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**THE ACQUISITION OF MORPHOLOGY AND MORPHOSYNTAX OF  
PERSIAN (FARSI) HERITAGE LANGUAGE AS AN INDEPENDENT VARIETY  
IN THE UNITED STATES: NEW PERSPECTIVES**

by

Hamideh Sadat Bagherzadeh

A Dissertation Submitted in

Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

in Linguistics

at

The University of Wisconsin-Milwaukee

May 2022

## ABSTRACT

### THE ACQUISITION OF MORPHOLOGY AND MORPHOSYNTAX OF PERSIAN (FARSI) HERITAGE LANGUAGE AS AN INDEPENDENT VARIETY IN THE UNITED STATES: NEW PERSPECTIVES

by

Hamideh Sadat Bagherzadeh

The University of Wisconsin-Milwaukee, 2022  
Under the Supervision of Professor Sandra Liliana Pucci

There is a growing body of research from various perspectives in heritage language (henceforth HL) acquisition as an emerging field. Some studies proposed that HL acquisition is a differential acquisition compared with the baseline language (i.e., the language spoken by the parents or caregivers) (Kupisch & Rothman, 2018; Dubiel & Guilfoyle, 2021; Makarova & Terekhova, 2021; Caloi & Torregrossa, 2021; Nagy, 2021), while some other studies focus on a comparison of heritage speakers (henceforth HSs) with monolingual speakers and suggest that HSs acquisition of the baseline language is either incomplete, deficient, or arttrided (Benmamoun, Montrul, & Polinsky, 2013; Montrul, 2005, 2008, 2016, 2018; Polinsky, 2008, 2011). While there is abundant research on HL and HSs' acquisition, Iranian HSs have rarely been studied. There is no research- to the best of our knowledge- on the linguistic system of Persian/ Farsi HL and the acquisition of Persian/Farsi HSs. Therefore, this dissertation- for the first time- investigates the acquisition of Persian (Farsi) (It is noteworthy that the correct term is “Modern Pahlavi or Iranian language”; however, due to the popularity and historical use of the terms “Persian (Farsi)”, these terms are used in this dissertation.) HL as an independent variety in the United States and delineates its unique features via new perspectives on HSs and their

acquisition. To preclude discrepancies and fallacies of HL acquisition and to focus on the language competence of more homogenous HSs, this study focuses on active HSs, namely those who have acquired an HL and are using it actively in daily communication.

This dissertation explored the Persian/Farsi HSs' acquisition of nominal morphology, represented by plural formation, verbal morphology, represented by light verb constructions, and morpho-syntax, represented by subject-verb agreement (SVA). There were six main questions and hypotheses in this study, and to investigate the independent properties and features of the acquisition of Persian HL in the United States, 10 Persian HSs, including 5 children (mean age 13.4 years (SD=5.59) and 5 adults (mean age 29.2 years (SD=4.96) were selected by the convenience sampling method. The data were collected through various experimental procedures, including personal interviews, and questionnaires for linguistic background and demographic information. The consistency of HSs' production and judgment was investigated via oral production, written tasks, and Grammaticality Judgment Test/ Correction (GJT/C) for each linguistic structure.

Light-verb construction results revealed that HSs predominantly produce similar constructions (82.85% (oral), 95% (written)) to the "Tehrani" dialect which is the dominant dialect of participants' parents and caregivers. However, they also showed unique features such as using some innovative light verb constructions (i.e., an English preverbal element with a Persian light verb) and unique light verbs that are not present in the monolingual Persian language system.

Likewise, plural formation results showed that HSs produce plurals significantly similar to (98.03% (oral), 82.16% (written)) the “Tehrani” dialect. Nonetheless, they produced some innovative and unique plural forms that are not used in the monolingual baseline language.

SVA results indicated interesting findings that HSs’ SVA is modality-constrained, meaning that it changes in oral and written production. In oral modality, HSs’ SVA rules are the same as Classic Persian (CP), meaning that SVA for the inanimate plural subjects is not optional, and HSs use singular verbs predominantly for the inanimate plural subjects. However, in the written modality, HSs’ SVA rules are the same as the SVA rules of Modern Standard Persian (MSP), meaning that SVA is optional, and HSs use either singular or plural verbs for the inanimate plural subjects.

GJT/C results also confirmed the consistency in the production of child and adult HSs and the harmony between their production and judgment. This study illustrated the findings via 25 evident features of systematicity, productivity, and dynamism to demonstrate the unique characteristics of the Persian HL system. Overall, the findings supported the hypotheses and corroborated that Persian (Farsi) HL in the United States is a distinct variety of Persian that though having much in common with other varieties of Persian, has some unique features too.

This study argues that the cross-linguistic influence of English as the dominant language of the sociolinguistic context could account for some of the findings. Moreover, with a new viewpoint, this study highlighted that the novel and innovative forms in HS’s production are the results of the dynamic interaction in an “interlanguage system” between colloquial Persian, as the HL, and MSP, as the dominant language in the diglossic context. This study advocated that interlanguage could be extended from a concept in the second language acquisition to an

independent system in bilinguals' acquisition. However, using the term "Interlanguage" in this study does not signify that HL acquisition and second language acquisition are the same. In other words, using the term "Interlanguage" in this study, does not make HL acquisition be on par with second language acquisition.

Looking at the findings through a different lens, this study suggested that some of the novel examples or patterns in HSs' production are the result of the poverty-of-stimulus effect, meaning that neither the first language (L1) grammar nor the second language (L2) surface patterns can account for some properties of the interlanguage system (Schwartz & Sprouse, 2000). The emergence of poverty-of-stimulus examples in the HSs' production provides support for the productivity of HSs' language system. Consequently, it verifies that HL is an independent language system that might have direct access to Universal Grammar (UG).

Overall, relying on the results of this study and evident examples of the poverty-of-stimulus effect, productivity, systematicity, and consistency in the production and judgment of Persian (Farsi) HSs in the United States, this study concluded that the Persian HL is an independent variety of Persian that has its unique features. Also, with a new stance, this study highlighted that accepting an HL as an independent variety entails that we should stop labeling HSs' acquisition as a deficient or partial acquisition, and instead, we should focus on describing the unique features of HSs' acquisition. Despite many studies that consider HL acquisition an incomplete acquisition or attrition, the results of this study demonstrated that not only does the HL system work as a fully functioning system with its unique features, but also evident innovative patterns indicate that the HL system is a productive and dynamic system. Therefore, this study suggests that the divergence from the standard variety in a diglossic context does not

corroborate competence deficiencies, what some researchers call “incomplete acquisition”, rather it implies developing fully in a different context.

By investigating the acquisition of Persian (Farsi) HL, one of the least studied languages, for the first time, this study informs linguistic theories and contributes to constructing the theoretical background of Persian HL acquisition and adds to the linguistic diversity of bilingualism and HL research. It also contributes to a better understanding of the linguistic system of HSs in general and in the multilingual, and diverse society of the United States in particular and lays the groundwork for further research.

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To  
my parents,  
  
my family,  
  
and especially my husband, Aqil

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## LIST OF ABBREVIATIONS

ØPL	Zero Plural
1	First Person
2	Second Person
2nd	Second
3	Third Person
3PL	Third Person Plural
3PPL	Third Person Plural
3PS	Third Person Singular (Noun)
3rd	Third
3SG	Third Person Singular (Verb)
ACTFL	American Council on the Teaching of Foreign Languages
BFLA	Bilingual First Language Acquisition
CE	Common Era
COP	Copula
CP	Classic Persian
DUFDE	Deutsch und Französisch–Doppelter Erstspracherwerb

EZ	Ezafeh (shows certain relationships between Persian words, among them: possession, qualification (adjective-noun), titles (Mr., Mrs.), and names (first and last names))
FUT	Future Tense
GJT/C	Grammaticality Judgment Test/ Correction
H1, H2, H3, H4, H5, & H6	Hypothesis 1, 2, 3, 4, 5, & 6
HL	Heritage Language
HS	Heritage Speaker
HSs	Heritage Speakers
INF	Infinitive
IPA	International Phonetic Alphabet
IrPL	Irregular Plural (Broken Plural)
L1	First Language
L2	Second Language
LVs	Light Verbs
MEG	Magnetoencephalography
MG	Multiple Grammars

MSP	Modern Standard Persian
N	Noun
NA	Not Applicable
NLP	Natural Language Processing
NP	Noun Phrase
O	Object
P	Person
p.	Page
PL	Plural
PP	Prepositional Phrases
PRS	Present
PST	Past
S	Subject
S/Sg/SG	Singular
SD	Standard Deviation
SLA	Second Language Acquisition
SOV	Subject Object Verb

SVA	subject-Verb Agreement
SVO	Subject Verb Object
T	Tense
TB	Theoretical Bilingualism
UG	Universal Grammar
US	United States
V	Verb



## ACKNOWLEDGEMENTS

I would like to express my sincerest appreciation to the wonderful people who have helped me with their invaluable support during my doctoral studies and this dissertation. First and foremost, I would like to express my deepest gratitude to my advisor, Dr. Sandra Liliana Pucci, for her exceptional support and patience during the long journey of my dissertation. Taking her class on “Issues in Bilingualism” sparked my interest in HL acquisition and gave me the motivation for developing this dissertation. I would like to thank her for the knowledge and insights that she shared with me during our independent studies and for spending a tremendous amount of time reading my dissertation exhaustively. Her enthusiasm encouraged me to keep on task to the completion of my dissertation. Dr. Pucci, you were not only my advisor but also a supportive friend, who gave me the power to move towards my goals. I am grateful for your support; however, indeed, words cannot adequately express my gratitude.

I would also like to extend my sincere gratitude to my amazing committee members, including Dr. Fred Eckman, Dr. Hamid Ouali, and Dr. Gary Davis for their continuous help, encouragement, and support to improve my work. Their detailed and constructive comments and discussions were motivating and inspirational. I send my special thanks to Dr. Eckman for giving me the opportunity to start my pilot study in his SLA seminar and for providing me with partial funding for participant recruitment. I am truly grateful for the knowledge that I acquired in his SLA classes and seminar. I would like to thank him for his meticulous comments and insightful feedback on my pilot study and dissertation, which contributed significantly to this dissertation. I would also like to express my appreciation to Dr. Ouali for his great knowledge, support, and feedback on my work. I send my sincere thanks to him for giving me the opportunity to start exploring Persian SVA in his Syntax seminar. His knowledge and constructive feedback on my

work provided me with a better understanding of the morphosyntax of Persian HL. My deepest thanks are extended to Dr. Davis for his support, encouragement, and insightful comments on my work. His great knowledge of languages and his constructive discussions after my proposal inspired my work greatly. I am highly honored to have been his teaching assistant and have had the opportunity to learn from him. I am grateful to Dr. Davis for his kind guidance and support during the first year of my doctoral studies when he was my advisor. His guidance assisted me to explore linguistics and to find my research path.

Also, many thanks go to all the faculty members and staff in the Linguistics Department at the University of Wisconsin-Milwaukee (UWM), who walked me through my doctoral milestones step by step and contributed to my academic growth. I am deeply thankful to all of them. I am indebted to the Department of Linguistics and the Graduate School at UWM for providing me with Teaching Assistantship and one year of the Distinguished Dissertation Fellowship (DDF) Award, respectively. These incredible opportunities not only made the completion of my doctoral degree possible but also facilitated my entire journey at UWM.

My endless thanks go to all my participants, Iranian Persian HSs in the US, and their families whose contribution and patience have made it possible for me to implement my study. This dissertation would not have been possible without the contribution of my participants.

Finally, I owe my dear, loving family back in Iran a great debt of sincere thanks for their support, encouragement, and patience during all these years of studying abroad for my Ph.D. I am grateful to my parents for all their support, love, patience, and nice wishes. Words cannot express my heartfelt thanks to my kind, loving siblings and their families for their continuous support, encouragement, and love. Very special heartfelt thanks go to my amazing sister,

Vajiheh, for her encouragement and endless love and support. I would also like to express my heartfelt thanks to all my nieces and nephews for their love and encouragement and for cheering me up on my hard days away from all of them. My love and thanks go to each one of them. I especially send my love and heartfelt thanks to my sweet, loving nephew, Arsham, for calling me every day during the past five years and making my days with his sweet, lovely words. I am also grateful to my oldest brother, Mohammad for his kind encouragement and support during my education and for his comments on my dissertation. Additionally, many thanks to my wonderful niece, Samaneh for her kind encouragement and insightful comments on my work. Samaneh- with a master's degree in Persian Language and Literature- provided me with professional knowledge of Persian language structures and contributed greatly to my work. My deepest thanks are also extended to my in-law family for their kind support and encouragement.

Lastly, yet most importantly, I would like to express my deepest, heartfelt thanks to my fascinating husband, Aqil, for his endless love, patience, support, and encouragement during my Ph.D. studies and this dissertation. Surely, this dissertation would not have been possible without his exemplary love and exceptional care and support, for which I cannot thank him enough. I would like to send him my extreme love and thanks for his unconditional love. In addition to emotional support and encouragement, Aqil has contributed immensely to my work with his thoughtful comments and discussions on my work. He has also facilitated my work at a professional level with his technical knowledge of computers. His encouragement, love, and support have been a true source of motivation and inspiration for me during my studies in the US and have given me the extra strength to get things done and move forward. Aqil, I am extremely grateful for all your love and support; however, indeed, words cannot express adequately my heartfelt love and appreciation.

## **Chapter One: Introduction**

Being a Persian (Farsi) speaking student of linguistics in the United States, the first time I heard the terms “heritage language (HL) and heritage speakers (HSs)”, the first question which came to my mind was “What would be the special features of the variety of Persian (Farsi) by Persian HSs in the United States?” The topic was intriguing enough to follow, and the more I read about HL, the more interesting the topic became to me. Reading controversies in the definitions, terminology, and perspectives of the researchers in the field made the topic even more interesting. Everything got more interesting when I started talking to HSs of my native language Persian (Farsi), and I realized that despite different viewpoints on HSs’ acquisition, those whom I talk to are just native speakers of Persian (Farsi) who speak their special variety of Persian. Coming across this controversy in the definition and findings of most of the researchers and what I could see in reality, I found myself intrigued enough to start this study on Persian HSs in the United States to investigate the acquisition of Persian (Farsi) HL as an independent variety with new perspectives on HL acquisition.

### **1.1 Definition of Key Terms**

#### *1.1.1 Heritage Language*

According to Kupisch & Rothman (2018), a language qualifies as an HL if it is a language spoken at home or otherwise readily available to young children, and crucially this language is not a dominant language of the larger (national) society [...] the HL is acquired based on an interaction with naturalistic input and whatever inborn linguistic mechanisms are at play in any instance of child language acquisition.

In this study, HL is Persian (Farsi), which is the less dominant native language of Persian-English bilinguals in the United States.

### *1.1.2 Heritage Speakers*

HSs are the ones who acquire an HL naturally from their parents or caregivers. The term heritage speaker was first introduced in Canada in the mid-1970s (Cummins, 2005) but has been gaining ground in the United States since the 1990s. HSs are a special case of child bilingualism. As Kupisch & Rothman (2018) stated well, indeed, all HSs are bilingual by definition, but certainly, not all bilinguals are HSs.

In this study, we refer to Persian/Farsi HSs as native speakers of a minority language in the United States who acquire their native language naturally at home from their parents and/or other caregivers as input providers while the dominant language in the society is English. Therefore, in this study, HL is a less dominant native language of bilinguals in the United States.

## **1.2 The Purpose of the Study**

This study aims at investigating the acquisition of Persian (Farsi) HL, as an independent variety, in the United States with a new stance.

This study centers on the following perspectives: First, HL is a minority language that is spoken natively, and HSs are native speakers of their HL by definition. Second, the HSs' production in their native language is different from other native speakers of the baseline language (i.e., the language "that is served as the input for acquisition" and "the monolingual standard of comparison" (Polinsky & Scontras, 2020) or to put it simply, the language spoken by the parents or caregivers). This is similar to the way that monolingual speakers of different varieties of the same language have various language productions because of different reasons,

including the socio-linguistic context of exposure, diachronic changes of generations, geographical contact with other varieties and languages, training in the standard language, etcetera. One of the main obstacles to designing a model of HL grammar is the enormous variation observed in language outcomes across HSs (Polinsky and Kagan, 2007; Kupisch and Rothman, 2018; Polinsky and Scontras, 2020), and this spectrum is defined as “from those who at first glance appear similar to the baseline to those who can understand the home language but do not speak it” (Polinsky and Scontras, 2020). Since there is a “lack of consensus on the precise definition of HSs and their language, and, often, the lack of an appropriate baseline for comparison” (Polinsky and Scontras, 2020), this study would like to consider a revision of the definition of the term “heritage speaker”. Therefore, the third perspective of this study is to make a difference between a heritage speaker, namely someone who has acquired an HL and is using it actively in daily communication (i.e., an active heritage speaker), and someone who is just an inheritor of an HL (i.e., a passive HL inheritor) by virtue of having bilingual parents and caregivers. The latter, namely someone who has exposure to HL and might understand it but does not speak it and has no interaction in that HL is not considered an HS the same way that watching TV in a special language with no interaction does not make someone the native speaker of that language (Moskowitz, 1991). Thus, to be able to focus better on the language competence of HSs and model a more homogenous grammar, this study suggests that the focus should be on those who are active HSs. As inheriting a car in a garage never makes someone a driver, inheriting a language per se does not make someone a native speaker; therefore, if we consider this distinction in the selection of participants of HL studies, we will have a more homogenous group and be able to define HL grammars better. Regarding the baseline language, on the one hand, similar to Polinsky & Scontras (2020), this study assumes the baseline language to be the

caregivers' language, namely the colloquial variety that parents or other caregivers use as the input for acquisition. On the other hand, different from Polinsky & Scontras (2020) that acknowledge HSs' input is different from that of monolinguals' qualitatively and quantitatively, this study believes that as far as the caregivers are native speakers of the HL, the quality of the input is the same as what monolinguals receive from their caregivers; however, the quantity might be different.

Since even active HSs might still vary across a continuum of different proficiencies, this study points out that similar to the way that we accept the whole body of monolingual native speakers of a variety, including the most sophisticated language users and the non-literate native speakers next to each other as the corpus, we should also accept HSs through their continuum as native speakers. Therefore, the main focus of the present study is to delve into investigating the systematicity and productivity of the Persian/Farsi in the United States through a different lens. To highlight the special features of Persian/ Farsi HSs' acquisition and describe their variety, this study investigated the acquisition of nominal morphology, represented by plural formation, verbal morphology, represented by light verb constructions, and morpho-syntax, represented by SVA in Persian/ Farsi by HSs. The rationale behind choosing these linguistic structures is that the variety and flexibility of their forms among different varieties made them good candidates for investigating novelty and creativity in production. Besides, the acquisition of an interface of morpho-syntax brings evidence of complexity in the HL system.

### **1.3 The Significance of the Study**

The language skills and developmental trajectories of children learning two languages are not identical to monolingual children learning one language (e.g., Pham & Kohnert, 2010, 2014),

which makes the study of bilingual language even more essential. Research on HSs, as a group of bilinguals, is important because, by better understanding HSs and the special characteristics of their language, we can have a stronger understanding of the nature of their language. Moreover, investigating different language pairs (e.g., Hmong-English, Vietnamese-English, Spanish-English, German-English, and Persian-English) helps inform theories of language development and the influences of each language on a heritage speaker's two languages. Moreover, regarding the specific linguistic and typological characteristics of each language, every new language pair, brings new insights to the field. Additionally, research shows that the maintenance of an HL is vital in multicultural populations. Children or adolescents who can speak their family's HL may reap psychosocial and academic benefits (Tseng & Fuligni, 2000), they may have great confidence in their college success (Aguayo, Herman, Ojeda, & Flores, 2011), and they may have stronger family cohesion (Portes & Rumbaut, 2001).

Despite the growing number of Persian HSs in the US, as far as we know, there is no research on the acquisition of Persian by HSs, specifically in the US. Therefore, by investigating the acquisition of Persian (Farsi) HL, this study will contribute to the investigation of the current issues of HL acquisition and bilingualism as well as the linguistic diversity of HL studies.

#### **1.4 Research Questions**

This study focuses on the investigation of the special features of the HL system as an independent variety in a descriptive way. Therefore, the main questions of this study are as follows:

Q1: How does the HL system of Persian (Farsi) HSs differ from the baseline language of their caregivers as speakers of other varieties?



Q2: Is there any systematicity in using light verb constructions, plural formation, and SVA by HSs?

Q3: Are there any innovative forms in producing light verb constructions, plural formation, and SVA by HSs?

Q4: Is there an implicational hierarchy in the acquisition of plural markers by HSs?

Q5: Do HSs use any Arabic loan plural markers in their language system?

Q6: Does the HL system of Persian (Farsi) HSs follow the SVA rules of Modern Standard Persian or the SVA rules of Classic Persian similar to many colloquial dialects?

### **1.5 Research Hypotheses**

The following hypotheses were formulated based on the research questions.

H1: Persian HSs' language system is simply an independent variety of Persian, which is as systematic and productive as the baseline language of their caregivers as speakers of other varieties.

H2: There is systematicity in using light verb constructions, plural formation, and SVA by HSs.

H3: There are some innovative forms in producing light verb constructions, plural formation, and SVA by HSs.

H4: There is an implicational hierarchy in the acquisition of plural markers by HSs.

H5: HSs use fewer Arabic loan plural markers than their monolingually raised counterparts, namely monolingual Persian speakers who live in the diglossic context of Iran.

H6: The HL system of Persian (Farsi) HSs follows the SVA rules of Classic Persian similar to many colloquial dialects, meaning that SVA for the inanimate plural subjects is not optional.

This dissertation is structured as follows. Chapter two provides the previous literature related to the current study, including different ideas on the definition of HL and HSs, different perspectives on HSs' acquisition, and a review of the main findings of the HSs' acquisition. In chapter three, the methodology is outlined and explained, followed by an explanation of the linguistic structures of this study. Chapter four reports the data analysis and the results of nominal and verbal morphology, represented by the plural formation and light verb constructions. Moreover, a report of the results of the interface of morpho-syntax, represented by SVA in the Persian variety of HSs is provided in this section, and it is followed by a discussion of the findings. Chapter five discusses the results of this study addressing the main hypotheses and questions of this study. Finally, chapter six provides a summary of the overall findings and a conclusion of the results. It also provides the implications of this study for SLA, bilingualism, and HL acquisition in general and Persian/ Farsi HL acquisition in particular. The limitations of this study and directions for future studies are also discussed and followed by the concluding remarks at the end of this chapter.

## **Chapter Two: Literature Review**

To provide a review of the literature relevant to the current study, in the following sections, this study presents an overview of the definition of HL and HSs and a review of the main previous studies on HSs in different contexts, different issues related to HSs, an overview of the theoretical background, and linguistic frameworks that have been applied in this research project. This chapter is organized as follows:

Section 2.1 provides different views on the definition of HL. Section 2.2 describes HSs as the population under investigation. Section 2.3 gives an overview of the Iranian diaspora in the United States. Section 2.4 provides the theoretical framework of this study, meaning bilingualism. Section 2.5 identifies the linguistic frameworks of this study. Section 2.6 reviews previous research on HSs. Finally, section 2.7 discusses studies on Iranian HSs.

### **2.1 Heritage Language**

The term “heritage language” is used to refer to languages other than the dominant language (or languages) in a given social context. For example, in the United States, English is the de facto dominant language (not an “official” language, but the primary language used in government, education, and public communication); thus, any language other than English can be considered an “HL” for speakers of that language if learned natively. (For a broader discussion of the definition of “HL”, also see Joshua Fishman, Guadalupe Valdés, and Terrence Wiley in Peyton, Ranard, & McGinnis, 2001).

Even though languages other than English in the United States are often thought of and referred to as “foreign” languages, many people who live in the United States have cultural connections to and know languages other than English. These languages are not “foreign” to

particular individuals or communities; instead, they are familiar in a variety of ways. The range of familiarity of these people with the languages except English varies in a continuum from just being able to understand the language, just speaking the language, or speaking, reading, and writing the language. Some may even not understand the language but are part of a family or community where the language is spoken. The term “heritage” language can be used as an umbrella term for all these variations through the continuum to describe any of these connections between a non-dominant language and a person, a family, or a community.

Sometimes, the term “minority language” is used interchangeably with the term “heritage language”; however, it is noteworthy that according to Kellehr (2010), there are some cautions which should be considered with the term “minority language”. First, while “minority” in a demographic sense tends to mean “smaller in number” or less than 50% of a group (as opposed to a numerical majority), many negative social connotations accompany the term. Second, in a particular community or social setting in the United States, a language other than English may be spoken by a numerical majority. (More discussion on the Introduction to Peyton, Ranard, & McGinnis, 2001.) Therefore, to remove the confusion, it would be a better idea that whenever one uses the term “minority”, they also bring the term “native language” alongside. In other words, an HL is a minority language that is also a native language.

Other alternative terms to “HL” have been and are being used in the United States and other countries include “community language” (Baker & Jones, 1998; Corson, 1999; Wiley, 2001, 2005) and “home language” (e.g., Yeung, Marsh, & Suliman, 2000).

Kupisch and Rothman (2018) argue that one of the best definitions for HL is perhaps Rothman’s (2009) definition of what an “HL” is. He discusses that this definition is rather

uncontroversial, and in harmony with other available definitions (e.g., Benmamoun, Montrul, & Polinsky, 2013; Montrul, 2008, 2016; Polinsky & Kagan, 2007) in several aspects, but he states that one critical difference is the purposeful avoidance of the term incomplete acquisition in Rothman's (2009) definition. He states,

“A language qualifies as an HL if it is a language spoken at home or otherwise readily available to young children, and crucially this language is not a dominant language of the larger (national) society [...] the HL is acquired based on an interaction with naturalistic input and whatever inborn linguistic mechanisms are at play in any instance of child language acquisition. Differently [from monolingual acquisition], there is the possibility that quantitative and qualitative differences in HL input, the influence of the societal majority language, and differences in literacy and formal education can result in what on the surface seems to be arrested development of the HL or attrition in adult bilingual knowledge (Rothman, 2009, p. 156).”

Then, Kupisch & Rothman (2018) continue the argument, focusing on the important difference between this definition and others, according to which the HL is a minority language, acquired naturalistically but ‘did not develop fully at age-appropriate levels’ (e.g., Benmamoun et al., 2013, p. 133, based on Valdés, 2000) or ‘often does not reach native-like attainment during adulthood’ (Benmamoun et al., 2013, p. 133). “Rothman’s definition does not imply anything concerning potential acquisition outcomes.” (Kupisch & Rothman, 2018); nonetheless, the term “arrested development” and “attrition” in Rothman’s (2009) definition imply differently.

## **2.2 Heritage Speakers**

The term heritage speaker was first introduced in Canada in the mid-1970s (see Cummins, 2005) but has been gaining ground in the United States since the 1990s. Even though

the term “heritage speaker” has been used for decades, still, there is not a clear definition for “heritage speaker”. As Kupisch and Rothman (2018) well stated, indeed, all HSs are bilingual, but certainly, not all bilinguals are HSs. The term “Heritage speaker” originated in North America and has over the past two decades been used there increasingly. Recently, the term has become more globally used, for example, in Europe and beyond.

One of the important issues which researchers who are interested in formal linguistic studies of HSs should consider is to make a difference a priori between those that are naturalistic bilingual acquirers/speakers of an HL and those that are current adult learners of a second language (L2) that is a language of familial heritage. While L2 HL learners, unlike typical novice L2 learners, might have different (higher) motivations, cultural connections, access to (family) native speakers outside the classroom, and have had some limited exposure before the start of L2 learning, they are not early childhood naturalistic acquirers of the HL. Therefore, they are not native speakers of the HL in the same way as HS bilinguals (Rothman & Treffers-Daller, 2014).

Broadly defined, HSs are child and adult members of a linguistic minority who grew up exposed to their home language and the majority language. For some researchers, this definition also includes indigenous languages, not just immigrant languages (Fishman, 2006).

Representative minorities are Spanish, East Asian, Russian, Arabic, and Persian (Farsi) HSs. HSs are a special case of child bilingualism.

Currently, children are more likely to grow up with more than one language due to increasing mobility around the world (Tucker, 1998). Among bilinguals, HSs are those who were born in or emigrated to the host country during their childhood (Montrul, 2012) and grew up hearing and possibly speaking a minority language in the family (Polinsky, 2011, p. 306). As

Valdés (2000, p. 1) describes, a heritage speaker (in the United States) is “a bilingual raised in a home where non-English language is spoken, who speaks or merely understands the HL, and who is to some degree bilingual in English and the HL.” This definition shows that HSs can have various linguistic abilities in their family language. While some may have native-like proficiency in the HL, some HSs may only understand the language (Montrul, 2013). HSs are often weaker in their family language than in the majority language (Montrul & Polinsky, 2011) and they may even become monolingual speakers of the majority language (Fillmore, 1991). An HL can be completely lost in the course of three generations (Fishman, 1991) as a result of what some researchers (Montrul, 2002; Polinsky, 2007) believe to be attrition and incomplete acquisition. While HSs’ knowledge of grammar has often been the focus of research in this area (e.g., Montrul, 2008; Polinsky, 2006), comparatively little attention has been paid to their vocabulary knowledge (Montrul, 2009, 2016). Nonetheless, the lexicon is affected by language attrition earlier and more dramatically than morphology and syntax (e.g., Köpke & Schmid, 2009). It has also been found that the lexicon is more susceptible to bilingual-monolingual differences (Unsworth, 2013). Besides, degrees of grammar knowledge and vocabulary knowledge are strongly correlated (Polinsky, 1997, 2007), and vocabulary test scores can serve as fairly reliable indicators of language proficiency more generally (Montrul, 2009). In the field of second language acquisition, for example, vocabulary test scores have been shown to correlate very strongly with learners’ performance in speaking tasks (Iwashita, Brown, McNamara, & O’Hagan, 2008; Koizumi & In’nami, 2013) and listening comprehension tests (Staehr, 2009).

Therefore, the HSs’ proficiency in their HL varies in a continuum; however, there is an important fact to notice that “HSs” are native speakers of their HL by definition (Kupisch & Rothman 2018). The case that the HSs’ production in their native language differs from other

natives in the country where it is the dominant language is similar to the way that monolingual speakers of different varieties of the same language differ from each other due to different reasons, including the context of exposure, the amount of exposure, and training in the standard language. In addition to these reasons, the variability in HSS' production might be also due to the quality and quantity of input and interaction, the effect of the dominant language, transfer from the other language in their bilingual linguistic system, and in the case of adult bilinguals L1 attrition might be also a reason.

### **2.3 Iranian Diaspora in the United States**

Iranians initially started leaving their home country en masse as a result of the Islamic Revolution of 1979. It was the major cause of “the growth of the Iranian diaspora population worldwide” (Bozorgmehr, 1998, p. 5). The post-revolution wave of immigrants included political refugees or exiles, Iranians who left the homeland because of religious or cultural reasons (such as Baha'is, Jews, Christians, Armenians, and Assyrians), and educated Iranians, who settled mainly in Europe and the United States (Bozorgmehr, 1998; Hakimzadeh, 2006; Chaichian, 2012).

The second wave of immigration was caused primarily by the Iran-Iraq war, which lasted for eight years. During this period (1980-1988), many professionals, academics, women escaping religious restrictions and gender-based discrimination, and men trying to escape military service left the country (Chaichian 2012, p. 23).

Finally, the most recent wave of emigration from Iran occurred in the aftermath of the Iranian presidential election in 2009. There was an increase in the number of skilled and educated Iranian immigrants as well as refugees and asylum seekers after this election



(Chaichian, 2012). Also, each year, many smart Iranian students come to the United States as a result of the brain drain, and many of them stay there and have families.

