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The acquisition of diminutives in Moroccan heritage speakers in France

Amal El Haimeur

Abstract

This study addresses the acquisition of diminutive forms by Moroccan heritage speakers in France. Diminutive formation depends on stem modification. 15 Moroccan-French participants took part in this study. In a production experiment, participants were asked to form diminutives for 6 types of stems, since the stem type determines the diminutive pattern. The findings of this study show that the mean percentage of source-like use of the diminutive forms is 38%. The results revealed that just two patterns that were acquired by a significant number of participants: CCiCa and CCiCjCjəC. Diminutive forms that do not require complex processes are acquired by a significant number of participants and the percentage of source-like use is high as well. Irregular stems present difficulties to HS. Non-source like data is rule-governed as 69% of the non-source-like data shows the use of either initial consonant cluster or insertion of the glide, which means that participants produce rule-governed errors. The findings of this study also propose an implicational hierarchy for the acquisition pattern of diminutive forms. For example, if a learner only knows one diminutive pattern, it will be the [CCiCa] pattern. For instance, 27% of the participants acquire just one diminutive pattern and it is [CCiCa].

1. Introduction

This study reports on the acquisition of diminutive forms by Moroccan heritage speakers (henceforth, HS) in France. Moroccan Arabic (henceforth MA) is one of several heritage languages spoken in France where second generation use their dominant language widely and the minority language is confined to home and community settings. So what are the linguistic outcomes of acquiring a HL in an immigrant context? To address this issue, the present study examined HS's language and pattern of acquisition. I studied nominal morphology, represented by diminutive formation. The rationale behind choosing diminutive formation is that it gives us insights into non-concatenative morphological processes. In MA, the stem determines the diminutive pattern, and there are six types of stems that depend on different patterns (non-concatenative morphology). Given that non-concatenative morphology is complex, Albrini and Benmamoun (2014) suggest it is acquired only after the age of six. It is expected that HS's diminutive patterns would be modified, and therefore, this study aims at understanding the linguistic change that HS adopt, and the linguistic outcomes of acquiring a HL in an immigrant European context.

The present study is structured as follows. Section 2 reviews previous literature on HS's definition and the main studies conducted related to this research and briefly states the purpose of the study. Section three provides an overview of HS in France and the studied morphological structures. The research questions and hypotheses are stated this section. Methodology is explained at the end of this section. Section four reports the results of the current study. Section 5 is a discussion. Finally, in section six, I conclude the study's findings.

2. Background

The American Heritage College dictionary defines the word heritage as something acquired from birth (cited in Montrul, 2016). Montrul explains that what makes a language a 'heritage' language is its local social context and the conditions under which HL are learned. It is usually implied that there is a majority language and a minority one. The phrase heritage language was first coined and used in Canada in the 1977, and it was used in the USA by American scholars until the late 1990s to refer to minority languages (Cummins 2005, p. 585). Montrul (2008, 2016) defines HL speakers as early bilinguals. They grew up hearing and possibly speaking an immigrant language or a minority language, and have been dominant in the majority language of the larger community since early childhood (Polinsky, 2011). They 'are the children of immigrants born in the host country or immigrant children who arrived in the host country some time in childhood' (Montrul, 2012, p. 4). Therefore, heritage speakers are native speakers of their HL. HS groups are also linguistic minorities (Valdés, 2005) who speak a "non-societal and non-majority language"(p. 41, Valdés, 2005). Therefore, HS are early bilinguals. They could be first or second generation immigrants. From an early age, HS grow up speaking two languages that are part of their linguistic and socialization environment. According to De Houwer's (2009) definition, HL acquisition could also be a type of bilingual first language acquisition if HS are exposed to the HL and the majority language from birth. There are also cases when HS are introduced to the HL first but they start hearing the majority language later in their childhood (sequential bilingualism). Therefore, HS are native speakers of their varieties and acquire their HL under different social context that differ from their parents' or other monolingual speakers' context of acquisition. Montrul (2016) maintains that HS command of their two languages "changes throughout the life course and the language learning period" (p. 17). HS children, who are younger than ten years, are more likely to shift to the majority language. Montrul (2008)

pointed out that "minority-speaking children younger than 10 years of age show a more rapid shift to the L2 and a larger degree of L1 loss than children older than 10"(p. 136). There is a variation among this group as well and their proficiency in a HL may vary among individuals. Research on the acquisition of heritage languages study the developmental stages and the linguistic outcome of learning a HL (Montrul, 2016).

Some researchers on HS in the USA conclude that HS in the USA have incomplete grammars (Albirini & Benmamoun, 2014; Benmamoun et al., 2013a; Montrul, 2008, 2011, 2016; Polinsky & Kagan, 2007). It has been argued that HL do not fully develop (Montrul, 2016), and they are not completely acquired because of shifting to another dominant language (Benmamoun et al., 2013a). Benmamoun et al. (2013a) also claim that "the heritage language was first in the order of acquisition but did not develop fully at age appropriate levels because of the individual's switch to the societally-dominant language" (p. 9). The argument is that HS usually miss or fail to acquire specific linguistic aspects of their HL and their competence is different from monolingual speakers. In Polinsky's definition (2008), an "incomplete learner or heritage speaker of language A is an individual who grew up speaking (or only hearing) A as his/her first language but for whom A was then replaced by another language as dominant and primary" (p. 40). After being critiqued for describing HS grammar as incomplete, Benmamoun et al. (2013b) explain that they "support the notion of incomplete acquisition as a process, but want to discourage the use of the term 'incomplete grammar' to describe the end result of the process" (p. 278). According to Montrul, second generation HS are more likely to experience language attrition and loss, "As the majority language begins to be used more than the home language, some aspects of the heritage language may be incompletely acquired, others may undergo attrition, and yet others may undergo attrition when they were not fully mastered" (pp. 162-163).

Moreover, research on HS acquisition has claimed that certain grammatical domains are vulnerable (O' Grady et al. 2011, Montrul 2008, 2012). According the Interface Hypothesis proposed in Sorace (2011), grammatical structures at interface are not likely to be acquired completely as they are complex and they integrate multiple linguistic components. Montrul also (2008) proposes that linguistic features that depends on the interface between two linguistic components are the most vulnerable in HL acquisition, and therefore may not be completely acquired, for example, the interface between semantics and syntax or pragmatics and syntax. Furthermore, It has been suggested that structures that depend on frequency are the most vulnerable in HL acquisition (Albirini & Benmamoun, 2014; O'Grady et al. 2011).

The term "incomplete grammar" might not be the most appropriate to describe HS's language. HS should be perceived as having independent systems. They provide opportunities for linguists to test available theories and to gain an understanding of language change. Kupisch and Rothman (2016) argue that the use of 'incomplete acquisition' as a term to describe differences between monolingual controls and HS is "theoretically flawed and misleading" (p. 3). They also claim that the "endstate grammars" of HS is different from monolingual speakers. And therefore, difference should not be perceived as incompleteness. They suggested the term "differential acquisition" (p.15), as a more appropriate term to capture differences when HS are compared to monolinguals. This research adopt the differential acquisition term as well when referring to participants' endstate grammars.

