Dera district as the source of Tulema-dialect informants. Among the children from Oromia Zone of the Amhara administrative region, 30 were from smaller towns in the district of Baate and Kamisee in respect with Baate and Kamisee varieties of Oromo. Based on judgmental sampling technique, two or three rural kebeles from each woreda (district) were selected. The subject information is given in Table 2.

Site	Number of participants	Gender (number of girls)	Mean age and range (months)
Arero	20	10	56 (49-62)
Baate	15	8	52 (46-58)
Dera	20	10	54 (48-59)
Kamisee	15	7	55 (49-60)

Table 2: Site and participant demographics

The language usage of the parent was the factor that was used to identify potential subjects. Therefore, an attempt was made, during testing for inclusion criteria, to get an impression of the language use of the parents. There was no scientific evaluation, but only informants whose parents spoke Oromo as the only language at home were selected. Besides, the most important criterion was that a child should speak Oromo as spoken in their locality as their first language. This should suggest that the presence of only monolinguals was anticipated in each group.

Although the primary goal of this investigation was to ascertain whether differences could be detected for phonological development based on regional dialect, it also was important to consider whether the measure used were sensitive to additional factors such as differences in gender and/or socioeconomic status. Thus, in an effort to reduce any gender-related effects on the data, it was decided that an attempt would be made to balance the numbers of girls and boys in each dialect group. The 70 children included in the present study were drawn from similar socio-economic background

Identifying the pool of children from which to select the subjects was done with the assistance of facilitators who live in each community. They were requested to identify potential subjects in their villages whom they judged met the inclusion criteria. *Information Letters* in Oromo about the study were sent to parents of the selected children to explain the purpose of the study and seek their permission for the children to participate in the study. Concurrently, *Parental Interviews* were conducted to confirm the social history as well as language usage and general developmental of participating children. A further consideration was the fact that there may be impairments not noticed, or noticed and not mentioned, by the parent. Thus, the children's behavior in this regard was observed during testing session. There was no

prior concern about language development for any of the children. Participants' parents were also used to recruit potential participants they know for the study. The participants were free to withdraw at any stage of the study. As participants were seen only once, the picture naming task, described later, was administered in the same session as testing for inclusion criteria.

3.2 Material

For this study, the recordings were made of speech samples produced by the participants during picture-naming task. Picture-elicited speech samples have the advantage of involving a fixed set of context and referents, which makes it easier to compare performance across participants. In the current study, we chose a picture naming task as the context for documenting the children's phonological abilities in Oromo. In this task, 52 words were selected to sample all consonants in each legal word position.

The speech sounds /p', tʃ, j/ were an exceptional case since these consonants could not be assessed in word-initial position since there are no words in the language which are appropriate for the age of the subjects. In this respect, /h/ was assessed only in word-initial position since it never occurs medially in the language. It has to be pointed out that the phonemic status of glottal stop has been questioned, although it is true that a prothetic [ʔ] is added to vowel-initial words. Moreover, the glottal stop has an important phonological function in separating two consecutive vowels which are either qualitatively different because of length or due to other phonetical features. Hence, /ʔ/ was assessed only in word-medial position.

Since the information on the frequency distribution of Oromo phonemes in speech is not available, the choice of the target words was primarily motivated by their phonetic complexity, word length, word familiarity and syntactic class. The imageability and familiarity of words in the word list was assessed by 16 Oromo parents in the immediate linguistic environment of the children subjects. These parents were asked whether the target words are familiar to Oromo children between the ages targeted in this study. This was necessary because there is no database in Oromo specifying the imageability and familiarity of words in the lexicon.

As an additional help to children, words that fit more than one target are preferable for they will be less time-consuming in data collection as children

have fairly short attention spans. For example, the word /ʤaldeessa/ "monkey" was sampled while considering its phonetic inventory (vowel, consonants and consonant cluster), word length (3 syllable words), word familiarity and syntactic class (noun). The final form of the test material consisted 52 words (see Appendix A), consisting mainly of nouns (about 86%). The inclusion of words such as *warm, bite, urinate, wash hand, red, black* and *narrow* was due to practical reasons. Since the range of variants per word is not known for Oromo, the list only contains the most common pronunciations and acceptable variants used by adults.

Once these words were determined, they were then illustrated and presented colorfully in composite pictures according to semantic category in order to increase the probability that children would identify the picture spontaneously. There were thirteen composite pictures with a size of 30 cm x 21 cm in the sample. The items were placed together by semantic categories, ranging from 2 to 7 words in each picture. The average number of words targeted in each composite picture was 4. For example, items such as *daakkiyyee-naacha-qocaa-raacha* ('duck-crocodile-tortoise-frog') were grouped together in a category of Amphibians in one stimulus picture in the present study.

3.3 Procedure

The data were collected by audio tape recordings using the Marantz solid state recorder with a compact microphone, by the first author, a native speaker of the Southern variety of Oromo. The recording sessions took place in the family home. A test was done to ensure the recording was made at an appropriate volume and without excessive background noise before the interview commenced. Obviously, the setting varied to a small extent due to the difference in locations.

Prior to the testing, the author filled in the identifying information about the child on the front of the response form. The author filled in the child's speech and general development, the parents' educational background as well as their residence area. The information regarding the child's speech and general development was used to ensure that the children fulfilled the inclusion criteria. The questions concerning the child's sex, the parents educational background and their area of residence was used for the investigation of the

effect of gender, regional dialects and socioeconomic background on children's phonological development.