Even though the Iranian diaspora happened in different places, the United States has become home to the largest and most prosperous population of Iranians outside of the homeland. Therefore, since the Iranian American population is one of the important minority communities in the United States, and the Persian HSs constitute a noticeable group of HSs, it seems that research on this group of HSs would contribute to the field of bilingualism and HL studies and contribute to a better understanding of the linguistic system of HSs in the multilingual and diverse society of the United States.

## **2.4 Theoretical Framework (Bilingualism)**

There are numerous ways to define bilingualism. For present purposes, this term is operationalized as the ability to utilize at least two languages in some capacity, where language comprehension and production may fluctuate based on various factors such as age or developmental stage, exposure to each language, opportunities to use each language for meaningful purposes, and parent socioeconomic or education status (American Speech-Language-Hearing Association, 2004; Kan & Kohnert, 2005; MacLeod, Fabiano-Smith, et al. 2013; Pearson, 2007). Bilingualism may result from many different types of environments, including, but not limited to children who grow up hearing and producing (i.e., speaking) two languages, children who learn a second language in school, or adults who learn a second language later in life. The former is often referred to as simultaneous bilingual or bilingual first language acquisition (BFLA) (Pearson, 2008) and the latter is referred to as sequential or early second language acquisition (Early SLA) (Pearson, 2008). In this study, the primary focus is on

children who are exposed to two languages from either birth or in early childhood (i.e., before 30-months old for the current study). The line between when language learning is considered simultaneous or sequential is not precise. There is no definitive age at which bilingualism switches from simultaneous to sequential. Some researchers qualify simultaneous bilinguals as children who are exposed to two languages from birth (Extra & Verhoeven, 1999; Padilla & Lindholm, 1984), while others consider simultaneous to include children who are exposed to a second language before the age of 3 years (Montrul, 2008).

## **2.5 Linguistic Framework**

### *2.5.1 Persian/Farsi*

Persian is the formal language of Iran, and it is the spoken language of most parts of Iran. Persian/ Farsi (فارسی, International Phonetic Alphabet (IPA): [fɑɾsi]) is an Iranian language within the Indo-Iranian branch of Indo-European languages. There are approximately 110 million Persian speakers worldwide, with the language holding official status in Iran, Afghanistan, and Tajikistan. For centuries, Persian has also been a prestigious cultural language in Central Asia, South Asia, and Western Asia. Persian is used as a liturgical language of Islam not only in Iran, Afghanistan, and Tajikistan but also in Pakistan and North India which historically came under the influence of the Persian Empire.

Persian is a pro-drop language with canonical Subject Object Verb (SOV) word order. However, the word order is flexible and can be different. Verbs are marked for tense and aspect and agree with the subject in person and number (Mahootian: 1997: 5). Pro dropping is also commonly referred to in linguistics as involving zero or null anaphora. It means that the separate subject (2nd and 3rd subject, with the same referent) can be dropped or deleted from the

sentence, in which the agreement marker, that is, a post-verbal element, defines the person and number properties of the subject referent. Furthermore, Persian allows for enclitics, which can be of three types: possessive pronoun (inflected on noun), the complement of the preposition (inflected on the preposition), and direct object of the verb (inflected as a suffix to verb). Persian syntax shows that normal declarative sentences are structured as ((S) (PP) (O) V). This means that sentences can comprise optional subjects, prepositional phrases, and objects followed by a required verb. If the object is specified, then it is followed by the word /rā/ which precedes prepositional phrases: ((S) (O + rā) (PP) V).

### *2.5.2 Diglossic Context of Iran*

Two varieties of Persian are spoken in Iran: colloquial (informal) Persian and formal Persian. The formal variety is used for writing, news, education, formal speech, or generally formal interactions. It is also the language of literature and is much closer to the variety used by poets such as Rumi, Sa'adi, and Hafiz who lived around the 14th century CE. On the other hand, the informal variety is the everyday language and the language of colloquial speech today. In some sense, the formal variety of Modern Persian bridges the gap between the colloquial Modern Persian and the Persian literary tradition. The Formal and Colloquial varieties of Modern Persian are closely and systematically related but obey different rules and must be considered two separate systems. For example, in colloquial Persian, it is more natural to use the “SVO” word order for the sentence “Reza went home”. However, in formal Persian, it is more acceptable to use the SOV word order.

Furthermore, the phonological form of “home” changes from /xunε/ to /xanε/ when we switch from colloquial to formal Persian. Moreover, “home” can appear as a noun phrase (NP)

without a preposition, next to the verb “go” in colloquial Persian. This is ungrammatical in formal Persian because we need “home” to be preceded by the preposition “to” in formal Persian. Furthermore, it is possible to use the third person singular clitic /æf/ on the verb in colloquial Persian to show agreement with the subject of the sentence. This is ungrammatical in formal Persian. Instead, the verb should bear the third-person subject agreement suffix, which is zero.

Such observations lead some linguists to classify Persian as a diglossic language. Ferguson (1959) mentioned Persian as an instance of diglossia and Jeremias (1984) argues that the differences between formal and colloquial Persian are comparable to the differences between two separate languages.

### *2.5.3 Light Verb Constructions in Persian*

In addition to simple verbs, Persian uses a large number of light verb constructions (also known as compound verbs or complex verbs). These verbs consist of a preverbal element, usually, a noun or adjective, followed by a light verb such as ‘do’ or ‘make’. Some examples are given in Table 2.1. The use of the light verbs is very productive in Persian and, they are often used to construct new verbs, especially with /kærdæn/ ‘do/make’ and /zædæn/ ‘hit’, as in /komæk kærdæn/ “to help” or /ʃunæ zædæn/ “to comb”. There are also cases that are formed with /xordæn/ ‘eat/collide’, and /kɛʃidæn/ “pull/drag”. There are different light verbs in the language, and native speakers of Persian (Farsi) have no difficulty determining which light verb to use with a particular noun form.

Table 2.1 Persian Light Verb Constructions

English Translation	Word-for-word Translation	Persian Light Verbs
To brush	Brush hit	مسواک زدن
To telephone/ to call	Telephone do/hit	تلفن زدن
To play the piano	Piano hit	پیانو زدن
To suffer	Pain pull	درد کشیدن، رنج بردن
To defeat	Defeat give	شکست دادن
To shower/ to take a shower	Shower take	دوش گرفتن
To exist	Exist have	وجود داشتن
To live	Life do	زندگی کردن
To melt	Water do/become	آب شدن / آب کردن
To help/to assist	Help do	کمک کردن

Linguistic research on the Persian language has been able to identify certain syntactic and semantic reasons for the usage of the different categories of light verbs. There are several light verb constructions with *zædæn* ‘hit’ in Persian as described in Dabir Moghaddam (1997): This light verb is typically used with verbs of “communication”, such as /imeyl *zædæn*/ ‘to email’, /*zæŋg zædæn*/ ‘to call (on the telephone) to ring’, or /*hærf zædæn*/ ‘to talk’. The same light verb can also be used to form verbs of “emission of sound” as in /*buq zædæn*/ ‘to honk’, /*pijano zædæn*/ ‘to play piano’ (and to play all the other musical instruments), or /*dad zædæn*/ ‘to yell’. This light verb can also combine with many nouns to represent an activity that is repetitive and is performed with an instrument. These are illustrated in Table 2.2, where the noun is generally the

instrument with which the action is performed. For example, ‘to comb’ is represented by combining the instrument used (i.e., comb) with the light verb. These verbs have also been described as involving forceful actions that involve surface contact. What is clear is that there is a pattern among the various light verb constructions and that the choice of the light verb /zædæn/ in these instances is systematic.

Table 2.2 Persian Light Verb Constructions with /zædæn/, Meaning ‘hit’

English Translation	Word-for-word Translation	Persian Light Verbs
To comb	comb hit	شانه زدن
To brush teeth	Toothbrush hit	مسواک زدن
To sweep	Broom hit	جارو زدن
To iron	iron hit	اتو زدن
To stab	Knife/dagger hit	چاقو زدن
To whip	Whip hit	شلاق زدن
To pedal	Foot/pedal hit	پا زدن/پارو زدن
To polish	Wax hit	واکس زدن
To beat	Beat hit	کتک زدن
Pattern: Repetitive event using an instrument		

The light verb constructions formed with /xordæn/ which means either ‘eat’ or ‘collide’ tend to involve subjects that are typically negatively affected by the action as illustrated in Table 2.3. The subject in these cases is not an agent of the action, but rather the one experiencing the event. These verbs often correspond to the English passive form when translated. Note that some

of these verbs can also be used with the light verb /kærdæn/ ‘do/ make’ with a slightly different meaning. For instance, although /ʃunε kærdæn/ (comb do) also means ‘to comb’, /ʃunε zædæn/ (comb hit) tends to focus on the repetitive action of the event.

Table 2.3 Persian Light Verbs with /Xordæn/, Meaning ‘Eat’ or ‘Collide’

English Translation	Word-for-word Translation	Persian Light Verbs
Be upset	Upset eat/collide	غصه خوردن
Catch a cold	Cold eat/collide	سرما خوردن
Be deceived	Deception eat/collide	گول خوردن
Be slapped	Slap eat/collide	سیلی خوردن
Be beaten	Beating eat/collide	کتک خوردن
Be defeated	Defeat eat/collide	شکست خوردن
Be shot	Bullet eat/collide	گلوله/تیر خوردن
Be stabbed	Dagger eat/collide	چاقو خوردن
Fall down	Ground eat /collide	زمین خوردن
Pattern: Subject is affected negatively		

More subtle aspectual distinctions may also be expressed by the light verbs. The verbs in Table 2.4 are formed by the light verb /kεʃɪdæn/ ‘pull, drag’. The choice of this light verb places the focus on the duration of the action. This is intuitively clear as /kεʃɪdæn/ is used to form verbs that mean ‘to last’, ‘to wait’, ‘to suffer’ that tend to have a substantial focus on the duration of the event.

Table 2.4 Persian Verb Constructions with /keʃɪdæn/, Meaning ‘pull’ or ‘drag’

English Translation	Word-for-word Translation	Persian Light Verbs
Be in pain	Pain pull	درد کشیدن
Wait	Wait pull	انتظار کشیدن
Be ashamed/shy/embarrassed	Shame pull	خجالت کشیدن
Scream	Scream pull	جیغ کشیدن/ داد کشیدن
Yell	Yelling pull	فریاد کشیدن
Suffer	Suffering pull	رنج کشیدن
Last	Length pull	طول کشیدن
Take pains	Hardship pull	زحمت کشیدن
Pattern: Subject is affected negatively		

A telling contrast is a comparison of the light verb constructions based on the noun /næfæs/ ‘breath’ in /næfæs keʃɪdæn/ “breath pulls” meaning ‘to breathe’. However, if the same noun is combined with the /zædæn/ ‘hit’ light verb, the resulting verb /næfæs zædæn/ “breath hit” now means ‘to pant’. In other words, the same noun combined with the light verb /keʃɪdæn/ ‘pull/ drags’ focuses on the duration of the action performed with the breath, while the choice of the /zædæn/ ‘hit’ as the light verb tends to focus on the repetitive aspect of the action performed with the breath.

#### 2.5.4 Plural Formation in Persian

Plural formation in Persian is typically achieved by adding a suffix to the word, with /-ha/ /-ها/ being the most common plural marker in the conversational language which can be



added to almost all nouns. Besides, these plural markers can be used in different registers, including formal and informal.

E.g., مداد + ها = مدادها

1. Medad-ha (/mɛdad-ha/)

pencil-PL

‘Pencils’

The second common plural marker especially in the formal language except few colloquial varieties is /an/ /ان/.

E.g., درخت + ان = درختان

2. *deraxt-an* (/dɛɹæxt-an/)

tree-PL

‘Trees’

There are also some plural markers, including /-in/ /ین/, /at/ /ات/, and the irregular plurals which have been borrowed from Arabic and are used mostly in some formal registers and religious registers. These plural markers mainly are learned at school through formal instruction.

E.g., /in/ /ین/ borrowed from Arabic, common in some formal registers

معلم + ین = معلمان

### 3. *Moalem-in* (/moæləmin/)

teacher-PL

‘Teachers’

E.g., /at/ /ات/ borrowed from Arabic, common in some formal registers

توضیح + ات = توضیحات

### 4. *Tozih-at* (/tʊʒihat/)

explain-PL

‘Explanations’

E.g., Irregular type borrowed from Arabic, common in some formal registers

استاد ← اساتید

### 5. *ostad* (/ostad/) → *asateed* (/æsatid/)

professor-Sg → professor-IrPL (Broken PL)

‘Professor’ → ‘professors’

Most often, especially at higher registers, irregular Arabic plural forms based on the root-pattern morphological system are used. These plurals may follow different template patterns but the most basic pattern, known as the /æfʔal/ or /æfʔail/ templates. The Arabic plural forms are generally confined to the higher register of the language, even though the singular forms of the same words are quite common in the conversational register.

### 2.5.5 Subject-Verb Agreement (SVA) in Modern Standard Persian

In most languages, SVA is obligatory, while in some languages, it might be optional. Persian has subject-verb number agreement; however, the interesting point is that in MSP, when the subject is plural and inanimate, number agreement is optional, meaning that the verb can take either a singular or plural form. Both of these forms are grammatical and acceptable. This optionality is illustrated in the following examples:

6. *Otaghha morattab ast.*

room-PL tidy is3PS.

‘The rooms are tidy.’

7. *Otaghha morattab hastand.*

room-PL tidy are3PPL.

‘The rooms are tidy.’

However, in CP, only singular verbs are used for the inanimate plural subject noun unless the nouns were used metaphorically and were personified for an action that only animate beings could do. The following examples retrieved from Feiz and Cowles (2018) indicate these points well.

8. *baqlæva-ha cheshkæk mi-zæn-e /mi-zæn-æn.*

baklava-PL wink hit-3SG /hit-3PL

‘The baklavas wink(s)’ Lit. (metaphorical/personification)

The verb /cheshkæk zædæn/, ‘to wink’ has a connotative meaning of “being persuasive” in Persian and is commonly used with food conveying the meaning that “the food, fruit, and sweets are delicious/ persuasive to eat”. Therefore, this verb is used (with implied meaning) with an inanimate noun. Many colloquial varieties of Persian/Farsi follow SVA rules of CP instead of MSP.

### 2.5.5.1 Different Factors Affecting Optional SVA in Persian

#### 2.5.5.1.1 Conceptualization (Effect of the Unity of Subject Noun)

Sharifian and Lotfi (2007) mention that it appears that at least some patterns of SVA may best be accounted for in terms of a speaker’s intended message and their construal of the experience (see also Lotfi, 2006). Consider the following examples from Kim (2004):

His family are/\*is all overweight.

His family is/\*are all moving to Seoul.

In the above sentences, the difference between the two cases of the use of the word family seems to be the way it is conceptualized, either as a whole or in terms of separate individuals. This may be depicted in Figure 2.1

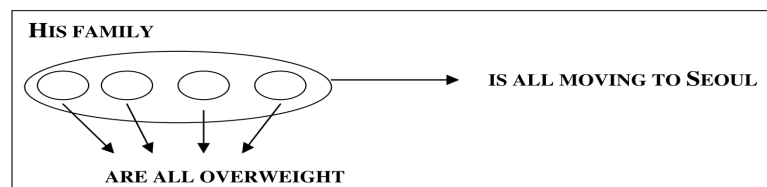


Figure 2.1 Different Conceptualizations of ‘Family’ in the Examples above (Retrieved from Sharifian and Lotfi (2007))

Sharifian and Lotfi (2007) support a pluralistic approach, including conceptual–functional as well as semantic and syntactic factors, which they believe can better account for variations in this phenomenon.

Mahootian (1997) suggests that the choice of plural or singular ending with a plural subject is completely optional. She provides the following examples to support her observation:

9. *Chamedun-aˆ tu-ye maˆshin-e.*

suitcase-PL in-EZ car-COP.SG.

‘The suitcases are in the car.’

10. *Chamedun-aˆ tu-ye maˆshinan.*

suitcase-PL in-EZ car-COP.PL.

‘The suitcases are in the car.’ (Mahootian, 1997, p. 136)

Both of the above examples seem to describe the same situation, suggesting that the verb ending may be plural or singular without changing the meaning. However, the choice of singular and plural in the case of SVA in Persian is at least partly a function of the way the subject is conceptualized. That is, at a low level of construal resolution, the suitcases may be conceptualized as a whole, thus requiring a singular copular ending. At a higher level of construal resolution, however, the speaker’s construal may highlight the individuation of the suitcases, which would be then marked linguistically with a plural copular ending. (Sharifian and Lotfi, 2007)

According to Feiz and Cowles (2019), in the examples below, Persian speakers seem to produce more singular verbs in cases where they consider the entities of the subject plural noun as a whole (e.g., a collection of leaves), while they prefer to use a plural verb in cases where they consider the entities of the subject nouns as individualized (e.g., each leaf on its own).

11. *bærg-ha xoshk shod/shod-æn/*

leaf-PL dry become.3SG/ become-3PL

‘The leaves dried.’

Therefore, according to the examples provided, many linguists believe in the effect of conceptuality in considering the unity or individuality of subject nouns which has a significant effect on the optional SVA.

#### *2.5.5.1.2 The Effect of Verb Type and Tense and the Thematic Role of Subject on SVA*

Some Persian grammarians and linguists have suggested that verb type and tense may have an impact on optional subject-verb number agreement in Persian (Lotfi, 2006; Saadat, 1996). Also, Lotfi (2006) argued that Persian speakers prefer to use plural verbs when the tense of the sentence is future and not past. The following examples show this point.

12. *Barg-ha rixt. (Singular is preferred in Past Tense.)*

leaf-PL fell - PAST.3SG

‘Leaves fell.’

13. *Barg-ha xaahand rixt. (Plural is preferred in Future Tense.)*

leaf-PL FUT.PL fall - 3PL

‘Leaves will fall.’

#### 2.5.5.1.3 Attraction Effect on Optional SVA

In some grammatical structures, a subject head noun is followed by another noun in a post-modifying prepositional phrase. This intervening noun, called the “local” noun, is located between the subject head noun and its verb. Previous research (e.g., Bock & Miller (1991)) indicated that the local noun did indeed affect SVA. This effect is known as an “attraction” effect because the number of the local noun “attracts” the verb to appear to agree with it instead of the subject noun.

14. *Kelid-e kaabinet-ha sangin be nazar miresad/miresand.*

key-EZ cabinet-PL heavy seem-3SG/seem-3PL.

‘The key of the cabinets seems heavy.’

15. *Kelid-ha-ye kaabinet sangin be nazar miresad/miresand.*

key-PL-EZ cabinet heavy seem-3SG/seem-3PL.

‘The keys of the cabinet seem heavy.’

In the first example, the singular form of the subject noun, “key” and the plural form of the local noun “cabinets” cause a mismatch in SVA, and in the second example, the plural form of the subject noun “keys” and the singular form of the local noun “cabinet” also result in another mismatch in SVA.

Considering previous research on optional SVA in MSP, there are different factors, including conceptualization, verb type and tense, animacy of the subject, attraction effect, etc. which affect this agreement; however, one thing upon which almost all researchers have consensus is that agreement in Persian is not the product of a purely syntactic or purely semantic view, but it is the product of a hybrid index-agreement view which is a combination of morphosyntax and morphosemantics. Therefore, according to the previous literature, a constraint-based approach would specifically account for optional subject-verb number agreement in Persian. In this framework, computing agreement is not the product of copying the number feature of the subject noun phrase onto the verb. It is a constraint-based process in which multiple cues are integrated with the production of the inflected verb form and agreement is constrained by some special parameters. In addition to the syntactic factors, type of the verb and the thematic role it assigns to its subject, verb tense, the conceptualization of the entities of the subject noun (as a unit or as individuals), number and type of plural morphemes of the intervening object noun are among the effective constraints observed by the researchers. In this way, for subject-verb number agreement in Persian, both grammatical mechanisms and semantics interact to create the agreement.

## **2.6 Previous Research on Heritage Speakers**

Most of the existing research examining HS bilingual competence, especially the research in the United States has examined HS adults (but see Flores, Santos, Marques, & Jesus, 2017; Montrul & Potowski, 2007; Pascual y Cabo, 2013; Polinsky, 2011; Rodina & Westergaard, 2015); however, Benmamoun et al. (2013, p. 133) explicitly include Child 2L1 learners as HSs, and clearly, Rothman's (2009) definition would very much include child 2L1 learners too. Also, most of the research on HSs in Europe has been on children and Early Child Bilingualism



(ECB), including part of the project E11 at the Research Centre of Multilingualism in Hamburg, precisely where in the late 1980s and 1990s, many of the early systematic studies with 2L1 children were carried out, based on projects such as Deutsch und Französisch–Doppelter Erstspracherwerb (DUFDE), Baskisch und Deutsch–Doppelter Erstspracherwerb and others (see Schmidt & Wörner, 2012, for an overview) (Kupisch & Rothman, 2018).

Incomplete acquisition and L1 attrition both account for “language loss across generations” (Montrul, 2008, p. 21). According to proponents of this term “incomplete acquisition” occurs when the properties of the first language remain absent from the HSs’ resources due to a lack of opportunities (or motivation) for picking them up, whereas L1 attrition occurs when a property of the first language was acquired by HSs, but they can no longer produce or understand it or do so with high error rates. As language development is an incremental process where newly acquired knowledge can (temporarily) be forgotten, it is hard to attribute a young heritage speaker’s degree of proficiency to either incomplete acquisition or attrition, whether they be simultaneous or sequential bilinguals. Strictly speaking, a particular lacuna in a heritage speaker’s vocabulary knowledge can only be said to be the result of attrition if there is evidence that this speaker had this knowledge at an earlier point in time. As Montrul (2008) argues, the best way to tease apart incomplete acquisition and attrition is by carrying out longitudinal case studies. It seems reasonable to expect more evidence of attrition in sequential than in simultaneous bilinguals because in the former a certain amount of L1 knowledge was acquired before arrival in the L2 environment – and so it is easier to show evidence of loss when it happens. However, L1 vocabulary acquired while the family is living within the L2 environment can be lost if it is not activated for a long time. According to Montrul (2008), young HSs’ L1 knowledge is therefore likely to reflect incomplete acquisition and language attrition

“simultaneously or sequentially” (Montrul 2008, p. 21). Describing HSs’ knowledge of their family language as “incomplete”, Montrul (2008) clarifies that she does not support a deficit model of bilingualism. She asserts that this term should be understood as a descriptive term, not a value judgment (p. 7) which refers mainly to the non-mastery of language acquisition when individuals do not reach native-like competence. Cabo and Rothman (2012) challenged the use of this term, arguing that HSs’ state of competence should not be described as “incomplete” since it ignores the role of input as a central component of language acquisition. They argue that HSs’ competence is not incomplete but different from monolinguals’ due to environmental reasons, emphasizing that the input HSs are provided with is different from monolinguals’ input. HSs are exposed to input, mainly from their parents, whose language might have already undergone cross-generational attrition. Therefore, Cabo and Rothman (2012) highlighted the fact that HSs may have completed the mastery of the attrited input that they are exposed to. In addition to a qualitatively different input, they discussed another reason to problematize the use of this term. Montrul (2008) used “incomplete acquisition” as a cover term to attribute the differences between HSs’ competence to benchmark monolinguals, regardless of whether these are due to incomplete acquisition or language attrition. As Cabo and Rothman (2012) assert, using ‘incomplete acquisition’ as a cover term as in Montrul (2008) is misleading since it is impossible to distinguish incomplete acquisition and attrition in HSs’ state of competence in the absence of longitudinal data (however Montrul acknowledged this point). They argue that the differences between HSs’ and monolingual benchmarks’ competence should not be regarded as deficits, since they are an opportunity to deepen “our understanding of linguistic representation, the architecture of the human mind and the language faculty” (p. 454). As Cabo and Rothman (2012) argue, HSs show a greater role for cognition in the process of language acquisition since

they are dealing with “competing inputs” (p. 454) from their family language and majority language at the same time. Even though Cabo and Rothman (2012) have put forth the idea of complete mastery of HSs, which is one step forward, it has been just a proposal without supporting data. Moreover, they have challenged using the term “incomplete acquisition”, while they have still theorized that the HSs’ input is attrited, which is somehow contradictory.

Montrul (2016) clarified that referring to HSs’ knowledge of their ethnic language as incomplete is “theoretically problematic” (p. 125), since it cannot be claimed that languages can be acquired completely. However, in another article, Montrul (2018), she is still using the same term “incomplete acquisition”.

There are other terminologies for HSs and their acquisition as “unbalanced bilingualism with a shrinking or reduced structure” (Polinsky and Scontras, 2020). Many recent studies report similarities between HSs’ language competence and monolingual native speakers. For example, a recent psycholinguistics study comparing lexical accuracy and access between the heritage and monolingual Polish reported that compared with monolinguals, HSs achieve similar accuracy scores; however, their rate of acquisition is slower (Dubiel & Guilfoyle, 2021). Another recent study demonstrated that child Russian HSs produce more morpho-syntactic non-canonical forms compared with their monolingual peers; however, the development of noun cases and verbal forms overall was similar to monolinguals’ (Makarova & Terekhova, 2021). A new study of Italian HSs in Germany has shown that HSs may be successful even in the acquisition of linguistic phenomena that are usually acquired late in first language acquisition (Caloi & Torregrossa, 2021). Applying corpus-based rather than experimental methods, the Project of HL Variation and Change in Toronto has also found out that there is little difference between

Homeland and Heritage varieties of 10 languages spoken in Toronto; Using Probability Matrices, a recent study reports that the degree of complexity of heritage grammar and homeland grammar are similar, and they have the same size Probability Matrices; therefore, they report that heritage and homeland speakers are capable of equally complex processes (Nagy, 2021).

Overall, previous research on HL can be viewed from two different aspects, including the age of HSs and the stance of the researchers on HL acquisition. Regarding the age, some studies are on “Early Child Bilingualism”, including most of the research in Europe (E11 Project 1980s & 1990s), and some studies are on adult HSs, including most of the research in the US. Two studies by Montrul (2018), and Silva-Corvalan (2018) are focusing on “connecting the dots”, meaning relating the adult HSs’ performance to the incomplete acquisition in childhood. Regarding the viewpoints of the researchers on HSs’ acquisition, some researchers, including Montrul (2018), Silva-Corvalan (2018), and Albirini & Benmamoun (2014) believe in an incomplete acquisition; however, other researchers, including Kupisch and Rothman (2018) believe that the term “incomplete acquisition” is inaccurate, and they use the alternative “differential acquisition” instead.

In this study, the researcher believes that using the term “incomplete acquisition” for a fully functioning system, namely the HL system, is inaccurate and the discussion of “incomplete” versus “complete” for describing different varieties of a language or different language systems is futile and has no implication; therefore, the focus is on describing the HL system regardless of the idea of “incompleteness” and free from all misleading labels.

## 2.7 Studies on Iranian Heritage Speakers

Iranian HSs have rarely been studied. As far as we know, there is no research on the linguistic system of “Persian/ Farsi HL”. Few studies on Iranian HSs have been conducted on Persian Iranian bilinguals in Australia and the USA, which host the highest number of Iranian immigrants compared to other countries in the world (Bozorgmehr, 1998). These few studies are mostly on the sociolinguistic aspects (Modarresi, 2001) or instruction of Persian (Farsi) as an HL (Megerdooian, 2010). One of the first studies on HL maintenance and loss in Iranian immigrants was carried out by Modarresi (2001). As he indicates, the first-generation Iranian immigrants in the United States would like their children to maintain Persian and they try to pass it on to their children through different means such as national Iranian ceremonies, radio and TV programs, newspapers, magazines, books, etc. (p. 93). Yet, language shift happens in second-generation Iranian immigrants, mainly because of pressure to assimilate into the host society (Modarresi, 2001; p. 93). In another study on Iranian immigrants in the United States, Felling (2006) found that the Iranian parents in her study would like their children to have some proficiency in Persian and they enforce an HL-only policy at home. The main motivation they reported for their children’s HL acquisition was connections to their ethnic culture and families back in their home country. The first-generation Iranian immigrants in the US started to organize HL classes to connect their children to Persian and Iranian culture (Atoofi, 2013). Thus, thanks to the existence of community-based HL weekend schools and classes, it seems that in areas with a large population of Iranian immigrants in the United States, HL loss has not been a major concern (Sedighi, 2010). However, Iranian Americans’ efforts to maintain their HL are nonetheless affected by a complex interplay of linguistic ideologies and perceived language status (Ramezanzadeh, 2010). A study by Payesteh (2015), which compared Persian-English

preschoolers in the United States to a control group of English monolingual preschoolers, highlighted the correlation between parental input and children's productive skills in Persian. In addition to the United States, some studies on Persian language maintenance and loss have been conducted in Sweden, which has more than 100,000 Iranian immigrants (Naghdi, 2010). These studies (Sohrabi, 1992, 1997; Jahani, 2004; Namei, 2008) indicated that the Iranian immigrants in Sweden do not use Persian exclusively as the language of the family domain. They found that both Swedish and Persian are used at home between parents and their children.

This brief sketch of Iranian immigrants' HL use and efforts to pass on the language to their children provides a general overview. It shows that Iranian immigrants appear to be using their ethnic language at home, which leads to their children's development of Persian. This study aims at investigating the linguistic system of Persian (Farsi) HSs in the US with a new stance on HSs to contribute to a better understanding of the HL system.

## Chapter Three: Methodology

In this section, methodology, including the demographics of the participants, data collection and measures, and data collection procedures is presented. Details of participants are given in section 3.1. Data collection, materials, and measures are explained in section 3.2. In section 3.3, data collection procedures are explained, and finally, section 3.4 discusses the rationale behind the choice of the studied linguistic structures.

### 3.1 Participants

To investigate the properties and features of Persian HSs in the US, HSs from different sections of the heritage speaker continuum with different ages have been chosen. In this study, 10 Persian HSs (HSs) in two main groups, including 5 children (mean age 13.4 years (SD=5.59) and 5 adults (mean age 29.2 years (SD=4.96) were selected by the convenience sampling method. The rationale behind dividing the participants into two groups of children and adults was to check the consistency of their performance and to have a population that could be indicative of HL variation. The demographic information of the participants is as follows:

#### *3.1.1 Children*

Participant 1 is a pre-school-age girl who is 5 years old in 5k level (Kindergarten). She was born in the US. Both parents are Persian Iranians from Iran (Hamedan) who speak Persian (Farsi) using a “Tehrani-like” variety of Persian at home. There is one sister, 17 years old, speaking both Persian (Farsi) using a “Tehrani-like” variety of Persian and English at home, but mostly Persian.

Participant 2 is a school-age girl who is 12 years old. She was born in Iran (Tehran) where she lived for 5 years. She went to nursery school in Iran and came to the US at the age of

5 and went to Kindergarten in the US. She is currently in 6th grade (elementary school). Both parents are Persian Iranians from Iran (Tehran) who speak Persian (Farsi) using the “Tehrani” variety of Persian and English at home. She has one sister 6 months of age.

Participant 3 is a school-age girl who is 13 years old. She was born in the US. She is currently in 8th grade (Middle school). Both parents are Persian Iranians from Iran (Tehran) who speak Persian (Farsi) using the “Tehrani” variety of Persian at home. She has no brothers or sisters. She is living with her parents and grandparents. Her father knows the “Azari” variety of Turkish/Turkic language and “Mazandarani” variety of Persian in addition to “Tehrani”. Her grandmother who is living with them knows the “Kermani” variety in addition to “Tehrani”, and whenever she goes to Iran, she visits people from different areas with different dialects, including “Bakhtiyari dialect”, “Isfahani”, “Kermani”, etc. Therefore, this participant is familiar with different dialects of Persian and has some mutual intelligibility in these dialects. The grandmother who is living with them and is her caregiver spends the most time with this participant and is very enthusiastic in teaching her Persian thoroughly even with special proverbs, idioms, poems, stories, and cultural details. She did a great job in filling the gap of not being in the majority context by providing enough quality input, linguistic interaction, and linguistic and cultural exposure to Persian for her granddaughter which is astounding and admirable.