There is a considerably large number of studies addressing the linguistic outcomes of contact between a heritage language and a dominant one. Albirini and Benmamoun (2014) study the acquisition of concatenative and non-concatenative plural formation in Arabic L1, L2, and HS. In their study, three groups of learners were compared. Non-concatenative derivation is

expected to be hard to learn because of its complexity. Its formation requires the singular stem to undergo an internal modification in the prosodic and vowel patterns (McCarthy, 1979). Albirini and Benmamoun also claim that some of the plural concatenative forms are acquired beyond age 6. Their results revealed that both heritage learners and L2 learners show more accuracy in sound plural formation than in broken plural formation. It was concluded that HS and L2 speakers have 'incomplete knowledge of plural morphology'. In a different paper, Albirini and Benmamoun (2014) conclude that heritage speakers have difficulty in dual formation and in using the correct Arabic pattern, since HS applied English rules. Also, HS overgeneralized the rule pattern of sound morphology to broken plural. HS don't have a problem with analytic genitives but have problems with the construct state (N+NP). Also, a common pattern in the production of HS, in this study, is the use of the complementizer with indefinite relative clauses. El Haimeur (2019) also found that Moroccan HS in France acquire just two sound plural morphemes and their plural system is largely characterized by concatenative processes. El Haimeur claimed that HS experience difficulties with the tested 14 broken plural patterns and the strategy was overgeneralizing the sound morphemes to broken plural forms.

Polinsky (2008) equated heritage speakers' knowledge of noun categorization with 'incomplete acquisition'. Her study focused on gender assignment to nouns by heritage speakers of Russian. Russian has three genders: masculine, feminine, and neuter. Polinsky claims that since gender assignment in Russian crucially depends on the knowledge of the Russian declensional system, such knowledge is either absent or reduced in HS's knowledge. Stem-stressed neuters and feminine nouns ending in palatalized consonants are problematic for heritage speakers. Montrul (2011) compared HS and L2 learners. She found that Spanish HS made more errors in written morphological tasks than in the oral ones. On the other hand, L2

speakers were more accurate in written tasks. El Aissati (1997) studied plural formation by MA

young speakers in the Netherlands where participants have to deal with sound and broken plural.

Participants were provided orally with 30 nouns and asked to provide the plural forms. El Aissati

found that in plural formation, the choice of overgeneralized patterns was idiosyncratic and a

result of "individual paradigmatic levelling". El Aissati claimed that his participants relied on a

limited number of strategies and preferred to regularize the morphology of their language.

Boumans (2006) has studied the use of synthetic and analytic genitive by Moroccan immigrant

children in the Netherlands and their counterpart monolingual group in Morocco. The results

show that immigrant children in the Netherlands have a preference for analytic genitive.

Research on HS's morphology show that HS experience difficulties in this linguistic area

(Benmamoun et al, 2013; Montrul, 2015). Early input is advantageous to HS for phonology and

core syntax, but not for morphology (Montrul, 2012). Au et al. (2002) and Knightly et al. (2003)

conducted an experimental study of incipient L2 learners of Spanish and Spanish heritage

speakers. Au et al. study the performance of heritage speakers, who are over-hearers of their

language during childhood. The purpose was to study long-term effects of childhood overhearing

on phonology and morphosyntax. The over-hearers' accents were more native-like than L2

learners. The over-hearers and the late L2 learners performed worse than monolingual speakers

in morphosyntax tasks. They conclude that early exposure to language has an effect on

phonology but not on morphosynatx. Knightly et al. (2003) confirmed Au et al.'s findings, as

they found that there is a pronunciation advantage for the childhood HS over-hearers over late

L2 learners. However, there is no benefit for morphosyntax. Both studies concluded that early

exposure, as predicted by critical period, is advantageous for phonology, but not for

morphosyntax in heritage speakers. It was suggested that in L2 acquisition there is a different

critical period for morphology. Granena and Long (2013) investigate ultimate attainment in Chinese learners of Spanish. Their purpose was to identify maturational constraints in three language domains. The results of the performance of three age groups (3-6, 7-15, and 16-29) revealed that age of onset was the steepest for phonology, followed by lexis and collocation, then morpho-syntax. The results evidenced the existence of three consecutive critical or sensitive periods for the studied areas. The native-like attainment for these domains are age 5 in phonology, 9 in lexis and collocation, and 12 in morpho-syntax. Adopting the principles of maturational constraints in L2 acquisition could suggest that HS will exhibit native-like attainment in phonology, mastering the phonology of their language by 5, but the acquisition of morpho-syntax is a continuous process and therefore, mastering all the aspects of morpho-syntax would continue beyond school age till age 12 or beyond. Given the circumstances of HS acquisition, it is hypothesized that they will have different patterns of acquisition and their morphology will not reflect all the aspects attested in their source language, and therefore, modification and morphological change is expected in HS' variety.

Previous studies demonstrated that HS' linguistic competence is different from both monolingual speakers' and L2 speakers' competence. The acquisition of a native language under different circumstances lead to language change. In this study, I investigate nominal morphology represented by diminutive forms. This study seeks an understanding of HS' system and the general mechanism characterizing their diminutive system. In what follows, I will give an overview of HS in France and the investigated morphological area .

3. Population and morphological structures under study

3.1 Moroccan HS in France

There is a large community of immigrants of Moroccan origin in France. They are the result of labor migration in the 1960s. According to the nationality criterion, based on Eurostat (1998), the number of Moroccan immigrants in France is 572,652 (Boumans & de Ruiter, 2002). Their community consists of a first, second, and third generation. First generation Moroccans were born and raised in Morocco, and second generation Moroccans were born either in Morocco or in France. The third generation children are nearly all born in France. The first generation in Europe, generally, have low levels of formal education (Boumans & de Ruiter, 2002). Lebon (1996) claims that during the onset of their immigration, they were overrepresented in low wage jobs. This representation has hardly changed today (as cited in Boumans & de Ruiter). Just 13% of native-born in France immigrants have a university degree or higher (Schain, 2008)

'*Languages of origin'* (langues d'origine) is the term used to refer to languages spoken by immigrant communities (Helot & Young, 2002). They claim that children in France start school at an early age, usually three, but, sometimes they start school as young as two years old. The motivation behind starting school at an early age is to acquire the necessary linguistic skills so as to be prepared for elementary school. HL, in France, are thought to be harmful. This is similar to the notion of language parochialism. According to the notion of linguistic parochialism, bilingualism is harmful and minority languages are not welcomed (Lessow-Hurley, 2005). In France, the term bilingualism is used when learning a European language. Helot and Young (2002) state that "languages of origin are still perceived in French schools as the main obstacle to the acquisition of the French language and as a source of learning difficulties. This explains why the term bilingual, which has many positive connotations in French society today, is never used in official texts to refer to children from migrant backgrounds" (p. 97, 2002). Therefore, HL are perceived to hinder academic achievement and the process of assimilation. The majority of the

HS in France only have access to the spoken form and did not study Standard Arabic, as Arabic is a diglossic language and two distinct varieties co-exist. One is referred to as the high variety (Standard Arabic) and the other one is the low one (colloquial Arabic). The high variety is the one used in schools, the media, while the low variety is the spoken one. HS usually know just the spoken variety, which they learnt at home. They have little or no knowledge of Standard Arabic and they share similarities with non-literate Arabic speakers from the Arab world (Montrul, 2016) as both groups have access just to colloquial Arabic. However, HS are usually educated in the majority language. Unlike monolingual speakers, Arabic HS don't experience the diglossic context of SA and QA (Albirini, 2016).