The children were asked to name what they saw in the composite pictures, by which continuous speech data were sampled. If a child did not name a picture spontaneously, semantic cues or description of the word (e.g., "It is something you can play with your feet") were offered. If a child did not respond to these cues, a forced choice of two words was verbally offered (e.g., "Is it a ball or a cup?"), or if that failed, children were asked to imitate the assessor (e.g., "It's a ball. What is it?"). The first author continued in this same way until all 13 pictures plates were presented and all 52 target words were elicited. The administration order of tests was the same for all participants.

3.4 Data analysis

The entire recorded session was transcribed by the research team for all sites. To ensure reliability in the transcriptions, sites performed interrater reliability checks when gathering data. Using Excel sheets, a phonological analysis was quantified manually for the whole sample. The transcriptions of the recorded sessions were used to investigate the phonological accuracy globally and by position and types of developmental phonological processes present between regions. The following quantitative and qualitative measures were derived from the children's speech:

- *Phonetic inventory:* Sounds which were produced twice were considered to be in the child's inventory. Two criteria were used in the analysis: a consonant was considered as being acquired when 75% of the children and as being mastered when 90% of the children within the same dialect group produced this consonant at twice throughout the speech sample, in any word position, whether this position was correct or not. Consonant place and manner are included in the descriptive analysis.
- *Percentage Consonants Correct (PCC):* A relational analysis was run to determine the child's Percent Consonant Correct (PCC). PCC was also examined by site.
- *Error patterns:* The error or variation pattern types were selected based on the frequency of errors observed. If all sites demonstrated

this error pattern in several of their participants, it was deemed to be a developmental error pattern typical during the acquisition of the Oromo language. If one or two sites had four or more participants demonstrating a variation, it was considered to be a dialectal variation. To be categorized as a process, a phenomenon had to be produced by at least four children within a group.

The independent variable is the geographical location and the dependent variables are the consonant inventories and PCC. For the statistical analysis of the influence of the site, children were grouped according to their area of residence into four regions: rural areas in and around Arero, Baate, Dera and Kamisee. To determine whether PCC differed by site, a one-way between subjects Analysis of Variance (ANOVA) was conducted. Aside from a violation of equal sample sizes, the ANOVAs were run since the remaining ANOVA assumptions were met.

4. Results and discussions

4.1 Consonant inventory analysis

A descriptive analysis was conducted to compare the size and distribution of phonological inventories in different dialectal areas. As noted in the Methods section, a consonant was included in a child's inventory if it was produced two or more times during the single word naming task. Table 3 lists the consonant inventories by site, place and manner of articulation. The number by each consonant represents the percentage of children in the respective site who produced that consonant two or more times.

As can be seen in Table 3, children from all sites had every plosive in their inventories, except for the ejective velar /kˈ/. Baate represented the least number of children who had the ejective velar /kˈ/ sound in their inventories. Children from all sites had every affricate in their inventories, with the exception of the voiced affricate /ʤ/. Fricatives, specifically the alveolar /s/, posed difficulties for children across the sites with a much lower number of children correctly producing the consonant /s/ (i.e., 20-60%). Children from Baate demonstrated the most difficulty with this sound with only three children having the consonant /s/ in their inventory. The remainder of the children transformed it to the palatal fricative, /ʃ/.

Children from every site had nasals in all places of articulation in their consonant inventories. Every approximant was included in all children's inventories, with the exception of the lateral /r/. As seen in the table above, children across various sites demonstrated similar sizes of consonant inventories, suggesting a common progression of sound acquisition in all regions, with few variations that impacted namely /kˈ/, /ʤ/, /s/, and /r/.

		Labial	Alveolar	Palatal	Velar	Glottal
Plosive	Arero (n=20)	b: 100% pˈ: 100%	t: 100% d: 95% tˈ: 100% ɗ: 100%		k: 100% g: 100% kˈ:65%	ʔ: 100%
	Baate (n=15)	b: 100% pˈ: 100%	t: 100% d: 100% tˈ: 100% ɗ: 100%		k: 100% g: 100% kˈ:67%	ʔ:100%
	Dera (n=20)	b: 100% pˈ:100%	t: 100% d: 100% tˈ: 100% ɗ: 100%		k: 100% g: 100% kˈ:70%	ʔ:100%
	Kamisee (n=15)	b: 100% pˈ: 100%	t: 100% d: 100% tˈ:100% ɗ:100%		k: 100% g: 100% kˈ:73%	ʔ:100%
Affricate	Arero (n=20)			ʧ: 100% ʤ: 70% ʧˈ:100%		
	Baate (n=15)			ʧ: 100% ʤ: 53% ʧˈ: 93%		
	Dera (n=20)			ʧ: 100% ʤ: 65% ʧˈ: 95%		
	Kamisee (n=15)			ʧ: 100% ʤ: 60% ʧˈ:100%		
	Arero (n=20)	f: 100%	s: 60%	ʃ: 100%		h: 100%
Fricative	Baate (n=15)	f: 100%	s: 20%	ʃ: 100%		h: 100%
	Dera (n=20)	f: 100%	s: 55%	ʃ: 100%		h: 100%
	Kamisee (n=15)	f: 100%	s: 46%	ʃ: 100%		h: 100%
	Arero (n=20)	m: 100%	n: 100%	ɲ: 90%		
	Baate (n=15)	m: 100%	n: 100%	ɲ: 100%		
Nasal	Dera (n=20)	m: 100%	n: 100%	ɲ: 100%		
	Kamisee (n=15)	m: 100%	n: 100%	ɲ: 100%		
	Arero (n=20)		l: 100%			