Participant 4 is a high school-age girl (last year in high school) who is 19 years old. She was born in Iran (Hamedan) where she lived for 7 years. She went to nursery school and kindergarten in Iran and came to the US at the age of 7. Both parents are Persian Iranians from Iran (Hamedan) who speak Persian (Farsi) using a “Tehrani-like” variety of Persian at home. She



has one sister, 5 years old, speaking both Persian (Farsi) using a “Tehrani-like” variety of Persian and English at home, but mostly Persian.

Participant 5 is a high school student (in 11<sup>th</sup> grade (Junior)). She is 18 years old. She was born and raised in the US. Both parents are Persian Iranians from Iran (Tehran) who speak Persian (Farsi) using a “Tehrani” variety of Persian at home. She has one brother who is 21 years old. She speaks Persian (Farsi) using a “Tehrani” variety of Persian at home.

Table 3.1 Summary of Demographic Information of Child Participants

	<b>Age</b>	<b>Birthplace</b>	<b>Languages spoken</b>	<b>Parents’ variety of Persian</b>	<b>Languages spoken at home</b>
Participant 1	5	USA	Persian & English	Tehrani-like	Persian & English (Mostly Persian)
Participant 2	12	Iran (lived for 5 years)	Persian & English	Tehrani	Persian & English (Mostly Persian)
Participant 3	13	USA	Persian & English	Tehrani, Turkish/Turkic (Azeri) & Mazandarani	Persian & English (Mostly Persian)
Participant 4	18	USA	Persian & English	Tehrani	Persian & English (Mostly Persian)
Participant 5	19	Iran (lived for 7 years)	Persian & English	Tehrani-like	Persian & English (Mostly Persian)

### *3.1.2 Adults*

Participant 6 is a university student (male) who is 21 years old. He was born in Canada and moved with his parents to the US when he was one year old. Both parents are Persian Iranians from Iran (Tehran) who speak Persian (Farsi) using a “Tehrani” variety of Persian at home. He has one sister who is 19 years old. He speaks Persian (Farsi) using a “Tehrani” variety of Persian at home.

Participant 7 is a woman who is 32 years old. She was born in Iran, Tehran, and moved with her parents to the US when she was 11 years old. She spent 4 grades in elementary school in Iran. Both parents are Persian Iranians from Iran (Tehran) who speak Persian (Farsi) using a “Tehrani” variety of Persian at home. She has one sister, 29 years old, and one brother 26 years old. She speaks Persian (Farsi) using a “Tehrani” variety of Persian at home with her parents, but she speaks English with her siblings. Her husband is American, and she speaks English with her husband.

Participant 8 is a woman who is 29 years old. She was born in Iran, Tehran, and moved with her parents to the US when she was 8 years old. She spent grade one of the elementary school in Iran. Both parents are Persian Iranians from Iran (Tehran) who speak Persian (Farsi) using a “Tehrani” variety of Persian at home. She has one sister, 32 years old, and one brother 26 years old. She speaks Persian (Farsi) using a “Tehrani” variety of Persian at home with her parents, but she speaks English with her siblings. Her husband is British, and she speaks English with her husband.

Participant 9 is a woman who is 30 years old. She was born and raised in the United States. She first traveled to Iran when she was 10 years old. When she was 14 years old, she

attended a Persian school once a week. Both parents are Persian Iranians from Iran (Tehran) who speak Persian (Farsi) using a “Tehrani” variety of Persian at home. She has one sister and one brother. She speaks Persian (Farsi) using a “Tehrani” variety of Persian at home with her parents, but she speaks English with her siblings. Currently, she is living in the US. Her husband is American, and she speaks English with her husband.

Participant 10 is a woman who is 34 years old. She was born and raised in the United States. She spent grade one of the elementary school in Iran. Both parents are Persian Iranians from Iran (Ahvaz and Abadan) who speak Persian (Farsi) using “Ahvazi, Shooshtari, and Tehrani-like” varieties of Persian at home. She has one sister and one brother. According to her, she has been surrounded by Iranians (grandparents, and other relatives), especially during her childhood. She speaks Persian (Farsi) using a “Tehrani-like” variety of Persian at home with her parents and grandparents, but she speaks English mostly with her siblings and cousins. Her husband is American, and she speaks English with her husband.

All participants are in touch with other Persian speakers in the city they live in and other cities in the US. They are also in touch with other Persian family members and relatives through telephone (i.e., Skype, WhatsApp, etc.). Except for two of the adult participants who have not visited Iran since they came to the US, other participants visit Iran almost every Summer.

Table 3.2 Summary of Demographic Information of Adult Participants

	Age	Birthplace	Languages spoken	Parents' variety of Persian	Languages spoken at home
Participant 6	21	Canada (lived for 1 year, then, USA)	Persian & English	Tehrani	Persian
Participant 7	29	Iran (lived for 8 years)	Persian & English	Tehrani	Persian & English (Mostly Persian)
Participant 8	30	USA	Persian & English	Tehrani	Persian & English (Mostly Persian)
Participant 9	32	Iran (lived for 11 years)	Persian & English	Tehrani	Persian & English (Mostly Persian)
Participant 10	34	USA	Persian & English	Tehrani-like Ahvazi & Shooshtari	Persian & English (Mostly English)

### 3.2 Data Collection and Materials

In this section, the data collection and materials for the previously investigated linguistic frameworks, including light verb constructions, plural formation, and SVA are presented.

#### 3.2.1 Data Collection and Materials for the Investigated Linguist Frameworks

The linguistic frameworks for the stimuli were nominal morphology, represented by plural formation, verbal morphology, represented by light verb constructions, and morpho-

syntax, represented by SVA. The data were collected through different procedures, including personal interviews, questionnaires for linguistic background and demographic information, oral tasks, written tasks, and GJT/C. The Interview consists of 6 questions in Persian about the participants' demographic information and language background. The oral tasks consist of 160 questions (the questions are in English/ Persian, but the responses to all questions are in Persian) in the form of five different tasks eliciting plural formations, light verb constructions, and SVA in Persian. The oral tasks include data elicitation through guided discussions, natural, spontaneous speech, data elicitation through picture description and extrapolating the pictures activities to the participant's daily life, data elicitation through guiding pictures for plural formations, light verb constructions, and SVA in Persian, and direct elicitation questions. (See Appendix A). The written tasks consist of 93 questions (the questions are in English/ Persian, but the responses to all questions are in Persian) in the form of four different tasks, eliciting plural formations, light verb constructions, and SVA in Persian. The written tasks include data elicitation through writing responses to questions according to the pictures, prompted questions with given English equivalents, short paragraph writing, and fill in the blanks task (See Appendix B). GJT/C including 100 Persian sentences was also utilized to check the participants' judgment of the accepted plural forms, light verb constructions, and SVA in Persian. (See Appendix B). Overall, the total number of tokens in oral and written tasks was 3530. It is noteworthy that instead of using two different GJT/C for light verbs and plural markers, both of them were tested in one GJT/C in a way that sentences related to the light verbs were considered distracters for the sentences related to the plural markers and vice versa. The reason for this special design of GJT/C was to reduce the burden of reading many extra sentences as distracters for the participants and making them tired. In other words, by using one GJT/C for two different

structures and using them as the distractors for each other, this study filled two needs with one deed. SVA was tested in a separate GJT/C. (See Appendix C)

It is worth mentioning that all types of plurals in Persian, including “-ha” “-ها”, “-an” “-ان”, and the plurals borrowed from Arabic in Persian, including “-at” “-ات”, “-in” “-ین”, and the irregular plurals were elicited in the questions. It is also noteworthy that in the case of the plural questions, the singular form was also tested to make sure that the participants know the singular word in the first place. Besides, it was attempted to elicit as many common light verb constructions as possible in the questions. Furthermore, different constraints affecting SVA, including different tenses, different registers, etc. were tested.

Examples of each task for the investigated frameworks are given below:

### *3.2.2 Interview*

The following are examples of interview questions. For more details, please see Appendix A.

#### **Interview questions about the participants’ Persian/English backgrounds (In Persian)**

1. Please tell me where you were born, and if you are born in Iran, please tell me when you moved to the United States.

2. Which languages do you know? Which ones do you speak?

### *3.2.3 Oral Tasks*

The following are examples of different oral tasks. For more details, please see Appendix A and C.

### **Task 1. Data elicitation through guided discussions (In Persian)**

1. Please describe some of the Persian foods which you like.
2. Please describe one of the monuments in Iran.

### **Task 2. Natural, spontaneous speech (In Persian)**

1. What did you do on the weekend?
2. Please describe your favorite pet.

### **Task 3. Data elicitation through picture description and extrapolating the pictures activities to the participant's daily life**

1. Please look at the following pictures, select one, and describe it. The pictures are related to some ceremonies or monuments in Iran.



Figure 3.1 Sample 1 of the Presented Pictures for Data Elicitation through Picture

Description



Figure 3.2 Sample 2 of the Presented Pictures for Data Elicitation through Picture

Description

2. Which daily activities do you see in this picture?



Figure 3.3 Sample 3 of the Presented Pictures for Data Elicitation through Picture

Description

3. What are your daily routines?



**Task 4. Data elicitation through guiding pictures for the light verbs, plurals, and SVA in Persian.**

1. What are they doing?



Figure 3.4 Sample 4 of the Presented Pictures for Data Elicitation through Guiding Pictures for the Light Verbs

1. What do you see in the picture? If you see more than one, use as many plural forms as possible.



Figure 3.5 Sample 5 of the Presented Pictures for Data Elicitation through Guiding Pictures for Plural Formation



Figure 3.6 Sample 6 of the Presented Pictures for Data Elicitation through Guiding Pictures for Plural Formation

2. Please look at the following pictures and describe what every picture shows by making a sentence. (In Persian) There is an example for every picture. (5 min)



مثال: کتاب روی میز است.

Figure 3.7 Sample 7 of the Presented Pictures for Data Elicitation through Guiding Pictures for SVA



Figure 3.8 Sample 8 of the Presented Pictures for Data Elicitation through Guiding Pictures for SVA

1. کتابها .....

### Task 5. Direct elicitation questions

1. What is the plural form of the following words?) Tell me as many plural forms as you know (using or hearing).

1. ضلع

2. تبلیغ

3. داستان

4. ایرانی

5. تحصیل

2. Please retell the following sentences with the given word. (10 min). Use as many forms as you know (using or hearing).

1. ظرف کثیف است. (ظرفها)

2. کلید کابینت گم شده است. (کلیدها) (کابینت ها)

### 3.2.4 Written Tasks

The following are examples of different written tasks. For more details, please see (Appendix B and C).

#### **Task 1. Data elicitation through writing responses to questions according to the pictures**

1. Please write as many plural forms as you know for the following pictures. (In Persian)



Figure 3.9 Sample 9 of the Presented Pictures for Data Elicitation through Guiding Pictures for Plural Formation



Figure 3.10 Sample 10 of the Presented Pictures for Data Elicitation through Guiding Pictures for Plural Formation

2. Please write as many sentences as you know for describing the following pictures. (15 min) In Persian.



Figure 3.11 Sample 11 of the Presented Pictures for Data Elicitation through Guiding Pictures for SVA

**Task 2. Prompted questions with given English equivalents**

1. Please write the response to the following questions in Persian. If you know more than one correct response, please write both.

- a) How do you say “making a phone call” in Persian?
- b) How do you say “I comb my hair” in Persian?
- c) How do you say “the books are on the table” in Persian?
- d) How do you say “the leaves are falling” in Persian?

**Task 3. Short paragraph writing (In Persian)**

Please choose one of the following options.

- 1. Please write a short paragraph about one of your friends, family members, or pets.
- 2. Please write a short paragraph about one of the Persian ceremonies, festivals, or celebrations.

3. Please write a short paragraph about one of the movies or books you have read.

#### Task 4. Fill in the blanks

1. Please fill in the blank with the correct plural form of the word given. If there is more than one form that you can use, please write them in the order of your preference.

1. من ..... (کتاب) زیادی خوانده ام.
2. معلم ..... (نمره) ما را اعلام کرد.
3. ..... (شاگرد) کلاس من باهوش هستند.

2. Please fill in the blank with the correct form (singular/plural) of the verb given. If there is more than one form that you can use, please write them in the order of your preference.

1. برگها در پاییز ..... (می ریزد/ می ریزند).
2. غذاها سرد ..... (شد/شدند).

#### 3.2.5 Grammaticality Judgment Test/Correction

The following are examples of the judgment sentences for the Grammaticality Judgment Test/ Correction. For more details, please see Appendix B and C.

Please judge the grammaticality of the following sentences in Persian. They might be correct or incorrect. If they are correct put a “C” or a checkmark, and if they are incorrect put an “I” or a cross mark. Also, for the incorrect ones, please write the correct form. If you do not know a word in the sentence, please underline the word/ words that you do not know. If there are two similar sentences and both seem correct, but one is the one you are using and the other one is the one that you have heard from others, please mention that.

1. این گلدان پر از گلان زیباست.
2. او بعد از هر غذا مسواک می کند.

3. دانش آموزان این کلاس خیلی زرنگ هستند.

4. او موهایش را شانه می زند.

5. من به دوستم ایمیل زدم.

6. لامپها تکان می خورند.

7. برگها می ریزند.

8. دارو تاثیری ندارند.

Please see Appendices A, B, and C for more samples of every task.

### **3.3 Data Collection Procedure**

The data for light verb constructions, plural formation, and SVA were collected in 5 sessions for every participant. Each session took 60 minutes, and overall, the data from every participant were collected in 300 minutes. The oral data were collected in 2 sessions, and the written data were collected in 3 different sessions to remove the effect of fatigue and boredom. The other reason for the written data taking longer was that Persian HSs were not very quick in writing Farsi, and every task needed more time for them to finish.

#### *3.3.1 Oral Data Collection Procedures*

Oral data were collected through 160 different questions and 5 different tasks. The oral tasks include data elicitation through guided discussions, natural, spontaneous speech, data elicitation through picture description and extrapolating the pictures activities to the participant's daily life, data elicitation through guiding pictures, and direct elicitation questions for the light verbs, plural formations, and SVA in Persian. From these tasks, the first 3 tasks were used to elicit data indirectly and be analyzed for all three linguistic forms. The last 2 tasks were used to elicit data directly for every single linguistic form separately.

### **3.3.1.1 Oral Data Collection Procedure for All Structures (Plural Formation, Light Verb Constructions, & SVA)**

To elicit linguistic forms orally, 160 different questions were used in a production experiment with several tasks. In the first task, data elicitation through guided discussions, the participants were involved in a short friendly discussion about a familiar topic. For example, the experimenter asked them in Persian “Please describe some of the Persian foods that you like”, and when the participants started talking, the examiner tried to guide the discussion in a way to elicit the intended forms. In the second task, natural, spontaneous speech, the participants were asked an open-ended question to respond. For example, the examiner asked them in Persian “What did you do on the weekend?” The third task was data elicitation through picture description and extrapolating the picture activities to the participant’s daily life. In this task, some pictures were displayed on the computer. The participants were asked to choose one of the pictures and describe the picture. Then, they were asked to connect the picture activities to their daily life. For example, a picture of daily routines was displayed. The participants described the picture and then talked about their daily routines.

In all these tasks, the tokens were recorded and transcribed to be analyzed for plural formation, light verb constructions, & SVA in oral production.

Task four, data elicitation through guiding pictures, and task 5, direct elicitation questions were performed separately for every structure, including the light verbs, plurals, and SVA to elicit these forms separately.



### 3.3.1.2 Data Elicitation through Guiding Pictures for Plural Formation in Oral Production

Data elicitation through guiding pictures was used to elicit plural formation directly. To do so, two pictures were displayed on a computer screen. One of the pictures represented the singular form and the second picture the plural form. For example, a picture of a tree was displayed. The experimenter asked the participants in Persian “What do you see in the picture?” Then, a picture of some trees was displayed, and they were asked “What do you see in the picture? If you see more than one, tell me as many plural forms as possible.” In the same manner, all plural forms, in Persian, including “-ha” “ها-”, “-an” “ان-”, and the plurals borrowed from Arabic in Persian, including “-at” “ات-”, “-in” “ین-”, and the irregular plurals were elicited. In Figure 3.12, a sample from the pictures and stimuli used in this task is given.

What do you see in the picture? If you see more than one, tell as many plural forms as possible.



Figure 3.12 Sample 12 of the Presented Pictures for Data Elicitation through Guiding Pictures for Plural Formation

Target response: [dæ.ɾæxt]



Figure 3.13 Sample 13 of the Presented Pictures for Data Elicitation through Guiding Pictures for Plural Formation

Target responses: [dɛ.ɪæxt-ha]/ [dɛ.ɪæxt-an]

### 3.3.1.3 Data Elicitation through Guiding Pictures for Light Verb Constructions in Oral Production

Data elicitation through guiding pictures was also used to elicit light verb constructions directly. To do so, a picture was displayed on the computer screen, and the examiner asked the participants in Persian about the picture. The response to the questions in all pictures included a light verb. For example, a picture of two people painting the wall was displayed, and participants were asked “What are they doing?” In Figure 3.14, a sample from the pictures and stimuli used in this task is given.

What are they doing?



Figure 3.14 Sample 14 of the Presented Pictures for Data Elicitation through Guiding Pictures for Light Verb Constructions

Target responses: [ɹæŋ mizænæn/ ɹæŋ mikonæn]

#### 3.3.1.4 Data Elicitation through Guiding Pictures for SVA in Oral Production

Data elicitation through guiding pictures was used to elicit SVA directly. To do so, a picture was displayed on the computer screen with a sentence representing SVA for a singular subject. Another picture was displayed with an incomplete sentence, showing just a plural subject, and was needed to be completed by the participants. The examiner asked the participants in Persian to complete the sentence according to the given example. The response to the questions in all pictures included SVA for inanimate plural subjects. For example, a picture of one leaf falling was displayed with the sentence related to the picture, and participants were asked to complete the second picture showing leaves falling. In Figure 3.15, a sample from the pictures and stimuli used in this task is given.



Figure 3.15 Sample 15 of the Presented Pictures for Data Elicitation through Guiding Pictures for SVA

Guiding Example: [bæɪg miɪzæd.]



Figure 3.16 Sample 16 of the Presented Pictures for Data Elicitation through Guiding Pictures for SVA

Prompting word to elicit the response: bæɪg-ha.....

Target responses: [miɪzæd/ miɪzænd]

### **3.3.1.5 Data Elicitation through Direct Elicitation for Plural Formation in Oral Production**

Direct elicitation questions were used to elicit plural formation directly. To do so, the examiner gave the participants some nouns orally and asked them to say the plural forms of those words. The stimuli had been provided in a way to include the elicitation of all types of plural makers in Persian/Farsi. The following example provides a sample direct elicitation question for plural formation.

Example 3.1. What is the plural form of the following word? Tell me as many plural forms as you know (using or hearing).

1. [iɪɾɒni] → ..... Target responses: [iɪɾɒni-ha/ iranij-an]

### **3.3.1.6 Data Elicitation through Direct Elicitation, Prompted with Given English**

#### **Equivalents for Light Verb Constructions in Oral Production**

Direct elicitation questions were used to elicit light verb constructions directly. To do so, the examiner gave the participants the English equivalent of the light verb constructions and asked them to say those light verb constructions in Persian/Farsi. The following example provides a sample direct elicitation question for light verb construction.

Example 3.2.

2. The examiner: How do you say “combing” in Persian?

Target responses: [ʃʊnɛ zædæn/ ʃʊnɛ kærɪdæn]

### **3.3.1.7 Data Elicitation through Direct Elicitation, Prompted with Given English Equivalents for SVA in Oral Production**

Direct elicitation questions were used to elicit SVA directly. To do so, the examiner gave the participants a sentence in English, including a nonhuman plural subject, and asked the participants how they say the same sentence in Persian Farsi. The following example provides a sample direct elicitation question for SVA.

Example 3.3.

3. The examiner: How do you say “the books are on the table” in Persian?

Target responses: [ketaba .ruje mize] (using a singular verb)

### **3.3.2 Written Data Collection Procedure**

The written tasks consisted of 93 questions (the questions were in English/ Persian, but the responses to all questions were in Persian) in the form of four different tasks for eliciting plural formations, light verb constructions, and SVA in Persian. The written tasks included data elicitation through guiding pictures, prompted questions with given English equivalents, fill-in-the-blanks, and short paragraph writing tasks. From these tasks, the first 3 tasks were used to elicit data directly for every single linguistic structure separately, and the last task was used to elicit data indirectly to be analyzed for all three linguistic forms. The first three tasks are very similar to the same tasks in oral production; however, the difference is the modality of production and having more control over written responses. Also, because of the diglossic context for Persian/Farsi, the written responses might be different from the oral responses in many cases.

### 3.3.2.1 Data Elicitation through Guiding Pictures for Plural Formation in Written Production

Data elicitation through guiding pictures was used to elicit plural formation directly. To do so, participants were given written questions, including pictures showing plural nouns, and they were asked to write the plural forms for the pictures. For example, a picture of letters of the alphabet was in the questions. The question asked “Please write as many plural forms as you know for the following pictures. (In Persian)” In the same manner, all plural forms, in Persian, including “-ha” “ها-”, “-an” “ان-”, and the plurals borrowed from Arabic in Persian, including “-at” “ات-”, “-in” “ین-”, and the irregular plurals were elicited. In Figure 3.17, a sample from the pictures and stimuli used in this task is given.

4. Please write as many plural forms as you know for the following pictures. (In Persian)



Figure 3.17 Sample 17 of the Presented Pictures for Data Elicitation through Guiding Pictures for Plural Formation

Target responses: [hærf-ha/ hoʊf]

### 3.3.2.2 Data Elicitation through Guiding Pictures for Light Verb Constructions in Written Production

Data elicitation through guiding pictures was also used to elicit light verb constructions directly. To do so, participants were given written questions, including pictures showing light verb constructions, and they were asked to write what the action in every picture is. For example, a picture of a person ironing the clothes was in the questions. The question asked “What is she doing? (Write in Persian)”. In Figure 3.18, a sample from the pictures and stimuli used in this task is given.

5. What is she doing? (Write in Persian)



Figure 3.18 Sample 18 of the Presented Pictures for Data Elicitation through Guiding Pictures for Light Verb Constructions

Target responses: [otu mizæne/ otu mikone]

### 3.3.2.3 Data Elicitation through Guiding Pictures for SVA in Written Production

Data elicitation through guiding pictures was also used to elicit SVA directly. To do so, participants were given written questions, including pictures showing SVA, and they were asked



to write as many sentences as they know for describing every picture. The responses to the questions in all pictures included SVA for inanimate plural subjects. For example, a picture of some books on the table was given, and participants were asked to write as many sentences as they could for that picture. In Figure 3.19, a sample from the pictures and stimuli used in this task is given.

6. Please write as many sentences as you know for describing the following pictures.  
(Write in Persian)



Figure 3.19 Sample 19 of the Presented Pictures for Data Elicitation through Guiding Pictures for SVA

Target responses: [ketaba .ruje mize/ ketaba .ruje mizænd/ ketaba .ruje miz hæstænd]

#### **3.3.2.4 Data Elicitation through Direct Elicitation for Plural Formation in Written Production**

Direct elicitation questions were used to elicit plural formation directly. To do so, the participants were given written questions with some nouns which asked them to write the plural forms of those words. The stimuli had been provided in a way to include the elicitation of all

types of plural makers in Persian/Farsi. The following example provides a sample direct elicitation question for plural formation.

Example 3.4. What is the plural form of the following word? Write as many plural forms as you know (using or hearing).

7. [gol] → ..... Target responses: [gol- ha]

### **3.3.2.5 Data Elicitation through Direct Elicitation, Prompted with Given English Equivalents for Light Verb Constructions in Written Production**

Direct elicitation questions were used to elicit light verb constructions directly. To do so, the participants were given written questions with the English equivalent of the light verb constructions and were asked to write those light verb constructions in Persian/Farsi. The following example provides a sample direct elicitation question for light verb construction.

Example 3.5.

8. How do you say “I brush my teeth” in Persian?

9. Target response: [mesvak mizænæm]

### **3.3.2.6 Data Elicitation through Direct Elicitation for SVA in Written Production**

Direct elicitation questions were used to elicit SVA directly. To do so, the participants were given written sentences in Persian/Farsi, including a sentence representing SVA for a singular subject. The participants were given a plural subject in parentheses in front of every sentence and were asked to rewrite the sentence with the given plural subject. The following example provides a sample direct elicitation question for SVA.

Example 3.7.

10. Please rewrite the following sentences with the given words in parentheses.

[zæɪf kæsɪf æst.] ([zæɪf-ha])

.....

11. Target responses: [zæɪf-ha kæsɪf æst] (using singular verb)/ [zæɪf-ha kæsɪf hæstænd/  
zæɪf-ha kæsɪfænd] (using plural verb)

### 3.3.2.7 Data Elicitation through Fill in the Blanks for Plural Formation in Written

#### Production

Direct elicitation questions were used to elicit plural formation directly through the fill-in-the-blanks. To do so, the participants were given incomplete written sentences. For every sentence, a singular word was given in parentheses. The participants were asked to fill in the blanks with the correct plural forms of the given words. The following example provides a sample direct elicitation question for plural formation through the fill-in-the-blanks.

Example 3.8.

Please fill in the blanks with the correct plural form of the given words. If there is more than one form that you can use, please write them in the order of your preference.

12. [mæn.....(kətab) zɪjɑdi xandɛ-æm.]

13. Target response: [kətab-ha]

### **3.3.2.8 Data Elicitation through Fill in the Blanks for SVA in Written Production**

Direct elicitation questions were used to elicit SVA directly through the fill-in-the-blanks. To do so, the participants were given incomplete written sentences. In every sentence, the subject was a nonhuman plural subject, and the verb was missing. For every sentence, the participants were given two verb options (singular and plural) in parentheses. The participants were supposed to fill in the blanks by choosing the correct verb forms, meaning singular, plural, or both in case they believed both forms are acceptable. The following example provides a sample direct elicitation question for SVA through the fill-in-the-blanks.

Example 3.9.

14. Please fill in the blanks with the correct forms (singular/plural) of the verbs given. If there is more than one form that you can use, please write them in the order of your preference.

15. [bæɪg-ha dəɪ pɑjɪz] ..... ([miɪɪzəd/ miɪɪzænd]).

### **3.3.2.9 Data Elicitation through Short Paragraph Writing for Plural Formation, Light Verb Constructions, and SVA in Written Production**

In addition to all the aforementioned data elicitation tasks, short paragraph writing was also used to check the written production of the intended structures in a less framed and formulated manner by giving the participants more freedom in their production. To do so, the participants were given some topic options and were asked to write a short paragraph about one of the topics. Then, the participants' responses were transcribed and analyzed for the intended structures, including plural formation, light verb constructions, and SVA. The following example

provides a sample indirect data elicitation question for plural formation, light verb constructions, and SVA through short paragraph writing.

Example 3.10.

16. Please choose one of the following options.

1. Please write a short paragraph about one of your friends, family members, or pets in Persian.

2. Please write a short paragraph about your daily schedule in Persian.

3. Please write a short paragraph about one of the Persian ceremonies, festivals, or celebrations in Persian.

4. Please write a short paragraph about one of the movies or books you have read in Persian.

## **Chapter Four: Results and Data Analysis**

This chapter will report the data analysis and the results of nominal and verbal morphology, represented by the plural formation and light verb constructions, respectively. Moreover, a report of the results of the interface of morpho-syntax, represented by SVA in the Persian variety of HSs is provided in this section, and it is followed by a discussion of the findings. Section 4.1 will cover the comparison of results by the child and adult Persian HSs in using light verbs in oral production. Section 4.2 will report the comparison of results by the child and adult Persian HSs in using plural markers in oral production. In section 4.3, the comparison of results by the child and adult Persian HSs in using light verbs in written production will be presented. The findings of the comparison of results by the child and adult Persian HSs in using plural markers in written production will be given in section 4.4. A comparison of results by the child and adult Persian HSs in using plural markers and light verbs in GJT/C will be presented in section 4.5. In section 4.6., the comparison of results by the child and adult Persian HSs in using SVA for inanimate plural subjects in oral production will be reported. Section 4.7. will cover the comparison of results by the child and adult Persian HSs in using SVA for inanimate plural subjects in written production. A comparison of adults' and children's oral and written data for SVA will be given in section 4.8. and 4.9. will present the comparison of adults' and children's data for SVA in GJT/C. Finally, section 4.10. will give a conclusion of the results.

In this chapter, every figure shows the comparison of the results of children (the orange bars) and adults (the blue bars). After every figure, first, the children's results are reported, then the adults' results are reported, and at the end, the comparison of the results for children and adults is explained. The data analysis revealed the following results:

#### 4.1 Comparison of Results by the Child and Adult Persian HSs in Using Light Verbs in the Oral Production

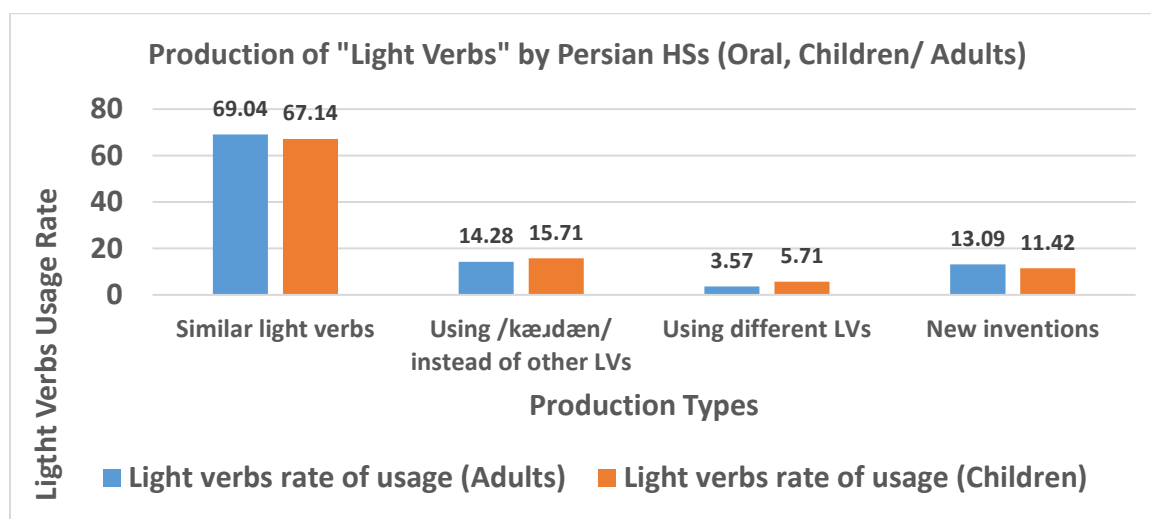


Figure 4.1 Comparison of the Production of the Light Verbs by Persian HSs (Children/Adults) in the Oral Production

The results in Figure 4.1 reveal that 67.14% of the use of the light verbs in the oral production by child participants was similar to the “Tehrani” dialect which is the dominant dialect of participants’ parents. It is noteworthy that the “Tehrani” dialect is the closest dialect to standard modern Persian. In addition, results show that 15.71% was related to the overuse of /kæɪdæn/ (i.e., do) instead of other light verbs, including /zædæn/ (i.e., hit), /gɛɪftæn/ (i.e., get/take), etc. Persian (Dari) speakers also use /kæɪdæn/ instead of other light verbs. Table 4.1 shows individuals’ examples.

Table 4.1 Individuals' Examples of Overusing of /kæɪdæn/ instead of /zædæn/

HL	Other Varieties	HL	Other Varieties
<i>shune <b>kærdæn</b></i>	<i>shune <b>zædæn/kærdæn</b></i>	<i>Otu <b>kærdæn</b></i>	<i>Otu <b>zædæn/kærdæn</b></i>
comb <b>do</b> -INF	comb <b>hit</b> -INF/ <b>do</b> -INF	otu <b>do</b> -INF	otu <b>hit</b> -INF/ <b>do</b> -INF
To comb	To comb	To iron	To iron

Moreover, Figure 4.1 represents that 5.71% was for using different light verbs. For example, /goftæn/ (i.e., tell) instead of /kæɪdæn/ (i.e., do) in /ʃuxi goftæn/ instead of /ʃuxi kæɪdæn/ (i.e., kidding/joking). Table 4.2 shows individuals' examples.