3.2 Diminutive forms

Diminutives are derived from nouns and adjectives. A diminutive form is characterized by an initial cluster of two consonants followed by a vowel. Benchiba-Savenius (2013) notes that diminutives in MA are rarely referred to in linguistic literature. MA diminutives are formed by the affixation of the morpheme –i- after the second segment of the base, after an initial cluster of two consonants. It was described as very productive and used 'to express affectivity or close relation with the addressee, or to establish a climate of intimacy' (p. 279, Versteegh, 2008). Harrell (1962) summarizes six types of diminutives in MA which depend on word stem. And the stem determines the pattern. Monosyllable stems form four sub- types. The first sub-type is trilateral monosyllables as in [bɣal] (mule) [bɣijjəl] and the applied pattern is [fʕijjəl] [CCiC$_j$C$_j$əC]. It is formed by inserting "-j" between the second and third consonants. Monosyllables with middle weak trilateral roots usually have the diminutive pattern [fwijjəl] [CC$_w$iC$_j$C$_j$əC], as in [bir]'well' [bwijjər]. The third type of monosyllable stems has a /ə/ and use [fʕila] [CCiCa] pattern as in [bənt] [bnita] 'girl.dm'. The fourth type of monosyllable stems are

adjectives of color and defect (Harrell, 1962) and many adjectives of the pattern [fʕil] have diminutives of the pattern [fʕiʕəl] [CC$_2$iC$_2$əC], showing a repetition of the second root consonant as in [bkəm] [bkikəm] 'mute.dm'. The stem [fəʕl/ foʕl+vowel] represents type two and applied [fʕila] [CCiCa] pattern in diminutive formation. In this pattern, the diminutive form is usually formed by inserting /i /between the second and third consonants while retaining the final vowel as in [bəgra] [bgira] 'cow.dm'. The third type is represented by middle-weak stems with a final vowel. This type of stems form their diminutive form as the stems fəʕl / foʕl+vowel do, but a /w/ is added as the second consonant as the pattern [fwiʕv] [CC$_w$iCv] is applied to form diminutive forms as in [biru]'office' [bwiru]. The fourth type of diminutives is represented by fʕala/ fʕila stems. These types of stems form their diminutives using the pattern [fʕijjla] [CCiC$_j$C$_j$Ca] as in [dʒaʒa] [dʒijjʒa]. Type five of diminutives consists of words with four consonants. Irrespective of their root and pattern structure, usually words with four consonants have the diminutive pattern CCiCəC as in [kəskas] [ksikəs] 'couscous pot.dm'. Category six in diminutives is represented by three-consonant words with a stable vowel between the first and second consonants. Words of this type follow the same pattern as words with four consonants. But, a /w/ is inserted as the second consonant of the diminutive pattern as in [raʒəl] 'man' [rwiʒəl]. Tabe1 summaries the main diminutive patterns in MA.

Table1. Diminutive patterns

Stem type	Required pattern
1. Monosyllables	
Trilateral monosyllables	fʕijjəl [CCiC$_j$C$_j$əl]
Middle-weak trilateral monosyllables	fwijjəl [CC$_w$iC$_j$C$_j$əC]

Trilateral monosyllables with a vowel 'ə'	ff̣ila [CCiCa]
Adjectives of color and defect	ff̣iʕəl [CC₂iC₂əC]
2. fəʕl/ foʕl+vowel	ff̣ila [CCiCa]
3. Middle-weak stems with a final vowel	fwiʕv [CC𝓌iCv]
4. fʕala/ fʕila stems	ff̣ijjla (CCiCⱼCⱼCa)
5. Words with four consonants	CCiCəC
6. Three-consonant words with a stable vowel	fwiʕəl(v) (CC𝓌iCəC(v))

3.3. Research questions

1. What are the acquired patterns in diminutive formation?

2. How do speakers compensate for the patterns that are not acquired?

3. What are the characterizations of HS' diminutive processes?

3.4 Hypotheses

Hypotheses that the diminutive data tests are listed in 1, 2 and 3.

1. HS will experience greater difficulties forming diminutive forms, since diminutive formation involves non-concatenative morphology. The hypothesis will be supported if the percentage of source-like use is low.

2. HS's production will show non-source like diminutive forms; however, they will be rule-governed. The hypothesis will be supported if participants' non-source like data exhibits a consistent pattern.

3. Less complex patterns will be acquired and will be generalized to patterns required by irregular stems[1]. My hypothesis will be supported if acquired and less complex patterns are overgeneralized to middle-weak stems.

3.5 Methodology

Finding the right and appropriate methodology for studying HS is one of the most challenging aspects in HS research (Polinsky, 2008). Grammatical judgment tasks were critiqued and found to present difficulties in HL studies, as it was claimed that HS perform at random (Polinsky, 2008). Corvalán (2001) pointed out that grammatical judgement tasks are not considered reliable (as cited in Montrul, 2016). Informal observation of naturally occurring speech is difficult and challenging as well (Polinsky, 2008). Montrul (2016) sates that production and comprehension tasks yield precious information about the linguistic knowledge of a speaker. She further claims that "if a language learner/ speaker produces and understands a particular linguistic expression (such as a word, a phrase, or a sentence), it is reasonable to conclude that this expression is part of the learner's/ speaker's linguistic knowledge"(p. 193). Oral production tasks proved to be one of the appropriate tasks in HS research. For example, Montrul, Foote, and Perpiñán (2008) employed both written and production tasks. In their study, they investigated gender agreement in Spanish L2 learners and HS. Results showed that L2 learners did better in written tasks but HS did better in the oral tasks. Written tasks need more metalinguistic awareness and oral tasks need fast and spontaneous responses. They further claim that in their study "the written tasks favor L2 learners' metalinguistic abilities, whereas the oral task favors

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[1] In Badry (2005), more errors were attested in weak roots, where one of the consonantal positions is a glide. In this study, I use irregular stem to refer to weak roots, four consonants roots and three consonants with a stable vowel.

heritage speakers' spontaneous skill with the language" (p. 548). Since HS acquire their HL through the oral modality and in a natural setting, it will be appropriate to use oral tasks in studying HS. The task needs to match the modality through which they acquire their HL. And since HL are acquired implicitly, the task should be designed to generate the implicit acquired structures. Additionally, the method that needs to be used in studying HS should take into consideration the social and linguistic context under which HL are learned. Polinsky (2008) maintains that by using simple experimental methodology, vital linguistic data can be obtained. In this research, I found oral production tasks to be the most appropriate tool for studying my participants' grammatical knowledge on diminutive formation. My participants have almost no formal education on their HL and since birth they have been using their HL orally and have no metalinguistic awareness of their HL, as metalinguistic awareness is acquired through schooling in the HL.

The baseline against which HS' performance is compared is a debatable issue on HS studies (Montrul, 2016). It is better not to compare HS to monolingually raised speakers to avoid negative implications and destructive judgments about HS grammars, and because HS and monolingual speakers acquire their native language in different and distinct contexts of acquisition (Pascual y Cabo & Rothman, 2012). Linguistic diversity is attested on all levels, among monolinguals and in HS as well (Rorthman & Treffers-Daller, 2014). Also, there are qualitative and quantitative differences in the input they got during their childhood (Kupisch & Rothman, 2016) and the mode of acquisition is also different since monolingual speakers enhance their development by formal education and acquire metalinguistic skills in their native language. Because of the different realities and different social contexts of acquisition, and because both monolingual speakers and HS are native speakers of their varieties, it is expected

that the linguistic outcomes of the two groups will be different, and therefore, we should not compare them to make generalizations that favor monolingual performance. This research aims at understanding HS' variety as a subset of MA that is systematic, different, and rule governed. This research also aims at understanding the change and linguistic difference in the HL. I will take the source language (MA) as a point of reference to determine the characterization of HS' grammars. And the ultimate aim is to reach an understanding of HL as a subsystem variety that is a result of a modified context of acquisition.

