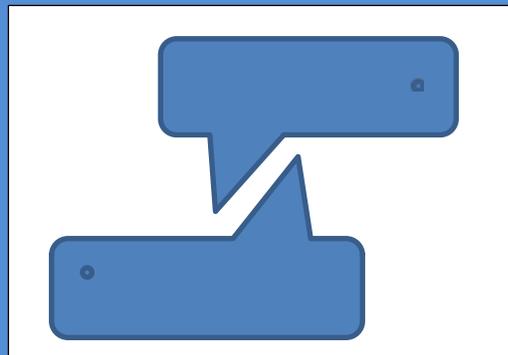


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## **Phoneme complexity and frequency in the acquisition of Hebrew rhotics**

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### **Abstract**

This study investigates the roles of two factors potentially affecting acquisition order of phonemes: (a) the lexical frequency of the phoneme in various prosodic positions, and (b) phoneme consistency. The research analyses rhotic attempts and productions in the spontaneous speech of two Hebrew-acquiring children from the onset of speech until the completion of rhotic acquisition. I show that the more consistent (i.e. less allophonic variation) a phoneme is in a given prosodic position, the more likely the infant is to attempt targets with this phoneme in this position (selectivity) and the earlier the faithful production of the phoneme in this position will be. Lexical frequency is shown to play no noticeable role in the early acquisition of Hebrew rhotics. Rather, it is phoneme consistency which drives selectivity and biases acquisition order.

**Keywords** phoneme consistency, frequency, acquisition, allophony, rhotic, Hebrew

### **1. Introduction**

Rhotic acquisition in Hebrew differs from that of most other consonants primarily because coda rhotics are acquired before onset rhotics, whereas other consonants are ordinarily acquired in onset position before being acquired in coda position (the exception of stridents is noteworthy, as in Ben-David's (2001) analysis of strident acquisition in Hebrew). This holds for other languages, not just Hebrew. Note, the motivation for the earlier acquisition of onsets may also be prosodic, due to processes such as coda deletion, which is very common within children during the early stages of acquisition.

This study investigates the roles of two factors potentially affecting acquisition order: (a) the frequency of the Hebrew rhotics (henceforth: *ʁ*) in the lexicon per prosodic position and (b) phoneme consistency. The term acquisition as used in this paper refers to the faithful production of phonemes (see elaboration in 1.3.).

The notion of phoneme consistency refers to the degree of allophonic variation per prosodic position a phoneme undergoes. I show that the greater the inconsistency, the later the acquisition. The frequency (in the lexicon) of phonemes per prosodic position, on the other hand, does not play a noticeable role in early acquisition of *ʁ*, though the final stages of acquisition, which are more adult-like, do reflect lexicon frequencies as would be expected.

Phoneme consistency biases acquisition order. Briefly, consistent forms are attempted, acquired and produced before inconsistent forms, as follows:

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- i) Selectivity: more consistent prosodic positions are attempted before less consistent prosodic positions.
- ii) Production: More consistent prosodic positions are faithfully produced before less consistent prosodic positions.
- iii) The less consistent word-initial *ʁ*'s allophony hinders the necessary generalizations required for its encoding, abstract representation and production.
- iv) More consistent coda *ʁ*s and intervocalic *ʁ*s (very little variation) facilitate the necessary generalizations required.

The paper is structured as follows. §2 presents basic data and the theoretical background of the study. §3 outlines the methodology with respect to the collection of the data used. This is followed by the results in §4. I conclude with the analysis and discussion.

### 1.1 Rhotics

In Cohen, Savu and Laks' (2013) extensive acoustic study of *ʁ* allophony in Hebrew, controlling for position and neighbouring segments, prosodic position is shown to affect phoneme consistency. The likelihood of the surface form of the rhotic to be a non-approximant depends on its prosodic position. *ʁ*s display variable consistency according to prosodic position, which can be generalised as follows:

- i) Word-final *ʁ*: little variation, approximant with some frication.
- ii) Intervocalic *ʁ*: little variation, approximant with some frication.
- iii) Word-initial *ʁ*: substantial variation, approximants, fricatives, trills, taps, plosives.
- iv) Consonant-adjacent *ʁ* (not included in Cohen, Savu and Laks, 2013): nightmare, with onset C\_V showing marginally more consistency than coda V\_C.

In Hebrew, *ʁ* is the one of the last consonants to emerge during acquisition (Lavie, 1978; Ben-David, 2001), and, with the exception of sibilants, the last consonant to be fully acquired in Hebrew (Ben-David, 2014). Assuming three stages of acquisition (deletion→substitution→faithful), Ben-David, Adi-Bensaid and Ezrati's (in progress) cross-sectional study shows that word-medial *ʁ*s are acquired before word-initial *ʁ*s (no distinction between word-medial codas and onsets, or word-final *ʁ*s). Note, consonant adjacent word-medial rhotics are not addressed in these papers, but are addressed in this current study). This finding is very strange when compared to other segments' acquisition (e.g. Ben-David, 2001).

Crosslinguistically, the late acquisition of rhotics is common (Bosma-Smit et al., 1990 for English; Hua, 2000a/b for Putonghua; Amayreh and Dyson, 1998 for Jordanian Arabic, Freitas, 1994 for Portuguese, inter alia). Rose's (2003) analysis of rhotic acquisition in final position in Québec French shows that for some children, dorsal rhotics in word-final position are acquired several months after other consonants similarly positioned, and after the acquisition of rhotics in other positions. However, the patterning in Hebrew of the *ʁ*'s acquisition (i.e. being fully acquired in coda position before being fully acquired in onset position), is somewhat unusual (no known similar studies for other languages). This stands in sharp contrast to other Hebrew consonants, where onset acquisition generally precedes coda



acquisition (Ben-David, 2001:236-237, with the exception of fricatives, similarly to the acquisition of word-final fricatives before onset fricatives in other languages, as presented in Dinnsen 1996). McCallister-Byun (2011) attributes the neutralisation of fricatives in prosodically strong contexts (onsets vs. codas) to speech motor control, presenting evidence for fricatives being produced more frequently in coda than in onset position. The explanation offered hinges on articulation, specifically gestural timing patterns. Note, these studies refer to the phonological classification of the phonemes, rather than to the actual phonetic realisation of the categories by adults in these positions.

### *1.2 Phoneme consistency*

Phonemes can vary phonetically, fluctuate in phonetic consistency (allophony). The notion of phoneme consistency is as follows: The more allophonic variation, the less consistent the phoneme is. Phoneme consistency may vary per position.

### *1.3 Phoneme Acquisition Criterion (PAC)*

In each developmental stage, all target phonemes are counted. The targets' productions are classified according to the various categories in §2.2: deletion, substitution, faithful. A phoneme fulfills the Phoneme Acquisition Criterion (PAC) in a certain position when:

- i) it reaches a stage during which "faithful" is the dominant category (over 50%),  
and
- ii) "faithful" is the dominant category in all subsequent stages (no reversion to earlier stages).

Amayreh and Dyson (1998) refer to three stages in a phoneme's acquisition (adapted from Sander, 1972): (a) customary production, at least 50% of the subjects produce the segment in two prosodic positions, (b) acquisition, at least 75% of the subjects produce the segment in all prosodic positions investigated, and (c) mastery, at least 90% of the subjects produce the segment in all prosodic positions. Though I follow their general notion regarding stages in acquisition, due to inherent differences in the types of study, it is necessary to use different criteria to define acquisition. Namely, a phoneme can be considered fully acquired by a specific speaker only when it reaches PAC in all prosodic positions for the speaker, as follows:

- i) Emergence – even one instance
- ii) Acquisition – fulfills PAC (50% accuracy), more likely than not to be faithfully produced
- iii) Mastery – adult-like

I deviate from their precise definitions as they do not deal with specific speakers in longitudinal studies over a substantial period, but rather they deal with averages over a large age-based group, referring to average acquisition ages rather than precise acquisition stages.

## **2. Methodology**

This study is based on data collected from two children, RM and SR (Language Acquisition Project directed by Bat-El and Adam at Tel-Aviv

University). The data analyzed in this paper were collected during weekly recordings of natural speech from the first recognizable word until 2;01.06 (SR) and 2;04.19 (RM). The data were transcribed and partially analyzed acoustically (PRAAT, Boersma and Weenink, 2014).

The entire period covered was broken down into developmental stages (according to the principles of Adam and Bat-El, 2008; 2009) based on vocabulary size rather than chronological age. The first stage ended after the child's lexicon included 10 distinct words. Each subsequent stage is 50 words (or more), with a single session never including more than one stage (though one stage may cover several sessions).

All productions are classified into three primary categories:

- i) Deletion – no surface correspondent for the target phoneme was produced
- ii) Substitution – the surface correspondent of the target segment is noticeably different from what adult speakers produce
- iii) Faithful – the produced segment is recognized by adult speakers as the target segment
- iv) Other types of production (e.g. metathesis) are ignored henceforth, as they are statistically negligible.

### 3. Findings

#### 3.1 Selectivity

This notion refers to the likelihood of certain targets being attempted (for Hebrew: Ben-David, 2001:342 ; Bat-El, 2012; Becker, 2012; Cohen, 2012. For other languages: Drachman, 1973; Schwartz and Leonard, 1982, to name a few). Acquirers are more likely to attempt harmonic ("better") targets than disharmonic targets. The notion of selectivity demonstrates the children's preferences during the earliest stages of acquisition. The following (1) and (2) present the attempts of targets including  $\nu$  by SR and RM respectively:

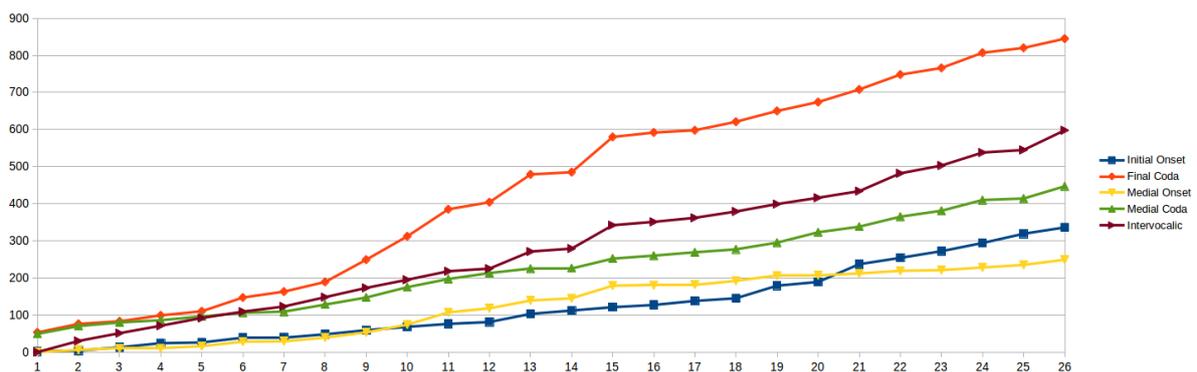


Figure 1: Target selectivity in  $\nu$  production – SR

In Figure (1), we observe the data for SR:

- i) Targets with word-final  $\nu$  are the preferred targets throughout, followed by intervocalic  $\nu$ .
- ii) Consonant adjacent targets are the least frequent, with codas V\_C being preferred to onsets C\_V.

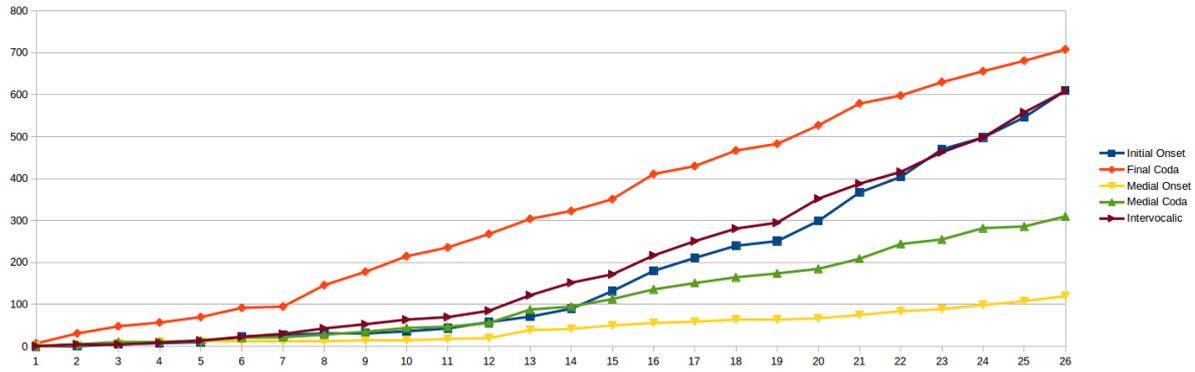


Figure 2: Target selectivity in /ʁ/ production – RM

In Figure (2), we observe the data for RM:

- i) Targets with word-final /ʁ/ are the preferred targets throughout, followed by intervocalic /ʁ/, which is in close competition with initial /ʁ/ from stage 23.
- ii) Consonant adjacent targets are the least frequent, with codas V\_C being preferred to onsets C\_V.

The major difference between SR and RM is that RM's word-initial targets are "better off" than SR's. To summarize, both children demonstrate the role of selectivity in early acquisition, attempting the coda-ʁ forms before the onset-ʁ forms. Word-final coda-ʁ forms are attempted before /ʁ/ in all other prosodic positions. Word-final coda /ʁ/ are preferred targets.

### 3.2 Production

The actual production of rhotics follows a similar ordering pattern to the selectivity. According to Ben-David, Adi-Bensaid and Ezrati (in progress), the order of acquisition is as follows: word-final → word-medial (V\_V) → word-initial (Note: their study did not investigate word-medial C\_V or V\_C). The following Figures (3a-3e) present the /ʁ/ production data from SR, and (4a-4e) present the /ʁ/ production data from RM:

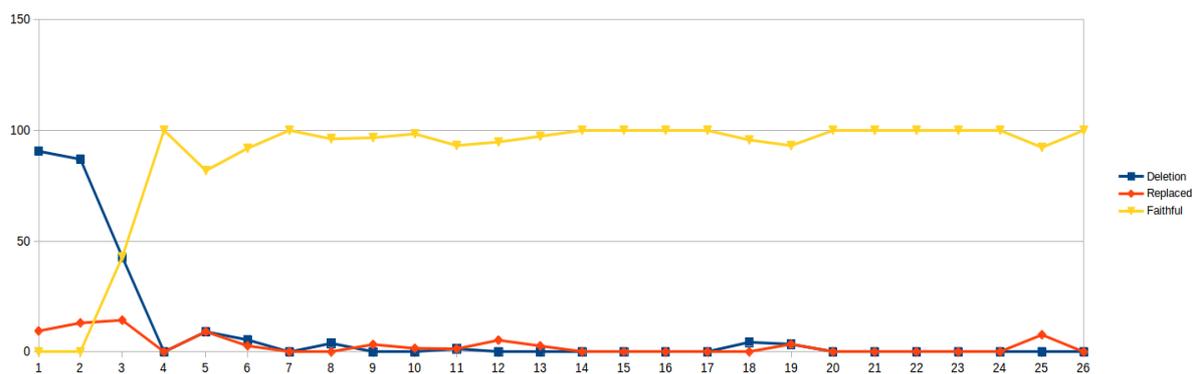


Figure 3a: Word-final (/\_#/) /ʁ/ production – SR – PAC reached at Stage 4

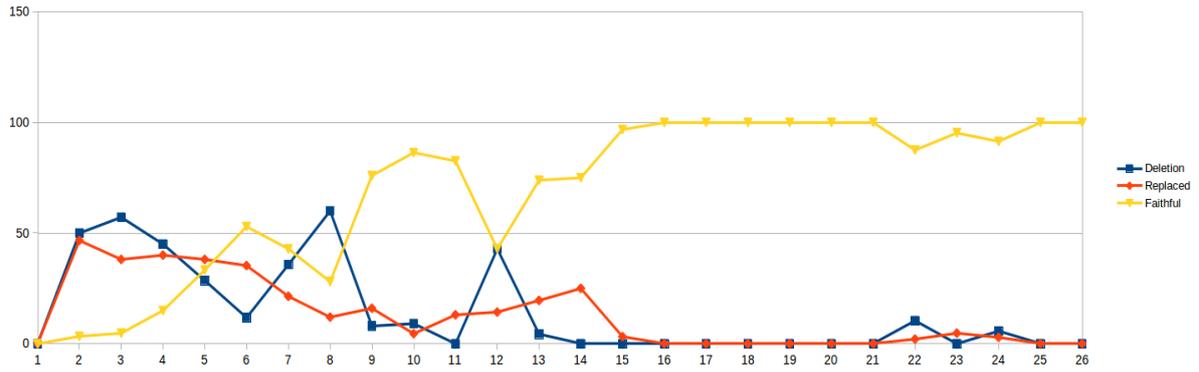


Figure 3b: Intervocalic (V\_V) consonant cluster production – SR – PAC reached at Stage 9

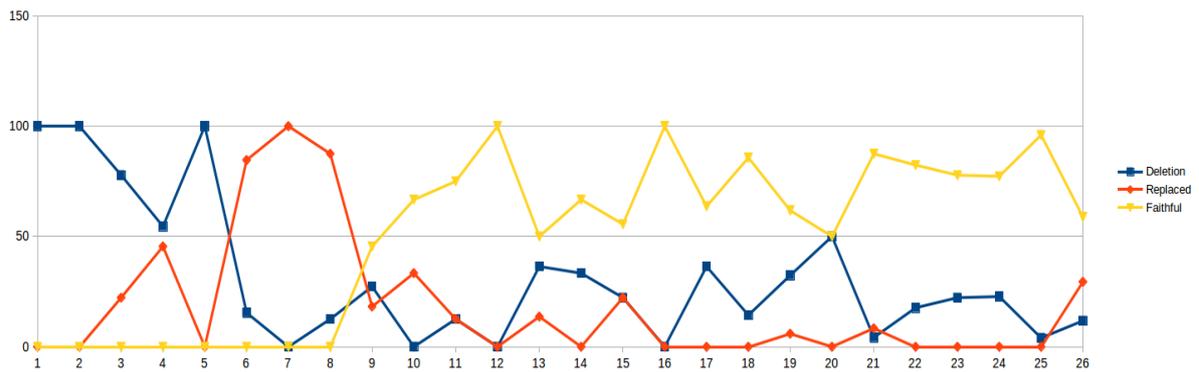


Figure 3c: Word-initial (#\_) consonant cluster production – SR – PAC reached at Stage 9