			r: 65%			
Liquid	Baate (n=15)		l: 100% r: 60%			
	Dera (n=20)		l: 100% r: 70%			
	Kamisee (n=15)		l: 100% r: 67%			
	Arero (n=20)	w: 100%		j: 100%		
Glide	Baate (n=15)	w: 100%		j: 100%		
	Dera (n=20)	w: 100%		j: 100%		
	Kamisee (n=15)	w: 100%		j: 100%		

Table 3: Percentage of children who produced consonants two or more times by site, place and manner of articulation

The phonetic inventory was further examined by position. The initial consonant production opportunities in the word list included /b/, /t/, /d/, /t'/, /ɗ/, /k/, /g/, /k'/, /ʧ'/, /ʤ/, /m/, /n/, /ɲ/, /f/, /s/, /ʃ/, /h/, /r/, /l/, and /w/. Medial consonant production included the same opportunities as word initial production, excluding /h/ but adding /p'/, /ʔ/, /ʧ/, and /j/. As described in Methods, emerging consonants were those produced at least once by 75% of the children in each group, whereas mastered consonants were produced at least once by 90% of the children. However, when there was only one opportunity for the sound to occur, (e.g. /ɲ/ sound at word-medial), the criteria included just one opportunity of occurrence. To provide a simple visual overview of the emerging and mastered consonants, Table 4 lists the consonants absent from children's phonological inventories by initial and medial positions.

	Initial		**Medial**	
Production Opportunities	b, t, d, t', ɗ, k, g, k', ʧ', ʤ, m, n, ɲ, f, s, ʃ, h, r, l, w		b, p', t, d, t', ɗ, k, g, k', ʔ, ʧ, ʧ', ʤ, m, n, ɲ, f, s, ʃ, r, l, w, j	
	Emerged*	**Mastered****	**Emerged***	**Mastered****
Arero	k'	k', s, r, ʤ	r	ɲ, s, r, ʤ
Baate	r, s	g, k', s, r, ʧ', ʤ	s, r, ʤ	
Dera	s	b, ʧ', s, r, ʤ	ʤ, s	
Kamisee	r	g, k', s, r, ʧ', ʤ, h	s, r, ʤ	

*Emerged sounds: not produced at least once by 75% of the children in each group

**Mastered sound: not produced at least once by 90% of the children in each group.

Table 4: Sounds absent in the Oromo phonological inventories of children by site and position

With the majority of sites, children had difficulties with later developing consonants /s/ and /ʤ/ in both word positions. In the initial position, consonant /r/ was often excluded from inventories, both as emerging and mastered. The ejectives /kˈ/ and /ʧˈ/ were not mastered for the majority of participants in the initial position. The consonant /r/ was largely not included in participants' inventories in the medial position of words. In the medial position, consonants /g/ and /ʧ/ were not mastered for the majority of participants. The consonant /ɲ/ was not consistently emerging nor mastered across sites in the medial position. In general, early developing consonants such as /l/, /m/, /t/, /ʃ/, and /w/ were emerged and mastered in both word positions. The early acquired sound /j/ was included in phonological inventories except there were no /j/ production opportunities in the initial position.

Consonants that were not present in inventories were consistent with developmental patterns based on children's age across all sites, suggesting a common progression of speech sound acquisition in Oromo, no matter the location. For example, the children in this study did not consistently use the alveolars /s/ and /r/ in their inventories, and these sounds have been shown to be acquired late in Cushitic children's development (Demeke 2015, Tariku 2019). Additionally, children in this study did not consistently use the affricate /ʤ/ in their inventories, also a phoneme that develops late in Cushitic children (Demeke 2015, Tariku 2019). The late acquisition of these sounds, which were believed to be difficult to articulate and perceive (Locke 1983), supports the hypothesis that biological constraints affect the order of phoneme acquisition. However, a closer comparison of the emerging and mastered consonants (see Table 4) casts some doubt on the role of articulatory constraints. Some of the late-mastered sounds *emerged* early in the children's speech. The delay between emergence and mastery indicates that articulatory constraints were not a major factor in the phonological acquisition.

In contrast to patterns that are previously observed, higher accuracy was observed for the consonant /ʃ/, as expected with Cushitic children around the ages of 36 months (Demeke 2015, Tariku 2019). English-speaking children acquired the palatal fricative in English (i.e. /ʃ/) later than other phonemes (Olmsted 1971, Prather et al. 1975). The discrepancies associated with the

acquisition of a particular feature highlight the possibility of the influence of the ambient language on acquisition.

Taken together, the consonant inventory analysis demonstrated that children from all sites generally followed similar patterns of sound acquisition and reflected those observed in previous research on Cushitic children. Specifically, the difficult consonants are changed with the same place of articulation in all sites. It means the children showed similar patterns of consonant acquisition by manner of articulation, which suggests that manner of articulation may help predict the consonants that are included in children's consonant inventories in various word positions.

