Research Article

Alexandra Prentza* and Maria Kaltsa

Linguistic Profiling of Heritage Speakers of an Endangered Language: The Case of Vlach Aromanian–Greek Bilinguals

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Abstract: This is the first attempt to profile the heritage speakers of an endangered spoken-only variety of Vlach Aromanian in Greece. Neither the variety nor its speakers has been investigated before; hence, the study also aims at evaluating the exact state of endangerment of the Sirrako variety, as this is revealed by the language practices and skills of its bilingual speakers. To this aim, a background questionnaire was developed and administered to 60 bilingual speakers of Vlach Aromanian and Greek including questions on the age of onset of exposure to both languages, early home language practices, current language practices (orality and literacy) and attitudes toward the heritage and majority language. Significant variation in language practices, literacy skills, oral input and current competence across three generations of speakers was identified with a substantial decline in heritage language competence in younger bilinguals, verifying our claim of the endangered state of Vlach Aromanian.

Keywords: heritage speakers, Vlach Aromanian, endangered language, bilingualism

1 Introduction

This study constitutes the first attempt to provide the linguistic profile of speakers of a heritage and endangered language, namely, a spoken-only variety of Vlach Aromanian (VA) in the community of Sirrako in Epirus, Northern Greece (henceforth VA of Sirrako, i.e., VAS). The study also aims at evaluating the exact state of endangerment of the VAS language, as this is revealed by the language practices and skills of its bilingual speakers. To this end, we recruited informants across three generations who are bilingual speakers of VAS and Standard Modern Greek which is the majority language.

VA is a Latin-derived language without a written form (Katsanis and Dinas 1990, Campos 2005, Manzini and Leonardo 2011). VA is spoken in various parts of Northern Greece; while linguistic fieldwork has been conducted for other varieties of VA (see for example Katsanis and Dinas 1990, Beis 2000, Dinas 2004, Campos 2005, Mavrogiorgos 2017, Mavrogiorgos and Ledgeway 2019), little is known about the variety of VAS. Varieties of VA are characterized by high degree of microparametric variation (Mavrogiorgos 2017), making their study interesting for reasons to do with typological language investigation. In the light of those previous studies, VAS appears to be characterized by different grammatical features with respect to phonology, morphosyntax and lexicon that render the communication between its speakers and speakers

* **Corresponding author: Alexandra Prentza**, Department of Linguistics, School of Philology, Faculty of Philosophy, University of Ioannina, Ioannina, 45110, Greece, e-mail: aprentza@uoi.gr

Maria Kaltsa: Department of Theoretical & Applied Linguistics, School of English, Faculty of Philosophy, Aristotle University of Thessaloniki, Thessaloniki, 54124, Greece

of other varieties of VA difficult, even impossible in some cases (Katsanis and Dinas 1990). The following examples illustrate some of the differences in VAS compared to other varieties of VA.

(1)	a.	muma VAS uame VA mother -F.NOM. SG. “mother”
	b.	hrutu VAS aurutu VA ugly -M.NOM. SG. “ugly”
(2)		a omlui VAS of-the-M.GEN.SG man-the-M.GEN.SG al omu VA of-the-M.GEN.SG man-the-M.GEN.SG “The man’s”
(3)	a.	Viniu cndindara VAS arrive -3.SG.PST.PRF. singing-GERUND “He arrived singing”
	b.	Viniu cu cndits VA arrive-3.SG.PST.PRF. with songs-M.ACC.PL “He arrived with songs”

While examples (1a) and (1b) illustrate differences at the level of vocabulary and phonology, respectively, example (2) illustrates a difference at the level of morphology; while VAS exhibits proclitic and enclitic use of definiteness in the genitive, in other varieties of VA, the definite article only procliticises on the noun (see also Katsanis and Dinas 1990). In example (3), a case of syntactic divergence is illustrated; while VAS has a very productive gerund, other VA varieties do not and the relevant information is conveyed via Prepositional Phrases.

Besides the fact that this specific variety has not been documented before constituting thus an uncharted variety of VA in Greece, linguistic investigation on VA varieties in Greece has largely focused on the documentation of the language system alone (for example, for VA dialects in Macedonia region see Dinas 1987, Bara et al. 2005, for Epirus region see Beis 2000, Mavrogiorgos 2017; for Thessaly region see Campos 2005), which is of course necessary, but not inclusive of the linguistic profiling¹ of VA speakers. The linguistic profiling of different types of bilinguals, who speak these varieties, has received no attention to date. The psycholinguistic perspective associated with the investigation of the linguistic profile of VAS/ Greek bilingual speakers and the uncharted status of the variety itself constitute the novelty that our work brings to the field of investigation of VA varieties in Greece as well as in the field of heritage and endangered languages in general.

The study is organized as follows: Section 2 presents information on the use of VAS in the community of Sirrako in the past and currently; while Section 3 presents the methodological design of the present study. A background questionnaire examining language practices in each language across the lifespan was developed in order to profile our bilingual speakers; it included questions on the participants’ age of onset (AoO) of exposure to both languages, home language practices and attitudes, current language use and

¹ Note that the term “linguistic profiling” is used in the text as a broad term inclusive of language measures like AoO of exposure to L1(s)/L2, oral input/output, written input/output, education, SES, family and school language practices, language competence and attitudes toward languages. Thus, the term refers not only to social factors relating to bilingualism but, crucially, to psycholinguistic ones as well.

literacy practices in Greek, since VAS is a spoken-only language. Section 4 presents the results obtained and outlines the linguistic profile of VAS speakers; while Section 5 discusses the study's findings.