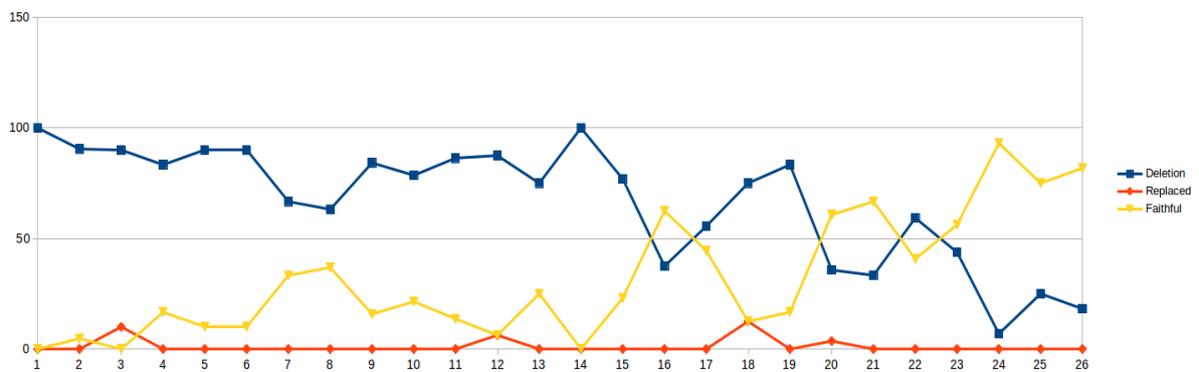


Figure 3d: Word-medial coda (V\_C) consonant cluster production – SR – PAC reached at Stage 23

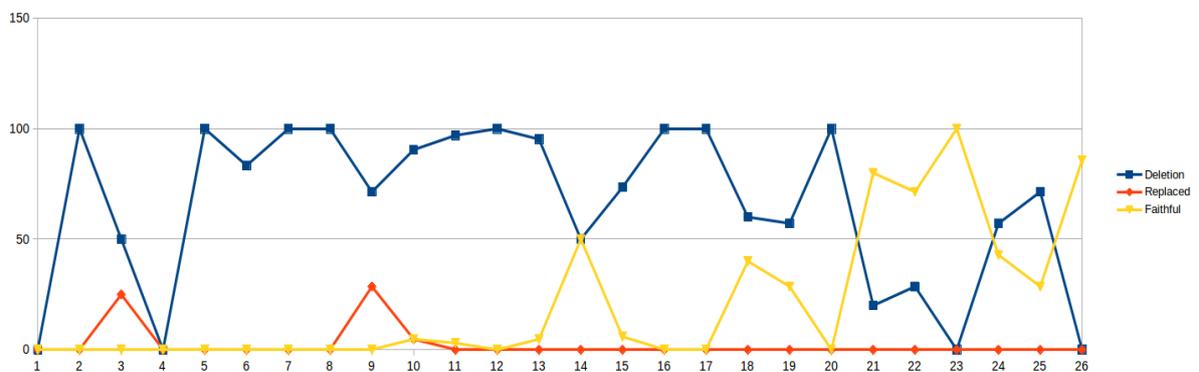


Figure 3e: Word-medial onset (C\_V) consonant cluster production – SR – PAC reached at Stage 26

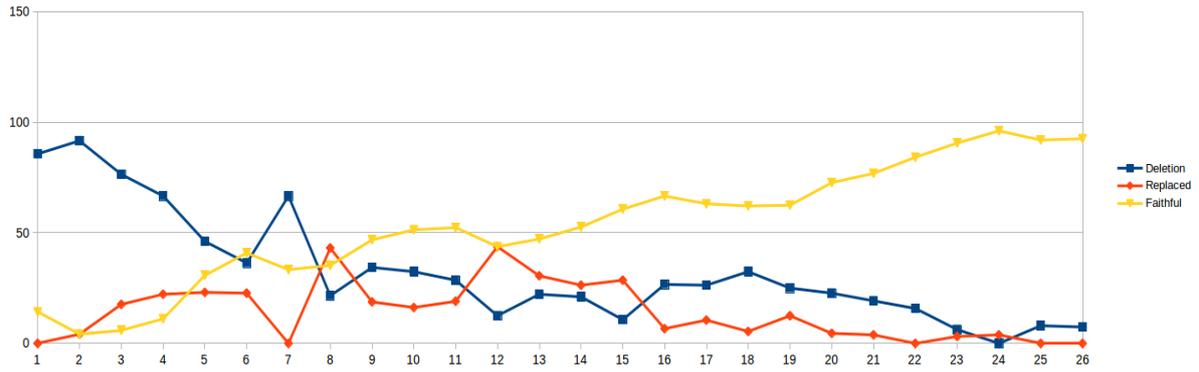


Figure 4a: Word-final (\_#)  $\Psi$  production – RM – PAC reached at Stage 9

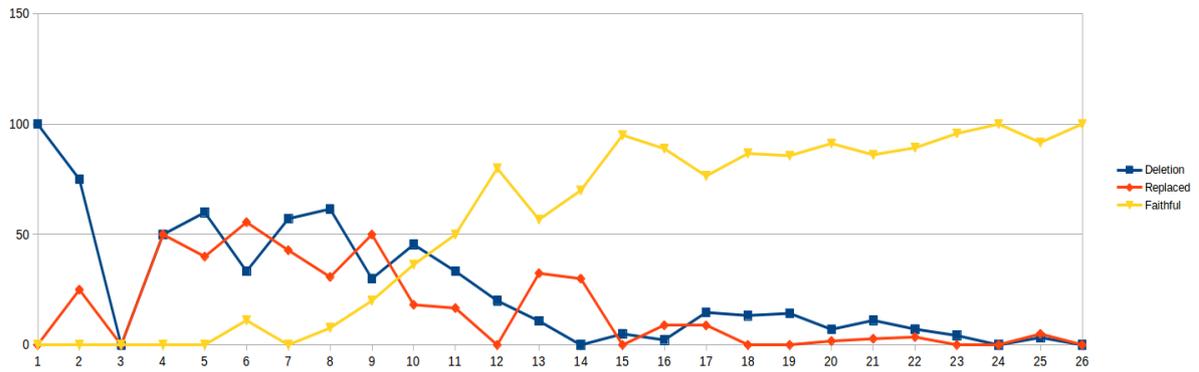


Figure 4b: Intervocalic (V\_V)  $\Psi$  production – RM – PAC reached at Stage 11

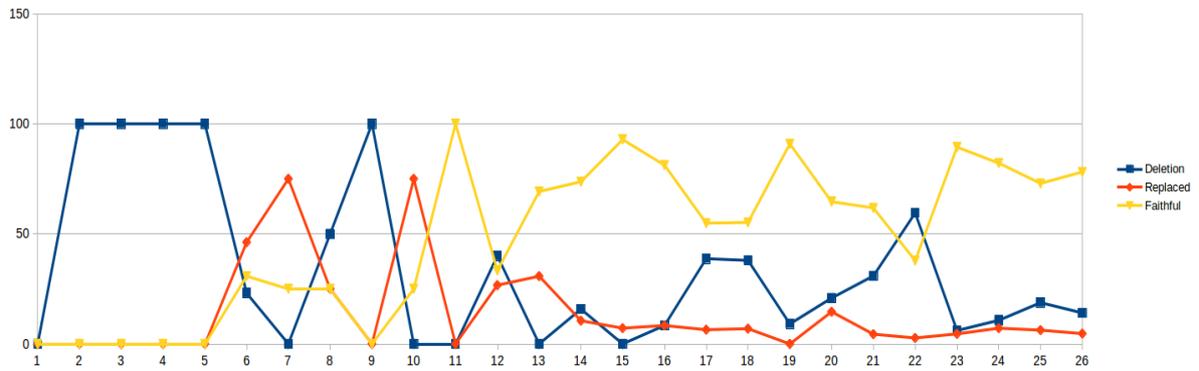


Figure 4c: Word-initial (#\_)  $\Psi$  production – RM – PAC reached at Stage 13

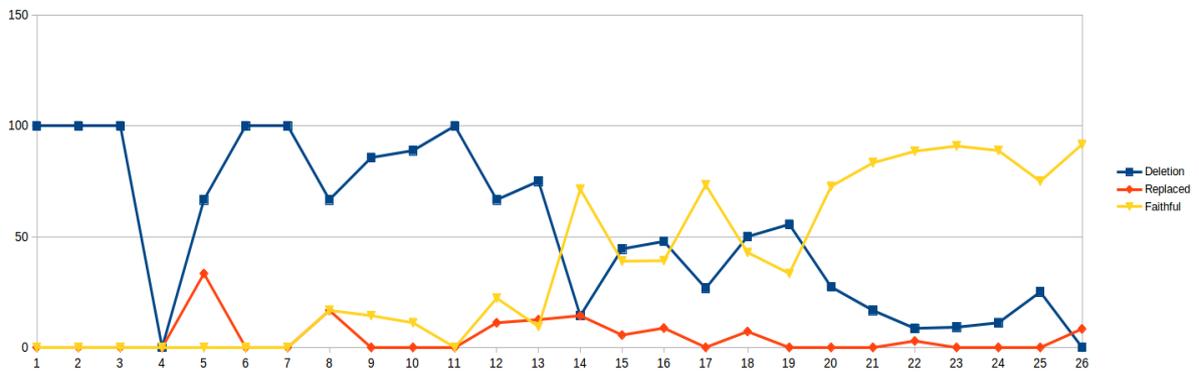


Figure 4d: Word-medial coda (V\_C)  $\Psi$  production – RM – PAC reached at Stage 20

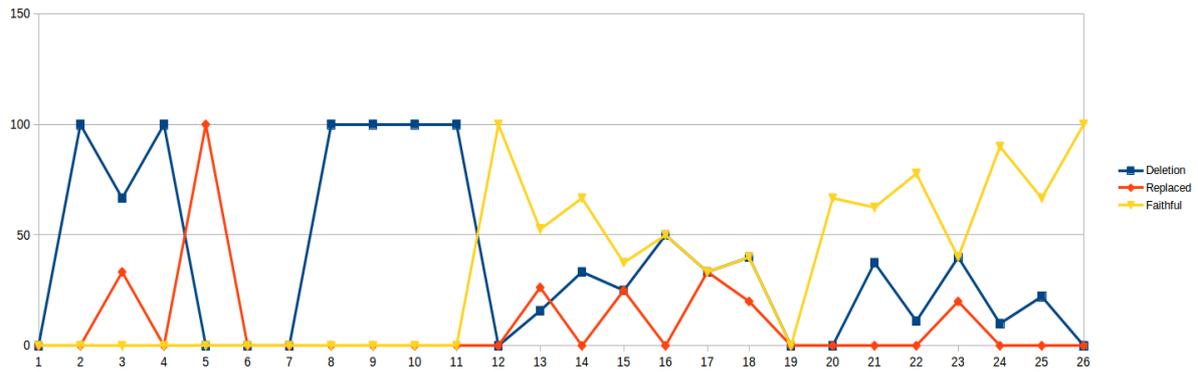


Figure 4e: Word-medial onset (C\_V)  $\mathfrak{b}$  production – RM – PAC reached at Stage 24

The above figures show both children following the same path. Observing the paths of the yellow graph (faithful production), the gradual rise until reaching PAC (50%) is clear. Furthermore, it is clear how PAC is reached earlier in some positions (e.g. 3a, 2b) than in others (e.g. 3d, 3e). Initially, attempted rhotics are deleted. As deletion declines, there is a rise in substitution. Finally, the rate of faithful production exceeds that of substitution, eventually leading to the overall faithful production of rhotics. For both children, PAC is reached per position in the following order:  $\_ \# > V\_V > \#\_ > V\_C > C\_V$ . This precise pattern of production mirrors the order observed in selectivity.

#### 4. Conclusions and Discussion

The data presented in §3 show the selectivity preference and order of acquisition of  $\mathfrak{b}$ . In this section,  $\mathfrak{b}$  frequency and phoneme consistency in Hebrew are examined in light of this data.

##### 4.1 Frequency

The notion of frequency-dependent acquisition suggests that the more frequently a segment appears in a certain prosodic position, the more rapid its acquisition in the position should be (e.g. Zamuner 2003:70). The following Table (1) shows  $\mathfrak{b}$  frequency in Hebrew nouns:

	Onset		Coda	
$\#\_$	C_V	V_V	V_C	$\_ \#$
445	633	1264	634	818
	2342		1452	

Table 1:  $\mathfrak{b}$ -frequency-per-position in Hebrew nouns (Bolozky and Becker, 2006)

The frequency order is:  $V\_V > \_ \# > V\_C=C\_V > \#\_$ . One can make the following generalizations regarding  $\mathfrak{b}$  frequency in the Hebrew lexicon.  $\mathfrak{b}$  is more common in onset position than in coda position. Consonant-adjacent



ʙs are equally common in onset and coda position. The most common position for ʙ by far is intervocalic. Recall §4.2 regarding target production. For both children, PAC is reached in the following order:  $\_ \# > V\_V > \#\_ > V\_C > C\_V$ . At the very least, word-medial onsets should be first, onsets, in general before codas, but this is not the case, suggesting that acquisition order is not determined by lexicon frequency.

#### *4.2 Phoneme consistency*

According to the notion of phoneme-consistency-dependent acquisition, the more phonetically varied, the less consistent, the productions of a phoneme are in a given position, the slower its acquisition should be. Coda ʙs are more consistent than onset ʙs, intervocalic ʙs are more consistent than consonant adjacent ʙs, as in the following scale:  $\_ \# > V\_V > \#\_ > V\_C > C\_V$ . Both selectivity and the stage during which PAC is reached support this precise ranking. Bottom line, as the data show, acquisition order correlates strongly with phoneme consistency, as opposed to frequency, which does not.

However, phoneme consistency does not merely demonstrate a correlation with acquisition order. In fact, it provides an explanation for this order. The more consistent a phoneme is in a certain position, the easier the formulation of generalizations is by the acquiring speakers. It stands to reason that the more variation a position displays, the more difficult it is to make the necessary generalizations for the encoding, representation and production of the phoneme.

These data suggest that the acquisition of phonemes per prosodic position depends on the allophonic variation of the phonemes in these positions rather than the mere acquisition of prosodic positions, shedding light on the weird behaviour of rhotics in acquisition. Rather than surfacing faithfully as prosodic positions are acquired, segments surface in positions in which they are more consistent before surfacing in other positions. Future research into the allophonic variation and acquisition-per-position of other phonemes is necessary in order to further establish this.

#### **Acknowledgement**

First and foremost, I would like to thank the two anonymous reviewers whose insightful remarks assisted in making significant improvements to this paper. I would like to thank Avivit Ben-David and Outi Bat-El for their invaluable contribution to this study. I would also like to thank the participants at the 2014 LAGB Annual Meeting for their comments to an earlier version of this study. Of course, special thanks to SR and RM, whose patience laid the foundations for this study. The usual disclaimers hold.

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## **Post-predicate constituents and syntax-pragmatic interface in simultaneous bilingual and child second language acquisition of Turkish**

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### **Abstract**

The present study examined the acquisition of post-predicate constituents in Turkish, which is a case of the syntax-pragmatic interface, by two groups of English-Turkish bilingual children: simultaneous bilinguals and young learners of Turkish as the second language to see whether or not the participants were able to use post-predicate constituents accurately, according to their pragmatic intentions and the constraints of the Turkish language. Additionally, the use of post-predicate constituents of the bilingual participants was compared with that of the monolingual Turkish children, who performed as the baseline of the present study. The results revealed that the simultaneous bilinguals used post-predicate constituents accurately considering their pragmatic intentions and conforming to the restrictions on post-predicate constituents in Turkish. In this respect, their language behavior was similar to the monolingual baseline. The young learners of Turkish as the second language, on the other hand, tended to overuse post-predicate constituents in Turkish and utilized most of them inaccurately, which allowed me to infer that in the domain of syntax-pragmatics interface, child second language acquisition differs from monolingual and simultaneous bilingual acquisition. All in all, the findings of the present study could be regarded as a piece of evidence in favor of the view that child second language acquisition differs from monolingual and simultaneous bilingual acquisition, and that availability of the initially-learned language in the repertoire of CL2 learners as well as a delay in onset of the exposure to the L2 seem to play an important role in the acquisition of their L2.

**Keywords** Simultaneous bilingual acquisition, child second language acquisition, Turkish, post-predicate constituents

### **1. Introduction**

Bilingual acquisition in childhood is generally divided into two types: simultaneous (2L1) and a child second language acquisition (CL2). 2L1 occurs when a child is exposed to two L1 from onset or within a week after birth onwards (de Houwer, 1990, 2009; Meisel, 1990). CL2 occurs when a child begins to acquire another language later in his/her childhood. Commonly CL2 acquisition is believed to start at about the age of 3-4, however several scholars (de Houwer, 1995; Hyltenstam & Abrahamsson, 2003) acknowledged that even if the age of onset of L2 in CL2 acquisition happens during the first year, CL2 acquisition may differ from simultaneous and monolingual acquisition.

Therefore, if to compare 2L1 and CL2 acquisitions, the distinctions between the two are following: firstly, there is a clear difference in the onset of

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<sup>1</sup> Bio: Elena Antonova-Ünlü completed her Ph.D thesis on acquisition of the Russian morphology by a bilingual Russian-Turkish child in a Turkish-dominant environment. Her main research interests include bi-multilingualism, bilingual first language acquisition and second language acquisition. Contact: [elenaunlu@gmail.com](mailto:elenaunlu@gmail.com)

exposure to the two languages in CL2 acquisition, whereas in 2L1 there is not any; secondly, in CL2 acquisition, the L2 is acquired after the first language, which has developed at least to a certain extent, though may not completely, while in 2L1 acquisition, two systems develop simultaneously.

2L1 acquisition has received quite a lot of attention in acquisitional research and numerous studies have demonstrated that by and large simultaneous bilinguals follow the same pattern in their two languages as monolingual children do (de Houwer, 1995; 2009). However, the research has also acknowledged that simultaneous bilinguals may not be equally fluent in their two languages since they may acquire at least one of their languages via restricted input, use their languages in different domains, for different purposes and via communication with different people (Grosjean, 2008). Numerous studies have also demonstrated that the production of simultaneous bilinguals may be marked with cross-linguistic influence or transfer from one of their languages, which is usually dominant, into the other one (Döpke, 2000; Haznedar, 2007; Hulk & Mueller, 2000 among many others).