Table 4.2 Individuals' Examples of Using Different Light Verbs

HL	Other Varieties	HL	Other Varieties
<i>shuxi <b>goftæn</b></i>	<i>shuxi <b>kæɪdæn</b></i>	<i>sæbr <b>dadæn</b></i>	<i>sæbr <b>kæɪdæn</b></i>
joke <b>tell</b> -INF	joke <b>do</b> -INF	wait <b>give</b> -INF	wait <b>do</b> -INF
To joke	To joke	To wait	To wait

Furthermore, the results in Figure 4.1 show that 11.42% was for new inventions of the light verbs by Persian HSs, meaning that they are using some types of innovative light verbs which are combinations of English words as the preverbal elements and the Persian light verb /kæɪdæn/ (e.g., /keɪ kæɪdæn/ (i.e., to care), /weɪt kæɪdæn/ (i.e., to wait), etc.



Similarly, the results in Figure 4.1 reveal that 69.04% of the use of the light verbs in the oral production by adult participants was similar to the “Tehrani” dialect. In addition, results show that 14.28% was related to the overuse of /kæɪdæn/ (i.e., do) instead of other light verbs, including /zædæn/ (i.e., hit), /gɛɪftæn/ (i.e., get/take), etc. Moreover, Figure 4.1 represents that 3.57% was for using different light verbs. For example, /dadæn/ (i.e., give) instead of /kæɪdæn/ (i.e., do) in /sæbɪ dadæn/ instead of /sæbɪ kæɪdæn/ (i.e., to wait). Furthermore, the results in Figure 4.1 show that 13.09% was for new inventions of the light verbs by Persian HSs, meaning that they are using some types of innovative light verbs which are combinations of English words as the preverbal elements and the Persian light verb /kæɪdæn/ (e.g., /mɪs kæɪdæn/ (i.e., to miss), /weɪt kæɪdæn/ (i.e., to wait), etc.

Overall, with a subtle difference, the results of the production of the use of the light verbs in the oral production by adults and children are in harmony with each other.

#### 4.2 Comparison of Results by the Child and Adult Persian HSs in Using Plural Markers in the Oral Production

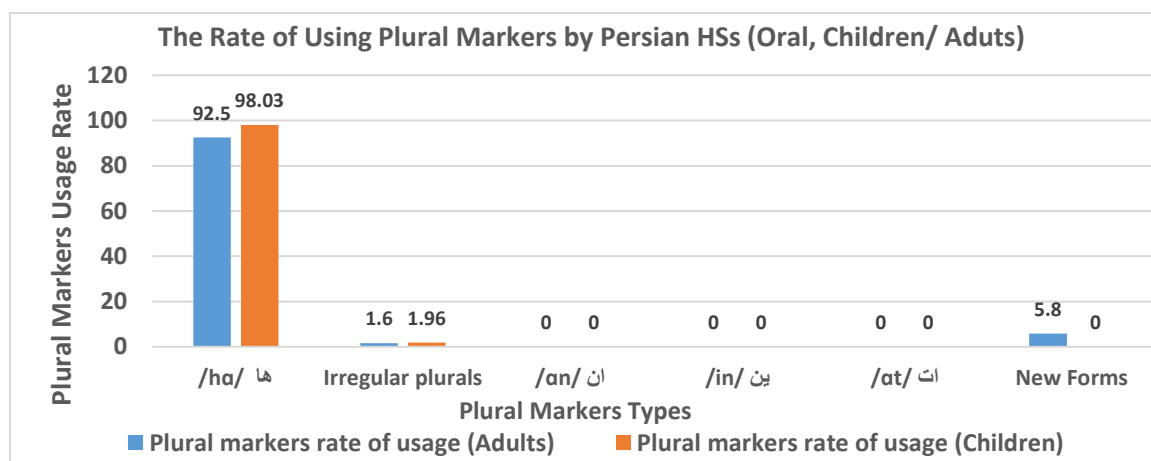


Figure 4.2 Comparison of the Use of the Plural Markers by Persian HSs (Children/ Adults) in the Oral Production

The results in Figure 4.2 reveal that 98.03% of the use of the plural markers in the oral production by child participants was for the plural marker /ha/ /ها/. Also, results show that just 1.96% was for the irregular plurals. Moreover, the results indicate that there was no record of using the other plural markers /an/ /ان/, /in/ /ين/, and /at/ /ات/ in the oral production by child participants.

Likewise, the results in Figure 4.2 reveal that 92.5% of the use of the plural markers in the oral production by adult participants was for the plural marker /-ha/ /ها-/. Also, results show that just 1.6% was for the irregular plurals. Moreover, the results indicate that there was no record of using the other plural markers, including /-an/ /ان-/, /-in/ /ين-/, and /-at/ /ات-/ in the oral production by adult participants.

Comparing the results of the use of the plural markers in the oral production of adults and children, it could be seen that the results are in harmony with each other; however, adults show some new forms of plurals in their oral production which are missing in the children's oral production. Children reveal these new forms just in their written production.

Overall, the results indicated that Persian HSs significantly use the plural marker /-ha/ /ها-/ compared with other plural markers in their oral production.

### 4.3 Comparison of Results by the Child and Adult Persian HSs in Using Light Verbs in Written Production

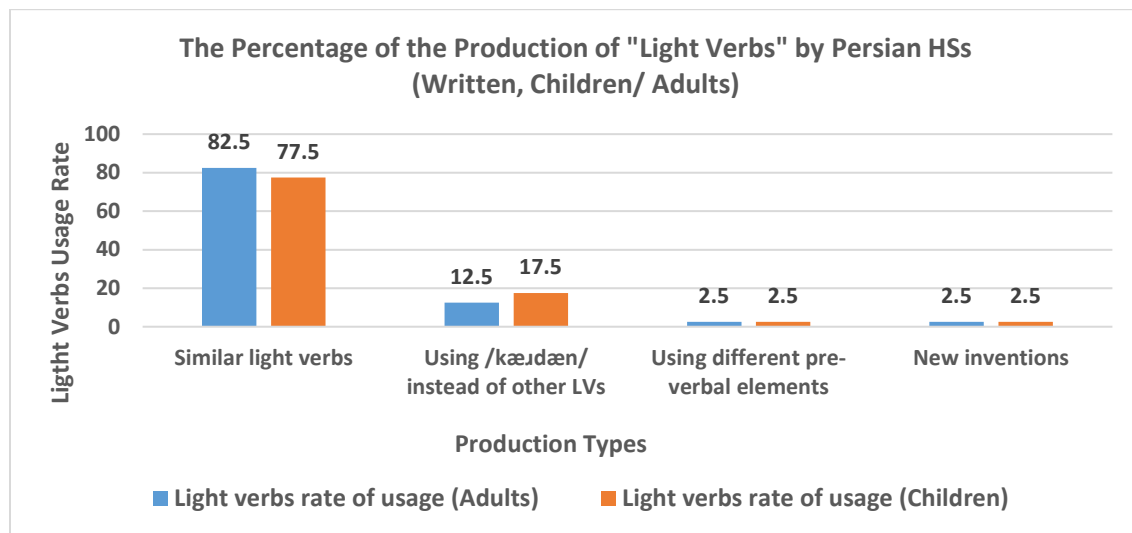


Figure 4.3 Comparison of the Production of the Light Verbs by Persian HSs (Children/ Adults) in the Written Production

The results in Figure 4.3 reveal that 77.5% of the use of the light verbs in the written production by child participants was similar to “monolingually raised” native speakers. In addition, results show that 17.5% was related to preferring /kæɪdæn/ (i.e., do) to other light verbs, including /zædæn/ (i.e., hit), /gɛɪftæn/ (i.e., get/take), etc. Moreover, Figure 4.3 shows that 2.5% was for using different pre-verbal elements with the light verbs. For example, /hæmmam gereftæn/ (i.e., bathe) instead of /duf gereftæn/ (i.e., take a shower). Table 4.3 shows individual examples.

Table 4.3 Individual Examples of Using Different Pre-verbal Elements with the Light Verbs

HL		Other Varieties
<i>hæmmam gereftæn</i>		<i>dush gereftæn</i>
<b>Bath</b>	take-INF	<b>shower</b> take-INF
To bathe		take a shower

Furthermore, the results in Figure 4.3 show that 2.5% was for new inventions of the light verbs by Persian HSs, meaning that they are using some types of innovative light verbs which are combinations of English words as the preverbal elements and the Persian light verb /kæɪdæn/ (e.g., /keɪ kæɪdæn/ (i.e., to care) or the Persian light verb /budæn/ (i.e., to be) in (/izi going budæn/ (i.e., to be easy-going), etc. (See the examples in gloss below.)

*1. Care kardan*

care do- INF

‘To care’

*2. Easy going budan*

easy going be- INF

‘To be easy going’

Similarly, the results in Figure 4.3 reveal that 82.5% of the use of the light verbs in the written production by adult participants was similar to “monolingually raised” native speakers.

In addition, results show that 12.5% was related to preferring /kæɪdæn/ (i.e., do) to other light verbs, including /zædæn/ (i.e., hit), /gɛɪftæn/ (i.e., get/take), etc. Moreover, Figure 4.3 shows that 2.5% was for using different pre-verbal elements with the light verbs and 2.5% was for new inventions of the light verbs. (Examples are similar to children's examples above.)

Overall, with a subtle difference, the results of the production of the use of the light verbs in the written production by adults and children are in harmony with each other.

#### 4.4 Comparison of Results by the Child and Adult Persian HSs in Using Plural Markers in Written Production

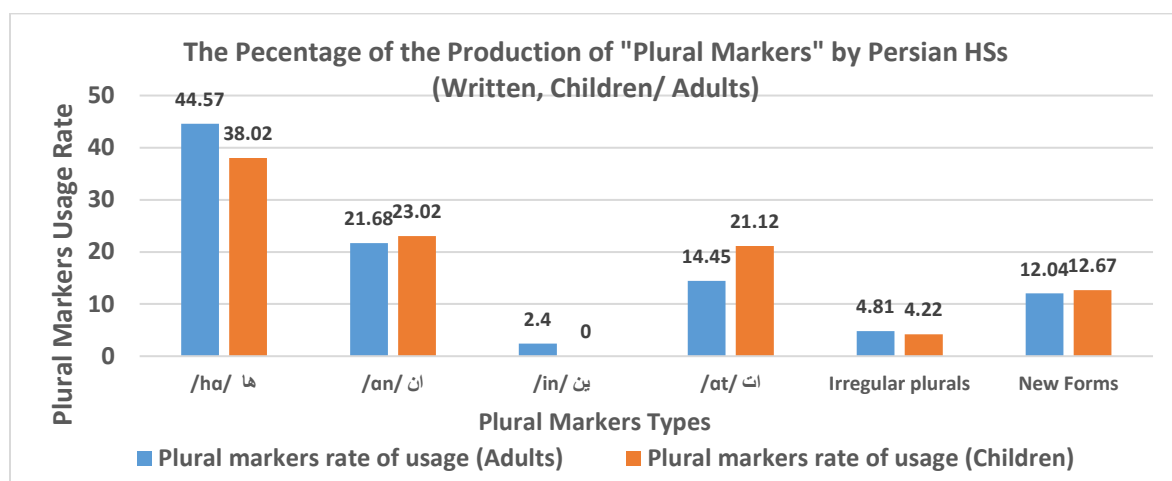


Figure 4.4 Comparison of the Use of the Plural Markers by Persian HSs (Children/Adults) in the Written Production

The results in Figure 4.4 reveal that 38.02% of the use of the plural markers in the written production by child participants was for the plural marker /ha/ ها/. Besides, the results show that 23.02% was for the plural marker /an/ ان/, and with a subtle difference, 21.12% was for the plural marker /at/ ات/. The results also indicated that 4.22% was for the irregular plurals. Moreover, the results indicate that there was no record of using the plural marker /in/ ين/ in the

written production by child participants. Furthermore, an interesting part of the result is that 12.67% was for the new forms of plurals. In other words, they make new plural forms by a combination of a plural marker with some nouns which are not usually used by monolinguals. For example,

- |                       |                   |                                |           |                       |
|-----------------------|-------------------|--------------------------------|-----------|-----------------------|
| 3. <i>hokm-an</i>     | <i>instead of</i> | <i>æhkam</i>                   | <i>or</i> | <i>hokm-ha</i>        |
| religious mandate- PL |                   | religious mandate-IR/Broken PL |           | religious mandate- PL |
| ‘Religious mandates’  |                   |                                |           |                       |
| 4. <i>moqaddas-an</i> | <i>instead of</i> | <i>moqaddas-at</i>             |           |                       |
| sacred thing- PL      |                   | sacred thing- PL               |           |                       |
| ‘Sacred things’       |                   |                                |           |                       |
| 5. <i>masoul-at</i>   | <i>instead of</i> | <i>masoul-an</i>               |           |                       |
| official- PL          |                   | official- PL                   |           |                       |
| ‘Officials’           |                   |                                |           |                       |

Another type among the new forms of plurals by the participants was using zero plural morpheme for some words. For example, they used

- |                     |                   |                     |
|---------------------|-------------------|---------------------|
| 6. <i>mahi</i>      | <i>instead of</i> | <i>mahi-ha</i>      |
| fish- ØPL           |                   | fish- PL            |
| ‘Fish’              |                   |                     |
|                     |                   |                     |
| 7. <i>kampyuter</i> | <i>instead of</i> | <i>kampyuter-ha</i> |
| computer- ØPL       |                   | computer-PL         |
| ‘Computers’         |                   |                     |

Likewise, the results in Figure 4.4 reveal that 44.57% of the use of the plural markers in the written production by adult participants was for the plural marker /-ha/ /ها-/, 21.68% was for the plural marker /-an/ /ان-/, 2.4% was for the plural marker /-in/ /اين-/, 14.45% was for the plural marker /-at/ /ات-/, and 4.81% of the production of the plural markers was for the irregular plurals. Moreover, an interesting part of the result is that 12.67% of the production of the plural markers in the written production by adult participants was for the new forms of the plurals. In other words, HSs make new plural forms by a combination of a plural marker with some nouns which are not used usually by monolinguals. For example,

8. *moʃkel-an*      *instead of*   *moʃkel-at*  
 difficulty- PL                      Difficulty- PL  
 ‘Difficulties’
9. *dʒomæɫ -an*      *instead of*   *dʒomæɫ -at*  
 sentence- PL              sentence- PL  
 ‘Sentences’
10. *masoul-at* *instead of* *masoul-an*  
 official- PL official- PL  
 ‘Officials’

Another type of the new forms of plurals by adult participants was using zero plural morpheme for some words. For example, they used

11. *mahi*              *instead of*   *mahi-ha*  
 fish- ØPL              fish- PL  
 ‘Fish’

12. *etelaʔ*    *instead of*    *etelaʔ-at*

information- ØPL                      information-PL

‘Pieces of information’

Comparing the results of the use of the plural markers in the written production of adults and children, it could be seen that the results are in harmony for most of the plural markers; however, adults produce more plurals with /-ha/ /ها-/ and fewer with /-at/ /ات-/ compared with children. Furthermore, adults produce a few cases of plurals with /-in/ /اين-/ in the written production, which are missing in the children’s written production.



#### 4.5 Comparison of Results by the Child and Adult Persian HSs in Using Plural Markers and Light Verbs in GJT/C

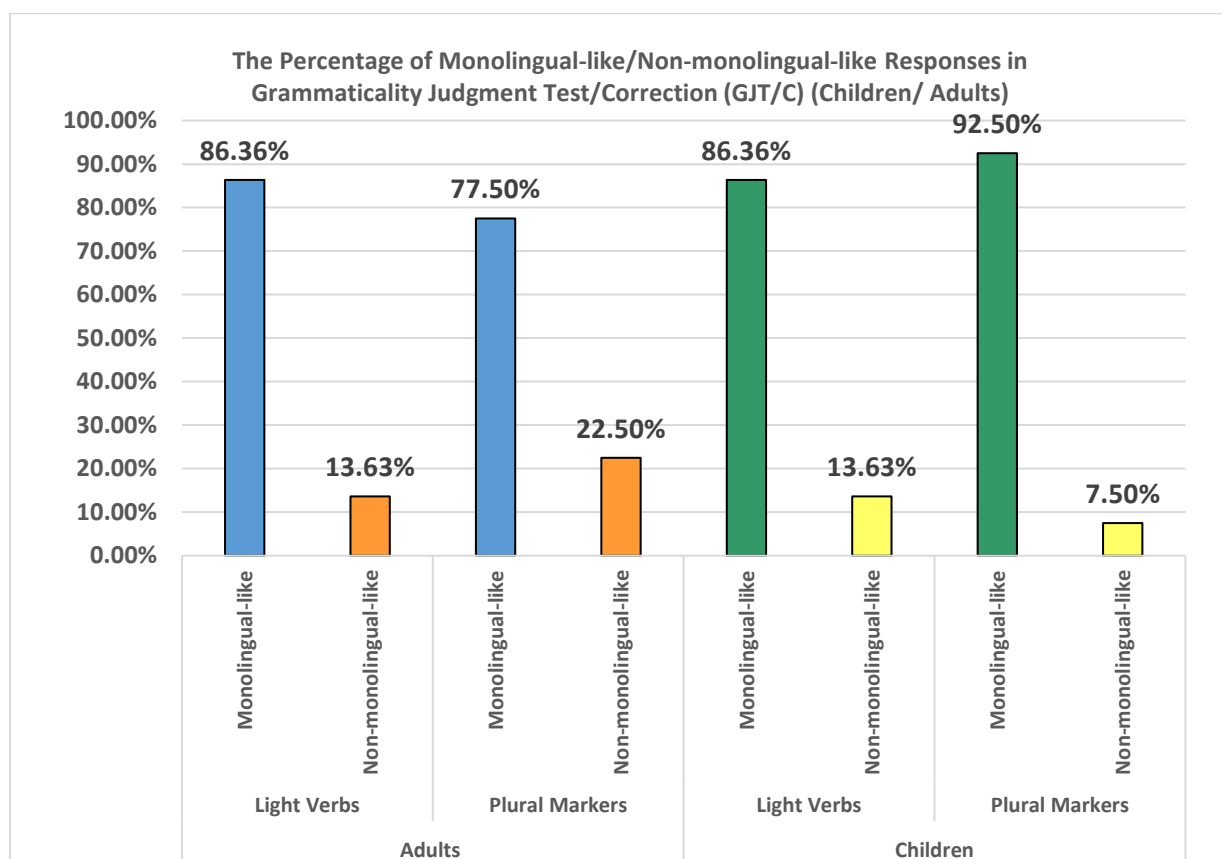


Figure 4.5 Comparison of the Judgment of Light Verbs and Plural Markers by Persian HSs (Adults/ Children) in GJT/C

The results in Figure 4.5 reveal that 86.36% of child HSs' judgment of the light verbs was monolingual-like, namely similar to monolingual speakers' judgment, and only 13.63% of their judgment of the light verbs was different from monolinguals. Also, 92.50% of HSs' judgment of the plural markers was monolingual-like, and only 7.50% of their judgment of the light verbs was different from monolinguals. It is noteworthy that the term "monolingual-like" is just used for the sake of data analysis since the monolingual version is a known version for the readers, and the HL version is investigated for the first time.

Similarly, the results in Figure 4.5 reveal that 86.36% of adult HSs' judgment of the light verbs was monolingual-like, and only 13.63% of their judgment of the light verbs was different from monolinguals. Also, 77.50% of adult HSs' judgment of the plural markers was monolingual-like, and 22.50% of their judgment of the plurals was different from monolinguals.

Comparing adult and child HSs, it could be seen that adults and children judge the light verbs production exactly in the same way. Nonetheless, interestingly, adults have accepted fewer plural forms as correct forms compared with children.

#### 4.6 Comparison of Results by the Child and Adult Persian HSs in Using SVA for Inanimate Plural Subjects in the Oral Production

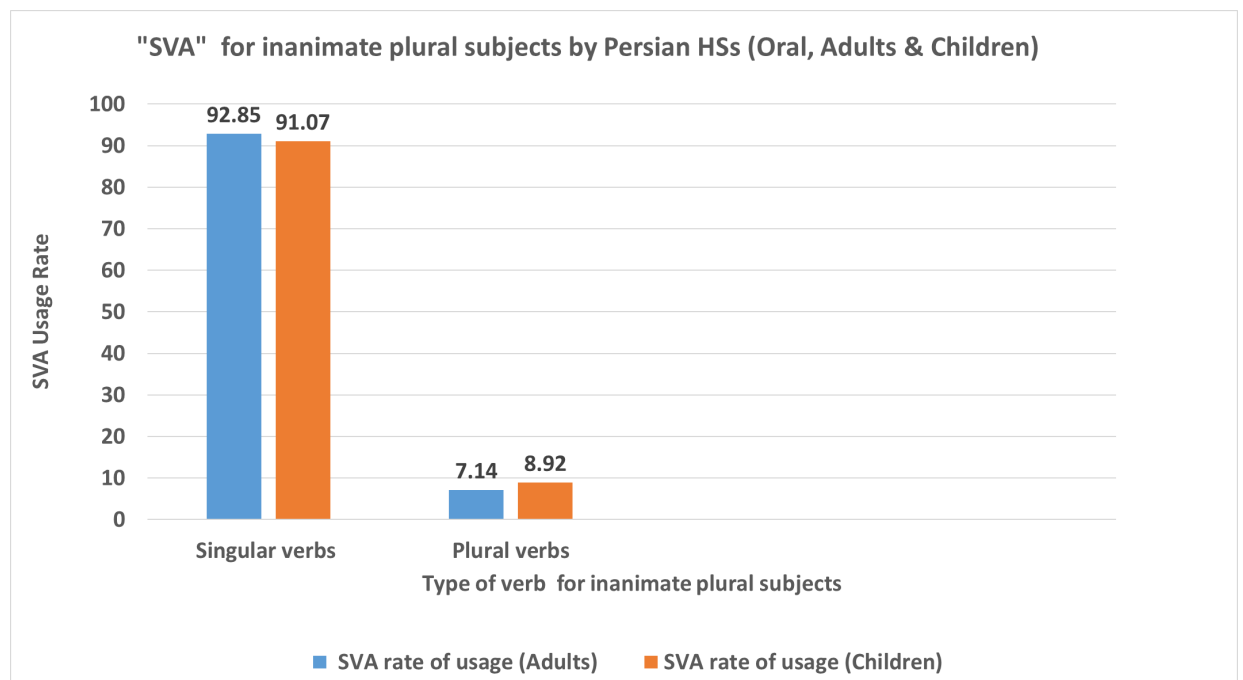


Figure 4.6 Comparison of Results by the Child and Adult Persian HSs in Using SVA for Inanimate Plural Subjects in the Oral Production

The results in Figure 4.6 indicate that in oral production, 91.07% of the verbs that children use for inanimate plural subjects are singular verbs while only 8.92% of the verbs they use for inanimate plural subjects are plural verbs. Likewise, results show that in oral production, 92.85% of the verbs that adults use for inanimate plural subjects are singular verbs while only 7.14% of the verbs they use for inanimate plural subjects are plural verbs. Comparing the results of SVA for inanimate plural subjects by the child and adult Persian HSs in oral production, it could be seen that the results are in harmony with each other. Overall, the results reveal that mostly, HSs use singular verbs for inanimate plural subjects in oral production.

#### 4.7 Comparison of Results by the Child and Adult Persian HSs in Using SVA for Inanimate Plural Subjects in Written Production

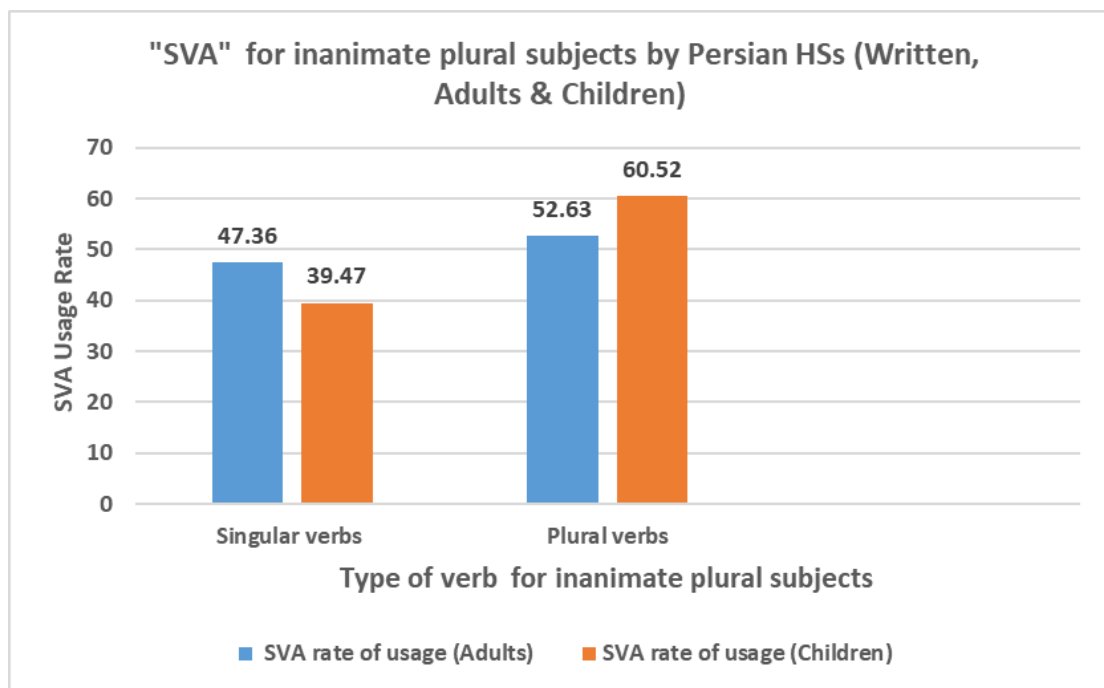
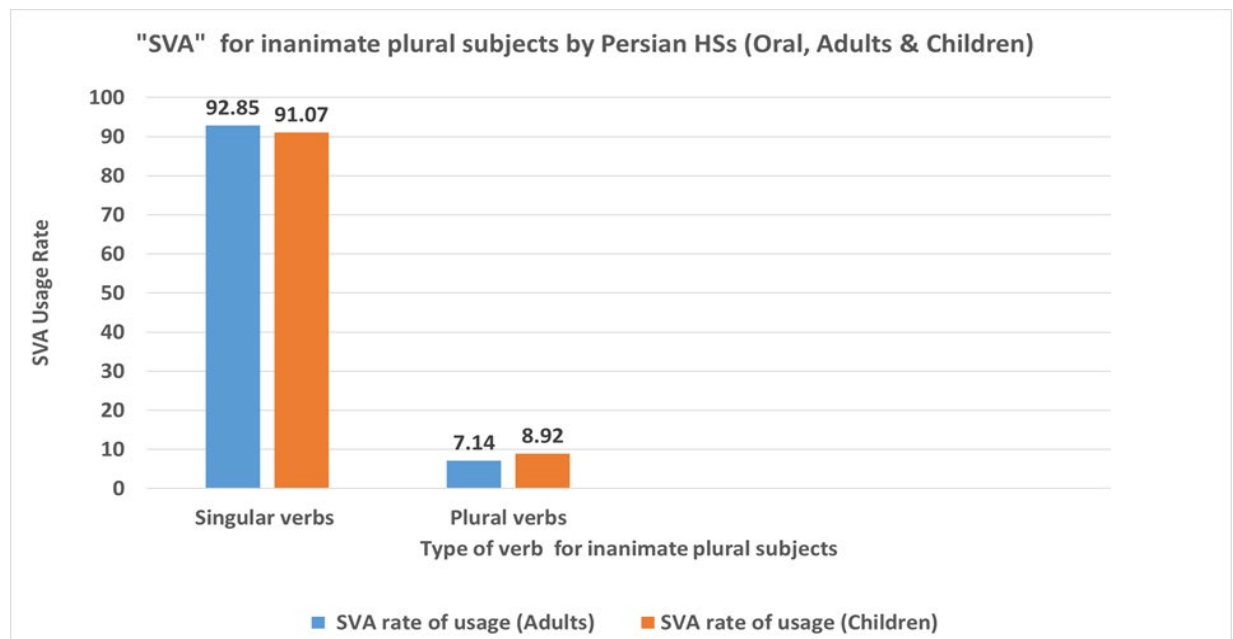


Figure 4.7 Comparison of Results by the Child and Adult Persian HSs in Using SVA for Inanimate Plural Subjects in Written Production

The results in Figure 4.7 indicate that in written production, 39.47% of the verbs that children use for inanimate plural subjects are singular verbs while 60.52% of the verbs they use for inanimate plural subjects are plural verbs. Likewise, results show that in written production, 47.36% of the verbs that adults use for inanimate plural subjects are singular verbs while 52.63% of the verbs they use for inanimate plural subjects are plural verbs. Comparing the results of SVA for inanimate plural subjects by the child and adult Persian HSs in written production, it could be seen that the results are in harmony with each other. Overall, the results reveal that HSs use both singular and plural verbs for inanimate plural subjects in written production. Additionally, results show that in written production, the percentage of using plural verbs for inanimate plural subjects by children is higher than that of adults, whereas the percentage of using singular verbs for inanimate plural subjects by children is lower than that of adults.

#### 4.8 Comparison of Adults and Children's Oral and Written Data in Using SVA for Inanimate Plural Subjects



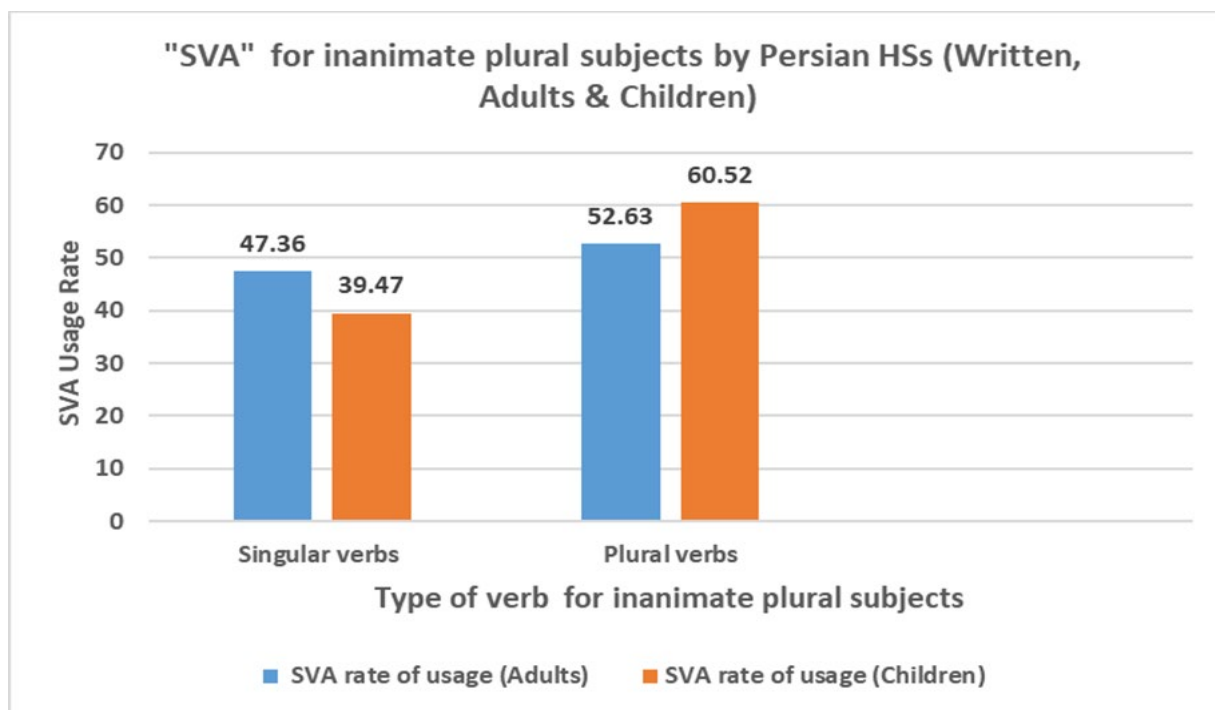


Figure 4.8 Comparison of Adults and Children's Oral and Written Data in Using SVA for Inanimate Plural Subjects

Comparing the results of SVA for inanimate plural subjects by the child and adult Persian HSs in oral and written production, it could be seen that results of oral and written production have significant differences. Results reveal that in oral production, HSs use singular verbs predominantly for inanimate plural subjects, whereas in written production, they use either singular or plural verbs for inanimate plural subjects. Overall, the oral and written production of children and adults are in harmony with each other.