This study aims at exploring the linguistic profile of the bilingual speakers of a heritage spoken-only language which has never investigated before, adding thus to the linguistic research on the documentation and support of endangered languages. The study also aims at evaluating the exact state of endangerment of the VAS language, as this is revealed by the practices and skills of its bilingual speakers. Our aims were achieved by opening new directions of investigation such as building a corpus of the specific variety that will provide detailed documentation of the cross-linguistic interplay between the majority and minority languages of the heritage speakers.

2 The variety of VA in the community of Sirrako

Records of the establishment of a Vlach-speaking community in the area of Sirrako date back to the twelfth century AD (Dalaoutis 2005). The village is situated on Mount. Alkmos on an altitude of 1,200 m. Access to it had been particularly difficult up to 1984, when the construction of a road connecting it with cities nearby was completed. Despite its geographic isolation, during the days of the village's economic growth (mainly in the eighteenth century) a substantial part of its inhabitants used to travel for commercial reasons, thereby coming in contact with and acquiring other languages spoken in the area. The nomadic life of the population also resulted in VAS speakers coming in contact with Greek. However, the population was exclusively using the VAS language within the community for all daily activities. Today, the village is mainly seasonally inhabited, since most community members spend only the summer season in Sirrako (see Dalaoutis 2005, Bakalis et al. 2011) while permanently residing in nearby cities, contrary to other Vlach-speaking villages in Greece that are inhabited throughout the year (for an overview, see Bakalis et al. 2011).

Due to these new circumstances, the use of the language has been restricted; specifically, only a limited number of individuals can speak VAS. Around 2,500 people in the community aged 60 years and over are the last generation that have been raised with VAS as their L1 and have retained to present day both good productive and receptive skills. Most of the younger speakers have only a passive knowledge of the language, that is only receptive skills, if any (Dalaoutis 2005, p.c. with members of the community's cultural center). This is due to the fact that the younger members of the community either come from homes where VAS is the mother tongue of only one parent or in cases where VAS is both parents' native language; it has not been used at home, since the families have moved out of the area, to nearby cities and shifted to using the majority language, i.e., Greek, as their home language.

VA has been reported as an endangered language by a number of researchers throughout the years (e.g., Katsanis 1977, Kramer 1987, Katsanis and Dinas 1990, Trudgill 1992a, 1992b, Greek Helsinki Monitor Report 1995, Dahmen 1997, Sella-Mazi 1997, Trudgill 2000, Koufogiorgou 2007). Additionally, in the Atlas of Europe's endangered languages as well as in the UNESCO Atlas of the World's Languages in Danger (Moseley, 2010), VA is presented as an endangered language in the area of Greece. In the case of the UNESCO Atlas, the state of endangerment varies from *definitely endangered* to *severely endangered* depending on the variety. Within this context of endangerment of VA in general, VAS's state is also critical and, as the present study will show, the variety is in danger of disappearing within one generation. Given that the village of Sirrako where VAS is spoken is only seasonally inhabited and that the language practices of heritage speakers have dramatically changed, as will also be discussed in the sections presenting the relevant data, we claim that the VAS language is critically endangered perhaps more threatened by other VA dialects which are spoken in larger and more densely populated communities (i.e., in Metsovo, Epirus region).

Worldwide, policies adopted for the maintenance and revitalization of endangered languages involve a variety of different goals, namely, increasing the number of speakers and increasing their proficiency or the domains of language use. While it has to be noted that the dynamic and context-dependent nature of the native communities largely guides the choice of the preferred maintenance and/or revitalization practices (Sallabank

2013), the most common practices involve developing curricular and teaching methodologies (i.e., school programs and community-based programs) or one-to-one learning (Master-Apprentice Approach) and family-language practices (see Fishman 1991, Grenoble and Whaley 2006, Grenoble and Whaley 2020 on revitalization of minority languages in Europe; the ENGHUM project, Hinton et al. 2018). As regards maintenance and revitalization of spoken-only languages, some of the practices adopted include documentation and linguistic archives, increase in the prestige of the language, educating and informing the general public and speakers themselves about the importance of language maintenance (Reyhner and Tennant 1995, Haokip 2012, Fakhurrazi 2016). Recently, Jones and Mooney (2017) focused on the possibility of revitalizing endangered spoken-only languages through the development of writing systems (i.e., orthography development or graphization) and examined a variety of linguistic and extra-linguistic factors that need to be taken into account for the development of writing systems. However, only few of the European and global praises for spoken-only endangered languages is adopted for the support of the VAS language. Crucially, VAS is not a dialect or variety of Greek and therefore its maintenance is not supported through state policies. The only support that the VAS language receives nowadays is indirect, by the local community itself, mainly, by means of cultural festivals. Although language is not targeted in such gatherings, one has more chances of hearing older speakers use the variety. Recently, members of the community have organized teaching of the variety to young children in afternoon classes. Those classes take place outside the community, in nearby cities where members of the community have moved. In these classes, the lesson is restricted to oral exposure to the language (Dalaoutis, pc). Thus, the nonexistent state policies in support of VAS along with the nonconsistently adopted attempts to support the maintenance of the VAS add to the endangerment state of the variety.