CL2 acquisition is less investigated if compared with simultaneous bilingualism (Meisel, 2011; Paradis, 2007). However, researchers working on the issue (Haznedar & Gavruseva, 2008; Meisel, 2011; Nicholas & Lightbown, 2008; Rocca, 2007 among others) have pointed out that CL2 acquisition is distinct either from monolingual and simultaneous acquisition or from adult L2 acquisition. Meisel (2011) put forward the hypothesis that the grammatical knowledge acquired by CL2 learners will resemble monolingual and 2L1 systems in some domains, while in other domains it will be more like adult 2L acquisition. This hypothesis rooted from the revised version of the Critical Period Hypothesis, according to which “alterations of the acquisition device happen over an extended period of time, caused by subsequent sensitive phases, [...] which do not all fall into a single age period” (Meisel, 2011, p. 211). Consequently, CL2 acquisition may be expected to share the properties of both 2L1 and adult L2 acquisition to variable degrees, depending on the age of onset of acquisition, the later onset the more similarities with adult L2 acquisition are expected (Kroffke, Rothweiler & Babur, 2007; Rothweiler, 2006), and the language domain.

As for the grammatical domains in which CL2 acquisition is likely to be deviant from 2L1 and monolingual acquisition, the finding here are not conclusive. While some studies reported that syntax in CL2 acquisition differs from monolingual and 2L1 acquisition in some respect (Schwartz, 2003; Sopata, 2008; Unsworth, 2005), others recorded opposite results arguing that acquisition of syntactical domains in CL2 acquisition is similar to monolingual and 2L1 acquisition (Blom, 2006; Hulk & Cornips, 2006; Rothweiler, 2006). Of all the domains of the inflectional morphology, finiteness markers and gender seem to be especially problematic in CL2 acquisition (Hulk & Cornips, 2006; Ionin & Wexler, 2002; Lakshmanan, 1994; Möhring, 2001 among others).

Another question that is hotly discussed in CL2 research is whether deviations in the production of CL2 learners are transfer-based or developmental. Several studies (Haznedar, 1997; Lightbown, 1980; Whong-Barr & Schwartz, 2002 etc.) showed that non-target forms and structures in



the production of CL2 learners can be attributed directly to transfer from their L1. In contrast, others (Dulay & Burt, 1974; Haznedar, 2001; Ionin & Wexler, 2002; Lakshmanan, 1994; Paradis & Crago, 2004; Paradis, Rice, Crago, & Richman, 2004; Prévost & White, 2000) found that the majority of the non-target forms and structures, like problems in inflectional morphology, are not traceable to the first language (L1) influence and observed in the data of various CL2 learners regardless of their L1 backgrounds, which in turn allowed the scholars to infer that the deviations are developmental and that L1 transfer does not play a dominant role in CL2 acquisition of morphosyntax.

Of all the domains, syntax-pragmatics interface phenomena in CL2 acquisition seem to be little investigated. Yet, in 2L1 and adult second language (L2) research these interface phenomena hold a prominent place since the syntax-pragmatic interface domain has been defined as vulnerable to incomplete acquisition and fossilization in adult L2 acquisition (Sorace & Filiaci, 2006) and to cross-linguistic influence in various bilingual contexts (Hulk & Mueller, 2000; Mueller & Hulk, 2001).

To this end, the present study aims to fill in this gap by examining the acquisition of post-predicate constituents in Turkish, which is a case of the syntax-pragmatic interface, by two groups of English-Turkish bilingual children who have been acquiring Turkish as their CL2 and L1 (to my knowledge, the acquisition of post-predicate constituents has not been examined in any bilingual contexts yet).

Particularly, the study aims to investigate the following research questions:

1. Do 2L1 learners of Turkish use Turkish post-predicate constituents accurately, according to their pragmatic intentions and constraints of the language?
2. Do CL2 learners of Turkish use Turkish post-predicate constituents accurately, according to their pragmatic intentions and constraints of the language?
3. In case of a non-target use of post-predicate constituents in Turkish, can transfer from L1 English account for the deviation?

The article is structured as follows. First, I will describe the word order in Turkish with the focus on the use, functions of and constraints on post-predicate constituents. Then the participants of the study, the method of data collection will be introduced. Finally, the analysis and results will be presented and discussed.

### *1.1. Word order in Turkish*

The canonical word order in the Turkish language is SOV (with S for a subject, O for an object and V for a predicate in the sentence) (Greenberg, 1966; Johanson & Csató, 1998). However, this canonical word order is open to relatively free variations, which are pragmatically governed and have three general purposes: focusing, backgrounding and topicalization (Erguvanlı, 1984; Kornfilt, 1997). Focusing is emphasizing a particular constituent used to highlight certain information within the sentence, because it is new or because the speaker wishes to stress it. There are two main strategies for

focusing in Turkish: syntactic, that is placing the focused constituent in the immediate preverbal position, and prosodic, putting a stress on the focused constituent (İşsever, 2003). As for topicalization, it is used to present a certain constituent that expresses what the sentence is about. Topic is mainly located at the beginning of the sentence, and it is very often the syntactic subject of the sentence (Erguvanlı, 1984; Erkü, 1983; Kılıçarslan, 1994). Prosodically, topic cannot take a primary sentential stress (Erguvanlı, 1984; İşsever, 2003). Backgrounding, on the other hand, is de-emphasizing of a particular constituent, which has relatively less informative value than others. The default place for backgrounded constituents is the post-predicate area (Erguvanlı, 1984).

Since the focus of this paper is on the use of backgrounded/post-predicate constituents (henceforth, post-predicate) used in the production of 2L1 Turkish-English children and CL2 learners of Turkish, I would like to consider the functions of and restrictions on the use of post-predicate constituents in more details.

### 1.2. Post-predicate constituents in Turkish

Post-predicate constituents comprise information which is either discourse-predictable, recoverable or supplementary (Erguvanlı, 1984). The types of constituents that most commonly appear in the post-predicate position are definite noun phrases, adverbials and subordinate clauses.

Post-predicate constituents, commonly, may fulfil the following pragmatic functions (Erguvanlı, 1984; Göksel & Kerslake, 2005; Kornfilt, 1994).

1. To lessen the informative value of the discourse-predictable elements, as Example 1(a) illustrates.
2. To indicate the after-thought information remembered after the sentence has been uttered, as presented in Example 1(b).
3. To put emphasize on the action or state expressed by the predicate, as Example 1(c) illustrates;
4. To introduce information, new but less significant with respect to the rest of the utterance, as seen in Example 1(d).
5. To provide supplementary information in order to ease the interpretation of the preverbal part of the sentence, as in Example 1(e).

(1)

Sabah	ne	yedin?
sabah	ne	ye-di-n
morning	what	eat-PAST-2PR.SG
What did you eat in the morning?		

1 (a)

Hiç birşey	yemedim	sabah.
hiç birşey	ye-me-di-m	sabah.
nothing	eat -NEG-PAST-1PR.SG	morning.
I ate nothing in the morning.		



1 (b)

Sabah	şey	yedim,	omlet.
Sabah	şey	ye-di-m,	omlet.
morning	thing	eat-PAST-1PR.SG	omelet.

I ate something in the morning, omelet.

1 (c)

Yemedim	birşey	sabah
ye-me-di-m	birşey	sabah
eat-NEG-PAST-1PR.SG		

I didn't eat anything in the morning.

1 (d)

Sabah	omlet	yedim	kaşarlı.
sabah	omlet	ye-di-m	kaşar-lı
morning	omelet	eat-PAST-1PR.SG	cheese-ADJ

I ate omelet in the morning, with cheese.

1(e)

Sabah	omlet	yedim	evde.
sabah	omlet	ye-di-m	ev-de
morning	omelet	eat-PAST-1PR.SG	home-LOC

I ate omelet in the morning, at home.

There is no restriction on the number of constituents that can appear in the post-predicate position; however, there are some restrictions on the constituents that may be backgrounded (Erguvanlı, 1984; Göksel & Kerslake, 2005):

1. No focused constituents, carrying new information and/or bearing stress, are allowed in the post-predicate position.
2. Indefinite noun phrases generally cannot occur in the post-predicate position. Non-definite noun phrases can occur in the post-predicate position if only they refer to an entity or category that has been mentioned/implied in the immediately preceding discourse.
3. No constituents containing a question word or the yes/no question marker may appear in the post-predicate position.

Sentences with post-predicate constituents can be used both in written and spoken Turkish.

## **2. Methodology**

### *2.1. Participants*

The participants of the study were four English-Turkish simultaneous bilingual children at the age of 4.7 to 7.0 (M=5.9) and four English-Turkish children who had been acquiring Turkish as CL2 at the age of 5.2 to 8.8 (M=7.4). Additionally, four monolingual children at the age of three (3.0) to

5.8 (M=4.6) were included into the study as a base-line group. All the monolingual and 2L1 participants had been exposed to the Turkish language from birth. All the CL2 learners of Turkish started to acquire the language when their families moved from their English-speaking countries to Turkey. At the moment of the data collection, the periods of their exposure to Turkish varied from 3.3 to 6.4 (M=4.5). At that time all the participants were attending kindergartens or schools in Turkey. All the bilingual participants were receiving bilingual education in their two languages. The bilingual children had been living in bilingual families, where one of the parents is a native speaker of Turkish and the other one is a native speaker of English. All the bilingual participants had been visiting their English-speaking countries one-two times a year. Table 1 below presents information about each participant of the study.

Table 1. Participants' background information

	Age	N of L(s) known	Period of Turkish acquisition	Acquisitional context
Base-line group 1: Monolingual				
C1	3.0	1	3.0	monolingual
C2	4.6	1	4.6	monolingual
C3	5.8	1	5.8	monolingual
C4	4.8	1	4.8	monolingual
Group 2: 2L1 bilinguals				
C5	4.7	2	4.7	bilingual
C6	5.8	2	5.8	bilingual
C7	7.0	2	7.0	bilingual
C8	6.1	2	6.1	bilingual
Group 3: CL2 learners of Turkish				
C9	5.2	2	3.3	bilingual
C10	8.7	2	6.4	bilingual
C11	8.8	2	4.9	bilingual
C12	6.9	2	3.5	bilingual

## 2.2. Data collection

Narratives have been proved to be a feasible tool for investigating language development of monolingual and bi/multilingual learners since they provide the researcher with authentic spontaneous data allowing to examine structures that appear only in connected speech (Berman, 1999; Kupersmitt & Berman, 2001; Lanza, 2001; Pavlenko, 2003; Polinsky, 2008; Viberg, 2001, among others). The use of narratives is also common in studies examining various aspects of child language development, since children already by the age of three have an idea about what a story means (Applebee, 1978). In this study, a wordless picture book "Frog, where are you?" (Mayer, 1969) was used to elicit the narrative data from the participants. The frog-story book, consisting of twenty-four pages of pictures, tells a story about a boy, who lost his pet frog. While searching for the frog, the boy and his dog went through different adventures and encountered with different characters. To collect the narratives, the participants were presented the book by the researcher in Turkish and allowed to look through the pictures. Then, they were asked to retell this story to a native-Turkish-



speaking assistant, whom they had met before the recording. The recordings were done in the children’s homes.

### 2.3. Data analysis

The CHAT format from the CHILDES was used for transcription. Since prosody is very important for identification of focused/unfocused constituents in Turkish, prosodically marked constituents were identified and marked with capital characters in the transcriptions. The transcriptions were checked by two native speakers of Turkish, and an absolute agreement was reached.

Initially, to get an idea about the narratives produced by the participants, the length of each narrative was measured. For this purpose, the number of words was calculated for each narrative; then, following Berman & Slobin (1994), the number of clauses as the basic unit containing a unified predicate expressing a single action, activity, event or state, including finite/non-finite verbal forms or predicate adjectives, was counted. Further, to assess the participants’ production of post-predicate constituents, all post-predicate elements observed in their data were identified and their percentage as a ratio of the number of clauses with post-predicate constituents to total number of clauses. Then two native speakers of Turkish, who have degrees in linguistics, were asked to evaluate the use of the post-predicate constituents in terms of their grammaticality and acceptability with consideration of the participants’ pragmatic intentions and constraints on the use of the post-predicates in Turkish.

Then the number of correctly and incorrectly used post-predicate constituents as well as their ratio to the total use of post-predicate constituents was calculated.

### 3. Findings

Table 2 presents the number of words, clauses and post-predicate constituents, as well as the percentage of the post-predicate constituents observed in the narratives of the monolingual, simultaneous and sequential bilingual young learners.

Table 2 Description of the data

	N of words	N of clauses	N of post-predicate constituents	(%) post-predicate constituents
Monolinguals				
C1 (3.0)	129	28	2	7%
C2 (4.6)	134	36	2	6%
C3 (5.8)	149	39	3	8%
C4 (4.8)	132	36	2	6%
2L1 bilinguals				
C5 (4.7)	129	30	2	7%
C6 (5.8)	139	37	2	5%
C7 (7.7)	215	48	3	6%
C8 (6.1)				
CL2 learners of Turkish				
C9 (5.2)	134	38	19	49%
C10 (8.7)	140	42	12	29%
C11 (8.8)	143	43	11	26%
C12 (6.9)	136	38	15	40%

As it is evident from Table 2, all the participants used post-predicate constituents in the narratives. Thus, the use of post-predicate constituents in the monolingual data varied from 6% to 8%; the 2L1 bilinguals used post-predicate constituents from 5% to 7%, which is rather close to the monolinguals' data. Remarkably, post-predicate constituents appeared in the data of the CL2 learners of Turkish more often and comprised from 26% to 49% of the production.

The analysis of the use of the post-predicate constituents revealed that the monolingual participants used definite nouns and adverbs in the post-predicate position. No use of the post-predicate constituents was defined as incorrect by the Turkish-native-speaking judges, as neither indefinite noun phrases nor focused constituents containing new and/or stressed information were found in the data of the monolingual children. Example 2 and Example 3 below illustrates the use of post-predicate constituents from the monolingual data.

Example 2:

Sonra	çocuk	çöpü	DIŞARIYA	birakmış.
sonra	çocuk	çöp-ü	dışarı-ya	birak-mış
after that	child	rubbish-ACC	outside-DAT	throw- PER-EV-3PR.SG
After that the child threw the rubbish outside.				

Sonra	bir	ARI KOVANI	görmüş	<i>köpek.</i>
sonra	bir	arı kovan-ı	gör-müş	köpek
after	one	bee house-POSS	see-PER.EV-3PR.SG	dog
After that the dog saw a bee house.				

Example 3:

Bir	GEYİK	gelmiş.
bir	geyik	gel-miş.
one	deer	come-PER.EV-3PR.SG
A deer came.		

Çocuğu	ve	köpeği	SIRTINA	almış.
çocuğ-u	ve	köpeğ-i	sirt-ı-na	al-mış
child-ACC	and	dog-ACC	back-POSS-DAT	take- PER.EV-3PR.SG
He put the child and the dog on his back.				

Sonra	onları	ATMIŞ	<i>yokuş aşağı.</i>
sonra	onlar-ı	at-mış	yokuş aşağı
after	they-ACC	throw- PER.EV-3PR.SG	downhill
Then he threw them downhill.			

In Example 2, the child used the definite noun “köpek” (dog) in the post-predicate position after the predicate “görmüş” (saw), which provided information about the agent of the action in order to clarify who, the child or the dog, did the action of seeing the bee house.



Example 3, on the other hand, illustrates the use of an adverbial phrase “yokuş aşağı” (downhill) in the post-predicate position from the data of the monolingual participant, which presents supplementary information and puts emphasis on the action of throwing the boy and the dog down.

The functional analysis of the post-predicate constituents produced by the 2L1 bilingual participants in this study showed that they also used definite nouns and adverbs in the post-predicate position. Similarly to the monolingual participants’ data, no use of the post-predicate constituents in the 2L1 bilinguals’ data was defined as incorrect by the Turkish-native-speaking judges, as neither indefinite noun phrases, nor focused constituents containing new and/or stressed information were found in their data. Examples 4 and Example 5 below presents two of the post-predicate constituents from the data of the simultaneous bilinguals.

Example 4:

Her	yuvaya	TEK TEK	bakıyordu	çocuk.
her	yuva-ya	tek tek	bak-ıyor-du	çocuk
every	nest-DAT	one by one	look-IMPER.PAST-3PR.SG	child

The child looked in every nest, one by one.

Köpek	ise	yukarıda	bir	ARI KOVANI	görüyor.
köpek	ise	yukarı-da	bir	arı kovan-ı	gör-üyor
dog	as for	up-LOC	one	bee nest-POSS	see- IMPER-3PR.SG

As for the dog, he sees a bee house above.

Example 5:

Kurbağa	kavanozdan	KAÇMIŞ.
kurbağa	kavanoz-dan	kaç-mış
frog	jar-ABL	escape- PER-EV-3PR-SG

The frog escaped from the jar.

Sabah	çocuk	BAKMIŞ,
sabah	çocuk	bak-mış
morning	child	look- PER-EV-3PR-SG

The child looked in the morning.

Ama	kurbağa	YOKMUŞ	kavanozda.
ama	kurbağa	yok-muş	kavanoz-da
but	frog	no- PER-EV-3PR-SG	jar- LOC

But there was no frog in the jar.

In Example 4, the 2L1 participant used the definite noun “çocuk” (child) in the post-predicate position after the verb “bakıyordu” (was looking). In this case, by providing identifying information about the agent of the action, the child resolved ambiguity about whether the child or the dog, both of which were the main characters of the narrative, did the action. In the following clause, the participant changed topic from the “çocuk” (child) to the “köpek” (dog) by using the marker signaling a change of topic “ise” (as for).

In the next example (Example 5), the 2L1 participant used an adverbial phrase “kavanozda” (in the jar) in the post-predicate position. The same adverbial phrase was already used by the participant in the narrative previously, therefore, this constituent was discourse-predictable and allowed backgrounding for de-emphasizing less valuable information.