#### 4.9 Comparison of Adults and Children's Data for SVA in GJT/C

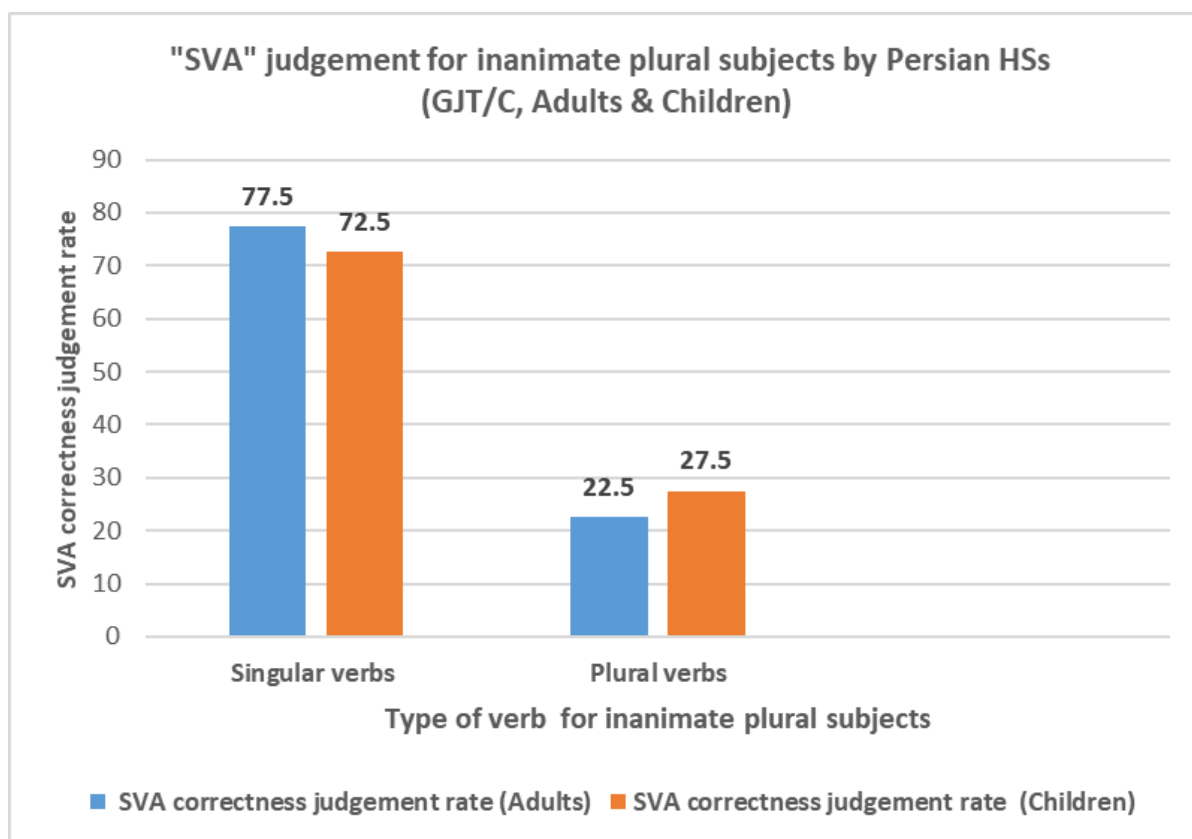


Figure 4.9 Comparison of Adults and Children's Data for SVA in GJT/C

The results in Figure 4.9 indicate that children judge 72.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have singular verbs, whereas they judge 27.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have plural verbs. Likewise, results show that adults judge 77.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have singular verbs, whereas they judge 22.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have plural verbs. Overall, it could be seen that adults and children judge the grammaticality of SVA almost in the same way. However, interestingly, adults have accepted more singular and fewer plural verbs as correct, grammatical

forms compared with children. Additionally, children's and adults' judgment of SVA for inanimate plural subjects is in harmony with their production. It can also be seen that their judgment is influenced by both oral and written productions.

#### **4.10 Conclusion of Data Analysis**

Light-verb construction results reveal that in oral and written production, child and adult HSs produce similar constructions to the “Tehrani” dialect which is the dominant dialect of participants’ parents. However, they produce some forms of light verbs that are not used by monolingual speakers, and they have new inventions of the light verbs that are not present in the monolingual Persian language system.

Plural formation results show that HSs produce plurals in oral and written production differently. In oral production, HSs use the plural marker /-ha/ /هـ-/ significantly, and there is almost no record of using the other plural markers /an/ /ان/, /in/ /ین/, /at/ /ات/, and irregular plurals in the oral production. However, in written production, the plural marker /an/ /ان/, which is the formal plural marker in Persian, is used by HSs. Some Arabic loan plural markers are used sporadically in written production. HSs use some new forms of plurals that are unique to the Persian heritage variety and are not used in the monolingual variety.

Overall, child and adult HSs’ production of light verb and plural markers are in harmony with each other. They show similarities to monolingual varieties; however, they have unique forms in their variety as well.

GJT/C results also confirm the harmony in production because they show that child and adult HSs judge the grammaticality of light verb construction exactly the same, and they judge the grammaticality of plural formation similarly. Nonetheless, GJT/C results indicate that HSs do

not accept some Arabic loan plural markers and irregular forms as correct grammatical forms in their language system.

SVA results show that HSs' oral and written production have significant differences. Results reveal that in oral production, HSs use singular verbs predominantly for inanimate plural subjects, whereas in written production, they use either singular or plural verbs for inanimate plural subjects. Moreover, results show that SVA in the Persian HL system is constrained by some special parameters that are different from the other varieties.

GJT/C results reveal that adult and child HSs judge the grammaticality of SVA almost in the same way. However, interestingly, adults have accepted more singular and fewer plural verbs as correct, grammatical forms compared with children. Additionally, HSs' judgment of SVA for inanimate plural subjects is in harmony with their production.

Overall, the results of the data analysis of HSs' production and judgment of light verb constructions, plural formation, and SVA suggest that Persian HSs in the United States have a fully functioning variety of Persian. Results suggest that HSs' variety of Persian is a distinct system that has unique features different from the monolingual varieties. Consistency in production and judgment and the systematicity of the production of unique forms make HSs' variety a fully functioning language system.



## **Chapter Five: Discussion**

In this chapter, first, the results regarding the research questions and hypotheses will be discussed to see how the results answer and account for the research questions and whether they support the research hypotheses, and then, the important findings will be explained. To recapitulate, this study aimed at investigating the acquisition of Persian (Farsi), as an independent variety in the United States. To investigate the special features of Persian/ Farsi HSs' acquisition and describe their variety, this study focused on the acquisition of nominal morphology, represented by plural formation, verbal morphology, represented by light verb constructions, and morpho-syntax, represented by SVA in Persian/ Farsi by HSs. The special features of the language system of Persian HSs in the United States will be presented in this chapter. More specifically, a discussion of results regarding research questions and hypotheses is presented in section 5.1, and in sections 5.1.1 to 5.1.7, a discussion of results regarding the first to seventh research questions and hypotheses will be provided. In section 5.2, the reasons why Persian HSs use /ha/ /ها-/ significantly more than other plurals will be discussed. Section 5.3 delineates the new and innovative plural markers produced by Persian HSs. Zero plural morpheme cases will be explained in section 5.4. The constraints affecting SVA in the Persian HL system will be discussed in section 5.5, and the discussion of the optionality of SVA regarding the language Modality (Oral vs. Written) and the tense will be provided in section 5.5.1. Poverty-of-Stimulus evidence in the acquisition of Persian HL will be discussed in section 5.6. Following that, in section 5.7., differences in the oral and written production and the appearance of some plural markers in the written production will be presented. Moreover, in section 5.8, the production of child and adult HSs will be compared. Additionally, in section 5.9, a concluding summary of the evident features of the systematicity of Persian HL will be

provided, and finally, section 5.10 is a comprehensive discussion of the systematicity in the acquisition of Persian (Farsi) HL.

## **5.1 Discussion of Results Regarding Research Questions and Hypotheses**

To recapitulate, in a series of production and judgment experiments, the main questions of this study were formulated as follows:

Q1: How does the HL system of Persian (Farsi) HSs differ from the baseline language of their caregivers as speakers of other varieties?

Q2: Is there any systematicity in using light verb constructions, plural formation, and SVA by HSs?

Q3: Are there any innovative forms in producing light verb constructions, plural formation, and SVA by HSs?

Q4: Is there an implicational hierarchy in the acquisition of plural markers by HSs?

Q5: Do HSs use any Arabic loan plural markers in their language system?

Q6: Does the HL system of Persian (Farsi) HSs follow the SVA rules of Modern Standard Persian or the SVA rules of Classic Persian similar to many colloquial dialects?

The following hypotheses were formulated based on the research questions.

H1: Persian HSs' language system is simply an independent variety of Persian, which is as systematic and productive as the baseline language of their caregivers who are speakers of other varieties.

H2: There is systematicity in using light verb constructions, plural formation, and SVA by HSs.

H3: There are some innovative forms in producing light verb constructions, plural formation, and SVA by HSs.

H4: There is an implicational hierarchy in the acquisition of plural markers by HSs.

H5: HSs use fewer Arabic loan plural markers than their monolingually raised counterparts.

H6: The HL system of Persian (Farsi) HSs follows the SVA rules of Classic Persian similar to many colloquial dialects, meaning that SVA for the inanimate plural subjects is not optional.

The obtained results could answer the research questions, which formed the main impetus for this study. However, as a matter of fact, the interaction of two different linguistic systems of Persian HSs, namely Persian and English, and the optionality of multiple grammars of these two language systems have created a distinct language variety with special features and patterns, which will be discussed in detail in the following sections.

#### *5.1.1 Discussion of Results Regarding the First Research Question and Hypothesis*

The first question of this study was how the HL system of Persian (Farsi) HSs differs from the baseline language of their caregivers as speakers of other varieties, and regarding this question, the following hypothesis was formulated: “Persian HSs’ language system is simply an independent variety of Persian, which is as systematic and productive as the baseline language of their caregivers as speakers of other varieties”.

Regarding H1, results indicated that in using the light verbs, plural markers, and SVA in the oral production, HSs evidenced similarities and differences to the baseline language of their parents and caregivers as the representatives of other varieties of Persian, mainly the “Tehrani” dialect which is the parents’ dominant dialect and the closest dialect to MSP. For example, they use light verbs in most cases (82.81%) similar to other varieties. This part of the results indicates that simply, Persian HSs are native speakers of Persian similar to any other varieties and supports H1. In addition, the explanation for using /kæɪdæn/ (i.e., do/make) instead of other light verbs might be due to the effect of the interaction or cross-linguistic influence of the two linguistic systems, namely Persian and English. Since many light verb constructions in English are made with do/make (e.g., do the laundry, make a call, etc.), it might be a probable explanation that Persian HSs transfer this to Persian as a preference when they have other alternatives to choose from.

Moreover, Persian HSs evidenced some features which are specific to their linguistic system. For example, they use /goftæn/ (i.e., tell) instead of /kæɪdæn/ (i.e., do) in /ʃuxi goftæn/ instead of /ʃuxi kæɪdæn/ (i.e., kidding/joking), or they use /dadæn/ (i.e., give) instead of /kæɪdæn/ (i.e., do) in /sæbɪ dadæn/ instead of /sæbɪ kæɪdæn/ (i.e., to wait). Sometimes, they use different pre-verbal elements. For example, /hæmmam gereftæn/ (i.e., bathe) instead of /duʃ gereftæn/ (i.e., take a shower). Different aspects of these cases need to be explained. This finding provides support for H1 by bringing evidence that the linguistic system of Persian HSs has its unique features as a fully functioning variety. Nonetheless, to support that this variation is natural, and is evidenced in other colloquial varieties, we can look at examples of other varieties of Persian with similar features. For instance, speakers of some Persian varieties in Khorasan Province, use the light verb /ɪæft/ (i.e., went) instead of /ʃod/ (i.e., got), meaning they use

/tæmam ɹæft/ instead of /tæmam ʃod/ for “was finished”. Also, based on my personal observation, similar cases could be found in the process of language acquisition of monolingual Persian speaking children. Therefore, similar cases can be found among monolingual native speakers as well, and participants’ tokens are as natural as monolingual speakers’ instances in other varieties. Persian HSs select different light verbs or pre-verbal elements due to the optionality, and their constructions are grammatical. Furthermore, Persian HSs demonstrated special types of light verb constructions in their variety which are innovative constructions of combining actual English words with Persian light verbs. For example, the combination of English words with the verb /kæɪdæn/ (e.g., /keɪ kæɪdæn/ (i.e., to care), /weɪt kæɪdæn/ (i.e., to wait), etc. Exposure to another linguistic system and its repertoire of vocabulary is an explanation of this finding. In addition, this finding lends support to the proposal that Persian HSs’ linguistic system is an independent variety with unique features. It is worth mentioning that these are not code-mixing examples due to not knowing the exact light verbs because after checking HSs on these instances, they did know the usual forms in Persian, but it seems that they coin these light verbs innovatively and productively simply because they have access to another resource that speakers of other varieties do not. Besides, using these innovative patterns, they create a sort of in-group identity with other HSs from different sections of the heritage speaker continuum. One reason mentioned by HSs themselves is that they believe it is cooler and even more prestigious to use these forms.

The results of the written data showed that similar to monolingual Persian speakers inside Iran, Persian HSs in the written production, try to use more formal plural markers, including /ən/ /ن/ (22.35%), /ət/ /ت/ (17.78%), and the irregular type (4.5%) and fewer colloquial/neutral plural marker /ha/ /ها/ (41.29%). This part of the results of the written data brings evidence for

the similarity of the variety of Persian HL with other varieties, which supports H1. Also, results revealed that child HSs did not use the Arabic plural marker /in/ /ین/, and it seems that they are not even aware of it, and adult HSs produced only 2.4% of the Arabic plural marker /in/ /ین/.

The explanation for these findings has different aspects. First, the fact that HSs similar to other monolingual speakers produce different forms in the oral and written modalities of production reveals an important fact that HSs have an advanced and complex linguistic system that behaves differently in the oral and written modes. Considering the fact that these HSs in the minority context with limitations in schooling and formal education, still have learned the literacy and formal mode of their HL is remarkable. Second, the fact that in the written production, Persian HSs produced some plural markers of the formal register of the diglossic context of Persian in Iran and fewer colloquial/neutral plural markers show that similar to the monolingual speakers, Persian HSs use two different oral and written modes systematically and productively. Third, these findings indicate that they are aware of these formal plural markers, meaning that they have the knowledge of these forms in their competence; however, they use them selectively in their performance due to different modalities, namely oral/written, exposure, and literacy. In other words, since Persian HSs are not in the diglossic context of Iran, the formal MSP which is used in schools, offices, and formal settings is not very practical for them. Therefore, even though HSs are aware of the formal modality in MSP, they do not use them as often as monolinguals use them. In other words, they have picked a few formal forms selectively to make their own written modality. Additionally, the reduced percentage of the use of the common colloquial plural marker /ha/ /ها/ in the written production (41.29%) compared with the oral production (95.26%) supports that HSs have two different modalities, namely oral/written in their production, and modality drives this use.

Overall, the comparison of the oral and written productions for the plural markers showed that HSs' language system is very similar to the baseline language of their parents and caregivers as the representatives of other varieties of Persian, mainly the "Tehrani" dialect which is the parents' dominant dialect and the closest dialect to MSP. Moreover, the performance of Persian HSs in oral and written modalities indicates that similar to other Persian colloquial varieties, HSs' variety has also some unique features, which make it very distinct from the MSP in a way that they could be considered two different linguistic systems.

The most interesting part of the written production of the plural markers by Persian HSs was the creative invention of the new plural forms. Results indicate that HSs use some innovative plural forms which are special to their variety (see section 4.4. for the examples). These innovations bring evidence for HSs' variety as a systematic and independent variety and support H1, H2, and H3.

The results of the GJT/C showed that adult and child HSs judge the light verbs exactly the same, and they judge the plural formation very similarly. This finding supports H1.

SVA results show that HSs' oral and written production have significant differences the same as the baseline language of their parents and caregivers. These data also provide support for H1. Results reveal that in oral production, HSs use singular verbs predominantly (91.96%) for inanimate plural subjects, whereas in written production, they use either singular or plural verbs (43.41% singular and 56.57% plural) for inanimate plural subjects. These data also support H1.

The results of the GJT/C also indicate that HSs judge 75% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have singular verbs, whereas they judge 25% of the sentences with an inanimate plural subject as correct,

grammatical sentences when they have plural verbs. These results provide support for H1. Moreover, results show that SVA in the Persian HL system is constrained by some special parameters that are different from the other varieties and as a result, support H (see section 5.5 for details).

An interesting finding of the data analysis of SVA in the HSs' language system, which supports H1, was that the plural verbs that they use for SVA in the past tense in written form have a special form, which is neither CP nor MSP. The CP form is (verb + zero plural), and the MSP form is (verb + /ænd/), while HSs use (verb + /æn/), which is neither CP nor MSP. This shows that in addition to the similarities of the Persian HL with the baseline language of their caregivers, it has its unique features, which show systematicity, productivity, and independence and consequently provide support for H1 (see section 5.5 for details).

Additionally, SVA is not purely syntactic or purely semantic. It is a constraint-based process that is a combination of morphosyntax and morphosemantics, in which multiple cues are integrated into the production of agreement. It means that SVA is constrained by some special parameters. The morphosyntax and morphosemantics interaction is an evident feature of the complexity of the HL system, which lends support to H1, H2, & H3. Some of the constraints are the type of the verb and the thematic role it assigns to its subject, verb tense, the conceptualization of the entities of the subject noun (as a unit or as individuals), and the effect of possessive structures (see section 5.5 for details).

Therefore, the results of the data analysis of the oral and written production of SVA as well as the results of the GJT/C of SVA by HSs indicate some unique features in the acquisition of SVA by HSs, including having their own special patterns of SVA in oral and written



production similar to the baseline language of their parents and caregivers as the representatives of other varieties of Persian and hence, supporting H1, H2, & H3.

Overall, the results of the data analysis of the GJT/C as well as the results of the oral and written production of light verb constructions, plural formation, and SVA have provided evident examples of productivity, systematicity, and complexity, supporting the first hypothesis that Persian HSs' language system is simply a distinct variety of Persian, which is as systematic, productive, and complex as the baseline language of their caregivers as speakers of other varieties of Persian, mainly the "Tehrani" dialect which is the parents' dominant dialect and the closest dialect to MSP.

#### *5.1.2 Discussion of Results Regarding the Second Research Question and Hypothesis*

The second question of this study was whether there is any systematicity in using light verb constructions, plural formation, and SVA by HSs, and regarding this question, the following hypothesis was formulated: "There is systematicity in using light verb constructions, plural formation, and SVA by HSs."

Regarding H2, results indicated that there are evident features and examples, showing systematicity in using the light verbs, plural markers, and SVA in the HSs' production. In the following, some of these features and examples are provided.

One of the examples of the systematicity of the HL system is in the production of light verb constructions by Persian HSs. They demonstrated special types of light verb constructions in their variety which are innovative constructions and are made by combining actual English words with Persian light verbs. For example, the combination of English words with the Persian light verb /kæɪdæn/ (i.e., do/make), (e.g., /keɪ kæɪdæn/ (i.e., to care), /weɪt kæɪdæn/ (i.e., to wait)

and the combination of English words with the Persian light verb /budæn/ (i.e., to be) in (/izi going budæn/ (i.e., to be easy-going), etc. The interesting point that shows the systematicity of this type of construction is that if HSs overuse a light verb for making these constructions, they either use /kæɪdæn/ (i.e., do/make) or /budæn/ (i.e., to be), rather than other light verbs. Also, whether they use /kæɪdæn/ (i.e., do/make) or /budæn/ (i.e., to be) depends on the parts of speech of the English word that they use for making these constructions, meaning that if the English word, being used in these constructions is a verb such as care, wait, handle, manage, and so forth, they use the light verb /kæɪdæn/ (i.e., do/make), while if the English word, being used in these constructions is an adjective such as easy going, care free, on time, busy, and so forth, they use the light verb /budæn/ (i.e., to be). Also, in these new innovative light verb constructions, English words are always used as preverbal elements, followed by Persian light verbs, but never in the opposite order. Moreover, English words are used either with the exact English pronunciation or a Persianized pronunciation.

Some of the examples are as follows:

*1. Care kardan*

care do- INF

‘To care’

*2. Wait kardan*

wait do- INF

‘To wait’

3. *Handle kardan*

handle do- INF

‘To handle’

4. *Manage kardan*

manage do- INF

‘To manage’

5. *Easy going budan*

easy going be- INF

‘To be easy going’

6. *Carefree budan*

carefree be- INF

‘To be carefree’

7. *On-time budan*

on time be- INF

‘To be on time’

8. *Busy budan*

busy be- INF

‘To be busy’

Some individual examples have been provided in Table 5.1.

Table 5.1 Individuals' Examples of Innovative Light Verb Constructions

<b>Examples of light verb constructions (English words + Persian Light Verbs)</b>			
<i>Care kardan</i>	<i>Manage kardan</i>	<i>Carefree budan</i>	<i>Busy budan</i>
care do- INF	manage do- INF	carefree be- INF	busy be- INF
'To care'	'To manage'	'To be carefree'	'To be busy'

Exposure to another linguistic system and its repertoire of vocabulary is an explanation of this finding. In addition, this finding lends support to the proposal that Persian HSs' linguistic system is an independent variety with unique features. It is worth mentioning that these are not code-mixing examples due to not knowing the exact light verbs because after checking HSs on these instances, they did know the usual forms in Persian, but it seems that they coin these light verbs innovatively and productively simply because they have access to another resource that speakers of other varieties do not. This finding supports H2 and H3.

Other examples of systematicity of the HL system are in the production of plural formation by Persian HSs. For example, the most interesting part of the written production of the plural markers by Persian HSs was the creative invention of the new plural forms. Results indicate that HSs use some innovative plural forms which are special to their variety. These innovations provide evidence for HSs' variety as a systematic and fully functioning variety and hence, supporting H1, H2, and H3.

These systematic and innovative plural forms are made by a combination of a plural marker with some nouns which are not usually used by monolinguals. Some of the examples are as follows:

<i>9. hokm-an</i>	<i>instead of æhkam</i>	<i>or hokm-ha</i>
religious mandate- PL	religious mandate-IR/Broken PL	religious mandate- PL

‘Religious mandates’

<i>10. moqaddas-an</i>	<i>instead of moqaddas-at</i>
scred thing- PL	sacred thing- PL

‘Sacred things’

<i>11. masoul-at</i>	<i>instead of masoul-an</i>
official- PL	official- PL

‘Officials’

<i>12. moʃkel-an</i>	<i>instead of moʃkel-at</i>
difficulty- PL	Difficulty- PL

‘Difficulties’

<i>13. dʒomæʎ -an</i>	<i>instead of dʒomæʎ -at</i>
sentence- PL	sentence- PL

‘Sentences’

These examples have been shown in the following tables.

Table 5.2 Individuals' Examples of Innovative Plural Forms

HL	Other Varieties		
<i>Hokm-an</i>	<i>æhkam</i>	<i>or</i>	<i>hokm-ha</i>
religious mandate- PL	religious mandate-IRPL		religious mandate- PL
'Religious mandates'	'Religious mandates'		

Table 5.3 Individuals' Examples of Innovative Plural Forms

HL	Other Varieties
<i>moqaddas-an</i>	<i>moqaddas-at</i>
sacred thing- PL	sacred thing- PL
'Sacred things'	'Sacred things'

Table 5.4 Individuals' Examples of Innovative Plural Forms

HL	Other Varieties
<i>masoul-at</i>	<i>masoul-an</i>
official- PL	official- PL
'Officials'	'Officials'

Table 5.5 Individuals' Examples of Innovative Plural Forms

HL	Other Varieties
<i>moʃkel-an</i>	<i>moʃkel-at</i>
difficulty- PL	Difficulty- PL
'Difficulties'	'Difficulties'

Table 5.6 Individuals' Examples of Innovative Plural Forms

HL	Other Varieties
<i>d̥ʒomæɫ -an</i>	<i>d̥ʒomæɫ -at</i>
sentence- PL	sentence- PL
'Sentences'	'Sentences'

Another type of the new forms of plurals by the participants was using zero plural morpheme for some words. Some of the examples are as follows:

1. *mahi* instead of *mahi-ha*

fish- ØPL      fish- PL

'Fish'

2. *kampyuter* instead of *kampyuter-ha*

computer- ØPL      computer-PL

'Computers'

3. *etelaʔ* instead of *etelaʔ-at*

information- ØPL      information-PL

'Pieces of Information'



These examples have been shown in Tables 5.7, 5.8, and 5.9

Table 5.7 Individuals' Examples of Zero Plural Forms (/mahi/)

<b>HL</b>	<b>Other Varieties</b>
<i>mahi</i>	<i>mahi-ha</i>
fish- <b>ØPL</b>	fish- <b>PL</b>
'Fish'	'Fish'

Table 5.8 Individuals' Examples of Zero Plural Forms (/kampyuter/)

<b>HL</b>	<b>Other Varieties</b>
<i>kampyuter</i>	<i>kampyuter-ha</i>
computer- <b>ØPL</b>	computer- <b>PL</b>
'Computers'	'Computers'

Table 5.9 Individuals' Examples of Zero Plural Forms (/etelaʔ/)

HL	Other Varieties
etelaʔ	etelaʔ- <b>at</b>
information- <b>ØPL</b>	information- <b>PL</b>
'Pieces of information'	'Pieces of information'

Furthermore, plural formation and using different plural markers is rule-governed and systematic in the Persian HL system, meaning that there is an implicational hierarchy in using the plural markers and hence, supporting H2 & H4. For example, if HSs have only one type of plural marker, it is always /-ha/ /ها-/ which is the most common Persian plural marker; however, if they have two types of plural markers, one is /-ha/ /ها-/ , and the other type is their new plural forms. If they have three types of the plural markers, one is /-ha/ /ها-/ , and the other ones are /-an/ /ان-/ and their new plural forms, while if they have four types of the plural markers, they have /-ha/ /ها-/ , /-an/ /ان-/ , /-at/ /ات-/ , and the new forms. Finally, if they have five types of the plural markers, they have /-ha/ /ها-/ , /-an/ /ان-/ , /-at/ /ات-/ , the new forms, and the irregular forms. Additionally, Persian HSs do not use the more formal Persian plural marker /-an/ /ان-/ in oral production, and they do not use the Arabic loan plural markers /-in/ /ین-/ and /-at/ /ات-/ in the oral production. Also, they do not use the Arabic loan plural marker /-in/ /ین-/ in the written production.

The results of GJT/C by HSs revealed that 86.36% of child HSs' judgment of the light verbs was monolingual-like, and only 13.63% of their judgment of the light verbs was different

from monolinguals. Also, 92.50% of HSs' judgment of the plural markers was monolingual-like, and only 7.50% of their judgment of the light verbs was different from monolinguals. Similarly, the results revealed that 86.36% of adult HSs' judgment of the light verbs was monolingual-like, and only 13.63% of their judgment of the light verbs was different from monolinguals. Also, 77.50% of adult HSs' judgment of the plural markers was monolingual-like, and 22.50% of their judgment of the plurals was different from monolinguals. The GJT/C was utilized as corroborative evidence to support the production results and brings more evidence for the consistency of performance intra-individual and inter individual HSs as well as across the HL continuum. Results of the GJT/C support H2.

Also, SVA results show evident examples of systematicity in HSs' production, which support H2 as well. Results indicated that HSs' production in oral and written modalities has systematic differences the same as the baseline language of their parents and caregivers. Results reveal that in oral production, HSs use singular verbs predominantly (91.96%) for inanimate plural subjects, whereas in written production, they use either singular or plural verbs (43.41% singular and 56.57% plural) for inanimate plural subjects. Therefore, the Persian HL is a rule-governed system, which has two modalities, and even further, every modality has its own rules.

Moreover, results show that SVA in the Persian HL system is constrained by some special parameters that are different from the other varieties, and as a result, they support H1 & H2. (See section 5.5 for details).

Also, the results of the GJT/C support the consistency and systematicity of HSs' production of SVA. Results confirm that child and adult HSs judge the grammaticality of SVA consistently and systematically. Children judge 72.5% of the sentences with an inanimate plural

subject as correct, grammatical sentences when they have singular verbs, whereas they judge 27.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have plural verbs. Likewise, results show that adults judge 77.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have singular verbs, whereas they judge 22.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have plural verbs. Overall, it could be seen that adults and children judge the grammaticality of SVA almost in the same way. Additionally, children's and adults' judgment of SVA for inanimate plural subjects is in harmony with their production. It can also be seen that their judgment is influenced by both oral and written productions, meaning that the majority of the sentences that they judged as grammatical were the ones that followed the SVA rule in their oral production; however, they have judged some sentences as grammatical ones that followed the SVA rule in their written production.

Overall, the results of the data analysis of the GJT/C as well as the results of the oral and written production of light verb constructions, plural formation, and SVA have provided evident examples of systematicity supporting the second hypothesis that there is systematicity in using light verb constructions, plural formation, and SVA by HSs.

### *5.1.3 Discussion of Results Regarding the Third Research Question and Hypothesis*

The third question of this study was whether there are any innovative forms in producing light verb constructions, plural formation, and SVA by HSs, and regarding this question, the following hypothesis was formulated: "There are some innovative forms in producing light verb constructions, plural formation, and SVA by HSs."

Regarding H3, results indicated that there are evident features and examples, showing productivity and innovation in producing light verb constructions, plural formation, and SVA by HSs. Some of the examples are as follows:

Persian HSs demonstrated special types of light verb constructions in their variety which are both systematic and innovative constructions of combining actual English words with Persian light verbs. In section 5.1.2, the systematicity of these constructions was addressed. In this section, the innovative features of these constructions are highlighted. What is innovative about these types of light verb constructions is that they do not follow the rules of the Persian variety of the baseline language of their caregivers, but they are made by utilizing the parts of speech of two different language systems of HSs, namely Persian and English innovatively. This finding supports H3. For example, the combination of English verbs such as *care* and *wait* with the Persian light verb /kæɪdæn/ (i.e., *do/make*), (e.g., /keɪ kæɪdæn/ (i.e., *to care*), /weɪt kæɪdæn/ (i.e., *to wait*) and the combination of English adjectives such as *easy going* with the Persian light verb /budæn/ (i.e., *to be*) in (/izi going budæn/ (i.e., *to be easy-going*), etc.

The other interesting point that shows innovation and supports H3 is that in Persian, these light verb constructions consist of a preverbal element, usually, a noun or adjective, followed by a light verb such as ‘do’ or ‘make’; however, in Persian HL variety, HSs innovatively make light verb constructions that consist of English verbs or adjectives as the preverbal element followed by the Persian light verbs. It is noteworthy that the only Persian light verbs that are used are /kæɪdæn/ (i.e., *do/make*) or /budæn/ (i.e., *to be*), and other light verbs are not used.

