Gender Agreement in Heritage Serbian: A First Study

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Abstract   This study investigates nine child heritage speakers' gender agreement in Serbian, with German being the dominant language. We hypothesized that our participants will display different stages of the gender system development found with (Slavic) monolinguals and bilinguals, in which low-frequent non-canonical grammatical suffixes get to be interpreted as regular, canonical endings, resulting in attributive agreement errors among speakers. The results from an elicited production task confirm that speakers rely on morphophonological cues to determine noun gender, the lower their proficiency is. On the other hand, the advanced speakers exposed agreement patterns similar to our monolingual control group. Expectedly, the overall age was found to have a positive effect (when the proficiency is not disparate), as both older child bilinguals and monolinguals (7-10) demonstrated a more target-like gender agreement system. Finally, our findings show that the advanced participants utilized a three-gender system, slightly simplified than the elaborate one found with monolinguals, while the lowest-ranked subjects exposed a two-gender system (masculine vs. feminine).

Keywords   Heritage language. Serbian. German. Gender agreement. Language acquisition. Canonicity.

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1   Introduction

This paper represents our first study of noun-adjective agreement in Serbian heritage speakers aged 7 to 10, whose dominant language is German. In this study, we refer to heritage speakers as those who were exposed from an early age, even infancy, to a certain 'home language', which is different from the official and majority language of their environment (Valdés 2000).

Gender agreement in heritage languages has been the subject of research concerning both non-Slavic[1] and Slavic heritage speakers (Mitrofanova et al. 2018; Polinsky 2008; Schwartz et al. 2014). However, there is less research on heritage Serbian (e.g. Vuletić Đurić 2015), and almost no research on gender agreement in heritage Serbian with German being the dominant language. In literature, gender agreement in monolinguals and bilinguals has been shown to be one of the grammatical properties acquired very early on. However, some studies mention that there can be facilitating factors to acquiring the agreement faster in some languages than others. In the study of Kupisch, Müller, Cantone (2002) (extracted by Schwartz et al. 2014), it was observed that the bilingual children made more errors in determiner-noun agreement in French than in Italian. This was explained by the fact that Italian nouns are classified by gender according to very transparent endings, which is not the case in French.

Since the majority of Serbian nouns can be classified by their endings (e.g. masculine nouns end in a consonant: *čovek* 'man'), similarly to the situation in Italian, we expect their agreement to be acquired quite early in both monolinguals and bilinguals. However, we do expect certain delay of agreement acquisition in nouns that have non-transparent endings (for instance, feminine nouns with the null ending, which is a suffix typical for masculine nouns: *krv* 'blood'), especially among bilinguals. Nevertheless, given the fact that the dominant language of the heritage speakers in our study is German – which has a three gendered system and is inflectional enough to have different endings for each gender in determiner/adjective-noun agreement – we expect that it could facilitate gender acquisition in heritage Serbian.

The study is organized in the following manner: we first give a short overview of relevant research on gender agreement in heritage speakers, monolinguals and bilinguals (section 2); followed by a description of the gender system and gender agreement in Serbian (section 3); we present the research questions (section 4) and methodology (section 5), analysis of the results (section 6), discussion (section 7) and we finish with the conclusion (section 8).

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[1] Alexiadou et al. 2020; Boers et al. 2020; Johannessen, Larsson 2015; Montrul, Foote, Perpiñan 2008; Montrul, Potowski 2007.

2   Previous Research on Gender Agreement in Heritage Speakers, Monolinguals and Bilinguals

A lot of research on gender agreement has been done with heritage speakers in the USA, where English is the dominant language. Montrul (2008) showed that adult HL (heritage language) speakers and L2 (second language) speakers of Spanish made more errors than monolinguals in the domain of syntactic agreement. On the other hand, Alarcón (2011) came to the conclusion that the Spanish heritage speakers were closer to monolinguals than to L2 speakers in their gender agreement performance, based on a picture describing task.