As for the analysis of the post-predicate constituents in the data of the CL2 learners of Turkish, interesting findings were revealed. The language behavior related to the use of the post-predicates constituents in Turkish of the CL2 participants occurred to be different from that of the monolingual and 2L1 participants. As it was pointed out above, the CL2 learners of Turkish used post-predicate constituents much more often than the monolingual and 2L1 participants. Moreover, among the CL2 learners’ 42 clauses including post-predicate constituents, only 18 (43% out of the total use of the post-predicate constituents produced by the CL2 learners of Turkish) were identified as correct and/or acceptable according to the norms of the Turkish language. These correctly used post-predicate constituents reflected such functions of post-predicate constituents as lessening the informative value of the discourse-predictable element, (Example 6), emphasizing action or state expressed by the predicate (Example 7) and providing supplementary information (Example 8).

Example 6:

Aradılar	ama	HIÇ BİR YERDE	bulamadılar	<i>kurbağayı.</i>
ara-dı-lar	ama	hiç bir yer-de	bul-a-ma-dı-lar	kurbağa-yı
search-PAST-3PR-PL	but	no place-LOC	find-ABIL-NEG-PAST-3PR-PL	frog-ACC

They searched but they could find the frog nowhere.

Example 7:

Çocuk	uyanınca	BAKTI:	YOK	<i>kurbağa.</i>
çocuk	uyanınca	bak-tı	yok	kurbağa
child	wake-CON	look-PAST-3PR.SG	no	frog

Having woken up, the child looked, but there was no frog.

Example 8:

*Köpek	HIÇ BİRŞEYİ	yaptığı	için
köpek	hiç birşey-i	yap-tığ-ı	için
dog	no thing-ACC	do-NOM-3PR	for

As the dog did nothing,

Çocuk	KIZDI	ama	<i>birazcık.</i>
çocuk	kız-dı	ama	birazcık
child	scold-PAST-3PR.SG	but	little

The child scolded but a little bit.

The other 24 clauses (57%) including post-predicate constituents were characterized as incorrect and not acceptable by the judges. The functional analysis of the clauses including post-predicate constituents that were



identified as incorrect in the data of the CL2 learners of Turkish, showed that all of them followed (S)V(O) pattern, with the predicate followed by direct/indirect objects or adverbials. All the incorrectly used post-predicate constituents were expressed by indefinite noun phrases or adverbials and included new and/or focused information, which is not consistent with the constraints of the Turkish language. Example 9 and Example 10 taken from the data of two different CL2 learners of Turkish are illustrating.

Example 9:

Sonra	köpek	gördü	#ARI KOVANI.
sonra	köpek	gör-dü	arı kovan-ı
then	dog	see-PAST-3PR.SG	bee house-POSS

Then the dog saw a bee house.

Arı kovanından	ARILAR	geldi.
arı kovan-ın-dan	arı-lar	gel-di
bee house-POSS-ABL	bee-PL	come-PAST-3PR

Bees flew out of the bee house.

Example 10:

Erkek	girdi	#ORAYA  :	yok.	
erkek	gir-di	ora-ya	yok	
boy	enter-PAST-3PR.SG	there-DAT		no

The boy went there: no frog!

Girdi	#EVINE  :	yok.
gir-di	ev-i-ne	yok
enter-PAST-3PR-SG	house-POSS-DAT	no

He entered his house: there is no frog!

Girdi	#ODAYA:	yok.
gir-di	oda-ya	yok
enter- PAST-3PR.SG	room-DAT	no

He entered the room: there is no frog!

Gitti	#BAHCEYE:	kurbağa yok!
git-ti	bahçe-ye	kurbağa yok
go-PAST-3PR.SG	garden-DAT	frog no

He went to the garden: there is no frog!

In Example 9, the CL2 learner of Turkish used a noun phrase “arı kovanı” (bees house) in the post-predicate position. However, in this clause the noun phrase “arı kovanı” was the prosodically marked focused constituent introducing new information, which had not been mentioned before in the narrative, and which was then topicalized in the following clause as “Arı kovanından arılar geldi” (From the bee house, bees came). The use of the focused constituents introducing new information contradicts with the restrictions of the post-predicate constituents of the Turkish language; therefore, the use of the post-predicate constituent in Example 9 was defined as incorrect.

In Example 10, the child listed various adverbials such as “oraya” (there), “evine” (to home), “odaya” (to the room), “bahçeye” (to the garden), which implied contrasting them and emphasizing each of them by prosody. The use of emphasized and stressed constituents is not allowed in the post-predicate position in Turkish, therefore the use of the post-predicate constituents of the CL2 learner of Turkish presented in Example 10 was defined as incorrect according to the norm of the Turkish language.

To sum up the results related to the use of post-predicate constituents in compliance with the syntactic and pragmatic considerations of the Turkish language by the monolingual, 2L1 and CL2 learners of Turkish, the data showed that the monolingual and 2L1 children had acquired the use of the post-predicate constituents for their pragmatic intentions and in accordance with the restrictions on the post-predicate constituents use of Turkish. The CL2 learners of Turkish, on the other hand, tended to overuse post-predicate constituents if compared with the monolingual and 2L1 participants, and majority of the post-predicate constituents observed in their data were defined as incorrect and unacceptable

#### **4. Discussion**

The present study examined the acquisition of post-predicate constituents in Turkish, which is a case of the syntax-pragmatic interface, by two groups of English-Turkish bilingual children who had been acquiring Turkish as their L1 and CL2 to see whether or not the participants were able to use post-predicate constituents accurately, according to their pragmatic intentions and the constraints of the Turkish language. Additionally, the use of post-predicate constituents of the bilingual participants was compared with that of the monolingual Turkish children, who performed as the baseline of the present study. Initially, the data analysis revealed that the monolingual participants were able to use post-predicate constituents accurately according to the constraints of the Turkish language and their pragmatic intentions. This finding is consistent with the findings of the previous research (Altan, 2006; Batman-Ratyosyan & Stromswold, 1999; Ekmekçi, 1986) that revealed that monolingual Turkish children were able to locate constituents in different positions in the sentence and they did it in accordance with their pragmatic intentions and constraints of the Turkish language. Further, the data obtained from the 2L1 participants showed that they also used post-predicate constituents accurately considering their pragmatic intentions and conforming to the restrictions on post-predicate constituents in Turkish. The observed similarity between the monolingual and 2L1 participants regarding the use of post-predicate constituents in their Turkish might evince in favor of the separate monolingual-like development of languages in 2L1 acquisition (De Houwer, 1990; 1995; 2009), which means that children who are exposed to two languages from birth develop both languages as two essentially distinct morpho-syntactic systems, which are similar to those of their monolingual counterparts. No instances of transfer from English, the other language in the simultaneous bilinguals' repertoire, were detected, which might be attributed to the fact that simultaneous bilingual participants had been staying in Turkey the most time of their lives and had been acquiring Turkish in the Turkish-



dominant environment. What is more, the language behavior of the monolingual and 2L1 participants regarding the use of post-predicate constituents might be interpreted as a piece of evidence indicating that not every syntax-pragmatic interface domain would necessarily be vulnerable in 2L1 acquisition.

In contrast, the data analysis of the CL2 learners of Turkish revealed that they tended to overuse post-predicate constituents in Turkish and utilized most of them inaccurately: the participants did not conform to the constraints on post-predicate constituents in Turkish and used focused and/or emphasized objects and adverbials in the post-predicate position. In this respect the use of post-predicate constituents of the CL2 learners of Turkish might suggest that CL2 acquisition differs from monolingual and 2L1 acquisition in the domain of syntax-pragmatics interface. Now considering the cross-linguistic influence from L1 English as a plausible source for the non-target use of post-predicate constituents of the CL2 acquisition, the data analysis revealed that all the CL2 participants overused SVO word order while placing objects and adverbials in the post-predicate position, which could be attributed to the cross-linguistic influence of the participants' L1 English language, which follows the rigid SVO word order. To put it in different words, the language behavior of the CL2 learners of Turkish might indicate that when they encountered with the complexity of the post-predicate phenomenon in their L2 Turkish, which required activation of both syntactic and pragmatic knowledge, they seemed to resort to their L1 English language, which resulted in their overuse of the object constituents in the post-predicate position due to the rigid SVO word order of their L1 English language. However, since the study examined the acquisition of post-predicate constituents by English-Turkish bilingual children only, these reflections cannot be conclusive and further analyses of the relevant data obtained from the participants of different L1 backgrounds are required.

To finalize, the findings of the present study could be regarded as a piece of evidence in favor of the view that CL2 acquisition differs from monolingual and 2L1 acquisition, and that availability of the initially-learned language in the repertoire of CL2 learners as well as a delay in onset of the exposure to the L2 seem to play a crucial role in the acquisition of their L2.

### Abbreviations

ABIL	Ability	EV	Evidential	PER	Perfective
ABL	Ablative case	IMPER	Imperfective	PL	Plural
ACC	Accusative case	LOC	Locative case	POSS	Possessive
ADJ	Adjective	NEG	Negator	marker	
CON	Converb	NOM	Nominalizer	PR	Person
DAT	Dative case	PAST	Past tense	SG	Singular

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## **Emergence and patterns of Reduplicated and Variegated Babbling in Hindi and Malayalam: A crosslinguistic study**

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### **Abstract**

The study examined the onset and changes in patterns of reduplicated and variegated babbles in infants observed crosssectionally. The babbling samples of infants in the age range of 4 to 12 months were audio recorded. The participants comprised of 80 infants, 5 girls and 5 boys each in the age range 4-6months, 6-8months, 8-10months and 10-12months from native Hindi (A Indo-European language majorly spoken throughout India, precisely in Northern India) and Malayalam (A Dravidian language spoken in Southwest of India) speaking families. The samples were then phonetically transcribed by the researcher using International Phonetic Alphabet (2005). The results indicated the presence of reduplicated and variegated babbling coexisted as early as 4 months and continued to co-exist with the increase in age in both the diverse languages. As age increased, the variegated utterances predominated for the place-manner changes compared to place or manner changes in articulation patterns in both the languages. Hence, the study suggests the emergence in the complexity of utterance with age.

**Keywords** reduplicated babbles, variegated, Hindi, Malayalam, Babbling

### **1. Introduction**

In infants the first step into the production of syllable like output is the canonical babbling. Canonical babbling is defined as rhythmic alternations between consonant and vowel-like properties, giving a percept of rhythmic speech that simulates adult output without conveying meaning (Davis and MacNeilage, 1995; Oller 2000). Jakobson's (1941/1968) "discontinuity hypothesis" states that a child typically undergoes a period of silence between the end of the babbling period and development of the first real words is no longer accepted as a fact. Recent research focusing on infant speech development, has repeatedly documented that babbling is not a random behavior, all possible sounds are not produced during the babbling stage, and the transition between the babbling and the first words is not abrupt but continuous (Bauman-Waengler, 2000).

Longitudinal investigations of the transition from canonical babbling to speech have shown continuity between phonetic forms in infant pre-

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linguistic vocalizations and earliest speech forms (Stoel-Gammon & Cooper, 1984; Vihman, Ferguson & Elbert, 1986). This continuity supports the importance of considering canonical babbling as a crucial first step in the young child's journey toward mastery of ambient language phonology.

Patterns in canonical babbling tend to be continuous with vocal patterns in the early language based single word stage. This continuity emphasizes on the importance of considering speech like pre-linguistic babbling as the first step into language complexity. Infants progress through a series of stages of vocal development during the first half year of life, culminating in the appearance of canonical babbling between 4 and 10 months of age, with a median at 6 to 7 months (Oller, 1978; Stark, 1980). Canonical babbling implies either reduplicated or variegated babbling. It is characterized by the production of repetitive, syllable-like output (i.e., [baba] or [daedae]). Oller (1986) noted the following perceptual properties of canonical babbling: (a) at least one fully resonant nucleus (i.e., vowel with an identifiable quality, excluding highly nasalized vowels), (b) one non-glottal margin (consonant other than glottal consonant), (c) duration of syllable and formant transitions that are perceptually consistent with mature syllable production, and (d) normal phonation and pitch range. Normally infants begin canonical babbling with great variability. At about seven months, infants start to make extended sounds that are chopped up rhythmically by oral articulations into syllable-like sequences, opening and closing their jaws, lips and tongue. The ranges of sounds produced are heard as stop-like and glide-like. Fricatives, affricates and liquids are more rarely heard, and clusters are even rarer. Vowels tend to be low and open, at least in the beginning.

Despite controversies regarding the sequential nature of babbling (Holmgren, Lindblom, Aurelius, Jalling, & Zetterstrom, 1986; Smith et al., 1989; Mitchell & Kent, 1990), babbling continues to be divided into two stages. The initial portion of babbling known as reduplicated babbling (Oller's stage 4, Oller, 1980) progresses from 7 months to 9 months of age. This form of babbling is characterized by the reduplication of similar consonant-vowel (CV) syllable strings. The CV syllable production in this stage are reduplicated resulting in syllable sequences such as [baba], [kaka], and [tata]. The reduplicated or repeated syllables account for half or more of all vocal patterns in babbling and more than half of the early word forms (Davis, 2002) A variation in the vowel sounds may occur from syllable to syllable; however the consonant tends to remain constant (e.g., [mamu]). The phonetic repertoire at this stage, although limited, may consist of stops, nasals, glides, and the lax vowels /e/, /□/, /^/. Stops present the sharpest possible contrast with vowels and provide the most prominent break in the acoustic stream of speech sounds. On the other hand, stop production is also relatively undemanding: Syllables such as [ba], [da], and [na] may be articulated through mandibular action alone (Kent, 1992). It is likely that this production milestone represents an advance in: (a) Motoric control, which is maturational, or tied to natural physiological development in the first year; (b) the experience-based integration of visual and auditory perception of adult sequences of open-closed mouth and voice-silence alternation, and (c) the expression of the percept of adult vocalization through global imitation. That is, children see as well as hear stop



consonants in adult speech, produce such sounds themselves, and engage in repetitive vocal production or sound play, re-creating their impression of adult speech.

Non-reduplicated or variegated babbling (Oller's stage 5, Oller, 1980) is marked as the second portion of babbling, which begins at approximately 9-10 months of age and progresses to about the first year. This form of babbling is characterized by continual use of adult-like syllables supplemented by the increasingly varied consonants and vowels within a single vocalization. The CV syllable sequences continue, but the infant combines a variety of CV sequences resulting in productions like [madaga], [putika], and [tikadi]. The infant's vowel and consonant repertoire increases significantly at this point. In variegated babbling, more manner changes occur than place changes for consonants (Davis & MacNeilage, 1995; Davis & MacNeilage, 2002) and more height than front-back changes for vowels have been shown during babbling and first words (Bickley, 1983; Davis & MacNeilage, 1995, Davis & MacNeilage, 2002). The preference for manner changes for consonants and height changes for vowels is consistent with the Frame Content hypothesis (MacNeilage & Davis, 1990). The Frame Content hypothesis proposes that the tongue does not move independently from the jaw within syllables, but remains in the same position for the consonant closure and the open or vowel portions of rhythmic cycles. Within syllable consonant vowel characteristics are based on these rhythmic jaw close open close cycles without independent movement of articulators independent of the jaw. Reduplicated and variegated babbling has frequently been included in a single stage of development called canonical babbling because of the difficulty that often arises in distinguishing the two (Smith, Brown-Sweeney & Stoel-Gammon, 1989; Mitchell & Kent, 1990). Early studies of babbling held that reduplicated and variegated babbling was produced by the infant during different stages (Elbers, 1982; Oller, 1986). Recent studies have found that these two types of babbling co-occur from the onset of canonical babbling, although variegated sequences may not become a dominant category in the child's production until some weeks or even months later. Thus, Roug, Landburg and Lundburg (1989) found that variegated utterances were present throughout their study, but increased dramatically towards the end of the first year of life or in the second year.

A form of babbling that frequently overlaps with the early period of meaningful speech is characterized by strings of sounds and syllables produced with a variety of stress and intonation patterns. It must be noted that this form of babbling has been called conversational babble, modulated babble, and jargon (Gleason, 1993). Jargon usually begins once the variegated babbling has been reached, at approximately 10 months of age. The primary difference between variegated babbling and jargon is the infant's increasingly varied and consistent use of intonation, rhythm, and pausing in the latter. Jargon may be thought of as variegated babbling with intonation patterns superimposed on the sound productions.

According to Stoel- Gammon (1989), variegated babbling vocalizations are defined as the pre-linguistic productions that contain two or more different consonant types, disregarding voicing differences. As reported by Hoff (2009), the major milestones of pre-speech vocal development are the productions of canonical syllables (well formed consonant+ vowel combinations), which appear between 6 and 10 months, followed shortly by reduplicated babbling (repetition of syllables). By the canonical babbling stage in the second half of their first year, young children have already shown evidence of recognizing precise ambient language regularities available from input (Saffran et.al, 1996; Werker& Curtin, 2005).

Stoel-Gammon and Cooper (1984) studied 10 infants at four month intervals from 6-18 months of age. They analyzed consonant place changes as indices of variegation in multi-syllables. A post-hoc analysis showed the following rank orderings: reduplication, place variegation, and manner variegation at 6-9 and 10-13 months; place variegation, manner variegation, and reduplication at 14-17 months. Their results show that the number of reduplicated babbles actually rises slightly until the age range 10-13 months when it begins to fall, finally dropping below the rate of variegated babbling at about 14 months of age. In contrast, the rate of production of variegated babbles falls slightly until 10-13 months of age, when it then starts to rise. By 14-17 months of age, the rate of production of variegated babbles is larger than the rate of reduplicated babble production, but at no time (before 17 months) does the production of reduplicated babbles cease. Similar results were obtained by Mitchell and Kent (1990). They found manner changes to predominate over place changes in babbling of eight infants studied at 7, 9, and 11 months. Frequency of multi syllables in rank order, were reduplication, manner changes, mixed place and manner changes, and place changes. These studies considered consonant series in multisyllabic utterances. These results suggest that the entire babbling period may be similar to the period of first words in containing both reduplicated and variegated forms.

Contrary to Jacobson's assertion (1941) of no continuity between babbling and first words, investigations have shown canonical babbling to early speech forms have continuity (Locke, 1983; Oller & Steffans, 1993; Vihman et al., 1985, 1986). This supports the continuity of babbling to the child's first words of the ambient language. A comparison of the children's output patterns in diverse language environments that provide diverse ambient language learning targets is needed. This type of analysis enables the establishment of potentially universal patterns in canonical babbling based on characteristics of the production subsystems common to young children across language environments. It also highlights the timing and precise nature of early perceptually based learning from social interactions with adult speakers in an ambient language community.