Some of the examples are as follows:

4. *Care kardan*

care do- INF

‘To care’

5. *Wait kardan*

wait do- INF

‘To wait’

6. *Handle kardan*

handle do- INF

‘To handle’

7. *Manage kardan*

manage do- INF

‘To manage’

8. *Easy going budan*

easy going be- INF

‘To be easy going’

9. *Carefree budan*

carefree be- INF

‘To be carefree’

10. *On-time budan*

on time be- INF

‘To be on time’

11. *Busy budan*

busy be- INF

‘To be busy’

The exposure to another linguistic system and its repertoire of vocabulary and the cross-linguistic influence of English as the dominant language of the sociolinguistic context is an explanation of this finding. As it has been previously mentioned, these combinations are not code-mixing examples due to not knowing the exact light verbs because after checking HSs on these instances, they did know the usual forms in Persian, but they are innovative and systematic light verb constructions that HSs produce simply because they have access to another resource that speakers of other varieties do not. These data support H2 and H3.

Regarding the innovation in plural formation, results demonstrated some examples of innovation in the written production of the plural markers. In section 5.1.2, the systematicity of these innovative plural forms was addressed. In this section, the innovative features of these plural forms are highlighted. Perhaps, the most interesting part of the written production of the

plural markers by Persian HSs was the creative invention of the new plural forms such as /hokm-an/ (i.e., religious mandates), /moʃkel-an/ (i.e., difficulties), etc. What is innovative about these types of plurals is that these innovative plural forms are made by adding some plural markers to the nouns that are not usually used together in other monolingual varieties. Besides, these plural forms are special to HSs' variety and are not found in the baseline Persian language of their caregivers, which provides support for H1, H2, and H3. Similar examples could be found in some monolingual varieties and the process of language acquisition by monolingual children. Some examples are as follows:

<i>12. hokm-an</i>	<i>instead of æhkam</i>	<i>or hokm-ha</i>
religious mandate-PL	religious mandate-IR/Broken PL	religious mandate-PL

PL

‘Religious mandates’

<i>13. moqaddas-an</i>	<i>instead of moqaddas-at</i>
sacred thing- PL	sacred thing- PL

‘Sacred things’

*14. masoul-at instead of masoul-an*

official- PL	official- PL
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‘Officials’



15. *moʃkel-an*      *instead of*   *moʃkel-at*

difficulty- PL

difficulty- PL

‘Difficulties’

16. *ḏʒomæɫ -an*      *instead of*   *ḏʒomæɫ -at*

sentence- PL

sentence- PL

‘Sentences’

Regarding the innovation in SVA, results showed some examples of innovation in the written production of SVA. In section 5.1.2, the systematicity of these innovative patterns was demonstrated via examples. In this section, the innovative features of these patterns are highlighted. An interesting finding of the data analysis of SVA in the HSs’ language system was that the plural verbs that they use for SVA in the past tense in written form have a special form, which is neither CP nor MSP. What is innovative about these forms is that these forms are new and unique to HSs, and they cannot be found in other Persian varieties. The CP form is (verb + zero plural), and the MSP form is (verb + /ænd/), while HSs use (verb + /æn/), which is neither CP nor MSP. This shows that the Persian HL system is a dynamic system that has developed independently with its unique features yet has kept dynamic interaction with other language systems. This finding supports H3.

Overall, the results of the data analysis of the oral and written production of light verb constructions, plural formation, and SVA have provided evident examples of innovation supporting the third hypothesis that there are some innovative forms in producing light verb constructions, plural formation, and SVA by HSs.

#### *5.1.4 Discussion of Results Regarding the Fourth Research Question and Hypothesis*

The fourth question of this study was whether there is an implicational hierarchy in the acquisition of plural markers by HSs, and regarding this question, the following hypothesis was formulated: “There is an implicational hierarchy in the acquisition of plural markers by HSs.”

Regarding H4, results indicated that there are evident features and examples, showing that there is an implicational hierarchy in the acquisition of plural markers by HSs. Some of the examples are as follows:

Persian HSs produced /ha/ /ها/ significantly (95.26%) more than other types of plurals in oral production, which supports H4 & H5. Also, if HSs have only one type of plural marker, it is always /-ha/ /ها-/ which is the most common Persian plural marker; however, if they have two types of plural markers, one is /-ha/ /ها-/ , and the other type is their new plural forms. If they have three types of the plural markers, one is /-ha/ /ها-/ , and the other ones are /-an/ /ان-/ and their new plural forms, while if they have four types of the plural markers, they have /-ha/ /ها-/ , /-an/ /ان-/ , /-at/ /ات-/ , and the new forms. Finally, if they have five types of the plural markers, they have /-ha/ /ها-/ , /-an/ /ان-/ , /-at/ /ات-/ , the new forms, and the irregular forms. Additionally, Persian HSs do not use the more formal Persian plural marker /-an/ /ان-/ in oral production, and they do not use the Arabic loan plural markers /-in/ /ين-/ and /-at/ /ات-/ in the oral production. Also, they do not use the Arabic loan plural marker /-in/ /ين-/ in the written production. Therefore, all the aforementioned patterns of using plural markers in the HL system support the fourth hypothesis by indicating that there is an implicational hierarchy in the acquisition of plural markers by HSs. The implicational hierarchy for the plural markers in this variety is as follows:

Table 5.10 Implicational Hierarchy of Plural Markers in the Grammar of Persian HSs

	/-ha/	New forms	/-an/	/-at/	Irregular forms	/-in/
<b>5 plural markers</b>	+	+	+	+	+	-
<b>4 plural markers</b>	+	+	+	+	-	-
<b>3 plural markers</b>	+	+	+	-	-	-
<b>2 plural markers</b>	+	+	-	-	-	-
<b>1 plural marker</b>	+	-	-	-	-	-

#### 5.1.5 Discussion of Results Regarding the Fifth Research Question and Hypothesis

The fifth question of this study was whether HSs use any Arabic loan plural markers in their language system, and regarding this question, the following hypothesis was formulated: “HSs use fewer Arabic loan plural markers than their monolingually raised counterparts.”

Regarding H5, results showed that HSs do not use as many Arabic loan plural markers as monolinguals. Also, they use Arabic loan plural markers very infrequently. Results that provide support for this hypothesis are as follows:

Persian HSs produced /ha/ /هـ-/ significantly (95.26%) more than other types of plurals in oral production. This finding supports H4 & H5.

Also, results revealed that child HSs did not use the Arabic plural marker /-in/ /ين-/ , and it seems that they are not even aware of it, and the Arabic plural marker /-in/ /ين-/ constitutes only 2.4% of adult HSs’ plural formation, which supports H5.

The absence of the plural marker /in/ /ین-/ in the written production of Persian HSs shows that they have reduced the number of Arabic plural markers in their variety, and therefore, it supports H5. It is worth mentioning that this plural marker in Iran is also losing its place as a plural marker these days, and it is suggested by Persian grammarians on the public website for schools in Iran ([http://newsschool.irna.ir/fa/c1\\_212/](http://newsschool.irna.ir/fa/c1_212/)) to use the Persian plural marker /-an/ /ان-/ instead of this Arabic plural marker /-in/ /ین-, and this kind of plural is used by mistake by some monolinguals because it is basically an ungrammatical form of plural. To elaborate more, in the process of borrowing as a word-formation process in every language, when a word is borrowed and used as a loan word, only the loan word is used in the target language, but not the source grammar. For instance, when the word /telephone/ is used as a loan word from English in Persian, the plural form is /telephone-ha/ based on the Persian plural formation rules, and Persian speakers do not use the English plural form /telephones/ in their language. Likewise, when the word /pajamas/ (originally, /pajame/ or /pyjame/) is used as a loan word from Persian in English, the plural form /pajamas/ has been formed based on the English plural formation rules, and English speakers do not use the Persian plural form /pyjameh-ha/ in their language. Therefore, using Arabic loan words with the Arabic loan plural marker in Persian is ungrammatical. In the following examples, the plural forms with the Persian plural marker /-an/ /ان-/ are judged grammatical, while the plural forms with the Arabic plural marker /-in/ /ین-/ are judged ungrammatical in the Persian grammar by grammarians; however, some monolingual Persian speakers judge them as correct grammatical forms. The examples are as follows:

*17. mosafar-an*

passenger-PL

‘Passengers’

18. *\*mosafer-in*  
passenger-PL  
'Passengers'
19. *moalem-an*  
teacher-PL  
'Teachers'
20. *\*moalem-in*  
teacher-PL  
'Teachers'
21. *mokhtare-an*  
inventor-PL  
'Inventors'
22. *\*mokhtare-in*  
inventor-PL  
'Inventors'
23. *motarjem-an*  
translator-PL  
'Translators'
24. *\*motarjem-in*  
translator-PL  
'Translators'

Overall, results of the plural formation in oral and written production by HSs support the fifth hypothesis by showing that, HSs use fewer Arabic loan plural markers than their monolingually raised counterparts.

#### *5.1.6 Discussion of Results Regarding the Sixth Research Question and Hypothesis*

The sixth question of this study was whether the HL system of Persian (Farsi) HSs follows the SVA rules of MSP or the SVA rules of CP similar to many colloquial dialects, and regarding this question, the following hypothesis was formulated: “The HL system of Persian (Farsi) HSs follows the SVA rules of CP similar to many other colloquial dialects, meaning that SVA for the inanimate plural subjects is not optional.”

Regarding H6, results showed interesting findings that HSs SVA is modality-constrained, meaning that it changes in oral and written production. In oral modality, HSs’ SVA rules are the same as CP similar to many other colloquial dialects, meaning that SVA for the inanimate plural subjects is not optional, and HSs use singular verbs predominantly for the inanimate plural subjects. This finding supports H6. Nonetheless, in the written modality, HSs’ SVA rules are the same as the SVA rules of MSP, meaning that SVA is optional, and HSs use either singular or plural verbs for the inanimate plural subjects. Results that provide support for this hypothesis are as follows:

Results reveal that in oral production, HSs use singular verbs predominantly (91.96%) for inanimate plural subjects, which supports H6, whereas, in written production, they use either singular or plural verbs (43.41% singular and 56.57% plural) for inanimate plural subjects.

Also, the results of the GJT/C support the sixth hypothesis by confirming that the predominant SVA of the HL is the one that they use in their oral production. The GJT/C, which

was utilized as corroborative evidence in this study to support the other results and bring more evidence for the consistency of performance, showed that HSs' perception and judgment of the grammaticality of SVA patterns are consistent with their oral production of SVA. Results showed that Children judge 72.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have singular verbs, whereas they judge 27.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have plural verbs. Likewise, results show that adults judge 77.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have singular verbs, whereas they judge 22.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have plural verbs. Overall, it could be seen that adults and children judge the grammaticality of SVA almost in the same way. Additionally, children's and adults' judgment of SVA for inanimate plural subjects is in harmony with their production. It can also be seen that even though their judgment is influenced by both oral and written productions, the predominant accepted SVA pattern is the one based on their oral production SVA pattern, meaning that the majority of the sentences that they judged as grammatical were the ones that followed the SVA rule in their oral production, and they have judged fewer sentences as grammatical when they followed the SVA rule in their written production.

Overall, the results of the data analysis of the oral and written production as well as the results of the GJT/C support the sixth hypothesis that the HL system of Persian (Farsi) HSs follows the SVA rules of CP similar to many other colloquial dialects, meaning that SVA for the inanimate plural subjects is not optional.

## 5.2 Why Persian Heritage Speakers Use /ha/ /ه/ Significantly More than Other Plurals

Regarding the plural markers, Persian HSs produced /ha/ /ه/ significantly (95.26%) more than other types of the plurals, including /an/ /ان/, /in/ /ین/, /at/ /ات/ (0.00%), and irregular type (1.75%) in the oral production. There are two possible explanations for this finding. First, regarding why Persian HSs use /ha/ /ه/ as a plural marker considerably more than other plural markers is that /ha/ /ه/ is the most common Persian plural marker which can be used with almost every noun in Persian and every register, including formal and informal; therefore, since it would never be ungrammatical, it does not have the restrictions of other plural markers. The other explanation might be the lack of formal education in MSP for Persian HSs since the plural markers which they did not use are those that are typically used in the formal register and are learned at school.

In the majority of Persian varieties, /ha/ /ه/ is used colloquially as the dominant plural marker; however, there are a few varieties, including the “Dasht-e-bayazi” variety, a dialect in Southern Khorasan Province, that uses a colloquial version of /an/ /ان/, namely /oun/ /اون/ as the dominant plural marking.

In addition, Iran is a diglossic context, which has a high formal variety, namely MSP which is mostly a formal register influenced by Arabic loan words, and low varieties, namely colloquial dialects. Other plural markers, including /in/ /ین/, /at/ /ات/, and the irregular plurals are all borrowed plural markers from Arabic that again, Persian speakers learn at school or through religious contexts as part of the diglossic context. These Arabic plural markers are also used in special formal registers, not in colloquial varieties.



### 5.3 New and Innovative Plural Markers

The most interesting part of the written production of the plural markers by Persian HSs was the creative invention of the new plural forms. Results show that HSs use some innovative plural forms which are special to their variety. These innovative plural forms have been discussed in sections 5.1.2 and 5.1.3 to support the systematicity and innovation in the Persian HSs' language system; however, in this section, they are explained in detail, highlighting their systematicity.

These systematic and innovative plural forms are made by a combination of nouns with plural markers, which are not usually used by monolinguals, and because of this, at first glance, one might assume that these forms are sporadic mistakes in using the plural markers; however, the analysis of the data shows that they are not mistakes for the following reasons:

First, the production of these plural markers has been tested in several tasks in different forms, including picture elicitation task, direct elicitation of the plurals, short paragraph writing, as well as GJT/C. This repetition was intentional to elicit a larger variety of content. Second, there is consistency in the production of individual participants (intra-individual) as well as across participants (inter-individuals); therefore, the production is systematic. Moreover, a special pattern could be seen in their production in a way that they use /-an/ /ان-/ instead of some special Arabic irregular plurals. (e.g., /hokm-an/ instead of /æhkam/) (i.e., religious mandates), or they use /-at/ /ات-/ instead of Arabic irregular plurals. (e.g., /hezb-at/ instead of /æhzab/) (i.e., political parties), while they use the Persian plural marker /-an/ /ان-/ instead of the Arabic plural marker /-at/ /ات-/ (e.g., /moqaddas-an/ instead of /moqaddas-at/ (i.e., sacred things), and even sometimes, they use /-an/ /ان-/ and /-at/ /ات-/ interchangeably (e.g., /masoul-an/ or /masoul-at/

(i.e., the officials)). In all these cases, the opposite case does not happen, meaning that they do not use the irregular plurals instead of /-at/ /ات-/ which might be another indication of an implicational hierarchy and the order of acquisition because they show that a plural marker from the lower levels of the implicational hierarchy could be used instead of a plural marker from a higher level, but the opposite does not happen. The following examples show the hierarchy in these plural forms:

25. *hokm-an*                      *instead of* *æhkam*

religious mandate- PL              religious mandate-IR/Broken PL

‘Religious mandates’

This example indicates that a plural marker (i.e., /-an/ /ان-) from the lower level (level 3) of the implicational hierarchy is used instead of a plural marker (i.e., irregular form) from the higher level (level 5) of the implicational hierarchy.

26. *moqaddas-an*              *instead of* *moqaddas-at*

sacred thing- PL                      sacred thing- PL

‘Sacred things’

27. *moʃkel-an*              *instead of* *moʃkel-at*

difficulty- PL                          difficulty- PL

‘Difficulties’

28. *d̥ʒomæɫ -an*      *instead of*   *d̥ʒomæɫ -at*

sentence- PL

sentence- PL

‘Sentences’

These examples indicate that a plural marker (i.e., /-an/ /ان-/) from the lower level (level 3) of the implicational hierarchy is used instead of a plural marker (i.e., /-at/ /ات-/) from the higher level (level 4) of the implicational hierarchy.

29. *masoul-at* *instead of* *masoul-an*

official- PL

official- PL

‘Officials’

This example indicates that there is also a possibility of interchangeability of plural markers in the adjacent levels of the implicational hierarchy. For example, plural markers (i.e., /-an/ /ان-/ and /-at/ /ات-/) from levels 3 and 4, respectively could be used interchangeably.

This study highlights that these forms are the result of the dynamic interaction of the language systems of HSs in an “interlanguage system”. Even though “interlanguage” is a term that is usually used for the second language, if MSP is considered a different language- and it really is- compared with the colloquial dialects, then, these forms could be considered as “interlanguage” productions because HSs end up with the plural forms (i.e., /hokm-an/ or /masoulat/) which are neither found in other colloquial varieties of Persian nor in MSP. Therefore, they are special forms of an interlanguage system, which is formed by the input from HSs’ first language, namely a colloquial variety of Persian (Farsi) as their HL, and their second language, namely the MSP. It is worth mentioning that this study does not treat HL acquisition

and second language acquisition equally. Moreover, this study highlights that interlanguage is an independent system from L1 and L2; nonetheless, it has features of both L1 and L2.

#### 5.4 Using Zero Plural Morpheme Cases

Another type of the new forms of the plurals by HSs was using zero plural morpheme for some words that are used with plural morphemes in Persian. Some of the examples are as follows:

30. *mahi*                      *instead of mahi-ha*

fish- ØPL                  fish- PL

‘Fish’

31. *kampyuter*    *instead of kampyuter-ha*

computer- ØPL                  computer-PL

‘Computers’

32. *etela?*    *instead of etela?-at*

information- ØPL                  information-PL

‘Pieces of Information’

Regarding this type of production, one of the plausible explanations could be the crosslinguistic influence of English as the dominant majority language on Persian HL as the minority language. The assumption is that since the plural form of fish and information in English has zero plural morpheme, the HSs might overgeneralize the English plural form to Persian as well. Nonetheless, there was also another case of zero plural morpheme for

“computer” which could not fit this explanation. Therefore, it is assumed a special form of Persian HSs’ plural form that is different from both Persian and English.

### 5.5 Constraints Affecting SVA in the Persian HL System

In this section, the constraints influencing SVA in the Persian HL system will be discussed.

Considering both modalities, SVA in the Persian HL similar to other varieties of Persian is not purely syntactic or purely semantic. It is a constraint-based process that is a combination of morphosyntax and morphosemantics, in which multiple cues are integrated into the production of agreement and SVA is constrained by some special parameters. Some of the constraints affecting SVA in Persian that have been highlighted and almost agreed upon in the literature are the type of the verb and the thematic role it assigns to its subject and the conceptualization of the entities of the subject noun (as a unit or as individuals).

Table 5.11 Effect of Conceptualization of the Subject on SVA

Effect of conceptualization of the subject on SVA					
<i>machin-ha</i>	<i>gerun</i>	<i>bud</i>	<i>machin-ha</i>	<i>gerun</i>	<i>budan</i>
car-PL	expensive	was <b>3SG</b>	car-PL	expensive	were <b>3PL</b>
‘Cars were expensive.’			‘Cars were expensive.’		

Additionally, some other constraints that the findings of this study highlight are the modality of the language, namely oral and written or formal and informal language, and the effect of the verb tense.

Table 5.12 The Effect of Modality on the SVA of Persian HL

<b>(Oral/Informal) → Singular verb is acceptable</b>					
<i>gol-ha</i>	<i>khoshk shod-eh-∅</i>		<i>*gol-ha</i>	<i>khoshk shod-eh-an</i>	
flower-PL	dry	become-PRF.3SG	flower-PL	dry	become-PRF.3PL
‘Flowers have dried.’			‘Flowers have dried.’		

Table 5.13 The Effect of Modality on the SVA of Persian HL

<b>(Written/Formal) → SVA is optional</b>					
<i>gol-ha</i>	<i>khoshk shod-eh</i>	<i>ast</i>	<i>*gol-ha</i>	<i>khoshk shod-eh-and</i>	
flower-PL	dry	become-PRF. is3SG	flower-PL	dry	become-PRF.3PL
‘Flowers have dried.’			‘Flowers have dried.’		

In the following sections, the constraints affecting SVA in the Persian HL are discussed.

#### 5.5.1 Optionality of SVA Regarding the Language Modality (Oral vs. Written) and the Tense

Results of the data analysis showed interesting findings that HSs SVA is modality-oriented, meaning that it changes in oral and written production. In oral modality, HSs' SVA rules are the same as CP similar to many other colloquial dialects, meaning that SVA for the inanimate plural subjects is not optional, and HSs use singular verbs predominantly for the inanimate plural subjects. Nonetheless, in the written modality, HSs' SVA rules are the same as the SVA rules of MSP, meaning that SVA is optional, and HSs use either singular or plural verbs for the inanimate plural subjects.

Results reveal that in oral production, HSs use singular verbs predominantly (91.96%) for inanimate plural subjects, whereas in written production, they use either singular or plural verbs (43.41% singular and 56.57% plural) for inanimate plural subjects.

Also, the results of the GJT/C confirm that the predominant pattern of SVA of the HL is the one that they use in their oral production. The GJT/C, which was utilized as corroborative evidence in this study to support the other results and bring more evidence for the consistency of performance, showed that HSs' perception and judgment of the grammaticality of SVA patterns are consistent with their oral production of SVA. The results of the GJT/C indicate that HSs judge 75% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have singular verbs, whereas they judge 25% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have plural verbs. The following examples show how modality and tense affect the SVA of Persian HL.

33. *ketab-ha miofteh.*

book-PL fall-PRS.3SG

'Books fall.'

34. *ketab-ha mioftan.*

book-PL fall-PRS.3PL

‘Books fall.’

As it can be seen, in examples 46 and 47, which are in the present tense and from oral modality, optionality works, and either singular or plural verb is grammatical and acceptable.

35. *\*ketab-ha mioftad.*

book-PL fall-PRS.3SG

‘Books fall.’

36. *ketab-ha mioftand.*

book-PL fall-PRS.3PL

‘Books fall.’

Examples 48 and 49 are in present tense and formal. As it can be seen, optionality does not work, and the only acceptable form of the verb is the plural form.

However, in the past tense, in both oral and written modes, optionality works. This is shown in the following examples.

37. *ketab-ha oftad.*

book-PL fall-PST.3SG

‘Books fell.’

38. *ketab-ha oftadan.*



book-PL fall-PST.3PL

‘Books fell.’

As it can be seen, in examples 50 and 51, which are in the past tense and informal, optionality works, and either singular or plural verb is grammatical and acceptable.

39. *ketab-ha oftad.*

book-PL fall-PST.3SG

‘Books fell.’

40. *ketab-ha oftadand.*

book-PL fall-PST.3PL

Books fell.’

Examples 52 and 53 are in past tense and formal. As it can be seen, in the past tense, optionality works in written mode, and both singular and plural verbs are acceptable.

Table 5.14 The Effect of Modality and Tense on the SVA of Persian HL

<b>Present Simple Tense (Oral/Informal) → SVA is optional</b>	
<i>ketab-ha miofteh</i>	<i>ketab-ha mioftan.</i>
book-PL fall- <b>PRS.3SG</b>	book-PL fall- <b>PRS.3PL</b>
‘Books fall.’	‘Books fall.’

Table 5.15 The Effect of Modality and Tense on the SVA of Persian HL

<b>Present Simple Tense (Written/Formal) → SVA is not optional (Plural is acceptable)</b>	
<i>*ketab-ha mioftad.</i>	<i>ketab-ha mioftand.</i>
book-PL fall- <b>PRS.3SG</b>	book-PL fall- <b>PRS.3PL</b>
‘Books fall.’	‘Books fall.’

Table 5.16 The Effect of Modality and Tense on the SVA of Persian HL

<b>Past Simple Tense–(Oral/Informal) → SVA is optional</b>	
<i>ketab-ha oftad.</i>	<i>ketab-ha oftadan.</i>
book-PL fall- <b>PST.3SG</b>	book-PL fall- <b>PST.3PL</b>
‘Books fell.’	‘Books fell.’

Table 5.17 The Effect of Modality and Tense on the SVA of Persian HL

<b>Past Tense–(Written/Formal) → SVA is optional</b>	
<i>ketab-ha oftad.</i>	<i>ketab-ha oftadand.</i>
book-PL fall- <b>PST.3SG</b>	book-PL fall- <b>PST.3PL</b>
‘Books fell.’	‘Books fell.’

Overall, the above-mentioned examples illustrated interesting findings that HSs’ SVA is modality-constrained and tense-constrained, meaning that SVA changes in oral and written production and different tenses. In oral modality, HSs’ SVA rules are the same as CP similar to many other colloquial varieties, meaning that SVA for the inanimate plural subjects is not optional, and HSs use singular verbs predominantly for the inanimate plural subjects. Nonetheless, in the written modality, HSs’ SVA rules are the same as the SVA rules of MSP, meaning that SVA is optional, and HSs use either singular or plural verbs for the inanimate plural subjects. Moreover, the above-mentioned examples show that SVA in present and past tenses changes, namely in the oral and written modality in the past tense, SVA for inanimate plural subjects is optional, while in the present tense, in oral modality, SVA for inanimate plural subjects is optional, whereas, in written modality, just plural verbs are used for inanimate plural subjects. This is one of the interesting findings, which indicates that these constraints ended in a unique type of SVA that neither follows the SVA rules of MSP nor the SVA rules of CP. This finding has been demonstrated in Table 5.18 as follows:

Table 5.18 Unique Patterns of SVA in the Acquisition of Persian HL

	Tense	Modality	Persian HL	MSP	CP
SVA for Inanimate Plural Subjects	<i>Present Simple</i>	<i>Oral/Informal</i>	Optional (Sing./Pl. Verb)		Singular Verb
		<i>Written/Formal</i>	Plural Verb	Optional (Sing./Pl. Verb)	
	<i>Past Simple</i>	<i>Oral/Informal</i>	Optional (Sing./Pl. Verb)		Singular Verb
		<i>Written/Formal</i>	Optional (Sing./Pl. Verb)	Optional (Sing./Pl. Verb)	

## 5.6 Poverty-of-Stimulus Evidence in the Acquisition of Persian HL

In this section, first, the concept of the-poverty-of-stimulus is explained, and then, the examples of the the-poverty-of-stimulus effect in the acquisition of Persian by HSs are presented.

Linguistic knowledge that appears in the surface patterns in the absence of evidence is the logical problem of language acquisition (Chomsky, Hornstein, & Lightfoot, 1981; Schwartz & Sprouse, 2000). Therefore, even if this kind of linguistic knowledge arises only temporarily, it is considered a poverty-of-stimulus effect, meaning that neither the L1 grammar nor the L2 surface

patterns can account for some properties of the interlanguage system (Schwartz & Sprouse, 2000).

In this study, the results of the data analysis revealed novel and innovative examples in the acquisition of light-verb constructions, plural formation, and SVA by HSs. In this section, some of these examples are presented, focusing on them as the evidence for the poverty of stimulus in the acquisition of Persian HL.

One of the evident examples of innovation and novelty in the acquisition of Persian HL was using novel plural forms. Interestingly, innovative plural forms are spontaneous productions that are not derived from input sources, namely colloquial Persian, the baseline language of HSs' caregivers, and MSP; however, some of these new forms are plural forms in Balouchi (a Northwestern Indo-Iranian language).

In Balouchi, the plural is made by adding /-an/ to the end of nouns. The following examples show plural formation in Balouchi:

41. *ketab-an*

book-PL

'Books'

42. *kif-an*

bag-PL

'Bags'

Table 5.19 Plural Formation in Balouchi

Plural Formation in Balouchi	
<i>ketab-an</i>	<i>kif-an</i>
book-PL	bag-PL
‘Books’	‘Bags’

Therefore, examples, including /hokm-an/ (i.e., religious mandates), /moqaddas-an/ (i.e., sacred things), and /Jomæl-an/ (i.e., sentences) are examples of Balouchi plurals in the Persian variety of HSs without any exposure to Balouchi input.

Table 5.20 Poverty-of-stimulus Evidence from Plural Formation

HL	Balouchi	MSP	CP
<i>moʃkel-an</i>	<i>moʃkel-an</i>	<i>moʃkel-at</i>	<i>moʃkel-a</i>
difficulty- PL	difficulty- PL	difficulty- PL	difficulty- PL
‘Difficulties’	‘Difficulties’	‘Difficulties’	‘Difficulties’

The other poverty-of-stimulus example is using “computer” as zero morphemes plural form of computer. This is also a spontaneous production, which is not derived from the input

sources; however, in many inflected languages, some nouns and adjectives of foreign origin are left uninflected in contexts where native words would be inflected; for instance, the plural form for the loan word “computer” in Italian and Indonesian is “computer” which is a zero-inflection form.

Table 5.21 Poverty-of-stimulus Evidence from Plural Formation

<b>HL</b>	<b>Italian &amp; Indonesian</b>	<b>MSP</b>	<b>CP</b>
<i>kampyuter</i>	<i>kampyuter</i>	<i>kampyuter-ha</i>	<i>kampyuter-a</i>
computer- <b>ØPL</b>	computer- <b>ØPL</b>	computer- <b>PL</b>	computer- <b>PL</b>
‘Computers’	‘Computers’	‘Computers’	‘Computers’

Interestingly, innovative plural forms are spontaneous productions that are not derived from input sources, namely colloquial Persian, the baseline language of HSs’ caregivers, and MSP; however, some of these new forms are plural forms in Balouchi (a Northwestern Indo-Iranian language).

### **5.7 Differences in the oral and written production and the appearance of some plural markers in the written production**

In this section, the reasons for the differences in the oral and written production of Persian HSs are discussed.

Results showed that oral and written production of Persian HSs has significant differences in some cases, including the plural formation. Also, most of the new and novel plural forms appeared in the written production. The explanation for this discrepancy has its roots in two different facts to be considered. First, different registers, namely the oral and written production call on different vocabulary and structures, and obviously, this distinction is broader in a diglossic context, where there is an interaction between the HSs' colloquial variety and the MSP variety. Second, written production is a more controlled type of production in which the participants have more time and control over what they retrieve from their language repertoire, and therefore, it is highly monitored, whereas the oral production is spontaneous, and even when it is timed, more demanding compared with the written production. The best support for producing various types of plurals in the written compared with the oral tasks would be the psycholinguistic-based speaking model introduced by Levelt (1989) suggesting that the oral language production is a parallel-processing challenge in which the speakers' concentration is divided into at least three parts, including message generation, grammatical and phonological encoding, and articulation; therefore, there is no doubt that the oral production is more demanding in comparison with the written production.

### **5.8 Production of Adult HSs Compared with Child HSs**

In this section, the production of child and adult HSs is discussed, and important differences in their production and judgment are presented.

The production of light verb constructions and plural markers by the child and adult HSs was in harmony with each other in most cases which brings more evidence for the consistency and systematicity of their linguistic system. The consistency of the performance of adult HSs



with child HSs indicates that regardless of age differences, the general performance of HSs is relatively homogenous. This also shows that these native speakers have developed a distinct and systematic variety, which works consistently over the life span. In addition, the fact that adult HSs' production is in harmony with child HSs' production shows that the Persian heritage variety has not been attrited by time, and even, in the case of plural markers, results show that adult HSs produced innovative new forms even in their oral production, while children did not. This could be an indication that adult HSs have developed and built their own variety and use it dynamically in their daily life.

Interestingly, the results of the GJT/C, which were utilized as corroborative evidence to support the other results and bring more evidence for the consistency of performance, showed that adult and child HSs judge the light verbs exactly the same. Nonetheless, the performance of the adult HSs for plural markers might seem strange because they judged fewer sentences (77.5%) similar to monolinguals compared with children (92.5%), and they judged more sentences (22.5%) dissimilar to monolinguals compared with children (7.5%). There are some facts that need to be considered to understand this difference in the HSs' judgment. First, considering the diglossic system and Arabic loan plural markers in the written and formal modality, plural markers in MSP and colloquial varieties are very different. Some child HSs were involved in the process of studying MSP at the time of this research; however, there was a long time since adult HSs had taken their MSP classes if they ever did. Therefore, this might affect their performance. Second, because children were in the process of learning formal Persian in their Persian classes, they might have considered the formal plural markers and Arabic loan plural markers also correct similar to monolinguals who learn them at school. However, adult

HSs, who have used their own heritage variety for a longer time, considered most of their own plural markers which they use in their heritage variety as the only correct forms.