4.2 PCC by site

Using MS Excel, arithmetic means, and variances were calculated to analyzed the consonant accuracy and were tabulated in Table 5. Mean score of Baate site children is least. Children of Dera site have mean score greater than mean score of children of Kamisee site while mean score of Arero site children was found highest. In Oromo, a study conducted by Tariku (2019) in children acquiring Western Oromo variety as first language revealed that for children age 4 years their average PCC was 86.11, but this study shows that the dialect-wise average PCC of children of Arero, Baate, Dera and Kamisee are 91.04, 86.58, 89.16 and 87.41. Average PCC of children of all sites (Arero, Baate, Dera and Kamisee) is 88.55.

Site	Mean	Variance
Arero	91.04167	136.9112
Baate	86.58333	142.1667
Dera	89.16667	136.2319
Kamisee	87.41667	140.2536

Table 5: Site-wise means and variances of PCC

Here, mean scores of children in Arero, Baate Dera and Kamisee sites are different, it could not say whether this difference is due to the dialectal areas or due to sampling error. To determine the significance of mean difference of scores, we applied the statistical technique ANOVA. As there were four groups and difference of mean scores was analyzed on the basis of site only (single independent variable), one-way ANOVA was applied. Calculations are performed on MS Excel.

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F critical*	
						0.05	**0.01**
Between Groups	281.7813	3	93.92708	0.676265	0.568764	2.703594	4.001894
Within Groups	12777.96	92	138.8909				
Total	13059.74	95					

Table 6: Summary of ANOVA for PCC

F-value is the quotient of variances of between groups and within groups and was found as 0.676265. In this study, for *df* (3, 92) and at 5% (α = .05) and 1% (α = .01) levels of significance, critical values are 2.703594 and 4.001894. As *F*-value is smaller than both the critical values 2.70359 at α = .05 and 4.00189 at α = .01, hence, it can be said that there is no significant difference among the scores of children of Arero, Baate, Dera, and Kamisee sites. Significance of the difference can also be tested by comparing the *p*-value with level of significance. Here, *p*-value is calculated as 0.568764, which is more than both the significance levels 5% and 1% that is .05 and .01. Thus, on the basis of *p*-value also, there is no significant difference. The absence of statistical differences could be due to adult Oromo having minimal dialectal variation. Another reason for non-statistical difference in PCC could be due to the findings of this study were based on children at four years of age, and perhaps missing the developmental window to observe dialectal effects in early and later speech productions.

PCC is described in relation to the manner of articulation in the following paragraphs. Oromo consonants are grouped into nine manner of articulations groups namely: Stops, Fricatives, Affricates, Nasals, Lateral, Trill, Approximants, Implosive and Ejectives (Table 7).

Manner of articulation	PCC mean (%)			
	Arero	Baate	Dera	Kamisee
Stops	95.83	89.66	91.66	91.83
Fricatives	93.75	83	83.75	83
Affricates	85	79.5	77.5	76.5
Nasals	90	93	93.33	93
Lateral	100	93	95	93
Trill	60	66	75	53
Approximants	100	93	100	93
Implosive	95	93	95	93
Ejectives	85	83	88.75	89.5

Table 7: PCC means in manner of articulation groups.

Children in Arero-group the highest PCC average in all manner of articulation groups (except in nasals, trill and ejectives) and Kamisee-group have the lowest PCC average in most manner of articulation groups. As expected, no significant difference in PCC average between manner of articulation groups can be observed between dialect groups. However, the greatest difference in PCC average between manner of articulation groups can be observed between Dera and Kamisee in trill. While Group-Kamisee hardly produced trill, Group-Dera show a notable development in the correct production of consonant in this manner group.

Guided by the mean rank values in Table 8 below, manner of articulation groups can be ranked according to their difficulty. In general, trill and affricates have the lowest mean ranks in all dialect groups and thus are proven to be most challenging manner of articulation for the participants. On the other hand, approximants and lateral followed by implosive, stops and nasals have the highest mean ranks in all dialect groups suggesting that consonants falling into any of these manner of articulation groups are fairly easy and consequently are more likely to be produced correctly. Finally, the mean rank of the fricatives and ejectives are somewhere in the middle suggesting a moderate articulation difficulty.

Manner of articulation	Mean rank				
	Arero	**Baate**	**Dera**	**Kamisee**	**All groups**
Stops	3	5	5	5	4.5
Fricatives	5	6.5	7	7	6.37
Affricates	7.5	8	8	8	7.87
Nasals	6	2.5	4	2.5	3.75
Lateral	1.5	2.5	2	2.5	2.12
Trill	9	9	9	9	9
Approximants	1.5	2.5	2	2.5	2.12
Implosive	4	2.5	2	2.5	2.75
Ejectives	7.5	6.5	6	6	6.5

The order of consonant accuracy regarding manner of articulation from low to high was: trill, affricates, ejectives, fricatives, stops, nasals implosive, approximants, and the lateral. The trill had the lowest percentage of accuracy among all the sound classes. Demeke (2015) found that monolingual Sidaamu Afoo speakers produced more correct fricatives and affricates than liquids. The discrepancies associated with the percentage of accuracy in liquids highlight the possibility of the influence of the frequency of occurrence of phonemes.