Vocalization patterns across syllables are also considered in the emergence of vocal complexity. In languages, most words contain varied consonants and vowels across syllables; phonological reduplication, or repetition of the same syllable, is infrequent (Maddieson, 1984). Reduplicated babbling accounts for half or more of all vocal patterns in babbling (Davis & Mac Neilage, 1995).



In variegated forms, infants change vowels and/or consonants in two successive syllables. Several studies have shown the concurrent use of both reduplicated and variegated babbling (Mitchell & Kent, 1990; Smith et al., 1989). In variegated babbling, more manner than place changes for consonants (Davis & MacNeilage, 1995, Davis et al., 2002).

Kern and Davis (2009) analysis of five additional languages confirmed the prediction for co-occurrence of reduplication and variegation. While both reduplication and variegation occurred, infants preferred to repeat the same syllable within utterances more than variegate or produce different consonants and/or vowels.

There is dearth of studies in the Indian context on the emergence and patterns of reduplicated and variegated productions in the early phonetic repertoire period. In the Indian context, a study was carried out by Anjana and Sreedevi (2008) in Kannada speaking children. For multi-syllables, they explored the phonetic variation with increase in age. They found the phonetically non-varied multi-syllable babbles were predominant from the age of 6 -9 months. The phonetically varied multi-syllable babbles made their first appearance at 8-9 months. It was found in this age group, only two infants demonstrated variegated babbling, which was characterized by place variations such as [badaba]. The occurrence of variegated babbling increased in the 9-10 month group. In the 10-11 month group, place variations occurred more frequently. A combination of place and manner variations occurred more frequently than place or manner variations alone in 11-12 month age group. A similar finding was observed by Sreedevi and jyoti's study (2012) in Kannada babbling infants as early as 3 months to 1 year, wherein reduplicated and variegated babbling continued to dominate towards the later stages of babbling. The reduplicated babbling exceeded variegated babbling in all age ranges. The variegated babbling began at 8 – 9 months and gradually increased with age. The most common variegation observed was place changes, followed by manner changes and a combination of place-manner variations. India being a multilingual country, there is a need to study productions in other major Indian languages such as Hindi and Malayalam also. The emergence of reduplicated and variegated utterances shed light about the early linguistic acquisition. There is no reported literature on the phonetic characteristics of reduplicated and variegated utterances in Hindi and Malayalam as early as the pre-linguistic period; hence the present study was taken up. The purpose of the study was to examine the patterns of reduplication and variegation and their frequency in infants from 4 to 12 months using a cross-sectional design.

The aim of the present study is to investigate the emergence of reduplicated and variegated babbling of infants with a native language background of Hindi and Malayalam from 4 to 12 months of age using a cross-sectional design. The objectives of the study were:

- a- To determine the nature of reduplicated and variegated babbles in infants, between the ages 4;0-6;0, 6;0-8;0, 8;0-10;0 and 10;0-12;0 months in Hindi<sup>3</sup>and Malayalam<sup>4</sup>
- b- To investigate the type and frequency of variegated patterns with respect to age and language

## 2. Methodology

### 2.1. Participants and inclusion criteria

Eighty infants were audio recorded from native Hindi and Malayalam speaking families, five boys and five girls in each age group at 4-6 months, 6-8 months, 8-10 months and at 10-12 months. An informed consent was obtained from the caretakers/ parents for the participation of the infants in the study. Care was taken to ensure that the participants had typical development and had not been exposed to any other languages. Participants were identified from native Malayalam speaking families and were assessed using the Developmental Screening Checklist (Swapna, Jayaram, Prema, & Geetha, 2010) for receptive and expressive communication skills, auditory, motor and cognitive skills. It was mandatory that both the parents were educated up to a minimum of 10th grade. The proficiency of the native language of the parents was assessed using the Language Proficiency Questionnaire: An adaptation of LEAP-Q in the Indian context by Ramya Maitreyee and Goswami (2009).

### 2.2. Procedure

Audio recordings were carried out by the investigator in a fairly quiet room with minimal distractions at the respective homes of the participants. Vocalization samples were recorded when the child was fed and in a comfort state. Parents were asked to interact naturally with the child. No additional play materials were introduced into the environment to capture the infants' typical vocalizations in familiar surroundings. The infant was stimulated more with toys and facial expressions than verbal utterances to avoid verbal imitation. Sony M55 audio recorder was utilized for recording each participant's vocalizations for 1 hour to obtain a minimum of 100 utterances. All the recordings were transferred to a computer and were analyzed using the VLC media player software.

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<sup>3</sup>India is a multilingual country having four distinct linguistic communities. These families include Indo Aryan, Dravidian, Tibeto-Burman and Austro-Asiatic. Hindi<sup>1</sup>belongs to the Indo Aryan family of languages which is a subgroup of the Indo European language. According to 2011 census, Hindi is spoken natively by 422,048,642 speakers which is the largest number of any languages in India. In Hindi, aspiration is phonemic/contrastive in the language, but vowel nasalization is not. The syllable structure of the language is (C)(C)V(C)(C). As such, both word-initial and word-final consonant clusters are permitted. Hindi is a SOV language.

<sup>4</sup>Malayalam belongs to the Dravidian family of four major languages with a rich literacy tradition. According to 2011 census, Malayalam is spoken by 33,066,392 people, primarily in the state of Kerala. The syllable structure of Malayalam is given by the following (items in parentheses are optional): (C)(C)(C)V(C). Malayalam is also a SOV language. <http://www.lmp.ucla.edu>



### 2.3. Data analysis

The recorded samples were transcribed by the primary investigator using broad and narrow International Phonetic Alphabet (2005). Sounds such as grunts, gurgles, laughs, shrieks and whisper etc. were excluded from transcription. A criteria for the transcribed sample was utilized, to consider a phone/ syllable to be present in the infants’ vocalizations. It is known that the complexity and frequency of vocal utterances will increase with age. Hence even a one-time production of a vowel/diphthong was considered as to be present in the infants’ productions at 4-6 months, two or more productions at 6-10 months, whereas three or more productions of a vowel/ diphthong was considered to be present in the infants’ productions at 10-12 months. After identifying the phones, their frequencies were calculated. Inter and intra transcriber reliability was calculated for 10% sample of each participant. Cronbach’s alpha co-efficient was found to be 0.80 and 0.85 for inter and intra transcriber reliability respectively.

The recorded samples of the infants was phonetically transcribed using International Phonetic Alphabet (2005) which was subjected to further statistical analysis using various non- parametric tests. Based on the mean percentage of occurrence of reduplicated and variegated utterances, the results are discussed on the following lines.

- (1) Frequency of reduplicated and variegated babbles (2) Types and frequency of variegated utterances which includes place, manner and place-manner variegation.

### 3. Findings and Discussion

Descriptive statistical analysis for reduplicated and variegated utterances was carried out for all the participants in both the languages. Table 1 represents the descriptive statistics of Mean percentage of occurrence, Standard deviation (S.D) and median for reduplicated and variegated utterances in Hindi and Malayalam speaking children.

Table 3.1 Descriptive statistics for reduplicated utterances with respect to age and language

Age Bands	HINDI			MALAYALAM		
	N	Mean (S.D)	Median	N	Mean (S.D)	Median
Group 1(4 to 6 months)	5	3.20 (3.98)	1.01	3	9.17 (2.70)	10.00
Group II(6 to 8 months)	7	7.43 (7.23)	4.46	9	6.81 (9.15)	3.37
Group III(8 to 10 months)	10	6.96(4.56)	5.28	9	9.15 (8.40)	6.19
Group IV(10 to 12months)	10	15.68(8.92)	12.06	10	12.31(7.82)	10.89

Table 3.2 Descriptivestatisticsforvariegatedutteranceswithrespecttoageandlanguage

AgeBands	HINDI			MALAYALAM		
	N	Mean (S.D)	Median	N	Mean (S.D)	Median
Group 1(4 to 6 months)	7	3.69 (4.15)	1.66	5	6.47 (5.85)	6.15
Group II(6 to 8 months)	9	9.93 (12.83)	3.81	10	9.64 (10.48)	4.76
Group III(8 to 10 months)	10	8.08 (5.54)	6.61	9	11.27 (7.61)	8.84
Group IV (10 to 12 months)	10	17.05 (9.66)	16.83	10	13.21 (5.23)	13.07

Table 3.1 and 3.2 summarize the combined mean percentage of occurrence, standard deviation (S.D) and median on syllable structures such as reduplicated and variegated babbling respectively with respect to age and language. The complexity of these utterances produced by 80 infants was analyzed from 4 to 12 months grouped in four age groups of both languages. The Hindi and Malayalam group comprised of 40 participants each (summing upto 80) with 10 infants in each of the 4 age groups respectively.

### 3.1.1. Discussion for reduplicated utterances

As seen in table 3.1, for the Hindi and Malayalam groups it could be inferred that there was a slight gradual increase in the mean percentage of occurrence for reduplicated utterances with increase in age. Both Hindi and Malayalam groups showed slightly different order of mean percentage of occurrence of reduplicated utterances across the 4 age bands. Group I ( 4 to 6 months) of Hindi participants had a very less percentage of occurrence of reduplicated utterances compared to a more percentage of occurrence of reduplicated utterance in the same age group in Malayalam. Group II (6 to 8 months) however had a slightly similar percentage of occurrences of the reduplicated utterances in both language groups. For Group III (8 to 10 months) the percentage of occurrence of the reduplicated utterances in the Hindi group was low compared to the equivalent age group in Malayalam. However, for Group IV (10 to 12 months) both the language groups had an increase in mean percentage of occurrence for reduplicated utterances, with Hindi group being slightly higher in its percentage of occurrence than the Malayalam group. It was observed that though the reduplicated utterances declined in the Hindi group at 8 to 10 months, it continued to dominate in the older group to a larger extent. Across all ages observed, within the languages there was high variability in the production of reduplicated utterances suggesting the emergence of complexity in utterances. The findings are similar to the other Indian studies by Anjana and Sreedevi (2008); Sreedevi and Jyoti (2012) in Kannada which is also a Dravidian language of south India. Overall, the reduplicated utterances increased by 6 to 9 months and at the end of the first year the frequency of reduplicated babbling increased even more. This could be due to the emergence of canonical syllables (well formed consonant+ vowel combinations), which appear between 6 and 10 months, followed by reduplicated babbling (repetition of syllables). By the canonical babbling stage in the second half of



their first year, young children have already shown evidence of recognizing precise ambient language regularities available from input (Saffran et.al, 1996; Werker& Curtin, 2005).

### *3.2.1 Discussion for variegated utterances*

As seen in Table 3.2, the Hindi and Malayalam groups had a gradual increase in the mean percentage of occurrence of variegated utterances with advance in age. For the Malayalam group, there was a linear increase in the mean percentage of occurrence for variegated utterances with increase in age. Table 3.2 also provides information regarding the presence of variegated utterances as early as 4 to 6 months. Group I (4 to 6 months) had a less mean percentage of occurrence of variegated utterances in Hindi compared to a slightly higher mean percentage of occurrence in the equivalent Malayalam group. Group II (6 to 8 months) showed a similar mean percentage of occurrences of variegated utterances in the 2 languages. Group III (8 to 10 months) had a low percentage of occurrence in Hindi compared to a high mean percentage of occurrence in the Malayalam group. The variegated utterances had a high mean percentage of occurrences in both the language groups for Group IV (10 to 12 months), with the participants in the Hindi group displaying a high increase in its mean percentage compared to Malayalam. It could be inferred that the variegated utterances dominated in the older age group in both the languages leading to the presence of complex utterances in their native languages. The findings obtained are contrary to the variegated babbling stage (Oller's stage 5, Oller, 1980) which is marked as the second portion of babbling, which begins at approximately 9-10 months of age and progresses to about the first year. However, the results indicate that variegated babbling has frequently been included with reduplicated babbling in a single stage of development called the canonical babbling because of the difficulty that often arises in distinguishing the two (Smith, Brown-Sweeney & Stoel-Gammon, 1989; Mitchell & Kent, 1990). The emergence of reduplicated and variegated babbling produced by the infants during different stages (Elbers, 1982; Oller, 1986) have found to co-occur from the onset of canonical babbling, although variegated sequences may not be a dominant category until some weeks or even months later. Thus, the emergence of variegated babbles in both the languages are in support with the study by Roug, Landburg and Lundburg (1989) who found variegated utterances present throughout their study, but increased dramatically towards the end of the first year of life or in the second year.

## *3.3 Comparison of age within each language*

### *3.3.1 Kruskal Wallis for comparison of age groups within each language.*

#### *3.3.1.1 Reduplicated and Variegated utterances.*

Non parametric test Kruskal Wallis was conducted to examine the overall significant difference across age in Hindi and Malayalam for reduplicated and variegated utterances. If there was significant difference, the language

group would then be subjected for within group comparisons. Table 3.3.1 depicts the results of Kruskal Wallis for reduplicated and variegated utterances for Hindi and Malayalam speaking children.

Table 3.3.1 Results of Kruskal Wallis with respect to measures of reduplicated and variegated utterances in Hindi and Malayalam groups.

Measures	Hindi		Malayalam	
	X <sup>2</sup>	p	X <sup>2</sup>	p
Reduplicated	12.07	0.007**	4.61	0.202
Variegated	11.62	0.009**	4.51	0.211

\*\* highly significant at  $p < 0.01$  level

As seen from table 3.3.1, it is observed that there was significant difference in reduplicated and variegated utterances for Hindi speaking participants across the age groups and no significant difference was present across the age groups for Malayalam speaking participants. Crosslinguistic comparison reveals that the production of reduplicated and variegated babbling was higher in the Hindi group compared to the Malayalam group. Hence, the Hindi group was subjected to further statistical analysis. Mann-Whitney U-test for pair-wise comparisons was carried out for between the age groups as provided in Table 3.3.2

Table 3.3.2 Mann-Whitney U test for pair-wise comparison between age groups with respect to reduplicated and variegated utterances

Age Groups	Reduplicated utterances		Variegated utterances	
	z	p	z	p
Group 1 and Group II	1.54	0.12	0.90	0.36
Group 1 and Group III	1.96	0.50	2.00	0.045*
Group 1 and Group IV	2.69	0.007**	3.02	0.002**
Group II and Group III	0.48	0.68	0.89	0.36
Group II and Group IV	1.95	0.51	1.96	0.05*
Group III and Group IV	2.49	0.013*	2.15	0.031*

\* significant at 0.05 level

\*\* highly significant at 0.01 level

As seen in table 3.3.2 Mann-Whitney U test was administered to examine the significant difference between the age groups for reduplicated and variegated utterances in the Hindi group. There was high significant difference between Group 1 (4 to 6 months) with Group III (8 to 10 months) for variegated utterances ( $|z| = 2.00$ ;  $p < 0.05$ ), Group 1 (4 to 6 months) and Group IV (10 to 12 months) for reduplicated ( $|z| = 2.69$ ;  $p < 0.05$ ) and variegated utterances ( $|z| = 3.02$ ;  $p < 0.05$ ), between Group III (8 to 10 months) and Group IV (10 to 12 months) for reduplicated ( $|z| = 2.49$ ;  $p < 0.05$ ) and variegated utterances ( $|z| = 2.15$ ;  $p < 0.05$ ). The difference could be due to



the onset of variegated babbling in the older age groups accompanying the reduplicated babbling, with a higher percentage of occurrence for the variegated babbling. However there was no significant difference between the groups; Group I (4 to 6 months) with Group II (6 to 8 months) for reduplicated utterances ( $|z| = 1.54$ ;  $p > 0.05$ ) and variegated utterances ( $|z| = 9.00$ ;  $p > 0.05$ ), Group II (6 to 8 months) and Group IV (8 to 10 months), though displaying the occurrence of variegated babbling increased with age, it did not exceed the occurrence of reduplicated babbling even in the older groups.

*Mann-Whitney Test for comparison of languages within the age groups*

Table 3.3.3 Reduplicated and variegated utterances for the age groups 4-6, 6-8, 8-10 and 10-12 months for Hindi and Malayalam languages.

Age Groups	Reduplicated utterances		Variegated utterances	
	$ z $	p	$ z $	p
Group 1( 4 to 6 months)	1.64	0.10	0.65	0.51
Group II( 6 to 8 months)	0.58	0.56	0.08	0.93
Group III( 8 to 10 months)	0.32	0.74	0.89	0.36
Group IV( 10 to 12 months)	0.94	0.34	0.90	0.36

As seen in table 3.3.3, Mann-Whitney U –test was administered to examine the significant difference of reduplicated and variegated utterances across the 2 languages within each age group. There was no significant difference within the 4 age groups across Hindi and Malayalam suggesting differences in the complexity of syllabic structures of reduplicated and variegated utterances that increased with age. Although the table 3.3.3 depicts an increase in the occurrence of reduplicated and variegated babbling with age, it could be inferred that the variegated babbling did not exceed the occurrence of reduplicated babbling even in the older age groups. This comparison of the children’s output patterns in diverse language environments provides information on the ambient language learning targets. However, the present study is in support with several other studies that have shown the concurrent use of both reduplicated and variegated babbling (Mitchell& Kent, 1990; Smith et al., 1989).

*4.1 Type and Frequency of occurrence of variegated utterances*

*4.1.1 Analysis of Place, Manner and Place-Manner Variegated Utterances*

Descriptive statistical analysis was carried out for types of variegated utterances that included place, manner and place-manner variegation across age groups in both the languages. Table 2 represents the Mean percentage of occurrence, Standard deviation (S.D) and median for the types of variegated utterances in Hindi and Malayalam (N=number of speaking children) in all the 4 age groups.

Table 4.1 Combined Mean percentage of occurrence and Standard deviation (S.D) for the types of variegated utterances in Hindi and Malayalam speaking children.

Category		Group 1 ( 4 to 6 months)	Group II ( 6 to 8 months)	Group III ( 8 to 10 months)	Group IV ( 10 to 12 months)	
Hindi	Place	N	-	2	4	5
		Mean (S.D)	-	4.06 (4.94)	1.36 (0.68)	1.97 (1.17)
		Median	-	4.06	1.30	2.00
	Manner	N	-	2	-	2
		Mean (S.D)	-	1.54 (1.38)	-	1.27 (0.74)
		Median	-	1.54	-	1.27
	Place-Manner	N	6	3	4	9
		Mean (S.D)	2.04 (1.67)	7.83 (0.36)	1.19 (0.46)	4.90 (4.70)
		Median	1.17	7.69	1.26	2.22
	Place	N	2	1	2	3
		Mean (S.D)	0.84 (0.23)	0.68 (0.00)	1.41 (1.06)	1.00 (0.62)
		Median	0.84	0.68	1.41	0.79
Malayalam	Manner	N	1	-	2	1
		Mean (S.D)	2.27 (0.00)	-	0.83 (0.24)	0.51 (0.00)
		Median	2.27	-	0.83	0.51
		Mean (S.D)	4.03 (2.32)	3.05 (4.12)	3.71 (2.17)	4.18 (3.07)
		Median	5.05	1.31	3.19	2.76

Table 4.1. The summary of the combined mean percentage of occurrence, standard deviation (S.D) and median on syllable patterns such as place, manner and place-manner changes in variegated babbling respectively with respect to age and language.