Montrul (2016) claims that after selecting participants for a study, a detailed description of participants is needed so as to understand extralinguistic factors that play a role in their linguistic knowledge. Accordingly, a detailed questionnaire is needed to understand other variables that have a bearing on HS' linguistic knowledge such as age of acquisition of the HL and the majority language, country of birth among other factors. The questionnaire may also inform on the perceived proficiency of both the HL and the majority language. Before conducting the experiments, I started with a questionnaire in French that participants need to complete. It gives details on age, education, age of arrival, father's and mother's country of birth, their parents' job, parents' education and number of visits to the home country.

3.5.1 Participants

Fifteen French-Moroccan HS participated in this study. Eight participants are females and 7 are males. Their age is between 18-40. 11 are born in France and 4 of them came to the adopted country before age 7. 11 participants were exposed to the two languages since birth. The other four participants were exposed to MA since birth and were exposed to French later in their childhood . One of the four participants was exposed to French at age 5 and the other three participants were exposed to French at age 7. All of them live in Nice and neighboring cites

Grasse and Cannes. They don't have any formal education background in Arabic, except for two participants that rated their writing and reading skills around 2. They belong to working class families. Their parents have less than a high-school diploma. 12 participants completed high school and two of them have an associate degree diploma (still continuing their education) and one of them has a middle school diploma. 13 participants visit the home country every year. And one of the participants visit the home county every two year. Except one participant who reported that she used to visit the country every year, since she formed her own family and has her own children, she visit the home country every five years. Participants were asked to rate their language skills in MA and in French from 0 to five (0-Very bad; 1- Bad: a few words such as greetings; 2-Average; 3-Good; 4-Very good; 5 Excellent). The questionnaire shows that participants have strong skills in their dominant language French. The only skill, in the HL, they rated that they are good at is speaking. The questionnaire about the proficiency was needed so we can proceed to diminutive formation task and helps in requiting participants and understand other factors that may affect their attainment. This study excluded individuals who rated their proficiency below 2, which corresponds to average. Hence, all the fifteen participants, in this study rated their proficiency at the scale 2 or above.Table1 informs on HS' perceived proficiency in both MA and French

Table2. The mean percentage of the perceived proficiency

French			MA		
Writing	Reading	Speaking	Writing	Reading	Speaking
4.6	4.66	5	0.2	0.13	3.13

Table2 shows the average of the perceived proficiency in the HL and the dominant language French. The perceived proficiency is in accordance with previous findings since it is uncontroversial that HS are dominant in their majority language and receive formal education thought the majority language as well. Participants tended to rate their French proficiency at

higher levels for speaking, reading and writing than their HL. In the HL, speaking is the only language skill that was rated high, which shows that HS did not receive formal education in their HL. The linguistic experience of HS in this study is comparable to other HS in Europe. Bos (1997) gave a very good description of the linguistic experience of HS in the Netherlands:

> The language development these children go through is quite complex. First, they learn Moroccan Arabic at home and in the context of their ethnic community. In addition, some Dutch might enter into their lives through television, peer contact and occasionally through day-care. From the moment they enter primary school, however, all of a sudden the greater part of their language input is Dutch. (p. 11)

3.5.2 Method and procedures

In a production experiment, 45 pictures were displayed on a computer screen. Pictures of animals, objects and human were used. First, participants were provided, in a training session, with a set of nouns and adjectives that would be used in diminutive forms. The 5 nouns and adjectives in the training session were not included in the analysis. Participants put the target noun or adjective in a frame sentence that the experimenter gave orally (This is a N. This is N+ Diminutive). There are six diminutive types, and each diminutive type was represented by 5 stimuli. Tokens were randomized and exemplified the common patterns in diminutive formation. Each stimulus was encountered only once. Two sets of pictures were displayed on a computer screen. For example, the experimenter displayed a picture of a big dog. Then, a picture of a little and cute doggie was displayed, so the diminutive form use could be triggered. In example 2, a sample from the pictures and stimuli used in this experiment is presented. Subjects were tested individually in a quiet place and the experimenter documented their production by hand. The collected data was transcribed and

entered into Excel documents. Percentage of source-like use and non-source-like use was calculated. Also, the percentage of use of each pattern was calculated. My criterion in deciding if a pattern is acquired by a participants is that a pattern should be used in 3/5 of the studied pattern. There were five stimuli for each type of diminutive form, and if subjects were able to produce the target response type at least 3 out of 5 times (60%), they were considered to have acquired that type. This criterion seems reasonable considering that subjects had only five chances to produce each type. And the total number of tokens that represent the studied patterns is 675.Then, the data was analyzed on its own to look for general patterns and strategies.

hada kəlb   hada __   Target: hada klijjəb
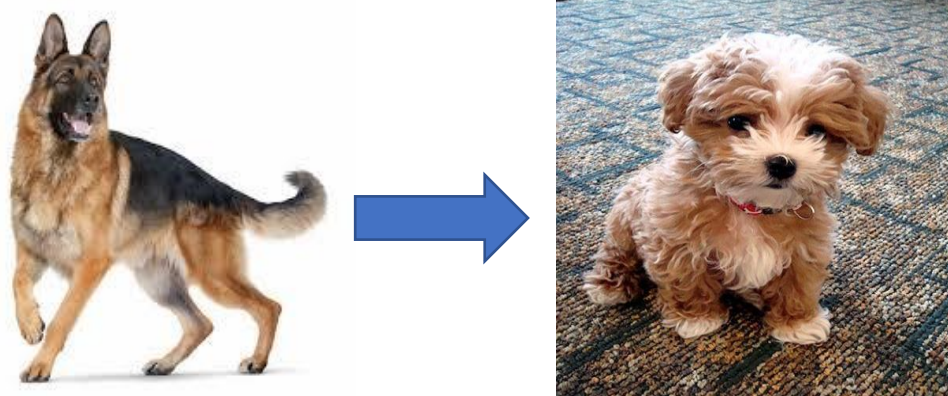'This is a dog'   'This is ___'   'This is a doggie'

Figure 1. Example of the presented pictures and target responses in experiment 2

4. Results: Diminutive results

Table 4.1 summaries the percentage of source-like use and the percentage of acquisition as well. The table also informs on stem types and the required patterns. The results revealed that just two patterns that were acquired by a significant number of participants. These patterns are fʕila (CCiCa) and Fʕijjəl (CCiCjCjəC).