Some studies (Montrul, Potowski 2007; Cuza, Pérez-Tattam 2016) point out that the difference between monolinguals and HL speakers is still significant in terms of gender agreement, which is attributed to language attrition (mostly in adults), or incomplete acquisition (children), because of a restricted HL input, and a growing exposure to the dominant language (Goebel-Mahrl, Shin 2020). Since English is a language that lacks the category of grammatical gender in the nominal domain, there is a reasonable assumption on its potential negative transfer into the HL. However, some researchers (Irizarri van Suchtelen 2016) compared the situations with different dominant languages and showed that when the dominant language has a more developed gender agreement (such as German or Dutch), the HL speakers were closer to monolinguals, than when the dominant language was English, which can be an indicator of a positive transfer of the dominant language.

When it comes to research on error analysis in (non-Slavic) gender agreement, studies such as Montrul and Potowski (2007) show that monolinguals aged 3-4 years perform at ceiling, unlike the bilinguals. As a matter of fact, it has been determined that it is the bilinguals that produce the most errors when agreeing nouns with non-canonical endings.

As for the error analysis in heritage gender agreement in Slavic studies on HL, results showed that masculine gender appeared as the dominant gender, almost as the default gender, so naturally, HL speakers made the least errors in agreeing masculine nouns (Montrul et al. 2008, on heritage Russian and Polish). In the same study, it was found that there are more errors in nouns with non-canonical ending than in those with canonical endings. Polinsky (2008) made a summed conclusion that among American speakers of heritage Russian, there are two distinct gender systems: 1) a three-gendered system in high proficiency speakers, which is different from monolingual three-gendered system, since neuter nouns ending in the unstressed vowel -o are categorized as feminine nouns (a prominent property present in Russian, but not in Serbian language); 2) two-gendered system in low proficiency speakers, in which all the

neuter nouns are categorized as feminine. The author explains that the latter group of speakers didn't acquire the declension system, and therefore, they rely on the phonological properties of the noun, that is, whether it ends in a vowel or consonant.

Similarly, Schwartz et al. (2014) describe that

it is important to note also that gender assignment of end-unstressed neuter nouns and feminine nouns ending in a palatalized consonant was challenging even for the older monolingual children in this study. (2)

The authors point out that at the age of 5, they were still mastering the gender of these nouns. These findings support Slobin's (1985) hypothesis on the critical role of salience and transparency in the child's perception of final morphemes of words: "Overall, children have difficulty with grammatical morphemes that are less readily identifiable as distinct acoustic entities" (1164).

In their study Mitrofanova, Rodina, Urek and Westergaard (2018, 17) state that

the results show that purely cue-based gender assignment is more challenging for the bilinguals, while the differences between the bilingual groups indicate that the amount of exposure plays a role. At the same time, it needs to be stressed that all groups of participants showed sensitivity to phonological gender cues – albeit to different degrees. This might be taken as evidence that lexical learning of the gender category of familiar nouns in addition to cue-based assignment is an important strategy in grammatical gender acquisition for both bilinguals and monolinguals.

Rodina and Westergaard (2017, 211) state that "the children's knowledge of grammatical gender was found to be dependent on the transparency of the gender system in the target language and the amount of exposure in the home". This means that transparency is important in Russian and that opaque noun classes are more problematic both for monolinguals and bilinguals, than transparent noun classes. The authors also noted the importance of the role of parental input: children with two Russian-speaking parents were outperforming those with one Russian-speaking parent. Qualitative difference of input was also found. Children with lower input have not mastered the declension system of Russian, and are insensitive to gender cues. The result is therefore, reduction in the gender system, confirming previous findings from Russian heritage speakers (Polinsky 2008).

Dieser (2009, 276) found that both monolinguals and bilinguals rely on morphophonological characteristic of words and not on semantic gender up to age 3 or 4. He concludes that their intermediate

system is two-gendered (with feminine and masculine). Similarly, Velnić (2020, 11) conducted research on Croatian and Italian monolinguals, and found that Croatian monolinguals also have two stages in the gender system development, with the first stage resembling the intermediate Russian gender system. At that stage, the monolinguals (aged 2;10) produce most errors in neuter nouns, with a rather stable feminine vs. masculine distinction, whereas at the second stage, monolinguals (aged 4;2) perform better with neuters. However, at that point feminine gender agreement is at ceiling, but that is not the case with masculine, due to the "similarity of masculine and neuter gender systems". The author concludes that in Croatian, the transparency of the gender system facilitates the acquisition, but case syncretism and low frequency (neuter nouns) hinder it.[2]

Ševa et al. (2007) conducted research on diminutive advantage in gender agreement of Russian and Serbian children, and found that in both groups of speakers (mean age 3;9 years) the magnitude of diminutive advantage suggests that the frequency of a particular form plays a smaller facilitating role than the morphophonological properties of the diminutives.