#### 4.1.2 Place Variegation

As seen in Table 4.1, for the Hindi group, place changes were not predominant in Group I (4 to 6 months). Group II (6 to 8 months) had a high variability in the productions compared to Group III (8 to 10 months) and Group IV (10 to 12 months). On similar lines, the Malayalam group also had a high production of place variegation compared to the other age groups, followed by group IV (10 to 12 months), group I (4 to 6 months) and least



being in group II (6 to 8 months). On cross linguistic comparison across the age groups, it could be observed that the Malayalam participants had a predominance of place variegation pattern in the age band 4 to 6 months than the Hindi group. There was high mean percentage of occurrences of place changes in the age band, 6 to 8 months in Hindi whereas the mean percentage of occurrence was least for the Malayalam group in the same age group. Group III (8 to 10 months) however had a slightly similar percentage of occurrences of place changes in both the languages. The mean percentage of occurrence of place changes was inconsistently high in the production by the Hindi participants in Group IV (10 to 12 months) compared to the Malayalam group. Hence, from the table it could be inferred that the place pattern productions were variable across the age groups in the 2 languages.

#### *4.1.3 Manner Variegation*

As depicted in Table 4.1, the Hindi group had no predominant manner variegated productions for Group I (4 to 6 months) and Group III (8 to 10 months). Group II (6 to 8 months) had a high mean percentage of occurrence compared to Group IV (10 to 12 months). For the Malayalam group, there was no predominance of manner variegation in Group II (6 to 8 month). However, a linear decrease in the mean percentage of occurrence was observed for Group I (4 to 6 months), Group III (8 to 10 months) and Group IV (10 to 12 months). On comparison of both the languages across the age groups, for Group I (4 to 6 months) the Hindi group had no manner productions but the Malayalam group displayed a mean percentage of occurrences of manner patterns of 2.27 %. For Group II (6 to 8 months), the Hindi participants had a mean percentage of occurrences of 1.54% of manner variegated utterances whereas no productions were present in the Malayalam group. Similarly, for Group III (8 to 10 months), the Hindi participants had no manner variegated utterances compared to the Malayalam group who had a mean percentage of 0.83%. The Hindi participants in Group IV (10 to 12 months) had a high percentage of occurrence of 1.27% compared to Malayalam group that had a mean percentage of occurrence of 0.51%. Overall, the Malayalam group had a high occurrence of manner variegated production compared to the Hindi group.

#### *4.1.4 Place-Manner Variegation*

As displayed in Table 4.1, for the Hindi group, Group I (4 to 6 months) had predominance of place-manner variegated syllables in their productions. In Group II( 6 to 8 months) there was a variable increase in the productions of place-manner utterances. However, in Group III (8 to 10 months) there was steep decrease in the productions and Group IV (10 to 12 months) participants had a slight increase in the variability of their productions. For the Malayalam group, Group I ( 4 to 6 months) there was presence of place-manner patterns, Group II ( 6 to 8 months), depicted variability in the productions, group III ( 8 to 10 months) and Group IV ( 10 to 12 months) had a linear increase of the place-manner productions. Accordingly for both the languages a reverse order of occurrences are depicted, Group I (4 to 6 months) of Hindi participants had a low mean percentage of occurrence

2.04% compared to a high mean percentage of occurrence of 4.03% in Malayalam. For Group II (6 to 8 months), the Hindi group had a high mean percentage of occurrence of 7.83% compared to the mean percentage of occurrence of 3.05% in the Malayalam group. For Group III (8 to 10 months), the Hindi participants had a low mean percentage of occurrence of 1.19% compared to the Malayalam group that had a high mean percentage of occurrence of 3.71%. However the older age Group IV (10 to 12 months) had a high mean percentage of occurrences with increase in age, although the Hindi group displays a high mean percentage of occurrences of 4.90% of place-manner patterns compared to the Malayalam group that had a mean percentage of occurrences of 4.18%. From Table 3 it could be inferred that there was variability in the production of place-manner utterances by the participants in both the languages across the age groups suggesting the emergence and existence in the complexity of utterances.

Non-parametric test, Mann-Whitney was utilized to examine the significant difference between places, manner and place-manner variegation across the 2 languages within each age group.

Table 4.2. Place, manner and place-manner variegated utterances for the age groups 4-6, 6-8, 8-10 and 10-12 months for Hindi and Malayalam groups.

Age Groups	Place		Manner		Place-Manner	
	Variegation		variegation		Variegation	
	z	p	z	p	z	p
Group I(4 to 6 months)	1.45	0.15	1.00	0.31	0.75	0.46
Group II(6 to 8 months)	0.60	0.54	1.45	0.14	1.52	0.12
Group III(8 to 10 months)	0.93	0.35	1.45	0.15	2.14	0.032*
Group IV(10 to 12 months)	1.23	0.21	0.73	0.46	1.49	0.14

\* Significant at < 0.05 level

As seen in table 4.2, Mann-Whitney U test was administered to examine the significant difference within the age groups for place, manner and place-manner variegation across the 2 languages. Analysis of patterns in variegated utterances revealed no significant difference within the 4 age groups across Hindi and Malayalam for place variegation, and manner variegation suggesting no differences in the patterns of variegated utterances that increased with age. However, Hindi and Malayalam participants showed reverse trends in the occurrence of all the 3 patterns across age groups. There was a high significance for group III (8 to 10 months) for the pattern of place-manner variegated utterances ( $|z| = 2.00$ ;  $p < 0.05$ ) in both the languages. Place-manner changes predominated in Group III (8 to 10 months) over place changes and manner changes compared to all the age groups. The results of the present study correlates with the studies in the Indian context carried out by Anjana and Sreedevi (2008) which phonetically the varied multisyllable babbles which were more in frequency in 8-9



months. The occurrence of variegated babbling increased in the 9-10 and 10-11 month group although contrary to the pattern of place-manner variations that occurred more frequently in the present study. On similar lines the combination of place and manner variations occurred more frequently than place or manner variations alone in 11-12 month age group which is similar to the current finding. A similar finding was also observed in Sreedevi and Jyoti's study (2012) in Kannada babbling infants as early as 3 months to 1 year, more frequent variegated babbling began at 8 – 9 months and gradually increased with age. The most common variegation observed was place changes, followed by manner changes and a combination of place-manner variations throughout the age range. The findings by Davis and MacNeilage (1995) Davis et al., (2002) indicated that the variegated babbling had more manner than place changes are not in support with the present results obtained. The present study, therefore suggests that there was not much of a difference in both the languages Hindi and Malayalam indicating the presence of universality in the acquisition of the native language in the pre-linguistic period.

**Note: Utilization of Language Proficiency Questionnaire (LEAP-Q)**

The sample recordings of the infants were carried out in native speaking Malayalam families. The Language Proficiency Questionnaire-LEAPQ (RamyaMaitreyee&Goswami, 2009) was utilized to assess the native language proficiency of the parent/s in Hindi and Malayalam. According to the rating, the language proficiency of the parent/s was “perfect” native speakers of Hindi and Malayalam. Hence the trend of developing speech sounds could be attributed to the influence of the ambient language since the parents of the participants communicated in their native language with them. Hence, it could be suggested that the infants were reared in a monolingual speaking environment and the exposure to the ambient language could be attributed to the nature and emergence of such vocalizations.

**6. Conclusion**

Typically developing infants produce a rich variety of vocalizations during the prelinguistic developmental stages. The present study provides an insight on the frequency and types of reduplicated and variegated babbles during the pre-linguistic period. The study suggests the presence of variety of utterances as early as 4 months, though unmeaningful but leading to a meaningful production to their first words in their native languages which is also an indicative of an emergence in the complexity of syllabic patterns.

*6.1 Implications of the study*

The present study would help appreciate the nature of reduplicated and variegated babbles in the pre-linguistic period in both diverse Indian languages. There is limited number of studies exploring the various types of babbles in early infancy in Indian languages. This is one of the first attempts to explore the nature of reduplicated and variegated babbles in infants. Findings obtained will greatly be applicable in clinical practices of

communication disorders. In the recent years, speech language pathologists are required to evaluate the language acquisition of increasing number of children even less than one year of age. The challenges of providing services to a linguistic and cultural diverse population like India is compounded by the increased awareness and education of the parents and their increased sensitivity to the child's early speech development. The findings of pre-linguistic vocalizations also support the fact that babbling is a predictor of language complexity as well as an indicator of language delay. Studies on infant vocalizations report that early laryngeal vocalizations such as vegetative and reflexive sounds are differentiated from "speech like" vocalizations after the first trimester in life. Hence, the present study serves as a benchmark for the nature of vocalizations of infants from 4 – 12 months of age which is a significant phase of the pre-linguistic period and contributes to later language learning in 2 diverse Indian languages Hindi and Malayalam.

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## **True words, protowords and holophrastic words in typically developing Kannada speaking children:12-24 months**

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### **Abstract**

Normative data is an indispensable tool in clinical assessment and management of discrepancies of infant phonology and early expressive vocabulary. Though literature confined to this area is surplus, there is a dearth of normative studies primarily in regional Indian languages (eg, Kannada). Hence the present study aimed to track developmental trends in early phonological and expressive vocabulary development, namely, protowords, holophrastic words and true words in 12-24 months old typically developing Kannada speaking toddlers. Twenty four typically developing native Kannada speaking toddlers in the age range of 12-24 months (divided into two age groups 12-18 months and 18-24 months, with 6 participants in each age group) served as the participants of the study. Speech like utterances through various free play sessions from all the 24 participants were video recorded. These utterances were later transcribed and analyzed in terms of their communicative intent, meaning, situational cues and were categorized as being protowords, holophrastic words or true word productions. On applying descriptive statistics, it was found that holophrastic and protowords productions were found in all the participants of the younger age group (12-18 months), with their frequency declining in the older age group (18-24 months). These findings were thought to reflect their limited expressive vocabulary in comparison to their huge conceptual framework. True word productions showed the opposite trend of that of holophrastic and protowords, with their frequency being greater in the older age group compared to the younger age group. This finding signaled progressions in expressive vocabulary growth with advancing age. The current study revealed a progressive developmental trend in the field of child language acquisition.

**Keywords** keyword, keyword, keyword, keyword, keyword (at least five keywords should be provided)

### **1. Introduction**

In The first few words a child produces in a meaningful context, engraves a trade mark in its journey towards the phonological and subsequent lexical acquisition and progression. In the growing body of research on childhood phonology and language acquisition, more and more evidence is emerging on the rapidity and variety of language acquisition in young children (Menn, 1978; Stoel Gammon & Cooper, 1984; Bauman-Waengler, 2008). Considerable research has found intellectual/cognitive development to be

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interdependent on language development (Garcia-Vazquez, Vazquez, Lopez, 1997; Mayberry, 2002). Linguistic stage gets a head start around a child's first birthday. The moment the first meaningful words are produced classically earn a noteworthy spot in the child's "milestones" scrapbook. First words are defined as an entity of relatively stable phonetic forms that are produced consistently by the child in a particular context and are recognizably related to the adult like word form of a particular language (Owens, 1996).

### *1.1. Protowords*

At the age of 12 months, children produce the first articulated word-like structures which are frequently present in children's verbal repertoire. These, referred to as "invented words" (Locke, 1983), mark an entry into children's early lexicon, and are used consistently demonstrating that they are meaningful. These words that are used consistently but without recognizable adult model have been labeled protowords (Menn, 1978), phonetically consistent forms (Dore et al., 1976), vocables (Ferguson, 1976) and quasi words (Stoel Gammon & Cooper, 1984). Protowords fascinatingly precede the first recognizable true words, and are acknowledged by parents as speech-like utterances. Protoword forms consist of one or a few articulatory gestures, such as closure of the airway with the tongue and the tongue repeatedly contacting specific oral structures consistently (Menn, 1983).

Conklin (2010) has divided protowords into three categories: the phonetically consistent form has a standard sound pattern, but is not referentially stable, nor based on adult language.

The pre-word is phonetically consistent and referentially stable, yet not based on adult language. It is accurate in its categorization, according to adult model, yet the child has found an individual way of communicating meaning. Finally, the sensorimotor morpheme is phonetically and referentially stable, and it is based on adult language, but cannot be communicated without the use of a supporting gesture, and is sometimes part of routine.

Minna Laakso, Marja-Liisa Helasvuo and Tuula Savinainen-Makkonen (2010) have reported that the children's proto-word utterances remain the same in almost all contexts but since the accompanying non verbal activities varied they were interpreted by the parents as referring to multiple referents. Common examples of protowords are mama, dada, and baba. Protowords are different from repetitive babblings in two main ways. First, while repetitive babbling involves repeating sounds over and over again (e.g., bababababa), protowords are shortened, typically to 1-2 syllables. In repetitive babbling the infants just produce sounds, but once they use protowords, they more closely approximate speech patterns. Second, babbling has no correspondence to objects in the world while protowords, correspond to something concrete, i.e., they are used consistently to refer to the same object, e.g., "mama" for mother, "lala" for milk etc.

### *1.2. Holophrastic words*



Ingram (1976) refers to the First Fifty Word Stage as a PreSystematic Stage in which contrastive words rather than contrastive sounds are acquired. The presystematic stage is related to Item Learning and System Learning stages of early phonological development (Cruttenden 1981). In item learning, the child first acquires phonetic forms as unanalyzed word forms, units or production wholes. Only later, after the first fifty-word-stage, does system learning occur, during which the child acquires the phonemic principles that apply to phonological system. The early portion of item learning stage is known as the Holophrastic Period, the span during which the child uses one word to indicate a complete idea. The link between the object, its meaning, and discrete sound segments is not firmly established. Many authors report phonetic variability and a limitation of syllable structures and sound segments during this stage (Bauman-Waengler, 2008; Bernthal, Bankson, & Flipsen; 2009). Andrew Matthews (1996) reports the following regarding holophrastic words: “The word Holophrastic is used to mean the single word phrase stage. It starts at around the age 1.0 and ends at about 1.6. In this stage, the only verbal means that the baby has of communicating is through the use of single word sentences. These words do not imply just the meaning of that single word. It is the means by which, the child is able to express more than one meaning with a single word. Pronunciation improves during the holophrastic stage and the vocabulary consists of a large proportion of person and object words. There are some relational words but they do not form a large part of the child’s language until the telegraphic period. The kinds of relational words which are used are normally like ‘up’, ‘no’, or ‘more’”.

The psycholinguist Martin Braine (1963, 1971) noticed that these single words gradually embodied the communicative functions of entire phrases: e.g. the child's word *dada* could mean 'Where is daddy?' 'I want daddy,' etc. according to situation. He called them holophrastic, or one-word, utterances. In situations of typical nurture and development, holophrases reveal a vast amount of neuro-physiological and conceptual development in the child. Holophrases imply that the child’s intentions are much more than what s/he expresses and these act as a forging link between the words produced and a train of thoughts running in the child’s conceptual world.

Ritgero (2014) reports that during the early vocabulary stage, the child produces only one understandable word at a time while communicating with adults. He terms this stage as the holophrastic stage, wherein, the adults interpret a single utterance produced by the child as 2-3 word utterances implying a meaning for them contextually. An example of the holophrastic stage he puts forth would be, for instance, the word “more” where children make themselves understandable by saying just this one word, which also could involve hand gestures like pointing at the thing they want more of.

### *1.3. True words*

Early lexical production has long been the focus of language development research, particularly from the acquisition of the first true word through to the production of two-word utterances, typically in between the ages of 1 and 2 (Walker, 2011). A true word typically produced during The First Fifty Word

stage; is one which is phonetically and meaningfully relevant to the context and is a consistent match to the adult production. A first word is usually defined as an entity of relatively stable form that is produced consistently by the child in a particular context and is recognizably related to the adult like word form of a particular language (Owens, 1996).

Andrew Matthews (1996) reports that from age 1.6 to 1.9 years, a child's vocabulary will expand from around 20 words to 200 words. These words will include action names, state names and the odd functional words which refer to kinds of events. Most of the vocabulary at this stage will consist of naming words (nouns) particularly of objects in the child's environment that it can manipulate, such as toys clothes, food or people. True words are emerging phonetic combinations spurting in the child's vocabulary abiding by phonologic principles of the language, wholly resembling the adult target and containing an inherent meaning. The age at which the first true words are pronounced, their form, and the rate at which vocabulary spurts usually varies from child to child (Ritgero, 2014). In this case, culture, social environment, the child's temperament and birth order, all influence the age at which these first words are uttered and progressed further.

In the Indian context, Reeny and Sreedevi (In press) conducted a study on the emergence of early word forms in Malayalam and Hindi speaking children in the age range of 10-12 months. They observed a greater frequency of protoword productions as well as true word productions in Hindi as compared to Malayalam language. Protowords were found to exhibit a higher mean percentage as compared to that of true words in both the languages justifying the transition period from babbling to the first fifty word stage.

Normative data is an indispensable tool in clinical assessment and management of discrepancies of childhood phonology. Professionals working with the population of one to two year old toddlers must be able to discern whether the expressive vocabulary of the child is following a typical course of development or is deviant and thereby make intervention pronouncements if necessary. Though literature in this purview is in itself abundant, there is a paucity of historical research on early infant expressive vocabulary in regional Indian languages, especially Kannada. As Kannada language is a much popular and widely spoken in South India, developmental trends specific to the language need to be explored and established. Hence, the present study was intended to obtain comprehensive information on the various sub components (protowords, true words and holophrastic words) and developmental trends in early expressive meaningful vocabulary and its repertoire, in 12-24 months old typically developing Kannada speaking toddlers.