3 Methods: the linguistic profiling tool

A background questionnaire that targeted language input and output measures in both languages (i.e., VAS and Greek) along with current language practices and attitudes was developed in order to profile the bilingual speakers of VAS and Greek. The measures included in the questionnaire were based on key literature on the development of bilingual language abilities focusing both on language in childhood and later in life (Gathercole 2002a, 2002b, 2002c, De Houwer 2007, Gathercole and Thomas 2009, Paradis et al. 2011, Place and Hoff 2011, Unsworth et al. 2014). In what follows, the application of these key measures in the current questionnaire is discussed. Areas that concern ethnographic and educational background are detailed in Section 3.1, early language practices are discussed in Section 3.2, current language practices are detailed in Section 3.3 and attitudes toward VAS are discussed in Section 3.4.

The first critical factor is the AoO of exposure to the languages; the age at which an individual comes in contact with the two (or more) language systems has been shown to decisively affect language development (Paradis and Genesee 1996, Granfeldt et al. 2007, Herschensohn 2007, Unsworth et al. 2014). For the purposes of our study, we will adopt Meisel's (2009) approach to AoO of exposure to the languages spoken by the bilingual informants. Meisel (2009) studied the acquisition of gender by bilingual children, a language property that had received much attention in bilingual psycholinguistic investigation and reported that sequential bilingual children with AoO of exposure to French at 3;7 performed significantly worse in determiner gender marking tasks than simultaneous bilingual children, that is, children who were exposed to the language from birth up to the age of 3. This critical finding highlights that for grammar the age of 3 is a turning point in language development and, thus, needs to be included in the classification criteria for language exposure measurements when profiling bilingualism. Although there is no consensus as regards the exact AoO of exposure to the languages of a bilingual which can be used as a baseline for different types of bilingualism, since factors like the grammatical phenomenon (a) investigated, the languages involved and the amount of exposure (for an overview, see Tsimpli 2014) can affect results, the age range of 3–4 is defined as critical by a number of other researchers working on bilingualism (see, for example, Montrul 2008, Paradis 2008, Unsworth 2013b, Blom and Bosma 2016, Schulz and Grimm 2019). Consequently, our informants were grouped as follows: speakers exposed systematically to both languages

from birth were identified as simultaneous bilinguals; while participants who were exposed to the second language after the age of 3 were identified as sequential bilinguals with L1, the language they were exposed to up to the age of 3, and L2, the language they were exposed to in the pre-school age but after the critical age of 3.

With regard to language input, the literature has shown that measures of input quantity have been employed to explain variation in several grammatical phenomena (Gathercole 2002a, 2002b, 2002c, Montrul and Potowski 2007, Unsworth et al. 2014, Prentza et al. 2019) or in the overall development of grammatical abilities (Jia and Fuse 2007, Chondrogianni and Marinis 2011, Thordardottir 2011, Kaltsa et al. 2020). Recent research has also interestingly pointed out the positive effect of the quality of input in bilingual development as this was measured in terms of biliteracy exposure (Oller and Eilers 2002, Gathercole and Thomas 2009, Crago and Genesee 2011, Prentza et al. 2019, Kaltsa et al. 2020). Given that VA does not have a written form, literacy measures in our study considered literacy practices and schooling in Greek as well as any other languages that our participants used regularly.

Findings on the role of home language practices are contradictory; some studies report positive effects of the extensive use of the minority language at home (De Houwer 2007, La Morgia 2011), others report no effects (Goldberg et al. 2008, Paradis 2011), while a limited number of studies highlight the role of the number of different speakers of the minority language within the bilinguals' environment (Place and Hoff 2011, Gollan et al. 2015). Additionally, the overall amount of input has shown to be critical across the lifespan (Gathercole et al. 2005, Unsworth 2013a).

Finally, our questionnaire included questions on the self-reported competence of speakers in VAS as well as attitudinal questions on the importance of VAS to speakers, therefore, comprising not only quantitative but qualitative indices too. Self-reported competence in the minority language has been used as a measure to profile heritage speakers (Kondo-Brown 2005, Marian et al. 2007, Jia 2008, Alarcón 2010, Isakson 2016). Self-assessed language competence in the heritage language has been shown to correlate with home language practices and to predict differences among bilingual groups as well as linguistic development over time (see Kondo-Brown 2005 and Jia 2008 on heritage speakers of Japanese and Chinese, respectively). Attitudes have also been investigated in heritage and endangered language speaker profiles (Baugh 2005, Martin 2009, Alarcón 2010, Potowski 2010, Carreira and Kagan 2011, Valdés 2012, Magaña 2015, Son 2017) with positive attitudes and experiences with the heritage language been shown to correlate with greater use of the language system, better language abilities as well as greater involvement with the native community and efforts to support the language. Considering this body of research, the questionnaire developed for our study consisted of four sections summarized in Table 1: (a) General Ethnographic Information and Educational Background, (b) Early Home Language Practices, (c) Current Language Practices and (d) Attitudes toward the Endangered and Majority Languages.