With this in mind, a single order of accuracy, by manner of articulation groups, can be proposed for children age 4 years in the project, as presented in (1). The symbol '<' indicates that the feature to the left of the symbol is with high PCC scores than the feature to its right. The presentation of the feature groups in (15) is not intended to suggest that the features of a particular type (for example the manner features) are acquired immediately after each other in the overall sequence. The overall sequence does not involve all features of a particular node being acquired one after the other, but rather an intermixing of features of different types (manner and place).

(1) Order of accuracy by manner of articulation groups for children age 4 years.

approximant, lateral < implosive < nasal < stop < fricative < ejective < affricate < trill.

4.3 Phonological pattern analysis

A descriptive analysis was used to examine developmental phonological error patterns and variability between dialect groups indicated by the range in production of consonants. As noted in the Methods section, a phenomenon had to be produced by at least four children within a group in order to be categorized as a process. This analysis was conducted descriptively due to limited error patterns found and small sample size. Within this qualitative analysis, differences in production were compared between Arero and Baate to determine if variations were attributable to developmental patterns of acquisition or to the dialect of the area.

Developmental error patterns were those that were produced four or more times in both Arero and Baate. These developmental error patterns were errors concerning /r/ realization and backing. The sound /r/ appeared to be a difficult consonant for the children to maintain. The deletion of /r/ by either omitting the sound (e.g. /tˈijja:ra/ *airplane* →[tˈijja:]) or simplifying clusters involving it. For example, in the word /harka/ *arm* the first cluster 'r' deleted and substituted by the repeating of 'k' itself as */kk/,* and produced as [hakka].

As in many other languages (Smith 2010), examination of the type of error for /r/ shows that the predominant error was lateralization, i.e. the replacement of /r/ by /l/. This error is clearly developmental. The following words from the subjects also illustrate the phenomenon;

Input	**output**	**meanings**
i. /a.fur/	[aful]	four
ii. /wa.ra:.bes.sa/	[wala:beʃ]	hyena
iii. /har.ka/	[halka]	arm
iv. /ɲa:.ra/	[ɲa:la]	eyebrow
v. /ur.ʤi:/	[uli:]	star

In the given data, /r/ is changed into /l/ at onset and coda positions. The main difference between these two sounds is the feature [anterior]. Phoneme /l/ is [+anterior] and /r/ is [-anterior] which is more marked. Hence, [anterior] feature may not be active in child phonology.

If the acquisition of sound is the acquisition of features (Brown 1998) then the question arises, when there is only a feature difference between /l/ and /r/, then the children should acquire [r]. But from the recorded data it is observed that /r/ is the least accurate, indicating that apart from this active feature geometry, there may be other differences, one of which is, the position of the active articulator in the production of sounds. It is considered that /r/ is more marked because of the trilling. In Oromo /r/ is trill in which the tongue strikes the alveolar ridge continuously with force. Phonetically trill sounds are more marked, as the articulatory features involved require more effort. This could be the reason that the trill /r/ appeared to be a difficult sound for the children to maintain. Therefore, they substitutes /r/ with /l/, which is relatively unmarked. As the process of acquisition starts from unmarked to marked so /l/ is acquired before /r/, making all the substitutions.

As in other languages, some front consonants in Oromo seem to be prone to backing. Backing refers to the substitutions of a consonant for one produced further backward in the oral cavity. Two backing patterns were observed. The alveolar fricative /s/ was occasionally backed to the palatal fricative /ʃ/ by the children. In fact, this was the most frequently occurring backing pattern in these children. The following words illustrate the phenomenon. A second backing pattern, called *de-ejectivization*, is discussed below.

Input	**output**	**meanings**
i. /sadi:/	[ʃadi:]	three
ii. /wa.ra:.bes.sa/	[wala:beʃ]	hyena
iii. /saʔa:ti:/	[ʃaʔa:ti:]	watch

It was interesting to note that prevocalic *palatalization as fronting* actually occurred with some frequency in one word: /bi.ʃa:n/ (*water*) →[bi.sa:n]. This is acceptable variant observed in the casual speech of some adults in Borena. A second backing pattern, called *de-ejectivization*, is the loss of the secondary articulation (e.g. /k'/ →[k]). In fact, this was the most frequently occurring

de-ejectivization pattern in these children. That is that they de-ejectivise the ejective-velar /kˈ/ into its pulmonic counterpart in the words (e.g., “gun” /kˈawwe:/ → [kawwe:]).

The results of this study indicate that a total of 4 phonological error patterns occur in the speech of Oromo children. Table 9 illustrates the error patterns in this study and its comparison with Abebayehu’s (2013), Demeke’s (2015), Dodd et al.’s (2003) and Tariku’s (2019) studies. Despite discrepancies in terminology and analysis method, the structural simplification error patterns are very similar. There are noticeable cross-linguistic differences, however, in the systemic substitution error patterns. Some of these differences can be attributed to the language-specific phonological characteristics.

Loss of the secondary ‘ejective’ or ‘de-glottalization’ articulation was noted, for the Cushitic-speaking children, where this was a frequent pattern, especially for the Sidaamu Afoo-speaking children. For Amharic, reports indicate the ejectives and the secondary articulation were generally maintained by the 4-year–old, but continued backing of alveolar fricative (Abebayehu 2013). This process was also common in the Arero and Baate children’s sample, like in the previous Cushitic studies (; Demeke, 2015, Tariku 2019). Therefore, it could be concluded that the shift from /s/ to [ʃ] is a general tendency of the total Ethiopian child language.