#### *1.4. A brief note on Kannada language and its constituents*

Kannada is a Dravidian language spoken by more than 20 million people in and around Karnataka State in South India. It has 27th place in most spoken languages of the world (Hemakumar, 2011). Ethnologue reports "about 20 dialects" of Kannada to be present and used. Like most other Dravidian languages, the phonological system in specific contains a number of significant contrasts that are not found in English. The most conspicuous



differences are the existence of retroflex consonants and the contrasts between short and long vowels. The Mysore dialect (present in the current study) of Kannada has 15 vowel phonemes, i.e., sounds that make a difference in word meaning. All but one vowel (/ə/) can be short or long. Vowel length makes a difference in word meaning. In addition, there are two diphthongs: /ai/ and /au/. Spoken Kannada tends to eliminate the aspirated consonants and the sibilant contrasts to some extent; but in many dialects it exhibits consonants such as /f/ and /z/ and vowels such as /æ/ and /ɔ/ (primarily in Urdu or English loan words such as /fizu/ for ‘fees’; /bæнку/ for ‘bank’ and /lɔjar/ for ‘lawyer’) (Schiffman, 1979). Kannada has a native Dravidian inventory of consonants, with a superimposed system of aspirated consonants and supplementary sibilants borrowed from Indo Aryan, and with /f/ and /z/ borrowed from Urdu and reinforced by borrowed words from English. In spoken Kannada, these borrowed phonemes tend to be replaced by similar ‘native’ phonemes (e.g., /f/ may be replaced by /ph/ or /p/, /z/ by /dz/ or /s/, aspirates by non aspirates etc.) (Schiffman, 1979). In addition, typical Kannada consonantal features include:

- A contrast between apical and retroflex consonants, e.g., /t/ – /ʈ/. Apical consonants are produced with the tip of the tongue touching the roof of the mouth, whereas retroflex consonants are produced with the tongue curled, so that its underside comes in contact with the roof of the mouth;
- A contrast between plain and aspirated stops;
- Limited occurrence of consonant clusters in final position.
- Gemination, or doubling, of consonants. (Doubled).

Kannada’s vocabulary is Dravidian in nature. Like other Dravidian languages, Kannada uses compounding and reduplication to form new words (Irene Thompson, 2014). Along with Telugu, it has been influenced by Sanskrit, Portuguese, and English, which clearly illustrates the presence of quite a few loan words in spoken Kannada too. Kannada is a highly inflected language with a grammar. Similar to other Dravidian languages, it is agglutinative, which means that suffixes are added to stems to derive new words and to express various grammatical relationships. This class of words includes common nouns, proper names, pronouns and adjectives which are inflected for certain specific categories like gender, number, cases, personal pronouns etc. The standard word order in Kannada is Subject-Object-Verb. However, other orders are possible because inflectional endings enable grammatical relations and roles in the sentence. As for information structure, there are special markers for topic (what the sentence is about, or old information) and focus (new information). Constituents with old information precede constituents with new information, or those that carry most emphasis. Omission of the subject is common since the verb agrees with the subject in person and number. Modifiers usually precede the words they modify. There is a considerable difference between the spoken and written forms of the language with regard to its phonology, grammar, and

lexicon. Spoken Kannada has many regional dialects, while the written form remains relatively uniform.

## **2. Methodology**

### *2.1. Participants*

Twenty four typically developing native Kannada speaking children in the age range of 12-24 months took part in the study. The participants were divided into two groups with an age interval of 6 months (12-18 months and 18-24 months) with 12 children each. The subjects were randomly selected from immunization centers, neighboring homes, hospitals and pediatric clinics in Mysore city and were informally screened for history of any medical, speech, language, hearing, cognitive or motor difficulties. They were selected after a parental interview and an informal assessment of appropriate developmental skills based on a checklist (Department of Prevention of Communication Disorders; All India Institute of speech and Hearing, Mysore, India). Consent from the parents regarding the active participation of their children was also obtained.

### *2.2. Data recording Procedure*

Audio video recordings from each participant were carried out using a high quality digital audio video recorder (Sony Full HD 1080 Handycam) to obtain a minimum of 40 verbal speech like utterances (protowords, holophrastic words, true words, jargon utterances, onomatopoeic sounds, single isolated phonemic utterances) A standard set of toys appropriate to 1-2 year old toddlers were used to elicit verbal utterances from the child through various free play sessions in the presence of the mother or the care taker.

### *2.3. Data Analysis*

The recorded data were edited to retain only the verbal speech like utterances of the children. These selected utterances were orthographically transcribed using broad and narrow IPA. The responses of each subject were analyzed and categorized as jargon productions (isolated vowels, random mono and bisyllabic utterances), true word productions, proto words and holophrastic word productions based on the contextual determinant cues, maternal identification, and multiple episodes of usage as augmented by the mother/care taker's information (Vihman and McCune, 1994). Jargon verbal productions were not analyzed. Percentage occurrence of protowords, true words and holophrastic words was obtained, by dividing sum of occurrences of each of these linguistic categories by total number of utterances produced by the target age group multiplied by 100.

## **3. Findings**

The current study revealed the presence of protowords, holophrastic words and true words in varying frequencies with progressing age and linguistic advancements across all participants of the two age groups. True words, proto words and holophrastic words as a measure of lexical diversity and linguistic advancement were examined in terms of their percent mean frequency of occurrence. This was calculated from a total corpus of 40



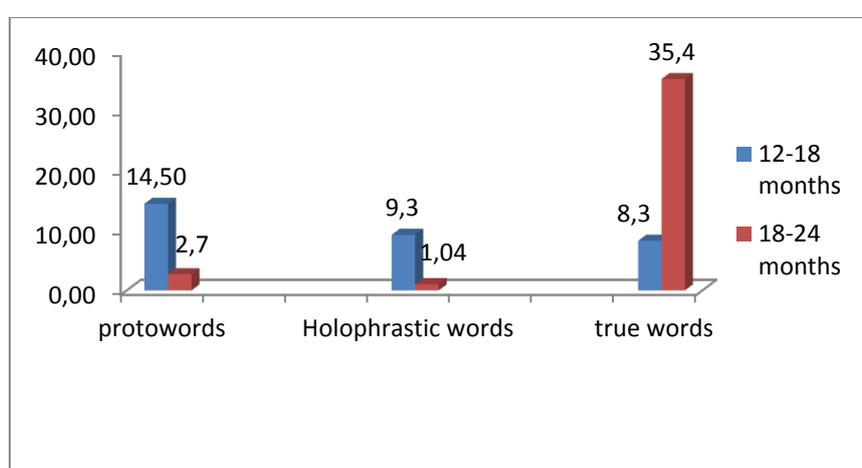
speech like utterances of each child within the younger and the older age group respectively.

Protoword productions were seen in all participants of the younger age group (12-18 months) and in only a limited number (7 out of 12) of participants and frequencies of the older age group. Application of descriptive statistics for the calculation of percent mean frequency of protowords revealed the mean percentage of Protoword in the younger age group to be 14.5% and in the older age group to be 2.7%. The protowords productions of all the participants of both the age groups are provided in Appendix 1. As noticed, protoword produced by the younger age group were centered around the child's basic needs (food [mammam], water [ija], milk [lala/dudu], sleep [ta:chi] etc), the items they use, animals they see in their daily environment and the immediate people around them (e.g. mother and father). A salient feature observed was that, even though these protowords did not have a universal standard, the utterances were produced and manipulated in a similar manner, resulting in similar phonetic combinations. Though a few of the adult form of words (for which these protowords were produced) had slightly complex phonetic constitutions, owing to their high relevance in the children's functioning, they are evident to have been modified and used as convenient for the child.

Holophrastic words were found to be present in all the participants of the younger age group (12-18 months), with only 3 participants producing them in the older age group (18-24 months). The mean percent frequency of occurrence of holophrastic words in the younger age group was 9.3% and 1.04% in the older age group. The holophrastic productions of all the participants are provided in Appendix 2. There were a few most commonly used holophrastic words across all participants of the younger age group. These mainly were [ba] (for signaling 'come' and 'go'), [tɔ] and [tʌ] (for signaling 'give' and 'take') and [aɖu] (for signaling 'this' and 'that'). Some other frequently used holophrases by the participants alluded to items/things they like and to carry out actions they prefer. These were mainly to signal fruits or eatables they like and to feed them (eg: [am]), animals they like or to signal danger from them (eg: [bo], [pau], [is] etc) and to take them out for a ride (eg: [bu]). There were a few other holophrastic productions individualistic to each child. Some of these productions were: [enu] to signal variety of questions, [mami] (to indicate God and for bowing down), [na] (to indicate possession and that she will not give anyone), [ɖu] (for give and take) etc. Another feature observed was that only a few of these holophrastic productions had similarity to the adult standard words while many others were just single word random productions used consistently to signal variety of thoughts in a given context.

Contrary to the trend of protowords and holophrastic productions, true words were found in abundance in the older age group in comparison to the younger age group participants. The mean percentage of true words occurrence was found to be of 8.3% in the younger age group and 35.4% in the older age group. Each of the participants in the older age group was noticed to exhibit mainly true word productions which were either monosyllabic, bisyllabic or multisyllabic (bisyllabic vocabulary

predominating mono and multisyllabic words). The true word productions of all the participants of both the age groups are provided in Appendix 3. It is interesting to note that true word productions of participants in the younger age group clustered around their basic needs and the immediate matters around them. On a grammatical note, these words seemed to primarily incline towards noun class of words. A few of them observed frequently were [amma] (Mother), [tata] (Bye), [appa] (Father), [pa:pu] (Baby), [anna] (Rice), [ʈaʈa] (Grandfather), [hu] (Flower) etc. On the other hand, majority of true word productions from the older age group participants represented complex grammatical forms such as verbs, tenses, gender markers, plurals etc. in addition to nouns. Graphical representation of the mean percent of frequency of occurrence of protowords, holophrastic words and true words is shown in Graph1.



Graph1. Percent Mean frequency of occurrence of protowords, holophrastic words and true words

#### 4. Discussion

It was observed that the holophrastic productions and protowords were more frequent in the younger age group as compared to the older age group. True word productions exhibited a reverse trend as that of holophrastic and protowords productions with their frequency escalating in the older age group.

Protowords in the present study were found to comprise mainly of 1-2 syllable productions and to approximate more true speech like patterns rather than just a few random series of verbal strings. This is in consonance with the findings put forth by Menn (1983) and Laaksoet al (2010) who report protowords to comprise of just 1-2 syllables with limited articulatory movements performed but which closely approximate speech like productions and have a concrete linguistic communicative meaning to the child. As mentioned earlier, protowords were found in a larger frequency in the younger age group (12-18 months), more specifically in children between 12-15 months of age. This finding too is in consonance with a study by Reeny (2014) who reported a greater frequency of protowords constellating 1-2 syllable strings in children nearing the age of 1 year. Greater phonetic consistency of the protowords was noticed in the current study and this is



also augmented by reports of Carter (1979) who found phonetic consistency in protowords which marked the transition from prelinguistic to linguistic stages.

Protoword productions of all participants seen in the current study can be put under two classification categories by Conklin (2010). The first one being: The phonetically consistent form that has a standard sound pattern, but is not referentially stable, nor based on adult language. This feature was noticed in many protoword productions by the younger group of participants (more specifically between 12-15 months of age). Emergence of such a pattern could be owing to a limited phonetic repertoire, limited vocabulary and a huge disparity between the things the children are exposed to, the train of thoughts running in their minds and their verbal proficiency. The second category being the pre-word that is phonetically consistent and referentially stable, yet not based on adult language. Majority of the participants exhibited such protoword productions which were phonetically consistent, referentially stable but not adhering to the adult standards. This could be largely due to the idiosyncrasy effect, i.e., each individual child's way of modifying the productions according to their own phonetic expertise. Another reason for this could be owing to motherese/ infant directed speech, the way the mothers communicate to their children in a simplified manner, modifying all the phonetic elements of the words resulting in new sounding protoword like productions.

In the present study, holophrastic words were produced mostly by the younger participants with only a few (3/12) older participants producing them. This is in accordance with a report by Andrew Mathews (1996) who defines holophrastic stage to be exhibited from the age of 1 year to 1.6 years. Holophrastic words being evidently significant in the younger age group could be a reflection of their limited vocabulary in comparison to the huge train of thoughts and ideas running in their conceptual network. Most of the holophrastic productions constituted of relational words like [aɖu] (to indicate 'this' and 'that'), [ɖu]/[ko] (for give and take), [na] (to indicate possession and that she will not give anyone) etc. Presence of relational words as holophrases is also in accordance with Andrew Mathews (1996), who reported high percentage of relational words to dominate the holophrastic stage. The gradual decline in frequency noticed in the older age group could reveal their progression in phonetic mastery and vocabulary expansion signaling linguistic growth (Martin Braine 1963, 1971).

True words found in the present study varied extensively between the two age groups. The participants of the younger age group (12-18 months) demonstrated more of mono and bisyllabic true words which were similar to reduplicated babbling like strings of phonemes. This finding is in accordance with a study by Stoel Gammon and Cooper (1984) who report infants to use a limited number of patterns during their first few words. This finding is further augmented by a report by Elbers and Ton (1985) who recorded play pen monologues of one year Dutch boy and found that the infant had learnt four new words in a span of six weeks, the selection and production of which were all based on the prior preparation by babbling strings. Bisyllabic words with occasional occurrence of multisyllabic words was evidently seen in the

participants second year of life. These findings are in accord with Rupela and Manjula's (2006) study, wherein bisyllabic words found to emerge at 6-12 month; becoming predominant by 18 months. On a grammatical note, true words were mainly noun class of words in the younger age group with the grammatical class extending to verbs, tenses, gender markers etc. and in greater frequencies in the older age group. This finding can also be augmented by the reports of Andrew Mathews (1996) who reports children's vocabulary to expand at a phenomenal rate from 1.6 to 1.9 years of age from around 20 words to 200 words. These words are reported to include action names, state names and the odd functional words which refer to kinds of events along with simple nouns corresponding to names of toys, people around them etc.

Another remarkable finding of the present study was the steady rise in the frequency of varied word shapes and complex consonantal combinations in the older participants. Vihman and Kunnari, (2006) explained children's emerging word learning skills and accurate consonant production skill on word learning to occur on the basis of 'vocal motor schemes' (VMS). These were explained as generalized articulatory plans indexed by children's ability to consistently produce a given consonant over a period of time. Thus as children grow, they are able to efficiently carry out the vocal motor schemes thereby exhibiting increased word and consonant production skills.

Ample of jargon utterances in varied syllable shapes as well as single isolated phonemes differing in frequency in all the toddlers were predominant mainly in the younger age group (12-18 months), which indicated communicative intents possessed by the children, but a lack of a well defined phonetic linguistic repertoire. It has also been cited in the literature that, in an attempt to approximate adult word targets, young children often show non-linear development or regression and considerable individual differences (Vihman, 1996; Vihman & Velleman, 1989, 2000; Vihman, Velleman & McCune, 1994; Velleman & Vihman, 2002; Vihman & Kunnari, 2006; Vihman & Croft, 2007). Ferguson and Farwell (1975) stated that variability in children's own pronunciation of words reveal incomplete knowledge on the part of the child. This difference in the control of speech sound productions may reflect the immature status of child's linguistic and neuromotor capabilities in his or her formative years.

## **5. Conclusions**

Linguistic spurt following the child's first birthday has been a widely explored and researched topic in the literature on child phonology and language acquisition. The present study too was a preliminary attempt to focus on the emergence of different components of linguistic advancements during the early linguistic era. It was found that protowords, holophrastic productions as well as true words emerged during this period, the frequencies of each varying with progressing age. Holophrastic and protowords found copiously in the younger age group (12-18 months), were a reflection of the children's limited vocabulary to accommodate a huge conceptual framework, whereas decrease in their frequency with advancing age (18-24 months), portrayed their linguistic growth and maturity to meet the demanding needs of their conceptual system and progress incisively.



Future studies are warranted to analyze the structural composition of these linguistic productions in terms of their syllable shapes and phonetic accuracy.

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## Appendices

### Appendix 1

Protowords produced by Group 1 and 2 (12-24 months)

<b>Participant</b>	<b>Protowords</b>
1	[mam] (food), [bubu] (going out), [hat] (hitting), [ha] (hot), [jaja] (milk), [ap] (father)
2	[ai] (water), [amam] (food), [hat] (hitting), [taachi] (sleep), [la] (milk), [a:n] (orange) [pap] (father)
3	[mamam] (food), [dzidzi] (water) [ai] (there), [a:ji] (sleep), [bo:] (going out) [abbu] (getting hurt)
4	[mamam] (food), [bua] (water) [am] (all fruits), [lili] (there), [atta] (hitting), [mi:] (cat) [ka] (crow), [i:] (brushing), [ij] (fish), [api] (aunty), [a:n] (what)
5	[tachi] (sleep), [mamam] (food), [po] (flower)[ija] (water)
6	[am] (food), [pachi] (sleep) [ha t̪t̪] (hitting), [ija] (water), [a:t̪ t̪] (done) [bo:] (going out)
7	[mamamam] (food), [lala] (milk), [tachi] (sleep), [ab] (hurt), [sh:] (toileting), [pap] (father)
8	[amam] (food), [abbu] (getting hurt), [dudu] (milk), [ush] (toileting), [ha:] (hot)
9	[bua] (food), [wawa] (for water), [du] (take) [hatta] (hitting) [abbu] (getting hurt), [bo:] (going out)
10	[a t̪ t̪a] (hitting), [amam] (food), [lala] (milk), [pu] (flower), [an] (fruits)
11	[mammu] (food), [ada] (there), [ha t̪ t̪a] (hitting) [bo:] (going out)
12	[amamam] (food), [abbu] (getting hurt), [appu] (ghee), [a:p] (apple)
13	[ij:a] (water) tək (horse)
14	[Ija] (water)

15	---
16	[mamam] (food) [t̪achi] (sleep)
17	[ka:] (crow)
18	ullæ (don't want),[mamam] (food) [ija] (water)
19	---
20	æpittu (apple); t̪achi (sleep) ; jija (water) d̪ud̪u (milk),
21	---
22	---
23	a:puchi (insect)
24	---

\*- not present

## Appendix 2

Holophrastic productions in Group 1 and 2 (12-24 months)

<b>Participant</b>	<b>Holophrastic productions</b>
1	[enu] (to indicate all 'wh' questions), [adu] (to indicate this and that) [ba] (to indicate come and go), [t̪o:] (to indicate give and take),
2	[t̪a] (to ask for and give),[bo] (for all animals and to indicate not to touch them), [be] (to indicate want and enough)
3	[pau] (to indicate all animals and that she is cared of them and not to touch those animal models), [t̪o:] (to indicate give and take) [ba] (to indicate come and go)
4	[am] (for all food items and to feed her), [ad̪u] (for 'this' and 'that') [bo] (for all animals and to be shown them to her), [hu] (to indicate yes and no)
5	[bu] (for going out and coming in) [adu] (to indicate this and that) [ili] (to indicate here and there)



6	[aja] (for both grandparents to lift him as well as put him down),[ba] (to indicate come and go) [alla] (for both presence and absence) [be] (to indicate want and enough)
7	[kechi] (for throwing and catching the ball), [mami] (to indicate god and for bowing down), [ko] (for give and take), [ila] (to indicate presence and absence)
8	[ɖu] (for give and take),[ba] (to indicate come and go) [t̥i:] (to indicate dirt and not to touch it)
9	[am] (for all fruits and to feed her them), [t̥ara] (for give and take), [ba] (to indicate come and go) [ija] (to indicate presence and absence), [a:n] ( to indicate switch off and on)
10	[ha] (to indicate danger, shock and not to touch), [is] (to indicate fish and all animals she likes), [ho] (to indicate come and go)
11	[illi] (to indicate here, and everywhere), [ai] (for falling, getting hurt), [a:n] (to indicate on and off) [be:ja] (to indicate dislike and not wanting it)
12	[t̥a] (give and take), [ha] ( for all electrical appliances shock and not to touch them) [ba] (to indicate come and go) [a:nu] (to indicate she wants banana and to feed her banana), [na] ( to indicate possession and that she will not give anyone)
13**	[æ])(to talk anything about ‘ball’ such as showing the ‘ball’, ‘catch the ball’, ‘give the ball’)
17**	[pa:vu](to refer to all insects and reptiles and that touching them is harmful) and [aɲnu](to refer to all fruits she likes and wants)
21**	[ula] and [uli] (for all forms of negation like don’t want, don’t give, won’t give etc).