Comparing the results of SVA for inanimate plural subjects by the child and adult Persian HSs in oral production, the results are in harmony with each other. Overall, the results reveal that mostly, HSs use singular verbs for inanimate plural subjects in oral production.

Comparing the results of SVA for inanimate plural subjects by the child and adult Persian HSs in written production, the results are in harmony with each other. Overall, the results reveal that HSs use both singular and plural verbs for inanimate plural subjects in written production. Additionally, results show that in written production, the percentage of using plural verbs for inanimate plural subjects by children is higher than that of adults, whereas the percentage of using singular verbs for inanimate plural subjects by children is lower than that of adults.

Results of the GJT/C confirm that child and adult HSs judge the grammaticality of SVA consistently and systematically. Children judge 72.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have singular verbs, whereas they judge 27.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have plural verbs. Likewise, results show that adults judge 77.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have singular verbs, whereas they judge 22.5% of the sentences with an inanimate plural subject as correct, grammatical sentences when they have plural verbs. Overall, it could be seen that adults and children judge the grammaticality of SVA almost in the same way.

Interestingly, innovative plural forms are spontaneous productions that are not derived from input sources, namely colloquial Persian, the baseline language of HSs' caregivers, and

MSP; however, some of these new forms are plural forms in Balouchi (a Northwestern Indo-Iranian language).

## 5.9 The Evident Features of the Systematicity of Persian HL as an Independent Variety

In this section, a summary of the findings that provide evident features of the systematicity, productivity, and dynamism of the Persian HL is presented. This summary, which represents the characteristics of the Persian HL system, includes the findings of the oral and written production of light verb constructions, plural formation, and SVA, as well as the findings of the GJT/C. The summary of the characteristics of the Persian HL system is as follows:

Table 5.22 Summary of the Characteristics of the Persian HL System

Systematic Features	Supported Hypothesis/es
1- If HSs overuse a light verb, it is always /kæɪdæn/ (i.e., do/make), but not other light verbs.	H1
2- If they coin new innovative light verbs with a combination of English preverbal elements and Persian light verbs, the light verb is either /kæɪdæn/ (i.e., do/make) or /budæn/ (i.e., to be).	H1, H2, & H3
3- Whether they use /kæɪdæn/ (i.e., do/make) or /budæn/ (i.e., to be) depends on the parts of speech of the English preverbal word. If the English word is a verb such as care, wait, handle, manage, and so forth, they use the light verb /kæɪdæn/ (i.e., do/make), while if the English word is an adjective such as easy-going, carefree, on time, busy, and so forth, they use the light verb /budæn/ (i.e., to be).	H1, H2, & H3

4- If they coin new innovative light verb constructions, always English words are used as preverbal elements and Persian light verbs are used, but never the opposite combination. (English words are used either with the exact English pronunciation or a Persianized pronunciation.)	H1, H2, & H3
5- They use innovative light verbs in a systematic productive way in their linguistic repertoire.	H1, H2, & H3
6- If they have only one type of plural marker, it is always /-ha/ /هـ-/ which is the most common Persian plural marker.	H2 & H4
7- If they have two types of plural markers, one is /-ha/ /هـ-/, and the other type is their new plural forms.	H2 & H4
8- If they have three types of the plural markers, one is /-ha/ /هـ-/, and the other ones are /-an/ /ان-/ and their new plural forms.	H2 & H4
9- If they have four types of the plural markers, they have /-ha/ /هـ-/, /-an/ /ان-/, /-at/ /ات-/, and the new forms.	H2 & H4
10- If they have five types of the plural markers, they have /-ha/ /هـ-/, /-an/ /ان-/, /-at/ /ات-/, the new forms, and the irregular forms.	H2 & H4
11- There is an implicational hierarchy in the acquisition of plural formation by Persian HSs.	H1, H2, & H4
12- In the process of acquisition, the plural markers from lower levels of the implicational hierarchy might be used instead of the	H1, H2, & H4

<p>plural markers from the higher levels of the implicational hierarchy; however, the opposite movement does not happen.</p>	
13- In the process of acquisition, the plural markers from two adjacent levels in the implicational hierarchy might be used interchangeably.	H1, H2, & H4
14- They do not use the more formal Persian plural marker /-an/ /ان-/ in oral production.	H1 & H2
15- They do not use the Arabic loan plural markers /-in/ /ين-/ and /-at/ /ات-/ in the oral production.	H1, H2, & H5
16- They do not use the Arabic loan plural marker /-in/ /ين-/ in the written production. (The percentage of using /-in/ /ين-/ as a plural marker in the written production is too low (1.2%) to be considered as a plural marker in their variety).	H1, H2, & H5
17- They use some special innovative plural forms in the oral and written production which are not found in other varieties.	H1 & H3
18- They have two oral and written modalities.	H1 & H2
19- The SVA in the oral modality is the same as SVA in CP, while SVA in the written modality is the same as SVA in MSP.	H1, H2, & H6
20- SVA is not purely syntactic or purely semantic. It is a constraint-based process that is a combination of morphosyntax and morphosemantics, in which multiple cues are integrated into the	H1 & H2

production of agreement and SVA is constrained by some special parameters.		
21-	The morphosyntax and morphosemantics interaction is an evident feature of the complexity of the Persian HL system.	H1, H2, & H3
22-	There is consistency in the production of individual HSs (intra-individual) as well as across HSs (inter-individuals).	H1 & H2
23-	There is consistency in the production and judgment of the child and adult HSs over a life span.	H1 & H2
24-	There are evident examples of an interlanguage system of Persian colloquial varieties, MSP, and English.	H1
25-	There are examples of Poverty-of-Stimulus effects that could be indicative of direct access to UG in the acquisition of the Persian HL.	H1

Therefore, the aforementioned examples of systematicity, consistency, productivity, and dynamism describe the HSs' unique variety of Persian. These features show that the HSs' variety of Persian is an independent variety of Persian that though having much in common with other varieties of Persian, has some unique features too.

### **5.10 Discussion of the Systematicity in the Acquisition of Persian (Farsi) HL**

Now, relying on the results of this research on the acquisition of Persian (Farsi) as an HL in the United States, this study will take up the question of whether or not the Persian HSs' variety should be considered an independent variety. The answer to this question depends on different factors and the stance of the researchers on the diglossic context and the theoretical

construct of an independent, fully functioning variety of a language. The analysis of the production of HSs in this study revealed examples of innovation, productivity, systematicity, and more importantly, poverty-of-stimulus examples indicating that their heritage variety, which has developed in the context of the US, is a fully functioning variety of Persian/Farsi. Therefore, this study suggests that Persian/Farsi HL is a language variety similar to any other variety.

Considering the HL as an independent variety implies that its comparison with other varieties, namely the varieties in the dominant context, is an inaccurate measurement that might end in the fallacy of “incomplete acquisition”. In other words, in the case of Persian, the language under investigation, if one measures different varieties of closely related Indo-Iranian languages, including Persian (Farsi), Urdu, Dari, Tajiki, Kurdish, Balouchi, etc., every one of these varieties would turn out to be incomplete in comparison with other varieties due to different representations. The same fact also applies to different varieties of Persian (Farsi) in Iran. By saying so, this study proposes that measurement of the proficiency of native speakers is not plausible in the first place, let alone using an inaccurate measurement. This study emphasizes that as the proficiency of native speakers in the dominant context is not measured, it should not be done either for HSs who are also native speakers of their HL.

In addition, in a diglossic context, the high variety is somehow a formal register with a set of rules to be used in special formal, literary, or religious contexts, and the high variety- at least in Iran- does not have any native speakers; therefore, as there are various language varieties distinct from the high formal standard variety, HSs’ variety is also another colloquial variety separate from the high formal standard variety. If we consider MSP or any other high variety in a diglossic context as a separate language from other low varieties, as it is a different language, it might not be a fair expectation for the native speakers of other varieties to know the high variety,

especially, when they are not in the same context, thus we should not question the independence of a variety due to not having the loan plural markers from another language, or not having the plural markers of the high formal variety of a diglossic context. Therefore, the absence of loan Arabic terms in a variety of Persian should not invalidate the claim that the HL is a fully functioning variety. It is similar to considering an English-speaking variety an incomplete variety because it does not use Latin plural forms “cacti” and “syllabi” for “cactuses” and “syllabuses”.

Moreover, linguistically, when regional variations and dialects are investigated, there is no dialect thought to be more complete, accurate, or better than others, and linguists try to describe the variations of the dialects, not their supremacy or completeness. Therefore, this study’s stance was to describe the features of the acquisition of Persian/Farsi HL independent of other varieties, and there was no focus on a comparison of the HSs’ variety to other varieties.

Overall, it should be considered that the linguistic system of HSs is developing in a context-independent and different from those of other varieties; therefore, its course of development and its features are influenced by different factors. However, this difference is not a negative feature, and it shows that similar to other varieties, the HS variety of Persian in the United States is also fully functioning, independent, and dynamic. Since nobody labels the acquisition of native speakers, this study suggests that the acquisition of HSs should not be labeled either. Kupisch & Rothman (2018) addressed the concept of incompleteness well, and they used the term “differential acquisition” instead. Even though “differential acquisition” is an improvement upon “incomplete acquisition”, this study still proposes that using “no term”, in other words, “no label” is even better. Therefore, not only does this study argue that the HL system is fully functioning, but it also suggests that regardless of the previous labels, we should



stop labeling HSs' acquisition. If we reconsider HSs and exclude those who are just inheritors of an HL and do not interact actively in an HL, then, we will have a more homogenous group free from labels.

## **Chapter Six: Conclusion and Implications**

This dissertation has investigated the acquisition of Persian (Farsi) as an independent variety in the United States with new perspectives. In particular, to investigate the special features of Persian/Farsi HSs' acquisition and describe their variety, the current study addressed the Persian/Farsi HSs' acquisition of nominal morphology, represented by plural formation, verbal morphology, represented by light verb constructions, and morpho-syntax, represented by SVA. There is an ample and growing body of research in HL acquisition as an emerging field from various viewpoints (Kupisch & Rothman, 2016, 2018; Polinsky & Scontras, 2020; Dubiel & Guilfoyle, 2021; Makarova & Terekhova, 2021; Caloi & Torregrossa, 2021; Nagy, 2021; Benmamoun, Montrul, & Polinsky, 2013; Montrul, 2005, 2008, 2011, 2012, 2016, 2018; Polinsky, 2008, 2011; Polinsky & Kagan, 2007; Rothman, 2007, 2009). Regarding the age of HSs, some studies are on "Early Child Bilingualism", including most of the research in Europe (E11 Project 1980s & 1990s), and some studies are on adult HSs, including most of the research in the US, including Montrul (2018), and Silva-Corvalán (2018), focusing on "connecting the dots", namely relating the adult HSs' performance to their special acquisition in childhood.

Despite a growing body of research on HL and HSs' acquisition, Iranian HSs have rarely been studied. As far as we know, there is no research on the linguistic system of "Persian/ Farsi HL" and the acquisition of Persian/Farsi HSs. Few studies on Iranian HSs have been conducted on Persian Iranian bilinguals in Australia and the USA, which host the highest number of Iranian immigrants compared to other countries in the world (Bozorgmehr, 1998). These few studies are mostly on the sociolinguistic aspects (Modarresi, 2001) or instruction of Persian (Farsi) as an HL (Megerdooian, 2010). Therefore, this dissertation is the first to delineate the acquisition of Persian HL in the United States. The main impetus for conducting this investigation was to

contribute to the previous body of research by investigating the HL system of Persian (Farsi) HSs to describe its unique features through a different lens and to add to the linguistic diversity of bilingualism and HL research.

This study centered on the following perspectives: First, HL is a minority language that is spoken natively, and HSs are native speakers of their HL by definition. Second, the HSs' production in their native language is different from other native speakers of the baseline language. Since there is a "lack of consensus on the precise definition of HSs and their language, and, often, the lack of an appropriate baseline for comparison" (Polinsky and Scontras, 2020), this study provided a revision of the definition of the term "heritage speaker" and narrowed it down from a wide spectrum to active HSs. Therefore, the third perspective of this study was redefining the term HSs by making a difference between a heritage speaker, namely someone who has acquired an HL and is using it actively in daily communication (i.e., an active heritage speaker), and someone who is just an inheritor of an HL (i.e., a passive HL inheritor) by virtue of having bilingual parents and caregivers. Thus, this study suggested that to be able to focus better on the language competence of HSs and model a more homogenous grammar, the focus should be on those who are active HSs, not the ones who are just passive inheritors of an HL. One of the examples was that as inheriting a car in a garage never makes someone a driver, inheriting a language per se does not make someone a native speaker. It has been emphasized that if we consider this distinction in the selection of participants in HL studies, we will have a more homogenous group and would be able to describe HL acquisition more precisely.

Regarding the baseline language, on the one hand, similar to Polinsky & Scontras (2020), this study has considered the baseline language to be the caregivers' language, namely the

colloquial variety that parents or other caregivers use as the input for the acquisition. On the other hand, different from Polinsky & Scontras (2020) that acknowledge HSs' input is different from that of the monolinguals' qualitatively and quantitatively, this study discussed that as far as the caregivers are native speakers of the HL, the quality of the input is the same as what monolinguals receive from their caregivers; however, the quantity might be different. Therefore, the main focus of the present study was to investigate the unique features of the acquisition of the Persian (Farsi) HL as an independent variety in the United States from a different point of view on HL acquisition. Additionally, this study aimed at adding to the linguistic diversity of bilingualism and HL research by delineating Persian HL acquisition and its unique features for the first time.

There were six main questions and hypotheses in this study, and to investigate the properties and features of the acquisition of Persian HL in the US, 10 HSs from different sections of the heritage speaker continuum of different ages, including 5 children (mean age 13.4 years (SD=5.59) and 5 adults (mean age 29.2 years (SD=4.96) were selected by the convenience sampling method, and the results related to the first question and hypothesis were presented. The data were collected through various experimental procedures, including personal interviews, questionnaires for linguistic background and demographic information, and the consistency of HSs' production and judgment was delineated via oral production, written tasks, and GJT/C for each linguistic structure under investigation, including light verb constructions, plural formations, and SVA in Persian. The results of the data analysis of the oral and written production as well as the results of the GJT/C by child and adult HSs that were obtained in the present study supported the hypotheses and provided ample evidence to describe Persian HSs' acquisition as an independent variety with its unique features (discussed in chapter 5).

The remainder of this chapter is structured as follows. Section 6.1 will present a summary and conclusion of the overall findings discussed in chapter 5, linking the results of the oral and written production experiments as well as the results of the GJT/C for all three linguistic structures, including light verb constructions, plural formation, and SVA in sections 6.1.1, 6.1.2, and 6.1.3, respectively. Section 6.3 will discuss the summary of the findings of this study with a new perspective on HSs' acquisition compared with previous findings of HSs' acquisition. Section 6.4 will report on the implications of this study for HSs and bilinguals in general and Persian HSs in particular. After discussing the limitations and directions for future studies in section 6.5, I will conclude this dissertation in section 6.6.

## **6.1 Summary and Conclusion of the Overall Findings**

### *6.1.1 Summary and Conclusion of the Overall Findings of Light Verb Construction*

In this study, the Persian HSs' acquisition of verbal morphology, represented by light verb construction was investigated. It was reported that in addition to simple verbs, Persian uses a large number of light verb constructions, also known as compound verbs or complex verbs. These verbs consist of a preverbal element, usually, a noun or adjective, followed by a light verb such as /kærdæn/ (i.e., 'do/make') and /zædæn/ (i.e., 'hit') as in the light verb construction /komæk kærdæn/ "to help" or /ʃunε zædæn/ "to comb".

Regarding the acquisition of light-verb construction, it was reported that overall, in oral and written production, child and adult HSs produce similar constructions to the "Tehrani" dialect which is the dominant dialect of participants' parents as the baseline language. However, it was also explained that they produce some forms of light verb constructions that are not used by monolingual speakers and are unique to HSs. Some of the examples of these constructions

with either a special light verb or a special pre-verbal element have been explained in detail in chapters 4 and 5. Additionally, the data presented in this study demonstrated that they have new inventions of the light verbs that are not present in the monolingual Persian language system. The structure of these innovative light verb constructions has also been discussed with elaboration in chapters 4 and 5. Moreover, it has been delineated how consistent, systematic, and innovative these constructions are, and how they could support hypotheses 1, 2, and 3 in this study.

Results of this study also reported that child and adult HSs' production of light verb constructions was in harmony with each other. GJT/C results also confirmed the harmony in the production of child and adult HSs as they judged the grammaticality of light verb construction exactly the same. Furthermore, results of the GJT/C demonstrated that there is consistency and systematicity in the production and judgment of light verb constructions by HSs. Overall, this study concluded that in the production of light verb constructions, HSs showed similarities to monolingual varieties; however, they also had unique forms in their variety that made their language a distinct variety as well, supporting hypotheses 1,2, and 3.

#### *6.1.2 Summary and Conclusion of The Overall Findings of Plural Formation*

In this study, the Persian HSs' acquisition of nominal morphology, represented by plural formation was also investigated. It was argued that the Persian context in Iran is a diglossic context, in which the differences between formal MSN and colloquial varieties of Persian are comparable to the differences between two different languages. It was demonstrated that the Plural formation in Persian is typically achieved by adding a suffix to the word. Different formal and informal plural markers in Persian were explained via examples, and it was discussed that /-

ha/ /هـ-/ is the most common plural marker in the conversational language which can be added to almost all nouns. In addition, it was explained that this plural marker can be used in different registers, including formal and informal. It was also demonstrated that the second common plural marker in Persian, namely /-an/ /ان-/ is used especially in the formal language except for a few colloquial varieties that use it as their main plural marker. This study also mentioned that there are some plural markers in Persian, including /-in/ /ین-/ , /-at/ /ات-/ , and irregular plurals which have been borrowed from Arabic and are used mostly in some formal and religious registers, and they are learned mainly at school through formal instruction.

Regarding the acquisition of plural formation, results revealed that overall, HSs produce plurals in oral and written production differently. In oral production, HSs used the plural marker /-ha/ /هـ-/ significantly, and there was almost no record of using the other plural markers, including /an/ /ان/, /in/ /ین/, /at/ /ات/, and irregular plurals in the oral production. However, in written production, the plural marker /an/ /ان/, which is the formal plural marker in Persian, was used by HSs. Some Arabic loan plural markers were used sporadically in written production, and HSs used fewer Arabic loan plural markers in their language. This study argued that since HSs similar to other monolingual speakers produce different forms in the oral and written modalities of production, they have an advanced and complex linguistic system that behaves differently in the oral and written modes.

Additionally, results of the oral and written production of plural formation showed that HSs use some new forms of plurals that are unique to the Persian heritage variety and are not used in the monolingual variety. Some of these unique plural forms have been analyzed and explained in detail in chapters 4 and 5. Additionally, results demonstrated that they have new

innovative plural forms that are not present in the monolingual Persian language system. It was explained that these plural forms are made by a combination of a plural marker with some nouns which are not usually used by monolinguals. Another type of the new forms of plurals by the HSs was using zero plural morphemes for some words that are not usually used with zero plural morphemes in other varieties of Persian. These new and innovative plural forms have also been discussed thoroughly in chapters 4 and 5. Moreover, it has been delineated how consistent, systematic, and innovative these plural forms are, and how they could support hypotheses 1, 2, and 3 in this study.

Furthermore, results indicated that plural formation and using different plural markers is rule-governed and systematic in the Persian HL system, meaning that there is an implicational hierarchy in using the plural markers. The rules and systematicity of the plural formation implicational hierarchy has been discussed in depth in chapters 4 and 5.

It was also reported that children and adult HSs' production of plural markers was in harmony with each other. They showed similarities to monolingual varieties; however, they had unique forms in their variety that make their language a distinct variety as well. GJT/C results also confirmed the harmony in production because they showed that child and adult HSs judge the grammaticality of plural formation similarly. Nonetheless, GJT/C results indicate that HSs do not accept some Arabic loan plural markers and irregular forms as correct grammatical forms in their language system.

Overall, according to the results of the oral and written productions for the plural formation, this study concluded that HSs' language system is very similar to the baseline language of their parents and caregivers as the representatives of other varieties of Persian,



mainly the “Tehrani” dialect which is the parents’ dominant dialect and the closest dialect to MSP. Moreover, it was concluded that similar to other Persian colloquial varieties, HSs’ variety has also some unique features, which make it a fully functioning variety and very distinct from the MSP in a way that they could be considered two different linguistic systems.

### *6.1.3 Summary and Conclusion of the Overall Findings of SVA*

In the present study, the Persian HSs’ acquisition of morpho-syntax, represented by SVA was investigated with the rationale that the acquisition of an interface of morpho-syntax brings evidence for complexity in the HL system. To address the acquisition of SVA in Persian HSs’ linguistic variety, first, SVA in the diglossic context of the Persian language in Iran was reviewed. It was explained that Persian has subject-verb number agreement; however, the interesting point is that in MSP, when the subject is plural and inanimate, number agreement is optional, meaning that the verb can take either a singular or plural form, and both forms are grammatical and acceptable. This optionality was illustrated via examples in chapters 2 and 5. It was also explained that in CP, only singular verbs were used for the inanimate plural subject noun unless the nouns were used metaphorically and were personified for an action that only animate beings could do. Additionally, this study argued that colloquial varieties of Persian follow SVA of CP, and not MSP.

This study has also reviewed previous research on optional SVA in MSP and addressed different factors affecting SVA, including conceptualization, verb type, tense, animacy of the subject, attraction effect, etc. Moreover, it has been discussed that despite various views about the factors affecting SVA, one thing upon which almost all previous research has consensus is that agreement in Persian is not the product of a purely syntactic or purely semantic view, but it

is the product of a hybrid index-agreement view which is a combination of morphosyntax and morphosemantics. Therefore, according to the previous literature, a constraint-based approach, in which agreement is constrained by some special parameters, would specifically account for optional subject-verb number agreement in Persian.

Regarding SVA in HSs' language variety, results showed that HSs' oral and written production have significant differences. The data presented in this study revealed that in oral production, HSs use singular verbs predominantly for inanimate plural subjects, whereas in written production, they use either singular or plural verbs for inanimate plural subjects. Moreover, the data showed that SVA in the Persian HL system is constrained by some special parameters that are different from the other varieties. Results of the data analysis showed interesting findings that HSs' SVA is modality-constrained and tense-constrained, meaning that SVA changes in oral and written production and different tenses. In chapter 5, it was explained and argued that in oral modality, HSs' SVA rules are the same as CP similar to many other colloquial varieties, meaning that SVA for the inanimate plural subjects is not optional, and HSs use singular verbs predominantly for the inanimate plural subjects. Nonetheless, this study illustrated that in the written modality, HSs' SVA rules are the same as the SVA rules of MSP, meaning that SVA is optional, and HSs use either singular or plural verbs for the inanimate plural subjects. Moreover, this study explained how SVA in the present and past tenses changes.

One of the intriguing findings of this study was that these constraints ended in a unique type of SVA that neither follows the SVA rules of MSP nor the SVA rules of CP. This finding has been illustrated in Table 5.18 in chapter 5.

Furthermore, GJT/C results revealed that adult and child HSs judge the grammaticality of SVA almost in the same way. Additionally, it was reported that HSs' judgment of SVA for inanimate plural subjects is in harmony with their production. Overall, the results of the data analysis of HSs' production and judgment of SVA suggested that Persian HSs in the United States have a productive variety of Persian. Results suggest that HSs' variety of Persian is a distinct system that has unique features different from the monolingual varieties. Consistency in production and judgment and the systematicity of the production of unique forms make HSs' variety a systematic stand-alone variety.

## **6.2 Summary of the Findings of This Study with New Perspectives on Heritage Speakers' Acquisition**

This study aimed at investigating Persian HL acquisition in the United States from a different viewpoint. It also redefined the term HSs by making a difference between an active heritage speaker, namely someone who has acquired an HL and is using it actively in daily communication, and a passive heritage speaker, namely someone who is just an inheritor of an HL by virtue of having bilingual parents and caregivers. Besides, similar to Polinsky & Scontras (2020), this study assumes the baseline language to be the caregivers' language, namely the colloquial variety that parents or other caregivers use as the input for acquisition. Therefore, through a different lens, this study has delineated Persian HL acquisition and its unique features for the first time. A summary of these unique features as the result of a change in stance is presented as follows:

Results of the data analysis in this study indicated that there are evident features and examples, showing productivity and innovation in producing light verb constructions, plural

formation, and SVA by HSs. Many of the Previous research in HL acquisition have considered these examples of HSs' unique production as incomplete or attrited forms of acquisition; however, this study with a new viewpoint considered these examples signs of productivity and dynamism in the Persian HL system. It was argued that the exposure to another linguistic system and its repertoire of vocabulary and structure and the cross-linguistic influence of English as the dominant language of the sociolinguistic context could account for some of these findings.

Also, some studies have considered the HSs' combinatorial production examples as code-mixing; however, it was argued that these combinations are not sporadic mistakes or code-mixing examples due to not knowing the exact light verbs, rather they are innovative and systematic light verb constructions that HSs produce simply because they have access to another resource that speakers of other varieties do not. This claim was supported by evident examples of systematicity and consistency in HSs' production. This study discussed that these forms in HSs' production are consistent and systematic because first, they have been tested in several tasks in different forms, including picture elicitation task, direct elicitation, short paragraph writing, as well as GJT/C. This repetition has been intentional to elicit a larger variety of content. Second, it was explained that there is consistency in the production of individual participants (intra-individual) as well as across participants (inter-individuals); therefore, HSs' production is consistent and systematic.

Another evidence of systematicity in HSs' production was special rules and patterns in the acquisition of plural formation that indicated an implicational hierarchy and the order of acquisition. It was explained how these patterns exemplify the hierarchy.

Furthermore, a change of outlook in this study suggested that some of the novel examples or patterns in HSs' production are the result of the poverty-of-stimulus effect, meaning that neither the L1 grammar nor the L2 surface patterns can account for some properties of interlanguage system, and even if this kind of linguistic knowledge arises only temporarily, it is considered a poverty-of-stimulus effect, (Schwartz & Sprouse, 2000). For example, it was discussed that HSs' novel and innovative plural forms are spontaneous productions that are not derived from input sources, namely colloquial Persian, the baseline language of HSs' caregivers, and MSP; however, some of these new forms are plural forms in Balouchi (a Northwestern Indo-Iranian language). This study reiterated that using the term "Interlanguage" does not signify that HL acquisition and second language acquisition are the same. In other words, using the term "Interlanguage" in this study, does not make HL acquisition be on par with second language acquisition.

Overall, relying on the results of this study and evident examples of productivity, systematicity, and consistency in the production as well as the judgment of light verb constructions, plural formation, and SVA in the acquisition of Persian (Farsi) HSs in the United States, this study considered the Persian HL an independent variety of Persian that has its unique features. This study argued that whether or not an HL is considered an independent variety depends on different factors, including the stance of the researchers on the diglossic context and the theoretical construct of an independent, fully functioning variety of a language. It was highlighted that considering the HL as an independent variety and as the native language of its speakers implies that its comparison with other varieties, namely the varieties in the dominant context, is an inaccurate measurement that might end in the fallacy of "incomplete acquisition". By saying so, this study pointed out that measurement of the proficiency of native speakers is

unplausible in the first place, let alone using an inaccurate measurement. Also, this study argued that as no one measures the proficiency of native speakers in the dominant context by comparing them, it should not be done either for HSs who are also native speakers of their HL.

Additionally, regarding a diglossic context, this study pointed out that the high variety in a diglossic context is somehow a formal register with a set of rules to be used in special formal, literary, or religious contexts, and the high variety- at least in Iran- is a separate language that does not have any native speakers; therefore, as there are many different varieties separate from the high formal standard variety, HSs' variety is also another colloquial variety distinct from the high formal standard variety. Therefore, this study argued that the absence of loan Arabic terms in a variety of Persian should not invalidate the claim that the HL is an independent variety.

Moreover, with new perspectives- especially considering MSP a separate language- this study highlighted that the novel and innovative forms in HS's production are the results of the dynamic interaction of the language systems of HSs in an "interlanguage system". This study argued that even though "interlanguage" is known as a term that is usually used for the second language, it could be extended to bilinguals too. It was argued that if MSP is considered a different language- and it really is- compared with the colloquial dialects, then, it could possibly be deduced that these novel forms are "interlanguage" productions because some of these plural forms (i.e., /hokm-an/ or /masoulat/) are neither found in other colloquial varieties of Persian nor in MSP. Therefore, they are special forms of an interlanguage system, which is formed by the input from HSs' first language, namely a colloquial variety of Persian (Farsi) as their HL, and their second language, namely the MSP. Not to mention that English as the dominant language of the majority socio-linguistic context has its cross-linguistic influence as well.

Furthermore, regarding the viewpoints of the researchers on the theoretical construct of an independent, fully functioning language, this study argued that linguistically, when regional variations and dialects are investigated, there is no dialect thought to be more complete, accurate, or better than others, and linguists just try to describe the variations of the dialects not the supremacy or completeness of them; therefore, in this study's stance was to describe the features of the acquisition of Persian/Farsi HL separate from other varieties.

Therefore, this study provided a summary of the findings of the oral and written production of light verb constructions, plural formation, and SVA as well as GJT/C which illustrate 25 evident features of the systematicity, productivity, and dynamism to show the unique characteristics of the Persian HL system (illustrated in section 5.9). These features show that the HSs' variety of Persian is an independent variety of Persian that though having much in common with other varieties of Persian, has some unique features too.

Finally, this study presented a discussion of labels used to describe HSs. In this study, it was argued that as no one labels the acquisition of other native speakers, HSs' acquisition should not be labeled either. Kupisch & Rothman (2018) addressed the concept of incompleteness well, and they used the term "differential acquisition" instead. Even though "differential acquisition" is an improvement upon "incomplete acquisition", this study still suggests that using "no term", in other words, "no label" is even better. Therefore, not only does this study argue that the HL system is fully functioning, but it also proposes that regardless of the previous labels, we should stop labeling HSs' acquisition. This study emphasized that if we reconsider and redefine HSs and exclude those who are just inheritors of an HL and do not interact actively in an HL, then, we will have a more homogenous group free from labels.

### **6.3 Implications of This Study for Heritage Speakers and Bilinguals**

In this section, the implications of this study for HSs and bilinguals as well as researchers, teachers, curriculum developers, and policymakers are presented. The implication of this study is multifaceted because investigating the acquisition and language system of HSs, as a group of bilinguals, is beneficial for HSs, bilinguals, linguistics researchers, teachers, curriculum developers, and policymakers in different ways.

First, by better understanding HSs and the special characteristics of their language, we can have a stronger command in determining their language special features, and as a result, we can come to a consensus on the characteristics of their acquisition.

Second, regarding the specific linguistic and typological characteristics of each language, every new language pair brings new insights to the field. Investigating different language pairs (e.g., Hmong-English, German-English, and Persian-English) helps inform theories of language development and the influences of each language on a heritage speaker's two languages. Therefore, this study by addressing HSs' linguistic performance and delineating their special acquisition features as well as illustrating the implicational hierarchy informs linguistic theories in general and theories of language acquisition in particular and contributes to constructing the theoretical background of Persian HL acquisition as one of the least studied languages.

Third, by presenting novel empirical evidence of productivity and systematicity in HSs' acquisition, this study informs theories of linguistics, language acquisition, and bilingualism of the linguistic construct of HL and HL acquisition. Likewise, by showing the consistency in the linguistic performance of the child and adult HSs, this study contributes to the understanding of the HSs' linguistic performance during their life span.