Table 1: Major topics of linguistic profiling questionnaire

Topic	Subcategories
General ethnographic information and educational background	<ul style="list-style-type: none"> • Place of birth and area of residence • L1, L2 and other languages spoken • Area and years of schooling across primary, secondary and tertiary education
Early home language practices	<ul style="list-style-type: none"> • Parental educational background • (Grand) parental ancestry and language practices • VAS as a home language in childhood and adulthood • AoO of exposure to VAS and Greek • Means of exposure to each language and quantity measures
Current language practices	<ul style="list-style-type: none"> • Language(s) at the educational setting • Oral input and expression in each language • Literacy exposure to Greek and other languages • Current self-assessment of competence in VAS
Attitudes toward the endangered and majority languages	<ul style="list-style-type: none"> • Attitudes and personal experiences using each language • Maintenance of the endangered variety of Vlach Aromanian

3.1 General ethnographic information and educational background

The first section of the questionnaire required not only the standard ethnographic information but also detailed information on the bilingual's place of birth and place of residence during the first 10 years of their life. The relevant information was combined with information from the second section of the questionnaire on Early Home Language Practices to determine the type of bilingualism for participants with regard to AoO of exposure to both languages (see Montrul 2008, Paradis 2008, Meisel 2009, Unsworth 2013a, Blom and Bosma 2016, Schulz and Grimm 2019) as well as Paradis and Genesse 1996, Marian et al. 2007). In relation to educational background, participants were asked whether they received schooling, where they attended school and up to which level. The place of schooling (i.e., in the Vlach-speaking community or not) would provide us with additional information on the input and output in class and during recess. Regarding the coding of this information in the case of primary and secondary education, years of education was documented while tertiary education was coded separately along with information on the domain of study. The rationale behind these questions, besides the effect of literacy in language development, is that there is great variability in the educational profile of our participants, with the older ones, especially women, being deprived from education primarily due to social reasons (i.e., World War II, social view on women's education). Parental education was also included as an index of the family's socioeconomic status (SES); higher levels of which affect bilingual language development positively (Armon-Lotem et al. 2011, Paradis 2011). Finally, this section also included a question on which languages are spoken by the bilinguals, a measure related to the participants' metalinguistic awareness, as relevant research has shown (Thomas 1988, Nagy and Anderson 1995, Serrtarice et al. 2009, Bialystok and Barac 2012).

3.2 Early home language practices

Ancestry questionnaire items concerned the family's place of origin, while parental and grandparental language practices questionnaire items concerned the (non) native status of VAS for each speaker along with which language was used as the home language during participant's childhood. Moreover, the section included questions on whether VAS was the home language later in life, i.e., in adulthood (Kondo-Brown 2005, Marinis 2012; Kaltsa et al. 2017, Prentza et al. 2019 on the key role of home language practices in profiling bilinguals). These questions provided information as to the amount of input our participants received early in life and prior to the time of current testing. The above questions were mainly binary response questions (i.e., Yes/No). Additionally, questions on AoO of exposure to the two languages required participants to state the age at which they came into contact with both languages and the means of exposure. These measures along with information from first section of the questionnaire allowed us to group our speakers as simultaneous and sequential bilinguals according to the criteria set by Meisel (2009) (see also Montrul 2008, Paradis 2008, Unsworth 2013b, Blom and Bosma 2016, Schulz and Grimm 2019). The remaining questionnaire items were related to the frequency of language use measures at the educational setting during childhood; the participants were asked which languages they used in class and during recess and they were given three response options: Greek, VAS or both languages; this constitutes a measure of heritage language input and output in the early years.

3.3 Current Language Practices

In order to measure the current oral input in VAS, Greek and in both languages, we questioned our participants on which mod they were addressed to by their parents, grandparents, children, relatives and friends/neighbors who can speak VAS. In order to measure current oral expression (output) on the

other hand, we questioned our participants on which language they preferred to use when addressing their parents, grandparents, children, relatives and friends/neighbors who can speak VAS (on the examination of similar areas/topics see Montrul 2012, Mattheoudakis et al. 2016, Kaltsa et al. 2017; Prentza et al. 2019 as well as The National Heritage Language Resource Centre <https://nhlrc.ucla.edu/nhlrc/home>). Additionally, we added questions on which language they preferred to use when talking to themselves, when cursing, singing or telling stories. All the above were frequency measures (i.e., 7 questionnaire items for input and 11 for language output practices). As for literacy exposure to Greek and other languages they speak (e.g., English, German), we questioned our informants on the frequency of reading (i.e., book, journal, newspapers and internet reading) and writing activities (handwriting and writing with the use of Information and Communication Technology) per week. We used a 5-point scale from 1 (indicating rare practices) to 5 (indicating highly frequent practices) that yielded a frequency measure with a maximum score of 25 (see on relevant questions about literacy exposure to Carreira's questionnaire for heritage speakers of Spanish in 2012). The overall daily use of VAS and Greek was also assessed on a 3-point scale, with 1 indicating "no use of the language," to 3 indicating "a very frequent overall use of the language;" this measurement is treated as a comprehensive measure of the current use of both languages by bilinguals. Finally, participants were questioned on the current self-assessment of VAS with the options being the following: (a) good comprehension but no production skills, (b) good comprehension and some difficulties in production and (c) good comprehension and no difficulties in production (see Kondo-Brown 2005, Marian et al. 2007, Jia 2008, Alarcón 2010, Montrul 2012, Isakson 2016 on similar questions for self-assessment).