Table 4.1

The Percentage of Source-Like Use and the Acquisition of the Diminutive Forms			
Stem type	Required pattern	Percentage of source-like use	Percentage of acquisition
1. Monosyllables • Trilateral monosyllables	Fˁijjəl (CCiC$_j$C$_j$əC)	63	53
• Middle-weak trilateral monosyllables	Fwijjəl(CCwiC$_j$C$_j$əC)	32	27
• Trilateral monosyllables with a vowel 'ə'	fˁila (CCiCa)	57	73
• Adjectives of color and defect	fˁiˁil(CC$_2$iC$_2$iC)	4	0
2. Stem patterns fəˁl/ foˁl+vowel	fˁila (CCiCa)	67	73
3. Middle-weak stems with a final vowel	fwiˁv (CC$_w$iCv)	35	27
4. Stem patterns fˁala/ fˁila	fˁijjla (CCiC$_j$C$_j$Ca)	43	40
5. Words with four consonants	CCiCəC	25	27
6. Three-consonant words with a stable vowel	fwiˁəl(v) (CC$_w$iCəC)	12	7

The findings of this study show that the mean percentage of source-like use of the diminutive forms is 38%. However, some patterns seem to be less complex and easier to apply. For example, the first diminutive pattern to be acquired is the [fˁila] [CCiCa] pattern as 73% of the participants acquire it. This pattern is required by trilateral monosyllables with a vowel 'ə' as in [bənt] [bnita] 'little girl' and required by [fəˁl/ foˁl+vowel] stems as in [bəgra] [bgira] 'cow.dm'. Both stems depend on initial consonant cluster and insertion of /i/ after the cluster, except that monosyllable stems also insert a final /-a/. 53% of the participants acquire the diminutive pattern [fˁijjəl] [CCiC$_j$C$_j$əC], required by trilateral monosyllables and the percentage

of source like use is 63%. It involves consonant cluster and insertion of a glide after the second consonant as in [ʒməl] [ʒmijjəl] 'camel.dm'. And 40% of the participants acquire [fʕijjla] [CCiCjCjCa] pattern, which is necessitated by [fʕala/ fʕila] stems. It needs just an insertion of the glide [-j] after the second consonant as the stem already has a cluster of two consonants as in [dʒaʒa] [dʒijjʒa] 'hen.dm'.

Generally, the percentage of accuracy was low in forming diminutive forms for irregular stems. Middle weak stems seem to be more complex and present a difficulty for HS in both middle weak trilateral monosyllables and middle weak stems with a final vowel (two syllables) as just 27% of the participants acquire those patterns. Middle weak monosyllables depend on [fwijjəl][CCwiCjCjəC] pattern as two glides need to be inserted: the velar /w/ form a cluster with the first consonant then /j/ is inserted as the onset of the second syllable as in [buq] [bwijjəq] 'horn.dm', and the percentage of source-like is 32%. Middle weak with a final vowel stems require [fwiʕv][CCwiCv] pattern, where a glide needs to be inserted to form a cluster with the first consonant as in [biru][bwiru] 'office', and the percentage of source-like use is 35%.

Words with four consonants use the pattern CCiCəC as in [kəskas] [ksikəs] 'couscous pot.dm'. Participants experience difficulty with this pattern since just 27% of the participants acquire it and the percentage of accuracy is 25%. Forming diminutive forms for three consonant words with a stable vowel is acquired just by 7% and the percentage of source-like is just 12%. This type of stem tends to present a difficulty as the velar glide needs to be inserted as in [raʒal] [rwiʒel.dm] 'man'. No participant acquires the diminutive pattern [fʔiʔəl] (CC₂iC₂əC) as it requires a repetition of the second consonant as in [kbir] [kbibər] 'big.dm'. And the percentage of accuracy is 4%.

Diminutive forms that do not require complex processes are acquired by a significant number of participants and the percentage of source-like use is high as well. Middle weak stems present a challenge to HS since a /w/ is needed to be inserted after the first consonant then an /i/ is inserted. Words with more than three consonants are hard to form diminutive forms too. The analysis of 675 tokens shows that just 38% of the data that uses patterns conforming to the source language. However, 69% of the non-source-like data shows the use of either initial consonant cluster or insertion of the glide. Additionally, the requirement of having two syllables in forming diminutives was met, which means that to some extent participants produce rule-governed forms. In what follows, examples from non-source like data from each pattern will be presented, and the overgeneralizations that were applied in non-source like data will be reported as well.

4.1 Adopted Strategies in Non-Source Like Data

   4.1.1 [fʕila](CCiCa) pattern. Trilateral monosyllables with a vowel 'ə' stems and [fəʕl/ foʕl+vowel] stems realize their diminutive forms using the [fʕila](CCiCa) pattern. Trilateral monosyllables with a vowel 'ə' realize the diminutive forms by applying the pattern [fʕila] as in [rʒəl][rʒila] 'foot.dm'. 73% of the participants acquire this pattern and the percentage of source-like use is 57%. In 53% of the non-source like data, participants insert the glide -j after the second consonant as in 1 and 2, or they suffixed it to the edge of the stem as in 3 and 4. 9% of the data depends on the pattern that repeats the second consonant as in 5 and 6. 16% of the non-source like data resorts to initial consonant cluster as in 7.

1. *ʕsijjəl

   'honey.dm'

 2.   *rʒijjəl

'foot.dm'

3. *raʒlijja

'foot.dm'

4. *ʕaslija

'honey.dm'

5. *tmimra

'dates.dm'

6. *ʃmimiʃa

'sun.dm'

7. *tmir

'dates.dm'

fəʕl / foʕl+vowel stems also realize their diminutive form using [fʕila] (CCiCa) pattern as in [bəgra] [bgira] 'cow.dm'. The percentage of source-like use is 67%. 48% of the non-source like data inserts the glide '-j' after the second consonant as in 8 or inserts it word finally as in example 9. 8% of the non-source like data use a pattern that combines insertion of /w/ as second consonant then inserting the glide '-j' and meeting the requirement of two syllables as in 10 or depends on initial consonant cluster then the glide /w/ is inserted as the onset of the second syllable as in 11.

8. *bgajar

'cow.dm'

9. *dˤarbija

'a blow.dm'

10. *ʒwajrda

'garden.dm'

11. *bgiwra

'cow.dm'

4.1.2 [fʕijjəl][CCiCⱼCⱼəC] pattern. Monosyllables with trilateral roots form their diminutive forms by initial consonant cluster then the glide / -j / is inserted between the second and third consonant as in [kəlb] 'dog', [klijjəb] 'dog.dm'. This pattern is acquired by 53% of the participants and the percentage of source-like use is 63%. 36% of non-source like data shows that participants form their diminutive forms using the [fʕila] (CCiCa) pattern as in examples 12 and 13. 7% of the non-source like data inserts the glide '-j' but in a non-source like environment, at the edge of the stem, as in 14 and 15 without applying the basic rule which is initial consonant cluster. 14% of the non-source like data show that participants deploy the pattern [fʕiʕəl] [CC$_2$iC$_2$əC], showing a repetition of the second root consonant as in 16 and 17. 25% of the non-source like data partially applied the rule of diminutive formation which is consonant cluster and the insertion of the vowel /i/ as in example 18.

12. *kliba

  'dog.dm'

13. *ħmira

  'donkey.dm'

14. *barlijja

  'mule.dm'

15. *ʒamlijja

   'camel.dm'

16. *ħmimir

'donkey.dm'

17. *ʒmiməl

  'camel.dm'

18. *bril

  'mule.dm'

4.1.3 [fʕijjla] [CCiC$_j$C$_j$Ca] pattern. [fʕala/ fʕila] stems form their diminutive form by using the [fʕijjla] (CCiC$_j$C$_j$Ca) pattern as in [zbiba] 'raisin', [zbijjba] 'raisin.dm'. It is acquired by 40% of the participants and percentage of source-like use is 43%. 19% of the non-source like data inserted the vowel /i/ and glide [-j] after the last consonant of the stem as in 19 and 20. 14% of the non-source like data shows a repetition of the second consonant after an initial consonant cluster as in 21. 9% of the data inserts [-j] after the second consonant, just like trilateral root as in 22, as [-j] was inserted after initial consonant cluster. 9% of non-source like data depends on [fʕila][CCiCa] pattern as in 23.