Moreover, research shows that the maintenance of an HL is vital in multicultural populations, and children or adolescents who can speak their family's HL may reap psychosocial and academic benefits (Tseng & Fuligni, 2000), they may have great confidence in their college success (Aguayo, Herman, Ojeda, & Flores, 2011), and they may have stronger family cohesion (Portes & Rumbaut, 2001). This study attempted to keep a positive stance on HSs' acquisition and to redefine their acquisition free from psycholinguistically-negative labels. Thus, whether this study could provide psychosocial and academic benefits, namely boosting HSs' confidence and sense of belonging to their heritage culture and contributing to the maintenance of HLs and Persian HL in the United States, remains to be investigated in the future studies.

Furthermore, as this study demonstrated, researchers' stance on HL acquisition and the theoretical construct of an independent, fully functioning variety of a language make substantial differences in the analysis and interpretation of the findings. One of the very important implications of this study is looking into HL acquisition through a different lens. Some of the implications of this change of stance have been highlighted in this study. For example, many of the Previous research in HL acquisition have considered examples of HSs' unique production as incomplete or attrited forms of acquisition; however, this study with a new perspective considered these examples signs of productivity and dynamism in the Persian HL system. Also, regarding the diglossic context of the Persian language and considering MSP a separate language compared with the colloquial varieties- this study highlighted that the novel and innovative forms in HS's production are the results of the dynamic interaction of the language systems of HSs in a systematic and productive "interlanguage system" rather than poorly acquired forms. As a result, this study suggested that these novel examples or patterns in HSs' production- even if occur temporarily- are the result of the poverty-of-stimulus effect (Schwartz & Sprouse, 2000).

Therefore, it implies that the HL system is an independent language system that might have direct access to UG.

This difference in viewpoints and considering the HL system as an independent and fully functioning system has also great implications for HSs regarding linguistic human rights and the cognitive benefits of bilingualism. It entails that all HSs deserve to have access to their HL and schooling in various contexts.

Additionally, the other implications of this study are related to the language under investigation, namely Persian (Farsi) per se. This dissertation is the first study that has delineated Persian HL Acquisition in the US; therefore, considering the multicultural context of the United States, it has many national implications for American society in general and Persian HSs as a minority group in the US in particular. It also has many international implications. According to the American Council on the Teaching of Foreign Languages (ACTFL) in ([actfl.org](http://actfl.org)) and in ([lead with languages](http://leadwithlanguages.org)) (<https://www.leadwithlanguages.org>) Persian is an important language of the Middle East and Central Asia, spoken by over 100 million people and ranked among the world's top 20 most widely spoken languages. It is known as Farsi in Iran, Dari in Afghanistan, and Tajik in Tajikistan. Sizable minority populations in other Middle Eastern countries (Bahrain, Iraq, Oman, Yemen, and the United Arab Emirates) also speak Persian, as do large communities in Europe, Turkey, Australia, the United States, and Canada.” Therefore, investigating the Persian HSs’ acquisition not only has implications for HSs in general, but also has specific implications for Persian HSs, including Iranian Farsi speakers, Afghan Dari speakers, Tajiki Tajik speakers, and all other varieties of Persian.

Furthermore, considering the importance of Persian/ Farsi, designated as a Critical Need Language in the U.S., this study contributes to understanding the Persian HL system and presenting its special features.

Regarding the diverse linguistic demographics of the United States and Persian HSs as a noticeable group of HSs, this study will benefit HSs as a minority group educationally by helping policymakers, language teachers, HS instructors, and curriculum developers consider the fact that HSs are native speakers of their HL as a unique variety. In addition, it is important to pay serious attention to the fact that HSs vary along a continuum, and at every point of the continuum, they have different educational needs. Moreover, it is necessary to know that HSs are different from second/foreign language learners. Accordingly, they have different linguistic needs and require customized educational materials. Since this research focuses on both oral and written aspects of HSs' language variety, it will help with designing a more appropriate curriculum for the literacy and education of HSs.

Also, the findings of this study inform linguistic theories in general and theories of language acquisition in particular and contribute to constructing the theoretical background of Persian HL acquisition as one of the least studied languages. Likewise, the consistency in the linguistic performance of the child and adult HSs informs the above-mentioned theories of HSs' linguistic performance during their life span.

Additionally, this study sheds some light on the fields of bilingualism and HL acquisition by contributing to a better understanding of the linguistic system of HSs in general and in the multilingual, and diverse society of the United States in particular.

Finally, since to the best of our knowledge, there has not been any research on investigating the linguistic system of Persian (Farsi) HSs in the USA, this study has pioneered this path of research by embarking on investigating the acquisition of Persian (Farsi) HSs in the United States in order to open a window for further studies.

#### **6.4 Limitations and Directions for Future Studies**

The emerging field of HL acquisition is a multifaceted field that is profoundly linked to other areas of linguistics, including first language acquisition, second language acquisition, bilingualism, contact linguistics, sociolinguistics, psycholinguistics, and neurolinguistics. It is a fascinating field that requires more investigation to explore its complexity and understand its features. Persian (Farsi) is a morphologically, syntactically, and semantically rich language, and since Persian (Farsi) HL is linked to two linguistically rich systems of MSP and CP, it provides appealing opportunities to explore the acquisition of Persian (Farsi) HSs in various sociolinguistic contexts. Studying Persian (Farsi) HL during this dissertation, I found it so much intriguing that the more I delved into it, the more fascinated I got. This study addressed the features of Persian (Farsi) HL by focusing on the acquisition of nominal morphology, verbal morphology, and morpho-syntax using oral and written data as well as production and judgment data from child and adult HSs. Nonetheless, this is just the tip of the iceberg, and there is much yet to be explored. Therefore, this dissertation lays the groundwork for further research on Persian (Farsi) HSs' linguistic system, including investigating different areas of linguistics, especially core syntax and other interfaces, other morphological structures, as well as phonological features. One of the limitations of this study was the availability of a small group of HSs, and the simultaneous onset of the COVID 19 pandemic with this study made it more difficult to continue data collection on human subjects. This study tried to compensate for that by

investigating more tokens from the available sample; however, further research on a larger group is also suggested.

Since this study included spontaneous production data, during data analysis, it was found that there are many other interesting aspects of HSs' acquisition to be explored for further studies. For instance, some unique phonological features in HSs' oral production were found that seem to be rooted in optionality and selection of a different phone for some words. In Persian, sometimes, [v] and [b] phones are used interchangeably and many words that were pronounced with [v] in CP are pronounced with [b] in MSP. In informal colloquial varieties, usually, both versions are used or just the version with [v]; however, there are also cases where just the form with the [b] sound is used. Also, Persian children use these phones in some words interchangeably for a while until they select one form based on the frequency of input and optionality. Some of the examples have been shown in Table 6.1.

Table 6.1 Examples of Interchangeability of [v] and [b] in Persian

Classic Persian	Moern Standar Persian	Informal Colloquial Varieties
1. [vozorg]	[bozorg]	[bozorg]
big	big	big
2. [væhram]	[bæhram]	[bæhram]
a male name	A male name	A male name
3. [vala]	[bala] [vala]	[vala] [bala]
above	above above	above above
4. [vang]	[bang]	[vang]
loud sound	loud sound	loud sound

5. [varan]	[baran]	[baran]	
rain	rain	rain	
6. [vaz]	[baz]	[vaz] [baz]	
open	open	Open open	
7. [vær]	[bær]	[vær] [bær]	
side	side	Side side	
8. [værkhastæn]	[bærkhastæn]	[værkhastæn] [bærkhastæn]	
to get up	to get up	to get up to get up	
9. [værdashtæan]	[bærdashtæan]	[værdashtæan] [bærdashtæan]	
to pick	to pick	to pick to pick	
10. [værændaz kærdæn]	[bærændaz kærdæn]	[værændaz kærdæn] [bærændaz kærdæn]	
examine	examine	examine examine	
11. [vase]	NA	[vase]	
for		for	
		In child language, both [vase] and [base] are used	

Example 11 in the table above shows that for some words [v] and [b] were interchangeable in child language; however, just [v] which was the common form in CP has remained in colloquial varieties, and the form with [b] has disappeared in MSP. Interestingly, there were some examples in HSs' production similar to Example 11 in Table 6.1, in which HSs had selected [base] instead of [vase] which is just a form in child language in Persian and is not a

common form in either CP or MSP. Thus, studying the phonological features of Persian HL is one of the directions for further studies.

Additionally, Persian is a null-subject or pro-drop language with rich inflection for person and number, in which personal pronouns are optional, whereas English, which is the dominant language for Persian HSs in the United States is a non-pro-drop language.

Investigating the interaction between these two language systems and their cross-linguistic influence on Persian HSs' production seems intriguing.

Doing some volunteer research at the Medical College of Wisconsin, I gained invaluable experience by contributing to hypothesis development, data analysis, and manuscript writing of a project in the area of neuroscience and neurolinguistics. Using the brain evoked responses associated with task modulation from the Epilepsy Connectome Project (ECP) data set, this neurolinguistic study aimed to investigate the temporal dynamics of the semantic and language networks in the brain by the analysis of Magnetoencephalography (MEG) recordings. Being inspired by this project, I have set myself a future research goal to extend this dissertation project by investigating the temporal dynamics of HSs' semantic and language networks associated with task modulation. Such data from HSs' brain activity, as they are engaged in linguistic tasks in a MEG machine, could be used to test some of the current models of HL acquisition.

Also using Natural Language Processing (NLP) methods on HSs' data can help with identifying their acquisition patterns and features. Since HSs are a special group of bilinguals, investigating their neurolinguistic system will inform the theories of linguistics and contribute to the field of bilingualism and HL acquisition.

Another suggestion for further research is examining the sociolinguistic and psycholinguistic aspects of HL acquisition as a minority language to contribute to the maintenance of HLs in general and Persian HL in particular.

One of my definite goals for future study is to investigate the compelling question of whether the HL system of Persian (Farsi) HSs provides any evidence for the theory of Theoretical Bilingualism (TB) or Multiple Grammars (MG). One of the intriguing motivations for this study was TB and MG Theory (Roeper 1999), which is a theory of representation and acquisition that was originally proposed by Roeper (1999) to explain how idiosyncratic, incompatible rules could co-exist in adult monolingual grammars, and how they played a role in child first language acquisition. The extension of a model that was also called “Universal Bilingualism” describing the interlanguage representation in adult second language learners and bilinguals, in general, was also proposed by Amaral and Roeper (2014). After discussing the evidence of TB and MG in the acquisition of monolingual and L2 learners by Roeper (1999) and Amaral and Roeper (2014), this study intended to extend the idea to HSs’ acquisition by further investigating the Persian HSs’ acquisition in the United States to provide more evidence for MG from HSs’ acquisition as well. Even though investigating the evidence of TB and MG in the acquisition of Persian HL was one of the primary goals of this study, due to the broadness of the topic and a large amount of data, the presentation of the data analysis is beyond the scope of this dissertation and needs to be presented in a separate study; therefore, it remains for further research in a future extension of this study.



## 6.5 Concluding Remarks

To conclude, this study- for the first time- investigated the HL system of Persian (Farsi) HSs in the United States and delineated its unique features via new perspectives on HSs and their acquisition. To factor out the fallacies of HL acquisition, this study redefined HSs and changed its stance on HSs' acquisition, the linguistic construct of an independent language, and the acquisition in a diglossic context. First, this study considered HL as a minority language that is spoken natively. Accordingly, it highlighted that HSs are native speakers of their HL by definition. This study redefined the term HSs by making a difference between a heritage speaker, namely someone who has acquired an HL and is using it actively in daily communication (i.e., an active heritage speaker), and someone who is just an inheritor of an HL (i.e., a passive HL inheritor) by virtue of having bilingual parents and caregivers. Therefore, by narrowing down HSs from a wide spectrum to active HSs, this study could define HSs precisely and free from discrepancies and fallacies. It also helped to focus better on the language competence of HSs and model more homogenous acquisition features.

This study argued and concluded that as we do not label the acquisition of other native speakers, we should not label HSs' acquisition either. Consequently, this study stated that we should stop labeling HSs' acquisition. The rationale for this conclusion was that if we redefine HSs and exclude those who are just inheritors of an HL and do not interact actively in an HL, then, we will have a more homogenous group free from labels.

To investigate the acquisition of Persian (Farsi) HL as an independent variety of Persian in the United States, this dissertation explored the Persian/Farsi HSs' acquisition of nominal morphology, represented by plural formation, verbal morphology, represented by light verb

constructions, and morpho-syntax, represented by SVA. Results of the data analysis in this study indicated that there are evident features and examples, showing productivity and innovation in producing light verb constructions, plural formation, and SVA by HSs. Many of the Previous studies in HL acquisition have considered these examples of HSs' unique production as incomplete or attrited forms of acquisition; however, this study with a different viewpoint concluded that these examples are signs of productivity and dynamism in the Persian HL system.

This study provided a concluding summary of the findings of the HSs' oral and written production of light verb constructions, plural formation, and SVA as well as GJT/C which illustrated 25 evident features of the systematicity, productivity, and dynamism to show the unique characteristics of the Persian HL system. Additionally, this study concluded that systematicity in HSs' production was evident in the special rules and patterns in the acquisition of plural formation and indicated an implicational hierarchy that demonstrates the order of acquisition of plural markers. The comparison of the performance of child and adult HSs showed that there is consistency and systematicity in their production. These features add to the fact that the HSs' variety of Persian is an independent variety of Persian that though having much in common with other varieties of Persian, has some unique features too.

This study argued that the exposure to another linguistic system and its repertoire of vocabulary and structure and the cross-linguistic influence of English as the dominant language of the sociolinguistic context could account for some of these findings. Moreover, the interaction between colloquial Persian, as the HL, and MSP, as the dominant language in the diglossic context, could account for some other variations in HSs' acquisition. Also, HSs select some special forms over others based on the input that they receive and because of the optionality.

Nonetheless, when exactly this selection occurs and why some forms survive, and some others are eliminated remain compelling questions for further investigation.

Moreover, regarding the diglossic context of the Persian language and emphasizing that MSP is a separate language- this study highlighted that the novel and innovative forms in HS's production are the results of the dynamic interaction of the language systems of HSs in an "interlanguage system". This study advocated that interlanguage could be extended from a concept in the second language acquisition to an existing reality between bilinguals' language systems. However, this study emphasized that using the term "Interlanguage" in this study does not signify that HL acquisition and second language acquisition are the same. In other words, using the term "Interlanguage" in this study, does not make HL acquisition be on par with second language acquisition.

Furthermore, a change of perspective in this study suggested that some of the novel examples or patterns in HSs' production are the result of the poverty-of-stimulus effect, meaning that neither the L1 grammar nor the L2 surface patterns can account for some properties of the interlanguage system (Schwartz & Sprouse, 2000). The emergence of poverty-of-stimulus examples in the HSs' production provides evidence of the productivity of their system and the possibility of accessing UG. It also provided the strongest evidence that HL is an independent language system that might have direct access to UG.

Overall, relying on the results of this study and evident examples of the poverty-of-stimulus effect, productivity, systematicity, and consistency in the production as well as the judgment of light verb constructions, plural formation, and SVA in the acquisition of Persian (Farsi) HSs in the United States, this study concluded that the Persian HL is an independent

variety of Persian that has its unique features. Moreover, despite many studies of HL systems that consider HL acquisition as incomplete acquisition or attrition, the results of this study demonstrated that not only does the HL system work as a fully functioning system with its unique features, also revealed examples of the innovative patterns indicating the HL system as a productive, dynamic, and an independent system. Therefore, despite some divergence from the MSP, the Persian variety of HSs in the United States is fully functioning, productive, and systematic similar to other varieties. This study suggests that the divergence from the standard variety in a diglossic context does not corroborate incompleteness, rather it implies developing completely in a different context.

Since to the best of our knowledge, there has not been any research on delineating the linguistic system of Persian (Farsi) HSs, this study pioneered this path of research by embarking on investigating the acquisition of Persian (Farsi) HSs in the United States in order to lay the groundwork for further research. The findings of this study inform linguistic theories in general and theories of language acquisition in particular and contribute to constructing the theoretical background of Persian HL acquisition as one of the least studied languages. Also, by studying the acquisition of Persian (Farsi) HSs in the United States for the first time, this study adds to the linguistic diversity of Bilingualism and HL research.

Likewise, the consistency in the linguistic performance of the child and adult HSs informs the above-mentioned theories of HSs' linguistic performance during their life span.

Additionally, this study sheds some light on the fields of bilingualism and HL acquisition by contributing to a better understanding of the linguistic system of HSs in general and in the multilingual, and diverse society of the United States in particular.

Regarding the diverse linguistic demographics of the United States and Persian HSs as a noticeable group of HSs, it is expected that policymakers, curriculum developers, HL instructors, and language teachers, consider the fact that HSs are native speakers of their HL. In addition, it is important to pay serious attention to the fact that HSs are different from second/foreign language learners, and accordingly, they have their special educational needs and require customized materials. A better understanding of the acquisition of Persian (Farsi) HSs will inform linguistic theories in general and theories of language acquisition, bilingualism, and HL acquisition in particular. It will also help applied linguists develop more practical approaches to teaching HSs and will help curriculum designers and HL instructors to apply the results in developing their methodology. Hopefully, the results of this research and further research contribute to a better understanding of the linguistic system of HSs in general and in the multilingual, and diverse society of the United States in particular.

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## **Appendices**

### **Appendix A. Oral Tasks**

#### **Task Samples:**

#### **1. General Interview questions about the participants' Persian/English backgrounds: (5 min) In Persian**

1. Please tell me where you were born, and if you are born in Iran, please tell me when you moved to the United States.
2. Which languages do you know? Which ones do you speak?
3. Which language do you use at home?
4. Which language do you use at school?
5. Which language do you use with your friends?
6. Which language is easier for you to use?

#### **2. Recording the subjects' responses to questions for further investigation. (10 min) In Persian**

1. Please describe some of the Persian foods which you like?
2. Please describe one of the monuments in Iran.

#### **3. Elicitation tasks for recording (natural spontaneous speech, talking about themselves, describing pictures, etc. (10 min) In Persian)**

1. What did you do on the weekend?
2. Which subject do you like at school? Why?
3. Please describe your favorite pet.



**4. Elicitation task by picture description.**

**4.1. Please look at the following pictures, select one, and describe them. The pictures are related to some ceremonies or monuments in Iran. (5 min)**



#### 4.2. Picture Elicitation task

1. Which daily activities do you see in this picture? (5 min)



2. What are your daily routines?

##### 4.2.1. Please respond to questions according to what you see in every picture. (10 min)

1. What is she doing?



2. What is this boy doing?



3. What is she doing?



4. What are they doing?



5. What are they doing?



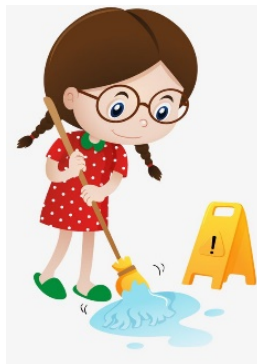
6. What is she doing?



7. What is she doing?



8. What is she doing?



9. What is she doing?



10. What is he doing?



11. Which action do you see in the picture?



12. What are they doing?



13. What is he doing?



14. What is she doing?



15. What are they doing?



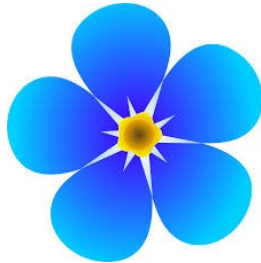
16. What is he doing?



17. What is he doing?



4.2.2. What do you see in the picture? If you see more than one, tell as many plural forms as possible. (5 min)



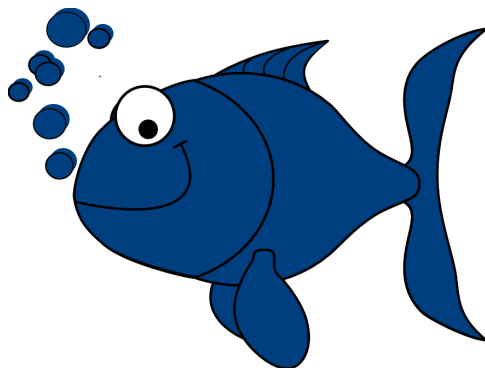


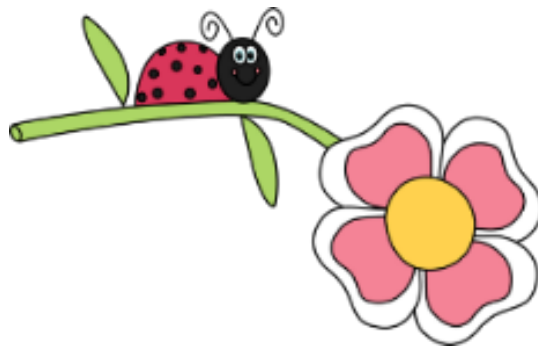












**4.3. What is the plural form of the following words? (10 min) Tell as many plural forms as you know (using or hearing).**

1. ضلع
2. تبلیغ
3. داستان
4. ایرانی
5. تحصیل
6. دوست
7. مدرسه
8. دختر
9. انتخاب
10. معلم
11. استاد
12. انتقاد
13. فکر
14. میوه
15. مقدس
16. درخت
17. معلول
18. اقدام
19. گل
20. مشکل

21. اعتصاب
22. حشره
23. باغ
24. قانون
25. حمله
26. مهمان
27. عدد
28. اتفاق
29. حزب
30. نمره
31. احساس
32. مسافر
33. مادر
34. جمله
35. حرف
36. اطلاع
37. حرف الفبا
38. مترجم
39. پدر
40. لباس
41. جنس
42. مومن
43. مهندس

- 44. مجرم
- 45. حکم
- 46. پسر
- 47. مامور
- 48. خبر
- 49. مداد
- 50. محروم
- 51. کودک
- 52. مسوول
- 53. ظرف
- 54. کتاب
- 55. توضیح
- 56. ساکن
- 57. دفتر
- 58. کامپیوتر
- 59. پرندہ
- 60. حیوان

## Appendix B. Written Tasks

### Task Samples:

1. Please write as many plural forms as you know for the following pictures. (15 min) In Persian









**2. Please write the response to the following questions in Persian. If you know more than one correct response, please write both. (25 min)**

1. How do you say “making a phone call” in Persian?
2. How do you say “I comb my hair” in Persian?
3. How do you say “I brush my teeth” in Persian?
4. How do you say “I caught a cold” in Persian?
5. How do you say “telling a joke” in Persian?
6. How do you say “to prefer” in Persian?
7. How do you say “I am joking” in Persian?
8. How do you say “take a shower” in Persian?
9. How do you say “to find” in Persian?
10. How do you say “to email” in Persian?
11. How do you say “making a mistake” in Persian?
12. How do you say “I know you” in Persian?
13. How do you say “I put it in my bag” in Persian?
14. How do you say “to study” in Persian?
15. How do you say “take a long time” in Persian?
16. How do you say “to drive” in Persian?
17. How do you say “to care” in Persian?
18. How do you say “making somebody calm” in Persian?
19. How do you say “to prefer” in Persian?
20. How do you say “to be easy-going” in Persian?
21. How do you say “She made me sad” in Persian?

22. How do you say “to borrow” in Persian?
23. How do you say “to wait” in Persian?
24. How do you say “I felt shy” in Persian?
25. How do you say “to deceive” in Persian?
26. How do you say “to swear” in Persian?
27. How do you say “I fell” in Persian?
28. How do you say “to search” in Persian?
29. How do you say “to google” in Persian?
30. How do you say “to speak” in Persian?

**3. Please choose one of the following options. (20 min)**

1. Please write a short paragraph about one of your friends, family members, or pets in Persian.
2. Please write a short paragraph about your daily schedule in Persian.
3. Please write a short paragraph about one of the Persian ceremonies, festivals, or celebrations.
4. Please write a short paragraph about one of the movies or books you have read.

**4. Please fill in the blank with the correct plural form of the word given. If there are more than one form that you can use, please write them in the order of your preference. (10 min)**

1. من ..... (کتاب) زیادی خوانده ام.
2. معلم ..... (نمره) ما را اعلام کرد.
3. ..... (شاگرد) کلاس من باهوش هستند.
4. من ..... (تحصیل) دوره ی ابتدایی و راهنمایی را در ایران گذرانده ام.

5. .... (مسوول) مدرسه ی ما در جشن پایان سال شرکت کردند.
6. آنها درباره ی ..... (مشکل) خود با مشاور صحبت کردند.
7. .... (درخت) این پارک خیلی بلند هستند.
8. اینجا پر از ..... (گل) زیباست.
9. من ..... (عدد) این جدول را شمردم.
10. او ..... (احساس) خود را کنترل کرد.

### 5. Grammaticality Judgment Test and Correction GJT/C for Light Verbs and plurals. (50 min)

Please judge the grammaticality of the following sentences in Persian. They might be correct or incorrect. If they are correct put a “C” or a checkmark, and if they are incorrect put an “I” or a cross mark. Also, for the incorrect ones, please write the correct form. If you do not know a word in the sentence, please underline the word/ words that you do not know. If there are two similar sentences and both seem correct, but one is the one you are using and the other one is the one that you have heard from others, please mention that.

1. این گلدان پر از گلان زیباست.
2. او بعد از هر غذا مسواک می کند.
3. دانش آموزان این کلاس خیلی زرنگ هستند.
4. او موهایش را شانه می زند.
5. من به دوستم ایمیل زدم.
6. شوخی گفتم.
7. مدارس اینجا خیلی بزرگ است.
8. من تحصیلات دوره ی ابتدایی را در ایران گذراندم.

9. توضیحات معلم مفید بود.
10. موهایش را شانه کرد.
11. اوحیاط را جارو زد.
12. گل های زیبایی در بهار می روید.
13. بچه زمین خورد.
14. اساتید این دانشگاه خیلی خوب هستند.
15. مسافری در فرودگاه منتظر بودند.
16. من حیوان ها را دوست دارم.
17. وقتی می دویدم زمین افتادم.
18. کتابان مفیدی در این کتابخانه وجود دارد.
19. امتحان خیلی طول کشید.
20. مترجمین این متن ها را ترجمه می کنند.
21. جملات این صفحه را بخوانید.
22. مرغان دریایی در ساحل پرواز می کردند.
23. من لباسم را اتو زدم.
24. او از کارش شرمند شد و خجالت کشید.
25. اعداد این جدول دورقمی هستند.
26. دوستم به حرفم توجه نکرد.
27. دانش آموزهای این کلاس با هوش هستند.
28. مادرم انتظار داشت این ترم نمره های بهتری بگیرم.
29. من کتابهایم را در کیفم گذاشتم.
30. این باغها پر از میوه هستند.
31. او یکی از مسوولان شهرداری است.

32. مرغ های دریایی زیبا هستند.
33. خواهرم سرما خورده است.
34. من ترجیح می دهم شب ها مطالعه کنم.
35. مترجمان زیادی در این موسسه کار می کنند.
36. عدد های این ردیف را به ترتیب از کوچک به بزرگ مرتب کنید.
37. ظروف شسته شده را در کابینت گذاشتم.
38. او این مطالب را گوگل کرد.
39. باغان زیبایی در این شهر وجود دارد.
40. بیشتر ساکنین این منطقه ایرانی هستند.
41. من ترجیح می کنم به جای قهوه ، چایی بخورم.
42. من تو را میدانم.
43. دانش آموزان ایرانی نوروز را جشن گرفتند.
44. گیاهان زیادی در اینجا رشد می کنند.
45. مترجم ها این متون را ترجمه می کنند.
46. اضلاع مربع بر هم عمودند.
47. جمله های زیر را به انگلیسی ترجمه کنید.
48. غصه خوردن فایده ای ندارد.
49. او اتاقش را جارو کرد.
50. من این اطلاعات را در گوگل جستجو کردم.
51. حیوانات باغ وحش در قفس بودند.
52. تبلیغات رسانه ها تاثیرگذار است.
53. آنها گول خوردند.
54. گیاه های این منطقه در برابر سرما مقاوم هستند.

55. او لباسهایش را اتو می کند.
56. مسوولین باید به فضای سبز پارکها بیشتر رسیدگی کنند.
57. انتخابات رییس جمهوری شروع شده است.
58. نمرات این ترمم خیلی خوب است.
59. ما باید به محرومین کمک کنیم.
60. او تحصیل های دوره ی راهنمایی را در ایران گذراند.



## Appendix C (Tasks for subject-verb agreement)

### I. Oral tasks

#### 1. Picture elicitation task.

1.1. Please look at the following pictures, and describe what every picture shows by making a sentence. (In Persian) There is an example for every picture. (5 min)



مثال: کتاب روی میز است.



1. کتابها .....



مثال: برگ دارد می ریزد.



2. برگها .....

**1.2. Please retell the following sentences with the given word. (10 min) Tell as many forms as you know (using or hearing).**

1. ظرف کثیف است. (ظرفها)
2. کلید کابینت گم شده است. (کلیدها) (کابینت ها)
3. یک ماشین تصادف کرد. (ماشین ها)
4. زباله بوی بدی میدهد. (زباله ها)
5. برگ می ریزد. (برگها)
6. لامپ تکان می خورند. (لامپها)
7. گلدان ترک دارد. (گلدان ها)
8. برگ ریخت. (برگها)
9. دارو تاثیری ندارد. (داروها)
10. شیرینی چشمک می زند. (شیرینی ها)

## **II. Written Tasks**

### **Task Samples:**

**Task 1. Please write as many sentences as you know for describing the following pictures.**

**(15 min) In Persian.**





## Task 2. Prompted questions with given English equivalents

1. Please write the response to the following questions in Persian. If you know more than one correct response, please write both.

- a) How do you say “the books are on the table” in Persian?
- b) How do you say “the leaves are falling” in Persian?
- c) How do you say “the computers are out of work” in Persian?
- d) How do you say “the dishes are dirty” in Persian?
- e) How do you say “the glasses are empty” in Persian?

## Task 3. Fill in the blanks

Please fill in the blank with the correct form (singular/plural) of the verb given. If there is more than one form that you can use, please write them in the order of your preference.

1. برگها در پاییز ..... (می ریزد/ می ریزند).

2. غذاها سرد ..... (شد/شدند).

## Task 4. Grammaticality Judgment Test/ Correction

Please judge the grammaticality of the following sentences in Persian. They might be correct or incorrect. If they are correct put a “C” or a checkmark, and if they are incorrect put an “I” or a cross mark. Also, for the incorrect ones, please write the correct form. If you do not know a word in the sentence, please underline the word/ words that you do not know. If there are two

similar sentences and both seem correct, but one is the one you are using and the other one is the one that you have heard from others, please mention that.

1. شیشه ها شکستند.
2. برگها ریخت.
3. داروها تأثیری ندارد.
4. ظرفها کثیف است.
5. تابلو قدیمی است.
6. لامپها تکان می خورند.
7. گلدان ترک دارد.
8. برگها می ریزند.
9. دارو تأثیری ندارند.
10. شیرینی ها چشمک می زنند.
11. لامپ تکان می خورند.
12. شیشه شکست.
13. کامپیوتر خاموش است.
14. تابلوها قدیمی هستند.
15. ظرف کثیف است.
16. گلها خشک شده است.
17. کامپیوتر خاموش هستند.
18. شیرینی ها چشمک می زند.
19. میزها تکان می خورند.
20. لباسها تمیزخواهد شد.
21. ظرف کثیف هستند.

22. برگها می ریزد.
23. کامپیوترها خاموش هستند.
24. ماشین ها با سرعت حرکت می کند.
25. شیشه شکستند.
26. تابلوها قدیمی است.
27. میزها تکان می خورد.
28. کامپیوتر ها خاموش است.
29. داروها تاثیری ندارند.
30. ماشین ها با سرعت حرکت می کنند.