3.4 Attitudes toward the endangered and majority languages

In the final section of the questionnaire, participants' attitudes were investigated by means of open-ended questions as follows: (a) Which language do you feel that is your mother tongue? (b) Is VAS important to you/your children/grandchildren and why? and (c) Have you ever been disallowed to use VAS or have you considered it yourself a disadvantage or something negative? For these questionnaire items, there was no forced scale for responses and free expression of opinion was given to our bilingual participants. Open-ended questions, albeit not quantifiable, allow participants to freely express their opinions without limiting them to prefabricated scales and answers. They are thus frequently used to investigate language attitudes in heritage and minority speakers (Dörnyei and Taguchi 2009, Carreira and Kagan 2011; Xiao and Wong 2014). Given the above, it was crucial for our study to include these questionnaire items for the complete profiling of VAS-Greek speakers.

3.5 Procedure and analyses

The questionnaire was administered to 60 bilingual speakers of VAS and Greek in the form of a structured interview by one of the authors who is an active member of the language community and heritage speaker herself. Although the number of the participants is such that it allows us to perform quantitative analyses which are described in what follows (see Lester et al. 2014), especially given that they were recruited from a pool of speakers of an endangered language (see for example Leivada et al. 2019 on the challenges of data elicitation with such communities), we have to point out that this study draws on from the first parts of the VAS project which, hopefully, will lead to a larger and more robust sample size for analyses and conclusion. The participants were individually interviewed at their homes. For the quantitative analysis of our data, we performed an analysis of variance followed up by *t*-test comparisons, if necessary, for all between-group pair comparisons. Additionally, chi-square tests were used to assess the significance of frequency measures. All significant and relevant outcomes appear in parentheses.

4 The profile of bilingual speakers of VA and Greek

4.1 Data on the bilinguals' background and early life language practices

Based on the obtained data, our participants fell into the following groups using Meisel's (2009) criteria in relation to AoO of exposure to each language: (a) sequential bilinguals who were exposed first to VAS as an L1 and then to Greek as an L2 with AoO to Greek either at school age or in late childhood (around 10 years old) due to the nomadic lifestyle of the population (L1VAS-L2GR hereafter), (b) simultaneous bilinguals who were exposed to both languages from birth up to the age of 3 (2L1s hereafter) and (c) sequential bilinguals who were exposed first to Greek as an L1 and then to VAS as an L2 with an AoO to the L2 at the (pre)school age (L1GR-L2VAS hereafter). This classification of bilinguals reflects the changes in the role and use of VAS by the members of the community across three generations with the younger group being exposed to VAS later in life, due to different parental language practices and family environment, which has led to limited heritage language competence, as will be shown in the results that follow. Table 2 presents the ethnographic and educational background of the participants in the study.

The analysis shows great variability across the three groups, with educational background being a key differentiating feature in the profile of bilinguals. L1GR-L2VAS bilinguals have the highest exposure to structured educational settings; while the L1VAS-L2GR bilinguals are largely illiterate with only 1.3 years of education in primary school, $F(2,57) = 78.746$, $p < 0.001$; all pair comparisons $p < 0.001$. The parental educational profile of bilinguals shows the same pattern (Mother's years of education: $F(2,57) = 43.697$, $p < 0.001$; Father's years of education: $F(2,57) = 21.783$, $p < 0.001$; all pair comparisons $p < 0.001$).

The language practices during the early years of life at home and at the school setting appear to be also distinct across the three bilingual types. VAS is reported as the home language during childhood by all L1VAS-L2GR bilinguals (100% | N: 13/13), 95.7% of 2L1s bilinguals (N: 22/23) and only 25% of L1GR-L2VAS bilinguals (N: 6/24). While the rates do not differ significantly for the L1VAS-L2GR and 2L1s groups, there is a significant drop in the frequency of use of VAS as a home language for the younger generation of bilinguals (L1VAS-L2GR vs L1GR-L2VAS: $\chi^2(1,37) = 18.987$, $p < 0.001$, $\eta_p^2 = 0.716$; 2L1s vs L1GR-L2VAS: $\chi^2(1,47) = 24.343$, $p < 0.001$, $\eta_p^2 = 0.720$). This drop in frequency reflects the parental language practices to introduce the heritage language at a later stage in their children's lives for reasons to do with their attitude toward the language system (i.e., a spoken-only and non-prestigious status of VAS) as well as their misconception about a possible confusion or delay in the linguistic development of the child, which is a commonly held view by parents who are speakers of heritage languages.

With regard to the language practices during childhood at school, it is important to note that all school contexts are monolingual Greek, but some interesting variability is attested with regard to language preferences during recess when interacting with other peers, either monolingual or bilingual. The analysis shows that only half of the L1VAS-L2GR bilinguals used VAS (N: 2/4, the remaining 9 participants did not attend school), while the rest of L1VAS-L2GR bilinguals used both mediums. Additionally, 26.1% of 2L1s used both languages (N: 6/23), 4.3% of 2L1s used only VAS (N: 1/23) and 69.6% of 2L1s used only Greek (N: 16/23). Meanwhile, all L1GR-L2VAS bilinguals used only Greek throughout school years (100% | N: 24/24).