19. *blasˤijja

  'place.dm'

20. *zbibija

  'raisin.dm'

21. *rfifisa

  'Moroccan dish.dm'

22. *zbijjəb

  'raisin.dm'

23. *qsˤira

  'party.dm'

4.1.4 [fwijjəl] (CC$_w$iC$_j$C$_j$əC) and [f$_w$iʕv] (CC$_w$iCv) patterns. Both [fwijjəl]

(CC$_w$iC$_j$C$_j$əC) and [fwiʕV] (CC$_w$iCv) patterns are required by middle weak stems to form

diminutive forms. Middle weak stems prove to be more complex and present a difficulty for HS

in both middle weak trilateral monosyllables and middle weak stems with a final vowel (two

syllables), and just 27% of the participants acquire those patterns. Middle weak monosyllables

depend on [fwijjəl] (CC$_w$iC$_j$C$_j$əC) pattern as two glides need to be inserted. First, the velar /w/

forms a cluster with the first consonant then /j/ is inserted as the onset of the second syllable as in

[buq] [bwijjəq] 'horn.dm', and the percentage of source like is 32%. The middle weak stem with

a final vowel requires just the insertion of the glide to form a cluster with the first consonant as

in [biru][bwiru] 'office', and the percentage of source-like forms is 35% .

Participants experience a greater difficulty applying the pattern [fwijjel] (CC$_w$iC$_j$C$_j$əC) to

form diminutives for middle weak monosyllables as in [kas] 'cup', [kwijjəs] 'cup.dm'. The

difficulty arises from having to insert the glide /w/ after the first consonant. 18% of non-source

like data inserts the glide '-j' which is required to be the onset of the second syllable as mapping

the consonant roots results in an empty onset. And it is a requirement to have two syllables in

diminutive forms. However, they were not successful in applying the insertion of 'w' to form a

cluster with the first consonant as in 24 to 26. Examples 25 and 26 show a non-source like

insertion of different consonants to solve the problem of a required consonant to form a complex

onset. 8% of the non-source like data shows the insertion of /-j/ at the edge of the singular word

without any initial consonant cluster as in example 27. 16% of the non-source like data resorts to

initial consonant cluster, but did not apply the insertion of [-j] as in 28. 10% of the non-source

like data depends on the repetition of the second consonant. This pattern, which is deployed by

adjectives of color and defect, is applied in non-source-like data as in 29. Interestingly, the

consonant that is inserted is the glide /w/. It is the one which is repeated, and it is not part of the root.

24. *bijjab

'door.dm'

25. *tˤjajjar

'bird'

26. * rħajjah

'wind.dm'

27. *babijja

'door.dm'

28. *rwiħa

'wind.dm'

29. *kwiwis

'cup.dm'

Middle-weak with a final vowel stems form their diminutive in a similar way, except that middle weak disyllable stems insert just /w/ as the second consonant of the diminutive form as in [biru] [bwiru] 'office.dm'. Just 27% of the participants acquire this pattern and the percentage of accuracy is 35%. 43% of the non-source like data relies on glide insertion. In examples 30 and 31, the glide -j was inserted. The insertion was applied after the insertion of the glide /w/ to form a cluster with the first consonant as in 30. In 31 after initial consonant cluster, a glide -j was inserted. And in 32, after initial cluster, the glide /w/ was inserted as the onset of the second syllable. 14% of non-source like data depends on consonant cluster and repetition of the second

consonant. In 33 and 34, the glide /w/ was inserted to form the initial cluster then the glide was repeated after the vowel.

30. *fwajjas

   'native to Fez.dm'

31. *ħtajjat

   'fish.dm'

32. *bri:wi

   'office.dm'

33. *lwiwiħa

   'painting.dm'

34. *ħwiwitah

   'fish.dm'

4.1.5 [fwiʕəl(v)] (CCwiCəCv) pattern. Three-consonant words with a stable vowel stems follow the same pattern as words with four consonants. But they differ in the insertion of a glide. A /w/ is inserted as the second consonant of the diminutive pattern as in [raʒal] [rwiʒel] 'man.dm'. It is acquired by 7% and the percentage of accuracy is 12%. 21% of the non-source like data applies the pattern [fʕijjla] (CCiCjCjCa) or [fʕila] (CCiCa) where there is a cluster of two consonants and insertion of /i/ as in 35 and 36. It seems that participants apply an existing rule that is required in diminutive formation which is to have two syllables and an initial consonant cluster. 18% of the non-source like data deploys the repetition of the second consonant, which is common in [fʕiʕel] pattern, as in example 37. 9% of the non-source like data inserts the glide [-j] between the second and third constant just like trilateral monosyllables as example 38 shows. 15% of non-source like data applies the partial rule of diminutive that was

attested in one of the patterns such as consonant cluster or insertion of a glide after the third

consonant as in examples 39 and 40.

35. *ʕwifa

'fire.dm'

36. *ftˤijma

'Fatima.dm'

37. *ʕfifija

'fire.dm'

38. *rʒajjəl

'man.dm'

39. *rʒil

'man.dm'

40. *xumija

'curtains.dm'

    4.1.6 [fʔiʔəl] (CC₂iC₂əC) pattern. Monosyllables that require the pattern [fʕiʕel]

(CC₂iC₂əC) are adjectives of color and defect and many adjectives of the pattern [fʕil], deploying

a repetition of the second root consonant. The percentage of accuracy is 4% and no participant

acquires it. 35% of non-source like data applies the [fʕijjəl] pattern as in 41. The pattern fʕiʕel is

the one listed in Harrell (1962) to form diminutives for colors and adjectives of defects.

However, using [fʕijjəl] pattern is acceptable in MA as an alternative to form diminutives for

colors and adjectives in this context, which shows the diversity within monolingual speakers and

source language in forming diminutive for the same stem. Example 41 also shows that the

vowels in the pattern are different from the one in [fʕijjəl], since the applied pattern is [*fʕajjal].

8% of the data shows familiarity with the pattern but struggles with which consonant to be repeated as in 42 and 43, where the third consonant is repeated instead of the second. 7% of the non-source like data repeats the second consonants, but they add an extra vowel. Example 44 and 45 show that participants experience difficulty with the last syllable as they insert a vowel at the end to satisfy the requirement of having two syllables. 4% of the data attaches the glide -j to the stem edge as in 46. 6% of the data inserts the glide [w] as the onset of the second syllable as in 47 or inserts both the glides [j,w] as in 48.

41. kbajjar

   'big.dm'

42. *bkimim

   'mute.dm'

43. *bxajlili

   'mean. dm'

44. *kħiħla

   'black.dm'

45. *kbibra

   'big.dm'

46. *baxlijja

   'mean.dm'

47. *kbiwer

   'big.dm'

48. *kħajwal

   'black.dm'

4.1.7 [CCiCeC] pattern. Words with four consonants use the CCiCeC pattern to form their diminutive form. Forming diminutives for words with four consonants present a difficulty for participants in this study. It is acquired just by 27% of the participants and the percentage of source like use is 25%. 23% of the non-source like data inserts the -j glide after the second consonant as in 49. 4% of non-source-like data repeats the third consonant after a consonant cluster as in 50, and 11% depends on consonant cluster as in 51. 5% of non-source like data attaches the glide at the edge of the stem as in 52. Insertion of the glide [-w] was attested in 4% of the non-source like forms as in example 53.