Backing of labial fricative /f/ to palatal fricative /ʃ/ is another phonological process reported in Tariku’s (2019) and Demeke’s (2015) studies, more before age 4, where this was an infrequent pattern for the children in present study. This could be explained by the lower age limit differences in the current study with Tariku’s and Demeke’s studies. Thus, it might be argued that fronting of labiodental fricative was suppressed at the age of 4; 00.

The previous studies showed more variety in substitutions for the trilled /r/: [ɹ], glides [j] and [ɯ], and lateral [l] (Abebayehu 2013, Demeke 2015). In this study, however, the highest mismatch was observed for the /r/ with substitutions of [+lateral] ([l]). Only the children in the Arero group substituted [j], another glide, for /r/. For example, /gurra:tʃtʃa/ *black* →[gujja:tʃtʃa] and /tor.ba/ *seven* →[toj.ba]. Conversely, in Sidaamu Afoo- and Amharic speaking children, gliding is occurred in substitution of both lateral /l/ and trill /r/ with /j. The lateral /l/ was generally maintained by the

4-year–old children in this study. In the sense of gliding, the substitution of alveolar trill /r/ to labial approximant /w/, which realizes in English-speaking children (Dodd et al. 2003) is uncommon in Oromo speaking children of this study. This was similar to the previous studies. Cluster deletion and substitution was also observed in the speech of the children, who deleted the first unstressed cluster and repeated and geminated the second stressed cluster, like in Tariku's (2019) study. This type of substitution is rare. Cross-linguistically, cluster acquisition similarity to current study were noted in Sidaamu Afoo- and Turkish-speaking children (Demeke 2015, Topbas 2006).

For dialectal error patterns, gliding, de-palatalization, devoicing, glottal replacement and stopping of /ʤ/ were expected to be affected by the dialects. A new possible dialectal pattern observed in Arero was gliding of /r/ to /j/. This was an infrequent pattern in the Baate children's sample, like in Tariku's (2019) study. De-palatalization is another dialectal phonological process observed in Arero children, which is uncommon and not indicated in other Oromo dialects. These children realized /ɲ/ as [n] in word medial position in the word /fuŋɲa:n / *nose*, and pronounced it as [funa:n], which is acceptable variant observed in the casual speech of most adults in Borena.

Like the results of Tariku (2019), it is observed in the data that voiced affricate /ʤ/ undergoes the devoicing process between vowels in the Arero children's sample, where this was an infrequent pattern for the Baate group. Stopping were common manner mismatches for Baate group. For example, /ba:ʤa:ʤi:/ *three-wheeler bike* →[ba:da:di:]. Glottal stop replacement was uncommon in the Arero and Baate children's samples. This differed from Tariku (2019), who had smaller age groups; he reported [j] for /ʔ/.

In summary, the results from this study indicated that children in various dialectal areas demonstrate common patterns of language acquisition in their consonant inventories. Phonological pattern analysis provided preliminary data on dialectal variations present in children from Arero and Baate. Two of these error patterns, cluster deletion and substitution, would be considered atypical in English. Existing theories of phonological acquisition cannot account for some of the patterns revealed.

However, there are some points that should be considered in terms of the generalizations that can be made from this study data. As the lower limit of

3;10 age was set up to be the youngest age in this study, detailed information on the development of some consonants, which might be acquired at an early stage, was missing. To explore these issues further, data from children between 24 and 36 are needed. In addition, data from children with language impairment would also be important for determining the age of acquisition and error productions.

The results of this study on children's language development have implications for several groups of individuals, including parents, child healthcare personnel, preschool staff, as well as researchers and practitioners in general, and in special education. This study has confirmed previous findings regarding the great variability in child language acquisition, and specifically investigated the role of geographical location and phonological development.

Typical error patterns	***The Present Study***	***Wester-Oromo (Tariku, 2019)***	***Sidaamu Afoo (Demeke, 2015)***	***Amharic (Abebayehu, 2013)***	***English (Dodd et al., 2003)***
Assimilation	De-ejectivization /kʼ/	De-glottalization of /kʼ ʧʼ/	De-ejectivization /ʧʼ pʼ tʼ kʼ/	Devoicing /ʒ ɡ ʤ/	Deaffrication
		Devoicing	Devoicing /d ʤ/	Word final devoicing d →t	
Substitution	Substitution of /r/	Substitution of /r/	Substitution of /r ɗ/	Substitution of /r/	
	Backing s →ʃ	Backing s →ʃ	Backing s →ʃ	Backing s →ʃ	
		Fronting ʔ →j	Fronting k / ɡ / kʼ / ʧʼ / ɲ		Fronting ɲ →n
			Stopping of affricates	Stopping v →b	
			Liquid gliding	Liquid gliding	Replacement of liquids /l, r/ with glides [w, j]
Syllable structure	Cluster reduction involving /r/	Cluster with nasals	Cluster with nasal	Deletion n →Ø	Deletion of one consonant from the cluster
		Cluster with liquids	Cluster with liquids	Deletion s →Ø	

Table 9: Comparison of the studies error patterns produced at 4-year-olds

5. Conclusions

This study provided to provide descriptive information about the way the sound units vary in their phonetic shape in conjunction with and as conditioned by geographical factor as well as by phonological context. This variation and its impact on the path of acquisition are an important aspect of this study. No previous studies meet this essential criterion. The children in this study generally followed the same patterns of speech sound acquisition. Consonants that were not present in inventories were consistent with developmental patterns across all sites, suggesting a common progression of consonant acquisition in Oromo, no matter the location.