Table 2: Ethnographic and educational background data per bilingual type

	L1VAS-L2GR 13	2L1s 23	L1GR-L2VAS 24
N			
Age	83.6 (SD: 3.5)	57.2 (SD: 6.8)	34.5 (SD: 5.9)
Sex	F: 9 M: 4	F: 10 M: 13	F: 13 M: 11
Bilingual's years of education	1.3 (SD: 2.2)	13.3 (SD: 4.4)	15.1 (SD: 2.4)
Mother's years of education	0	2.4 (SD: 2.8)	9.2 (SD: 4.2)
Father's years of education	1.3 (SD: 1.7)	4.6 (SD: 1.9)	8.1 (SD: 4.1)

All the relevant between-group differences are significant (L1VAS-L2GR vs L1GR-L2VAS: $\chi^2(2,28) = 28.000$, $p < 0.001$, $\eta_p^2 = 0.616$; 2L1s vs L1GR-L2VAS: $\chi^2(2,47) = 8.583$, $p = 0.014$, $\eta_p^2 = 0.427$; L1VAS-L2GR vs 2L1s: $\chi^2(2,27) = 9.832$, $p = 0.007$, $\eta_p^2 = 0.603$). The analysis suggests that the frequency of VAS use by the two older generations of speakers is increased while there is no use of the heritage language by the younger generation within the school context, intensifying the endangered state of VAS among younger sequential bilinguals who acquired VAS as an L2.

4.2 Data on current language practices

We examined the current language practices of bilinguals through the analysis of the current language input and production. Starting with the use of VAS as the home language during adulthood, all L1VAS-L2GR bilinguals (100% | N: 13/13), 95.7% of 2L1s bilinguals (N: 22/23) and 37.5% of L1GR-L2VAS bilinguals (N: 9/24) report VAS as their home language. Frequency appears to be the same for L1VAS-L2GR and 2L1s groups but significantly lower for the younger generation of bilinguals (L1VAS-L2GR vs L1GR-L2VAS: $\chi^2(1,37) = 13.665$, $p < 0.001$, $\eta_p^2 = 0.608$; 2L1s vs L1GR-L2VAS: $\chi^2(1,47) = 17.688$, $p < 0.001$, $\eta_p^2 = 0.613$). It is important also to note that the partner's knowledge of VAS is critical in the support of VAS as a home language; the data reveal that all L1VAS-L2GR bilinguals' partners are speakers of VAS themselves (100% | N: 13/13), while the rate for the other two groups is 60.9% for the 2L1s group (N: 14/23) and 33.3% for the L1GR-L2VAS group (N: 8/24). The statistical analysis is of particular interest since all pair comparisons appear to be significant (marginally in one case), suggesting that the maintenance of the endangered language relates to whether or not the bilingual's partner is a VAS speaker (L1VAS-L2GR vs L1GR-L2VAS: $\chi^2(1,37) = 15.270$, $p < 0.001$, $\eta_p^2 = 0.642$; 2L1s vs L1GR-L2VAS: $\chi^2(1,47) = 3.577$, $p = 0.059$, $\eta_p^2 = 0.276$; L1VAS-L2GR vs 2L1s: $\chi^2(1,36) = 6.783$, $p = 0.009$, $\eta_p^2 = 0.434$).

Next, we turn to the analysis of the current language input and expression per language. Table 3 shows the relevant measurements for the three generations of heritage speakers of VAS.

The analysis on the amount of input exposure to each language reveals that there is significant variability across the three groups of bilinguals, VAS: $F(2,57) = 104.904$, $p < 0.001$; Greek: $F(2,57) = 137.275$, $p < 0.001$; both languages: $F(2,57) = 6.503$, $p = 0.003$; all pair comparisons $p < 0.001$. Highest amount of exposure to VAS is found for the L1VAS-L2GR bilinguals followed by 2L1s and, last, by L1GR-L2VAS bilinguals. Additionally, it is important to highlight that the 2L1s and L1GR-L2VAS groups have significant exposure to bilingual input as opposed to the monolingual VAS in the L1VAS-L2GR group. The data analysis of the amount of language production in each language also showed significant differences among the three groups, which is similar to the input measures for L1VAS-L2GR bilinguals but not for the two younger generations of heritage speakers of VAS, VAS: $F(2,57) = 75.409$, $p < 0.001$; Greek: $F(2,57) = 11.855$, $p < 0.001$; both languages: $F(2,57) = 106.939$, $p < 0.001$; all pair comparisons $p < 0.001$. Specifically, VAS remains the preferred language of expression for the L1VAS-L2GR bilinguals, while Greek is the highest preferred option for 2L1s and L1GR-L2VAS groups; this evidence suggests a decline in the use of VAS, and it underlines the current endangered state of language.

Table 3: Current language practices per bilingual type

		L1VAS-L2GR	2L1s	L1GR-L2VAS
Input	VAS	89.1%	44%	4.7%
	Greek	1.1%	23.1%	71.1%
	both languages	9.8%	32.9%	24.2%
Expressi- on	VAS	83.9%	26.4%	0%
	Greek	1.5%	51.5%	98.5%
	Both languages	14.6%	22.1%	1.5%

Additionally, we examined how bilinguals self-assess their language skills in their heritage language; particularly, they were asked to describe their skills selecting one of the three options presented in Table 4:

The analysis shows significant variation in the data set, with L1VAS-L2GR and 2L1s bilinguals rating their comprehension and production skills in VAS as good while the L1GR-L2VAS group self-report good comprehension skills and production with some difficulties (L1VAS-L2GR vs L1GR-L2VAS: $\chi^2(2,37) = 37.000$, $p < 0.001$, $\eta_p^2 = 0.940$; 2L1s vs L1GR-L2VAS: $\chi^2(2,47) = 30.540$, $p < 0.001$, $\eta_p^2 = 0.806$). This evidence suggests that despite the reduced input in VAS and the limitations in the oral production of the younger generation of heritage speakers, comprehension skills in VAS remain relatively intact.