49. *ksajjas

'couscous pot.dm'

50. *mxixra

'incense burner.dm'

51. *mkinisi

'native to Fez.dm'

52. *maknasıju

'native to Meknes'

53. maknawasi

'native to Meknes'

The presented data is a sample from participants' non-source like production. It demonstrates the difficulty in forming diminutive patterns in the HL, and it also reveals a clear pattern that depends on basic diminutive processes such as initial consonant cluster and insertion of glides in non-source like environments.

Analyzing HL as an independent subsystem will show that the diminutive system in the HL is mainly characterized by [fʕila][CCiCa] and [fʕijjəl][CCiCjCjəC] patterns, and they are acquired by 73% and 53%, respectively. Forming diminutive forms for irregular stems, such as middle weak, tend to present challenges to HS and are acquired by insignificant number of participants. Also, the main processes adopted in 69% of the non-source-like data are consonant cluster or insertion of a glide. And these are the processes common in the acquired patterns. Moreover, the requirement of having two syllables in diminutives was also respected.

5. Discussion

The findings of this study show that diminutive forms in HS are non-source like, since the percentage of source-like use is 38%, and therefore, hypothesis 1 was supported as diminutive forms depending on non-concatenative morphology present difficulty to HS. Despite producing non-source like diminutive forms, 69% of the non-source like data depends either on consonant cluster or insertion of a glide; additionally, the requirement of having two syllables is respected. Hence, hypothesis 2 was supported and participants produced rule governed errors. Data analysis revealed that some patterns seem to be less complex and easy to apply than the others. And the percentage of acquisition corresponds to the complexity of a pattern. For example, 73% of the participants acquire [fʕila] [CCiCa] pattern, and it is used to form diminutive forms for trilateral with a vowel 'ə' stem as in [bənt] [bnita] 'girl', and it is also required by fəʕl/ foʕl+vowel stems to form diminutives. It deploys a cluster of consonants and insertion of vowel /i/ as in [bəgra][bgira] 'cow'. For a better understanding of diminutive formation and the complexity of diminutive patterns, as this linguistic function is realized

through multiple processes, I will propose a derivational analysis.[2] In example 54, the application

of [fʕila](CCiCa) pattern is presented. 53% of the participants acquire [fʕijjəl][CCiC$_j$C$_j$əC]

pattern, and it is used to form diminutives for trilateral monosyllables and the percentage of

source-like use was 63%. It involves consonant cluster and insertion of a glide after the second

consonant as in [kəlb] [klijjəb] 'dog', and the second geminate is obtained through a process of

spreading of the inserted glide. The mapping of consonant root to the pattern is illustrated in

example 55. And 40% of the participants acquire [fʕijjla][CCiC$_j$C$_j$Ca] pattern and it is used to

form diminutive forms for [fʕal/ fʕila] stems. It requires just insertion of the glide [-j] after the

second consonant as the stem already has a cluster of two consonants as in [dʒaʒa][dʒijjʒa]

'hen.dm'. And example 56 is an illustration of the derivation of diminutive form that requires

[fʕijjla] pattern. Pattern [fʕila](CCiCa) appears to be less complex and for that reason the

percentage of acquisition and accuracy was high.

54. bəg.ra 'cow'

Underlying consonants   b g r

CCiCa

55. kəl.b 'dog'

Underlying consonants   k l   b
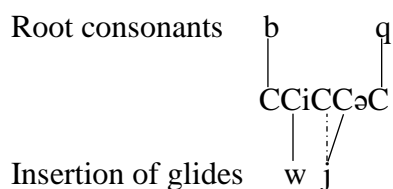
CCiCCəC

Glide insertion   j

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[2] I adopted the prosodic approach in plural formation submitted in Troyer (2006) to account for diminutive derivation in this study. The last consonant is always considered extrametrical consonant. And I suggest the following order in deriving diminutives. Left-to- right association of the consonants in syllable 1 to the first portion of the template (CCV-). The rest of the consonants get associated to the end of the template from right to left. In case there is an empty consonant slot, a glide should be inserted.

56. dʒa.ʒa 'hen'

Underlying consonants   d ʒ   ʒ

$$CCiCCCa$$

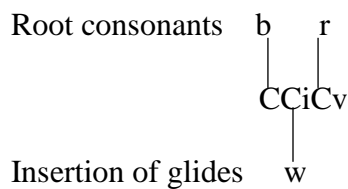   Glide insertion   j
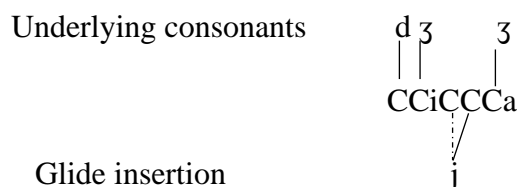
       Irregular stems including middle weak stems, four consonant stems and three consonants with a stable vowel present difficulties to HS. Middle weak stems seem to be more complex and present a difficulty for HS in both middle weak trilateral monosyllables and middle weak stem with a final vowel (two syllables) as just 27% of the participants acquire this pattern. Middle weak monosyllables depend on [fwijjel][$CC_wiC_jC_jəC$] pattern and two glides need to be inserted: the velar /w/ form a cluster with the first consonant then /j/ is inserted as the onset of the second syllable as the derivation of [buq][bwəjjiq] 'horn' in 57 demonstrates, and the percentage of source-like was 32%. Middle weak stems with a final vowel apply [fwiʕv][CC_wiCv] pattern. It requires just the insertion of the glide to form a cluster with the first consonant as derivation 58 shows, and the percentage of source-like was 35% as in [biru][bwiru] 'office'.

57. bu.q 'horn'

Root consonants   b   q

$$CCiCCəC$$

Insertion of glides   w   j

58. bi.ru 'office

Root consonants   b   r

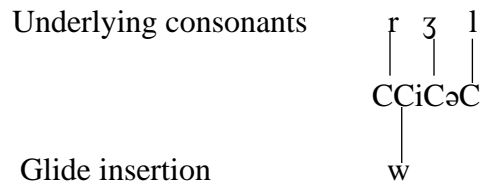$$CCiCv$$

Insertion of glides   w

The source of difficulty in deriving diminutive forms in middle weak stems could be that participants don't know exactly which consonant should form the cluster with the first one, and participants tend not to insert the velar glide /w/, since there is a pattern of overgeneralizing the insertion of the palatal glide. Words with four consonant use the pattern CCiCəC as in [kəskas][ksikəs] 'couscous pot'. Participants experience difficulty with this pattern since just 27% of the participants acquired it and the percentage of source-like use was 25%. The source of difficulty is that participants have to deal with four consonants, and three consonant root is the typical one in MA. Another characteristic of this pattern is that if the stem has a vowel it should be retained in the diminutive form as in [taffaħa] [tfifəħa] 'apple'. Example 59 shows the derivation of diminutive for this type of stems. Three consonant words with a stable vowel were acquired just by 7% and the percentage of source-like use was 12%. Forming diminutives for this type of stem appears to present difficulties to HS because applying [fwiʕəl(v)] [CC$_w$iCəC(v)] pattern necessitates the insertion of a velar glide as in [raʒəl] [rwiʒəl] 'man'. In example 60, the derivation of diminutive forms for three consonant stem with a stable vowel is given. And no participant acquires [fʕiʕil] (CC$_2$iC$_2$iC) pattern as in [kbir][kbibər]. Example 61 illustrates the derivation of this pattern. The introduced derivations and patterns demonstrate that speakers of MA express diminutives as a linguistic function through different non-concatenative processes. And therefore, HS are faced with dealing with multiple processes in deriving diminutives. The complexity of patterns could be ranged in a continuum in the order exemplified by the derivational processes.
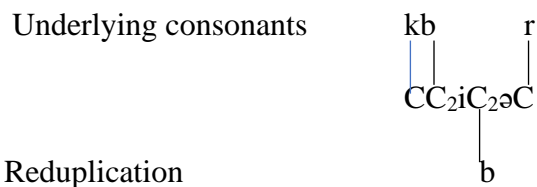
59. kəs.kas