The consonant accuracy analysis demonstrated a non-significant difference of children's PCC across sites. The absence of statistical differences could be attributed to the minimal dialectal variation of adult Oromo. Alternatively, we may have missed the developmental window to observe dialectal effects in Oromo due to the age of the children. The 88% average level of consonant accuracy of children of all sites (Arero, Baate, Dera and Kamisee) as measured by PCC was comparable to the 86% level derived from children acquiring Western Oromo variety as first language previously reported by Tariku (2019). Taken together, Oromo monolingual children around 4 years of age are typically expected to have a PCC of 87.33%.

The error patterns used by the children acquiring the Oromo phonological system distinctively revealed both universal tendencies and language/dialect-specific constraints on acquisition. Structural simplifications such as assimilation, substitution, and syllable structure and systemic substitutions such as lateralization, backing, de-ejectivization were evident in Oromo-speaking children's speech sample. There are noticeable cross-linguistic differences, however, in the systemic substitution error patterns. Some of these differences can be attributed to the language-specific phonological characteristics.

In conclusion, there is no single story of child language acquisition. Therefore, research must continue on the variable routes children take on their way to accessing language. This study provided several directions for future studies: (1) Examining older monolingual children and monolingual adults in dialectal areas to see if the variations observed are maintained or change over time, as well as to provide more evidence to differentiate dialectal variations from developmental patterns in dialectal areas; (2) exploring Oromo phonological data with various dialectal areas across Ethiopia would further increase the reference data available of monolingual children; (3) further investigation could examine data from children with

language impairment to determine what error patterns could be considered qualitatively or quantitatively different from typical children.

Acknowledgements

This paper is part of a Ph.D. research project on Comparative Description of Oromo Child Language. The authors are grateful to the children who participated and to their parents who allowed them to participate and to the local facilitators who assisted in identifying potential participants.

References

Abebayehu, M. (2013). *Speech production in Amharic speaking children with repaired cleft palate* [Doctoral dissertation, University of Sheffield]. https://etheses.whiterose.ac.uk/3924/

Appleyard, D. (2012). Cushitic. In L. Edward (Ed.), *Semitic and Afroasiatic*: *Challenges and opportunities* (pp. 199-295). Harrassowitz.

Blazek, V. (2010). Glottochronological classification of Oromo dialects. *Lingua Posnaniensis,* 52(2), 27-42. https://doi.org/10.2478/v10122-010-0011-0

Breton, K. (2019). *Assessing the speech and language of First Nation children: A helpful checklist*. Speech and Audiology Canada. [Blog post]. https://blog.sacoac.ca/assessing-the-language-of-first-nation-children-a-helpful-checklist/

Brown, C. A. (1998). The role of the L1 grammar in the L2 acquisition of segmental structure. *Second Language Research*, *14*(2), 136-193. https://doi.org/10.1191/026765898669508401

Demeke, L. 2015. *Aspects of phonological development in Sidaamu Afoo speaking children* [M.A. Thesis, Addis Ababa University]. https://etd.aau.edu.et/handle/123456789/26136

Dodd, B., Alison, H., Zhu, h., & Sharon, C. (2003). Phonological development: A normative study of British English-speaking children. *Clinical Linguistics and Phonetics,* 17(8), 617- 643. https://doi.org/10.1080/0269920031000111348

Foulkes, P. (2006). Phonological variation: a global perspective. In B. Aarts & A. Mcmahon (Eds.), *The handbook of English linguistics*, (pp. 625–669). Blackwell.

Griefenow-Mewis, C. (2001). *A grammatical sketch of written Oromo*. Rudiger Koppe.

IBM Corp. Released 2019. IBM SPSS Statistics for Macintosh, Version 26.0

Johnson, E., & White, K. (2020). Developmental sociolinguistics: Children's acquisition of language variation. *WIREs Cognitive Science, 11*(1), 1-15. https://doi.org/10.1002/wcs.1515

MacLeod, A., & Fabiano-Smith, L. (2015). The acquisition of allophones among bilingual Spanish–English and French–English 3-year-old children. *Clinical*

Linguistics & Phonetics, *29*(3), 1–18. https://doi.org/10.3109/02699206. 2014.982768

Masterson, J., Bernhardt, B., & Hofheinz, M. (2005). A Comparison of single words and conversational speech in phonological evaluation. *American Journal of Speech-Language Pathology, 14*(3), 229–241. https://doi.org/10.1044/1058-0360(2005/023)

Mohammed, A., & Zaborski, A. (1990). *Handbook of the Oromo Language.* Franz Steiner.

Mous, M. (2012). Cushitic. In Z. Frajzyngier & E. Shay (Eds.), *The Afro-asiatic languages* (pp. 342-422). Cambridge University.

Locke, J. (1983). *Phonological acquisition and change*. Academic.

Olmsted, D. (1971). *Out of the mouth of babes*. MOUTON.