4.3 Attitudes toward the heritage and majority language

Qualitative analysis of attitudes of bilinguals toward the endangered and majority languages showed that the identification of VAS as the mother tongue was reported only by L1VAS-L2GR and 2L1s bilinguals, while the L1GR-L2VAS bilinguals indicated Greek as their mother tongue. In the case of the L1VAS-L2GR group, their linguistic profiling in terms of AoO of exposure to VAS aligns with the identification of VAS as their L1; while for the simultaneous bilinguals, despite the L1 status of both languages, VAS is reported as the mother tongue, further accentuating the importance of the heritage language to the speakers themselves in relation to Greek, i.e., the majority language. For the L1GR-L2VAS bilinguals, their report of Greek as the L1 is expected and in line with their linguistic profile considering both the AoO of exposure to VAS and the overall input and expression in each language both early in life and currently. A follow-up question on the importance of VAS to the bilingual participants as well as to their younger family members [i.e., (grand) children], the majority of the informants, irrespective of their bilingual type, responded strongly and positively highlighting the obligation to maintain their cultural heritage and the language of their ancestors. A characteristic quote by an informant of the 2L1s group is as follows: “It is the language of my mother and father, it is my language, it has to be preserved. It is the element which makes us who we are.” Additionally, they expressed great concern on the endangered status of VAS which they related to younger speakers’ limited opportunities to learn and use the language; a recurring comment made by L1VAS-L2GR informants is as follows: “My grandchildren barely understand me when I talk in VAS. This makes me so sad.” Lastly, when asked to describe situations where the use of VAS was disallowed or related to any negative attitudes toward speakers of VAS, quite interesting findings emerged from the analysis. L1VAS-L2GR and L1GR-L2VAS bilinguals, the older and younger generations of VAS speakers of the study, respectively, reported no negative incidents. However, the 2L1s group replied that they were disallowed to use VAS at school even when the teacher was a VAS speaker himself/herself and related any negative experiences thereafter to that fact; one of our informants commented on this point with the following: “We were not allowed to use VAS in school, actually we were punished if we did so. I was so confused [...]” The negative attitudes at the school context which 2L1s bilinguals experienced during childhood can be one of the key reasons why parents themselves opted for the majority language leading to a significant delay in the AoO of exposure to VAS for the youngest generation of VAS speakers, which, consequently, intensified the severely endangered state of the language today.

Table 4: Self-assessment of language skills in VAS

	L1VAS-L2GR	2L1s	L1GR-L2VAS
Good comprehension and no production skills	0% (N: 0/13)	4.3% (N: 1/23)	29.2% (N: 7/24)
Good comprehension and some production difficulties	0% (N: 0/13)	17.4% (N: 4/23)	70.8% (N: 17/24)
Good comprehension and good production skills	100% (N: 13/13)	78.3% (N: 18/23)	0% (N: 0/24)

5 Discussion

The present study set out to investigate the linguistic profile of the heritage speakers of VAS, an endangered spoken-only variety of VA in the community of Sirrako. The novelty of the study relates to the fact that neither the variety nor its speakers has been investigated before (for linguistic fieldwork in other varieties of VA, see Katsanis and Dinas 1990, Beis 2000, Dinas 2004, Campos 2005, Mavrogiorgos and Ledgeway 2019, Mavrogiorgos 2017) and also, more importantly, we have opted for a psycholinguistic approach to the data analysis. Specifically, we explored the effect of developmental factors in the linguistic profiling of VAS/Greek bilingual speakers, which is a perspective not adopted by the majority of studies on VA. The study also aimed at evaluating the exact state of endangerment of the VAS language, as this is revealed by the practices and skills of its bilingual speakers.

The informants of the study spread across three generations of VAS speakers with great variation regarding the AoO of exposure to VAS, reflecting different degrees of competence in the heritage language. To document the variability across the 60 VAS- and Greek-speaking bilingual participants in our study, we developed an extensive questionnaire that focused on language experiences in childhood and current adult life. Specifically, we examined the AoO of exposure to each language, early life language practices and current language practices along with attitudes toward the heritage and majority language. Based on the study's data and in line with earlier work by Meisel (2009), Montrul (2008), Paradis (2008), Unsworth (2013a), Blom and Bosma (2016), and Schulz and Grimm (2019) on the role of AoO of exposure to each language, we identified three types of bilingual speakers of VAS: (a) sequential bilinguals with VAS as their L1 (L1VAS-L2GR), (b) simultaneous bilinguals with two L1s (2L1s) and (c) sequential bilinguals with VAS as an L2 (L1GR-L2VAS). This type of grouping enabled us to associate the variation in input for each language with the current language outcomes and attitudes toward each language.

The order of acquisition of each language was shown to be very informative; first, on the variation found in terms of language practices and competence within the VAS community similar to the findings from earlier research on bilingual development (Paradis and Genesee 1996, Granfeldt et al. 2007, Unsworth et al. 2014) and, second, on the substantial decline in heritage language competence in younger bilinguals, verifying our claim of the endangered state of VA and of the VAS variety, in particular. The endangered state of VA has been noted earlier in research (Katsanis 1977, Kramer 1987, Katsanis and Dinas 1990, Trudgill 1992a, 1992b, Greek Helsinki Monitor Report 1995, Sella-Mazi 1997, Dahmen 1997, Trudgill 2000, Koufogiorgou 2007), and the present study adds significantly to this body of work by highlighting the critical state of VAS in particular through both quantitative and qualitative measurements of the linguistic profile of bilingual speakers.