\*\*Only 3 participants (13, 17 and 21) exhibited holophrastic productions.

## Appendix 3

True words produced by Group 1 and 2 (12-24 months)

<b>Participant</b>	<b>True word productions</b>
1	[amma] (Mother), [tata] (Bye)
2	[ba] (Come), [illi] (Here), [pa:pu] (Baby)
3	[amma] (Mother), [papa] (Father), [pa:pu] (Baby)
4	[avva] (Granny), [appa] (Father), [t̪a:t̪a] (Bye)
5	[ba] (Come), [anna] (Rice)
6	[t̪a:t̪a] (Grandfather), [appa] (Father), [hu] (Flower)
7	[amma] (Mother), [ajjo] (oh), [anna] (Rice), [ba:l] (Ball)
8	[amma] (Mother), [akka] (Sister), [bassu] (bus)
9	[pa:pu] (Baby), [amma] (Mother), [akka] (Sister)
10	[amma] (Mother), [ba:i] (Mouth), [akka] (Sister), [anna] (Rice)
11	[hannu] (Fruit), [na:ji] (Dog), [amma] (Mother), [ba:] (Come), [e:nu] (What)
12	[akka] (Sister), [amma] (Mother), [ba:] (Come), [anna] (Rice), [aɖɖɖi] (Granny)
13	[an̪a] (Rice), [amma] (Mother), [akka] (Sister), [bassu] (Bus), [pa:pu] (Baby), [kai] (Hand)
14	[amma] (Mother), [bat̪e] (Clothes), [na:nu] (Me), [aɖɖɖi] (Granny), [siti] (City), [illi] (Here), [ma:ma] (Uncle), [appa] (Father), [mit̪ai] (Sweet), [papu] (Baby), [id̪u] (This), [a:ne] (Elephant), [t̪a:t̪a] (Bye), [a:lu] (Potato), [ba:lu] (Ball), [bisi] (Hot), [ba:ji] (Mouth), [aɖu] (That), [anti] (Aunty), [akka] (Sister), [mugu] (Nose), [papa] (Father), [baj-baj] (Bye), [ɖuɖɖu] (Money), [kæʃ] (Catch), [monne] (Day before), [illa] (No), [ka:lu] (Leg), [nenne] (Yesterday)
15	[jelli] (Where), [id̪u] (This), [papa] (Father), [amma] (Mother), [bal] (Ball), [appa] (Father), [t̪a:t̪a] (Bye), [a:ne] (Elephant), [æpal] (Apple), [t̪a] (Give), [nim] (Yours), [alli] (There), [ba] (Come)
16	[illi] (Here), [amma] (Mother), [ajjo] (Oh), [a:lu] (Potato), [ja:ru] (Who), [alli] (There), [ba] (Come), [avva] (Granny)
17	[bai] (Mouth), [amma] (Mother), [jelli] (Where)
18	[mammi] (Mother), [na:nu] (Me), [ba:lu] (Ball), [ba:ji] (Mouth), [uru] (Place), [karu] (Car), [kodi] (Give), [na:ndu] (Mine), [kalu] (Leg), [na] (No), [ba] (Come)
19	[a:ne] (Elephant), [bekku] (Cat), [ni:n], [barIt̪a:jiɖa:ne] (Writing), [anna]



	(Brother), [tarka:rI] (Vegetables), [ba:ɽu] (Mixed rice), [tʃapa:ɽi] (Chapathi), [a:ta] (Play), [oɽuɽa:ida:ne] (Reading), [kærʌɽu] (Raise hand), [mʌne] (House), [pa:rk] (Park), [va:ʃ] (Watch), [hu:va] (Flower), [halluɽuɽa:ne] (Brushing), [a:lu] (Potato), [ɽaɽe] (Plate), [lota] (Tumbler), [nagɽa:ne] (Smiles), [ba:ɽu] (Comb), [æpal] (Apple), [bʌriɽa:ne] (writes), [aɽɽi] (Granny), [a:nɽi] (Aunty), [likitɽ] (Name), [amma] (Mother), [appa] (Father), [siti:ge] (City)
20	[gunɽi] (Pit), [amma] (Mother), [beku] (Want), [ka:ru] (Car), [baɽɽi] (Cotton swab), [akka] (Sister), [balunu] (Balloon), [va:ʃ] (Watch), [mugu] (Nose), [koli] (Hen), [na:ji] (Dog), [bekku] (Cat), [gombe] (Doll), [idɽɽu] (This one), [illi] (Here), [pa:pu] (Baby), [a:gojtɽ] (Done), [van] (van), [ɽu] (Spit)
21	[amma] (Mother), [appa] (Father), [munna] (Name), [ba:lu] (Ball), [kai] (Hand), [anɽa] (Brother), [akka] (Sister), [ba] (Come), [bukku] (Book), [hanɽu] (Fruit), [ka:lu] (Leg)
23	[bandɽe] (Came), [anɽa] (Brother), [ba:lu] (Ball), [ba:] (Come), [gombe] (Doll), [illi] (Here), [van] (Van), [ɽu] (Spit), [ha:du] (Sing), [akka] (Sister), [aɽɽi] (Granny), [ɽɽajamma] (Name), [hanɽu] (Fruit), [a:ne] (Elephant), [ma:ma] (Uncle), [baɽe] (Clothes), [ɽuɽu] (Money), [pennu] (Pen)
24	[amma] (Mother), [karu] (Car), [ka:ge] (Crow), [mammi] (God), [anti] (Aunty), [anɽa] (Brother), [ba:ro] (Come), [appa] (Father), [na:ji] (Dog)



## Use of polite request forms by Iranian first-graders: Does gender make a difference?

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### Abstract

This small-scale study set out to identify polite request forms in the speech of Iranian first-graders (i.e., 7-year-old children) and to identify differences between male and female children. To this end, 29 male first-graders and 30 females were asked to report how they would ask for something. The forms and the structures were analyzed and patterns were identified. A Chi-square test of independence was subsequently run to see if there was any relationship between gender and preference of direct over indirect polite request forms. The results indicated that there was a statistically significant difference between the choice of direct or indirect forms and the gender of 7-year-old children. Girls were found to favor more indirect forms, whereas boys opted more for direct structures. The study warrants further follow-up investigations and/or replications, given the small sample size.

**Keywords** first-graders, gender differences, Persian, politeness, pragmatic development

### 1. Introduction

One readily recognizable human behavior across individuals perhaps would be "how polite or impolite a person's language or nonverbal actions are" (LoCastro, 2011, p. 136). Some individuals are labeled by others as 'uneducated' if they behave in a way that violates social norms or values. Politeness has been extensively theorized about and investigated by various scholars. Theories have been proposed by such key figures as Brown and Levinson, 1987; Blum-Kulka; 1992; and Eelen, Gal, & Woolard; 2001. The trend in such theories has been more away from generalist assumptions of the construct and further towards "more culturally coloured definitions of the situation" (Blum-Kalka, 1992, p. 275).

One general area, still in the limelight by the researchers, is the apparent differential treatment of males and females vis-à-vis the use of (im)polite forms. Research results have been mixed. For instance, unlike much of the bulk of research conducted by Holmes (1988; 1989; 1990) and others attesting to female preference for the use of polite forms and politeness strategies (e.g., paying compliments, expressing apologies, less interruption of the other interlocutor's remarks, etc.), researchers like Bergvall (1996)

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have found 'evidence of no gender differences in sociolinguistic competencies and much overlap in usage' (Ladegaard, 2004, p. 2004). This has created a blurred picture of the issue.

The issue, to the best of knowledge of the present researchers, has not been given justice to by scholars cross-culturally especially in areas like Iran. Since children's pragmatic development is an area in need of more studies, it deserves investigation on the part of scholars with diversifying orientations – linguistic or otherwise. The present study, a small-scale project, seeks to take the issue further by tackling the various polite forms used by Iranian Persian-speaking children and the difference, if any, between male and female young children in their production of polite forms. Though other researchers have investigated gender differences in speech (Holmes, 2013; Ladegaard & Bleses, 2003; Newman, Groom, Handelman, & Pennebaker, 2008), this paper seeks to shed more light on politeness in Iran, as well as on children's production of polite requests.

Studies in other parts of the world have been few and far between. Some such notable exceptions are the various investigations carried out by Gleason (Gleason, 1987; Gleason & Perlman, 1985; Greif & Gleason, 1980). She attributes, in one of her experimental studies conducted in 1987, the apparent difference between the language of young male and female children to the language of those children's same-sex parent i.e., boy's linguistic and pragmatic preferences in certain areas are traceable to their father's linguistic output and girls' linguistic features and forms might be traced back to their mother's linguistic data.

A large number of studies have been conducted in the U.S. This is viewed as a 'shortcoming' by Ladegaard (2004); she states "we need to gain more insight into children's language use outside the scene of White middle-class American families" (p. 2007). It makes sense, therefore, to contend that the field, taking into account different cultural understandings of politeness, needs to widen its net to encompass more research of this kind.

The present research, as stated earlier, seeks to address this gap by tapping into the use of polite forms in the speech of Iranian 7-year-old Persian-speaking children. More specifically, it addresses the following three questions:

- Which polite request forms and structures are favored by Iranian first-graders?
- How are those forms realized in Persian discourse?

and still more importantly, for the purposes of this study,

- Is there any relationship between the gender of first-graders and the polite forms and structures they opt for in their interactions?

## **2. Methodology**

### *2.1. Data collection and processing*

The present research employed a simple quasi-experimental design in eliciting data from the subjects in the study in order to answer the overarching research questions. The researchers collected data in two intact classes of male and female first-graders. The participants were 29 (out of 30)



Persian-speaking primary school male first-graders and 30 female first-graders, all aged approximately 7 years. The students attended a non-governmental primary school in a town in the south of Iran; boys attended the evening shift and the girls attended the morning shift. The first researcher's own son was getting his schooling at the time of data collection. According to school records, the majority of those students came from middle-class families. Therefore, in terms of SES (socio-economic status), the sample was rather homogeneous. The school authorities, including the teacher of both classes (a retired female teacher with about 40 years' experience) were briefed prior to the study and asked for their consent. Since the first researcher was a member of the school's Teacher-Parent Association, he was given permission to carry out the mini-experiment and collect data in one session on two separate days.

The students were led into their own classroom (accompanied by their teacher so that they would feel as comfortable as possible in the presence of the researcher). The teacher would introduce the researcher as S's father, who wanted to give them a present if they answered his very simple questions.

The class teacher would then ask for the child's name and show the child a small notebook and some candies as their reward for cooperating with him. The child was asked to make a request in a kind and polite way. After their initial response, the students were given two candies. The researcher then told the student to ask for the notebook even more politely. The notebook was their reward no matter how they answered the researcher's questions. The children's responses, which were sometimes accompanied by support from their teacher when they were at a loss for words, were jotted down under the children's name in a list. Having previously talked to the teacher, who functioned as his research assistant, the researcher concluded that the presence of an audio recorder might make a student ill at ease and, therefore, chose not to use it. The presence of the teacher was deemed essential to the success of the study. The various request forms used by the first-graders and the translations are in Table 1 below.

### 3. Findings

The request forms and their frequency are presented below. An attempt has been made by the researcher to render the forms and structures as closely to their English equivalents as possible. This seems to be feasible, taking into account the vast similarities between Persian and English direct and indirect polite forms). Direct requests are at the top of the table and the (more) polite indirect forms and features are at the bottom:

Table 1. The various request forms used by the participants in the study of first-graders

Various request forms used by the subjects	Frequency by gender	
	Males (no. 29)	Females (no. 30)
1. 'Daftaro (be man) bede.' Give me the notebook.	2 (%6.8)	0

2. ' <i>(Man un) daftaro mikham.</i> ' I want the notebook.	1 (%3.4)	2 (%6.8)
3. ' <i>Daftaro be man bedin.</i> ' You (equivalent to <i>vous</i> ) give me the notebook.	6 (20.6)	3 (%10.3)
4. ' <i>Lotfan daftaro bede.</i> ' Please give (me) the notebook.	3 (%10.3)	0
5. ' <i>Lotfan/Bebakhshid daftaro bedin.</i> ' Please give ( <i>vous</i> ) (me) the notebook.	7 (%24.1)	9 (%31)
6. ' <i>Mishe daftaro (be man) bedi?</i> ' Can you give (me) the notebook?	3 (%10.3)	0
7. ' <i>Mishe daftaro (be man) bedi, lotfan.</i> ' ' <i>Bebakhshid mishe daftaro (be man) bedi?</i> ' Can you give ma the notebook, please?	3 (%10.3)	5 (%17.2)
8. ' <i>Agha/Khanom, mishe daftaro be man bedin?</i> ' Sir/Madam, can you give me the notebook?	2 (%6.8)	6 (20.6)
9. ' <i>Ma'azerat mikham, mishe daftaro be man bedin?</i> ' I do apologize, but could you give me the notebook?	1 (%3.4)	0
10. ' <i>Agha/Khanom ejaze, daftaro mitunam bardaram?</i> ' Sir/Mdam, can I ask your permission to pick up the notebook?	1 (%3.4)	5 (%17.2)

After data collection, the results were discussed informally with the teacher. She agreed with some patterns identified in the data. For instance, she made the observation that girls were apparently using more '*ejaze*' (permission) forms than boys. This was done to help ensure the reliability of the data at hand and the validity of the findings since, due to some limitations, the process of data elicitation could not be repeated.

One apparent pattern gleaned from the data is related to the use of direct (imperative) and indirect (interrogative) forms in the speech of the participants. As is evident, the first five structures in the table exemplify the use of direct forms by the first-graders to ask for something, whereas the lower part of the table includes the use of more (polite) indirect ways of requesting for something.

A cursory glance at Table 1 indicates the total lack of some direct (and therefore sociolinguistically inappropriate) forms in the speech of female first-graders. For example, we can see the occurrences of such direct (and thus assertive) features as 'Give me the ...' in the output of boys.

Further, to see whether there was a difference between males and females in their use of the two forms of requesting (direct and indirect), a Chi-square test for independence was run. The results of the test (with Yates Continuity Correction) indicated that, as far as the present data was concerned, there was indeed a relationship between gender, on the one hand, and choice of a direct request form and an indirect one, on the other hand,  $\chi(1, n = 59) = .19, p = .23, \phi = .19$ . Girls were found to opt more for indirect forms and structures and boys favored more direct ones.



Table 2. Form-Gender crosstabulation

			Gender		Total	
			male	female		
form	Direct	Count	19	14	33	
		% within form	57.6%	42.4%	100.0%	
		% within gender	65.5%	46.7%	55.9%	
			% of Total	32.2%	23.7%	55.9%
	Indirect	Count	10	16	26	
		% within form	38.5%	61.5%	100.0%	
		% within gender	34.5%	53.3%	44.1%	
			% of Total	16.9%	27.1%	44.1%
	Total	Count		29	30	59
% within form		49.2%	50.8%	100.0%		
% within gender		100.0%	100.0%	100.0%		
% of Total		49.2%	50.8%	100.0%		

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	2.126 <sup>a</sup>	1	.192
Continuity Correction	1.430	1	
Likelihood Ratio	2.141	1	
Fisher's Exact Test			
Linear-by-Linear Association	2.090	1	
N of Valid Cases	59		

Table 2 shows an apparent difference between the two gender types in terms of their willingness to use direct/indirect forms. As it is shown in it, male Persian-speaking children who participated in the study tended to use more direct and therefore sociolinguistically inappropriate forms (65.5%) than what their female counterparts opted for (46.7%). Conversely, the girls were more likely to use indirect forms (53.3%).

### 1. Conclusions

The present quasi-experimental study aimed at identifying polite request forms in the speech of Iranian first-graders (7-year-old children) and finding gender-based differences, if any, between the speech of males versus females. As such, 30 female first-graders and 29 females were urged to say how they would initiate a request. The responses were then analyzed to identify any patterns. A Chi-square test of independence was subsequently run to see if there was any possible association between gender and preference of direct over indirect polite request forms. The results indicated that there was a statistically significant difference between the choice of direct or indirect forms and the gender of 7-year-old children. The results of

the Chi-square test for independence are in line with the findings of Grief and Gleason (1980) and Holmes (1990) who found a significant gender-based difference in the polite speech of young children.

Given the nature of this small-scale study and its limitations, one needs to exercise caution in interpreting the results of the study at hand. More studies – especially of a longitudinal nature – are needed to confirm the findings of the present investigation.

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