Underlying consonants   k s k s
                       | | | |
                       CCiCəC

60. ra.ʒəl 'man'

Underlying consonants   r   ʒ   l

CCiCəC

Glide insertion   w

61.kbi.r

Underlying consonants   kb   r

$CC_2iC_2əC$

Reduplication   b

A rule that participants were applying even in non-source like environments is the insertion of a glide. For example, trilateral monosyllables with schwa don't form their diminutive forms by inserting the glide [j], instead, just initial consonant cluster is required as the pattern [fʕila][CCiCa) should be applied. However, 53% of the non-source like data inserted the glide [j] as in [*ʔsijjəl] 'honey'. In this example, the pattern [fʔijjəl] was applied successfully, since consonants in the first syllable were mapped to the first part of the template from left to right and the extrametrical consonant was mapped to the last consonant slot in the template. Then a glide was inserted as example 62 shows.

62.*ʔsəl 'honey'

Underlying consonants   ʔ s   l

CCiCCəC
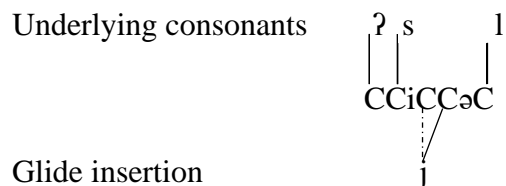
Glide insertion   j

It seems that participants' diminutive system is characterized by consonant cluster and insertion of a glide -j. It is avoiding irregularities and complex processes. We may hypothesize that because of the complexity of diminutive forms, such as forming diminutives for middle

weak forms, sufficient and sustained input is needed to master those patterns and they may be acquired beyond age 5. Additionally, multiple processes are needed to express the same linguistic function. In verb-pattern alternation, Badry's findings (1982) show that irregular stems tend to be difficult for children and they are among the late acquired. Moreover, previous studies demonstrate that non-concatenative morphology is usually acquired after age 6 (Albirini, 2015; Benmamoun et al., 2014). Benmamoun et al. (2013) argue that some language properties are acquired very early, on the other hand, other complex properties take longer time to develop. Montrul (2016) also argues that some properties of language have never been acquired by HS. Diminutive forms, relying on non-concatenative morphology, represent difficulty for HS, and just two patterns are acquired by a significant number of participants. And the derivational processes demonstrate that they are less complex. 69% of the non-source-like data depends on either initial consonant cluster or insertion of a glide. These rules are part of the acquired patterns and were generalized to non-source like data. Hence, hypothesis 3 is supported, since acquired processes are generalized to forming diminutives for irregular stems. Also, non-source like data respect the requirement of having two syllables in forming diminutives. Participants are omitting irregularities and non-source like forms are rule governed. We postulate that HS' diminutive forms are distinct and could indicate that HS in France are participating in language change.

This study also suggests a developmental order for diminutive patterns in MA. For example, since the basic rule in MA diminutive forms is consonant cluster and an insertion of the vowel /i/, it is expected that stems that require just initial consonant clusters and insertion of the vowel /i/ are the first learnt processes in diminutive formation. And therefore, [fʕila] pattern is expected to be the first pattern to be applied by a learner of MA. The second process to be acquired is inserting a palatal glide after the second consonant and applying the pattern [fʕijjəl].

Diminutive patterns required by irregular stems such as the middle weak, trilateral consonants

with a stable vowel and four consonantal stems should be acquired beyond school age and may

be never acquired by HS, which will also suggest that diminutive patterns are acquired in stages.

The findings of this study also propose an implicational hierarchy for the acquisition

pattern of diminutive forms. For example, if a learner only knows one diminutive pattern, it will

be the [fʕila] pattern. For instance, 27% of the participants acquire just one diminutive pattern

and it is [fʕila] pattern. And if a learner knows only two patterns, they will be the [fʕila] and

[fʕijjəl] and it was evidenced by the data since 20% of the participants acquire just two patterns

and they are [fʕila] and [fʕijjla] patterns. And if a participant acquires [fʕijjla] pattern, it is

expected that they also acquire [fʕila] and [fʕijjəl] as 27% acquire the three patterns. Results also

show that 83% of the participants that acquire forming diminutive forms for middle weak

(fwijjəl, fwilv) also acquire [fʕila] and [fʕijjəl] patterns.

Analyzing HL as an independent rule governed subsystem will demonstrate that

diminutive forms in HS's variety are mainly characterized by two patterns: [fʕila] and [Fʕijjəl].

The percentage of acquisition and the implicational hierarchy emerging from data analysis lend

support to this claim. Also, the pattern of generalization in non-source like data was mainly

characterized by initial consonant cluster and glide insertion.

[fʕila] pattern was acquired by 73% of the participants and [fʕijjəl] pattern was acquired

by 53% of the participants. Additionally, the proposed acquisition hierarchy suggested that other

patterns could not be acquired without implying that [fʕila] and [Fʕijjəl] patterns were present in

the HL. Therefore, I propose that [fʕila] pattern should be acquired and stabilized in the HL at an

early age during development, then followed by [fʕijjəl] pattern, since these patterns are not

complex. And because morphological complexity is an indicator of late acquired structures

(Albirini & Benmamoun, 2014), patterns requiring complex processes such as forming diminutives for middle weak stems are acquired late in MA. And for all what is said, I argue that the acquisition of diminutive forms in MA is gradient as many processes are needed for deriving diminutive forms. They need longer time to be stabilized and acquired. I maintain that the critical period of mastering all the patterns and processes for diminutive forms is mid-teens. And the analysis of non-source like data shows that 69% of the non-source like data depends on initial consonant cluster and insertion of glide [-j], and these processes are part of the processes applied in the acquired first two patterns. It is more likely that these are the processes acquired first by children during language development. Thus, participants' diminutive system is mainly employing two patterns in deriving diminutive forms.

6. Conclusion

Results demonstrate that HS have a modified version of diminutive forms that comprises only two patterns. Diminutive forms depend on non-concatenative morphology, and multiple processes are needed to express one linguistic function. Results indicate that participants are not aware of all diminutive templates attested in the source language, and they struggle in selecting the template conforming to the source language, since in MA different processes are required to derive diminutives. Participants tend to regularize diminutive formation and show a preference to the following pattern: initial constant cluster and insertion of the palatal glide. Benmamoun et al. (2014) and Montrul (2016) propose that complex structures need sufficient and consistent input to be acquired. Our results also suggest that HS experience difficulty with non-concatenative morphology, which could be explained by both complexity and received input. Results suggest that the acquisition of diminutive forms in MA is gradient. If early input was advantageous for diminutive forms, all the attested patterns in the source language should be present in the HL.

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