The linguistic profiling measurements focused on the place of birth and area of residence during childhood and adulthood; the area and years of schooling across primary, secondary and tertiary education; the parental educational background; the home language practices across the life span and the means of exposure to each language. Additionally, we considered the language(s) used at the school context, the overall amount of input in each language, the development of literacy in the majority language, the amount of expression in each language and the current self-assessment of competence in VAS along with attitudes and personal experiences using the variety and the effect they had in their language choices thereafter. The data analysis of these factors showed significant variability among three bilingual types.

Starting with the early life language practices, VAS was reported as the home language during childhood by L1VAS-L2GR bilinguals and 2L1s bilinguals but only by 25% of L1GR-L2VAS bilinguals with an overall very late exposure to the heritage language. The impact on language development due to variations in the amount of language input has been similarly documented in earlier work (Jia and Fuse 2007, Thordardottir 2011, Kaltsa et al. 2020) and the use of the minority language as the home language has been associated with positive language outcomes as in our study (De Houwer 2007, La Morgia 2011). It is also important to note that all participants attended schools using only the majority language for instruction, namely, Greek, and only L1VAS-L2GR and 2L1s bilinguals would use VAS during recess to interact with peers. These patterns in the data set underline that the frequency of VAS use by two older generations of speakers increased during the formative years of (pre)school age, while there was very limited use of the

heritage language by the younger generation both at home and at the school context, intensifying the current endangered state of VAS.

The data analysis on the current amount of exposure to each language and language production also revealed significant variability across the three groups of bilinguals. Specifically, the highest amount of exposure to VAS is found for the L1VAS-L2GR bilinguals followed by 2L1s and last by L1GR-L2VAS bilinguals; this pattern in the data is expected, given the type of bilingualism in each case (for similar findings, see Unsworth et al. 2014). Meanwhile, there is an increase in the bilingual input, allowing room for the maintenance and revitalization of VAS, which language policies in support of endangered languages could potentially focus and build on (see also general discussion on policies in Fakhurrazi 2016). Considering the significant drop in language production of VAS by 2L1s and L1GR-L2VAS bilinguals whose preferred Greek as the language of expression, it is evident that VAS is critically endangered. This concern is further verified by the data on the self-reported competence in VAS by the informants of the study (Table 4). There is clear evidence that while comprehension skills remain available to the majority of the speakers, production skills are severely affected. Self-reported competence in the heritage language has been shown to relate with home language practices and different types of bilingualism which is also verified by the data set of the present study (Kondo-Brown 2005, Marian et al. 2007, Jia 2008, Alarcón 2010, Isakson 2016).

Lastly, the analysis of attitudes of bilinguals toward the endangered and majority languages revealed that (a) within the VAS community the maintenance of the language is of primary importance, (b) negative attitudes toward the endangered language within the school context can have adverse effects in the maintenance of a heritage language from one generation to the next one and (c) the younger generation of VAS speakers (L1GR-L2VAS), despite their self-reported limited language skills in VAS, is in support of revitalizing their language and cultural heritage; thus, policies in support of such actions would be supported by the VAS younger community members.

6 Conclusion

The present study attempted to explore the profile of VAS/Greek bilingual speakers underlining the role of a heritage and endangered language in their overall bilingual development. The detailed documentation of factors affecting language development across the life span, such as AoO of exposure to each language, quantity and quality of input in a variety of social contexts, was shown to be necessary when attempting to record a language variety and to disentangle the contribution of these factors in the maintenance of this variety. Consequently, any linguistic documentation of an endangered language that could potentially lead to the buildup of a corpus used for the maintenance and possible revitalization of this language requires the detailed linguistic profiling of informants. The present study employed self-reported language competence measurements for its heritage speakers (Kondo-Brown 2005, Jia 2008); however, future endeavors in the area require independent means for the assessment of language skills that could be cross-evaluated to the self-reported language competence data.

In addition, the current study has shown how valuable the data of L1VAS-L2GRs and 2L1s are in particular, since they have the highest self-reported competence in the heritage language. Considering, though, the continuously shrinking number of VAS/Greek bilingual speakers that fall in these two groups and, especially, the L1VAS-L2GR group, immediate action is required with regard to both continuous fieldwork with the endangered variety (see also discussion in Leivada, D'Alessandro and Grohmann 2019) and support toward the respective language communities. Future work could focus on (a) the documentation of heritage language per bilingual group so as to explore any transfer from the majority language to the heritage language and (b) initiatives to raise awareness within the heritage communities on the linguistic diversity that is largely unnoticed by VA speakers along with the bilingualism benefits that are often related to high-status languages rather than heritage and endangered languages.

Lastly, the paradigm of VAS which is a spoken-only variety provided the opportunity to explore the effects of the absence of a written form of language and the possible acceleration of language loss processes

in heritage language communities (Manovich 2014). Thus, maintenance policies adopted for other spoken endangered languages (see Fakhrrrazi 2016, Jones and Mooney 2017) need to be put forward for VA as well. The VAS/Greek bilingual data of our study clearly suggest that immediate action is required. Such actions can be the further linguistic documentation of VAS and other varieties of VA, increase in the prestige of the language itself within the community, educating the general public on the benefits of bilingualism and the importance of heritage languages and, possibly, developing a written form of the language, so that literacy can enhance the sustainability of all these policies.

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