Pennington, M. (Ed.). (2007). *Phonology in context*. Palgrave Macmillan. https://doi.org/10.1057/9780230625396

Pollock, K., & Meredith, L. (2001). Phonetic transcription of African American vernacular English. *Communication Disorders Quarterly*, *23*(1), 47–53. https://doi.org/10.1177/152574010102300107

Prather, E., Hendrick, D., & Kern, C. (1975). Articulation development in children aged two to four years. *Journal of Speech and Hearing Disorders, 40,* 179-181. https://doi.org/10.1044/jshd.4002.179

Roberts, J. (1997). Acquisition of variable rules: A study of (-t, d) deletion in preschool children. *Journal of Child Language*, 24(2), 351–372. https://doi.org/10.1017/S030500099703073

Smith, N. V. (2010). *The acquisition of phonology: A case study*. Cambridge University.

Tariku N. (2019). *Acquisition of Oromo phonology by typically growing children*. [Doctoral dissertation, Addis Ababa University]. http://etd.aau.edu.et/ handle/123456789/18911

Topbas, S. (2006). Does the speech of Turkish-speaking phonologically disordered children differ from that of children speaking other languages? *Clinical Linguistics and phonetics*, 20(7-8), 509-522. https://doi.org/10.1080/02699200 500266331

Velleman, S. L., & Pearson, B. Z. (2010). Differentiating speech sound disorders from phonological dialect differences: Implications for assessment and intervention. *Topics in Language Disorders*, *30*(3), 176–188. https://doi.org/10.1097/TLD.0b013e3181efc378

Wagner, L., Clopper, C. G., & Pate, J. K. (2014). Children's perception of dialect variation. *Journal of Child Language*, *41*(5), 1–23. https://doi.org/10.1017/S0305 000913 000330

Appendix: The word elicited in the picture-naming task

No.	Item (*English*)	IPA	No	Item (*English*)	IPA
1	afur *(four)*	/afur/	27	lama *(two)*	/lama/
2	awwaala *(grave)*	/awwa:la/	28	laphee *(chest)*	/lapˈpˈe:/
3	baajaajii *(3-wheel motorcycle)*	/ba:ʤa:ʤi:/	29	marqaa *(porridge)*	/markˈa:/
4	bishaan *(water)*	/biʃa:n/	30	muka *(tree)*	/muka/
5	biyyee *(soil)*	/bijje:/	31	naacha *(crocodile)*	/na:ʧʧa/
6	cabbii *(snow)*	/ʧˈabbi:/	32	nama *(man/person)*	/nama/
7	ciniinuu *(bite)*	/ʧˈini:nu:/	33	nyaara *(eyebrow)*	/ɲa:ra/
8	daakkiyyee *(duck)*	/da:kkijje:/	34	o'aa *(warm)*	/oʔʔa:/
9	dhadhaa *(butter)*	/ɗaɗa:/	35	qawwee *(gun)*	/kˈawwe:/
10	dhiiga *(blood)*	/ɗi:ga/	36	qocaa *(tortoise)*	/kˈoʧˈa:/
11	dhiphaa *(narrow)*	/ɗipˈpˈa:/	37	quba *(finger)*	/kˈuba/
12	dhiqachuu *(to wash one's hand)*	/ɗikˈaʧʧu:/	38	raacha *(frog)*	/ra:ʧʧa/
13	diimaa *(red)*	/di:ma:/	39	re'ee *(goat)*	/reʔe:/
14	fincaa'uu *(urinate)*	/finʧˈʧˈa:ʔu:/	40	sa'aatii *(watch)*	/saʔa:ti:/
15	funyaan *(nose)*	/fuɲɲa:n/	41	sattawwaa *(giraffe)*	/sattawwa:/
16	gogaa *(skin)*	/goga:/	42	sadii *(three)*	/sadi:/
17	gurraacha *(black)*	/gurra:ʧʧa/	43	shaashii *(head scarf)*	/ʃa:ʃi:/
18	harka *(hand)*	/harka/	44	shan *(five)*	/ʃan/
19	hidhii *(lip)*	/hiɗi:/	45	tokkoo *(one)*	/tokko:/

No.	**Item (*English*)**	**IPA**	**No**	**Item (*English*)**	**IPA**
20	hoolaa *(sheep)*	/ho:la:/	46	torba *(seven)*	/torba/
21	itoophiyaa *(ethiopia)*	/ito:pˈpˈija:/	47	urjii *(star)*	/urʤi:/
22	jaʾa *(six)*	/ʤaʔa/	48	waancaa *(cup)*	/wa:nʧʼa:/
23	jaldeessa *(monkey)*	/ʤalde:ssa/	49	waraabessa *(hyena)*	/wara:bessa/
24	keekii *(cake)*	/ke:ki:/	50	xaafii *(tef)*	/tˈa:fi:/
25	kubbaa *(ball)*	/kubba:/	51	xuuxxoo *(a feeding bottle)*	/tˈu:tˈtˈo:/
26	lafee *(bone)*	/lafe:/	52	xiyyaara *(airplane)*	/tˈijja:ra/

Note. The words presented in this table contains the most common pronunciations and acceptable variants used by adult speakers of central, northern, and southern dialects. The list only contains those variants used in these dialects. The range of variants per word is not known for adult Oromo.