Kovačević, Palmović and Hržica (2009) found that the distribution of all three genders in the Serbian children corpus reflects the distribution in the language. The authors found that children are using all the seven cases (with different frequency) by the age of 1;10. Velnić (2020, 6) points out that since Kovačević, Palmović and Hržica's corpus contains data only until 2;8, there is no evidence of a more distributed case paradigm, or of any significant frequency rise among neuter nouns. The author assumes that only with increased exposure to the full case paradigm can we see how it reflects on the acquisition of gender, especially masculine and neuter, as it could take children longer to realize these are two different genders. She then hypothesizes that if the case system does affect acquisition of gender, then the rich case system might hinder it, but if the role of nominative is big in gender acquisition, its timing might be affected by the transparency of this case. The author states that the transparency plays a great role in gender agreement acquisition in Croatian and Italian, but the transparency should be perceived as a continuum rather than a binary feature between transparent and opaque (Velnić 2020, 12).

Pophristic and Schuler (2021, 904) found that a child can assume a noun's gender based solely off of its nominative form, but also based off of a non-nominative case declension for 2 of 3 noun classes. A

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2 In Serbian, neuter form can be marked only in nominative, accusative and vocative case (in both Sg and Pl), while in all other cases it takes the syncretic, i.e., default, masculine suffixes. Nevertheless, neuter nouns are present in the everyday language surrounding the children from day one.

child can also assume a noun's declension pattern and (with the exception of the neuter gender), it can assume the noun's nominative singular ending based off of the noun's gender. The authors predict that a child could

> take a novel noun which was heard in only one specific syntactic context and use it in novel syntactic contexts which may require overt gender marking or different case declensions. (Pophristic, Schuler 2021, 903)

Despite the presented facts concerning other Slavic HLs, there is less research on heritage Serbian (e.g. Vuletić Đurić 2015), and almost no research on gender agreement in heritage Serbian, with German being the dominant language. Needless to say that all the aforementioned studies are important for our current research, as we heavily rely on the similarities of Russian Serbian and Croatian in terms of gender assignment and gender agreement (but without the problematic Russian end-unstressed neuter nouns), and we expect similar outcomes in Serbian heritage speakers.

3 Gender System and Agreement in Serbian. Differences from German

Corbett (2001) explains that

> the defining characteristic of gender is agreement; a language has a gender system only if noun phrases headed by nouns of different types control different agreements. The evidence that nouns have gender in a given language thus lies outside the nouns themselves. (6335)

The author also emphasizes the difference between gender assignment and gender agreement, the first being the inherent feature of the noun, while the other is basically congruency with other words, which is dependent on the noun's gender (Corbett 1991).

Serbian is a language with three grammatical gender classes: masculine, feminine, and neuter gender. For animate nouns denoting humans, biological sex determines the grammatical gender class (Arsenijević, Borik 2020, 9) (*čovek* 'man'; *žena* 'woman'). Animate nouns denoting animals are assigned the gender on the count of what is culturally representative sex of the animal, or simply unspecified (*mačka* 'cat' [fem. gender]; *zec* 'rabbit' [masc. gender]).

Inanimate nouns in Serbian get their grammatical gender in an arbitrary way, and these are classified by the morphological properties of the noun (like the type of declension) and depending on the

agreement with an agreeing constituent (Arsenijević, Borik 2020, 10). In animate nouns, typically, the semantic and grammatical gender match, but there can be a more complex agreement in nouns whose semantic and grammatical gender do not match (so-called hybrid nouns, like *pijanica* 'drunkard'). In this study, we avoided such hybrid nouns, and the only mismatching type of animate nouns we looked at were the ones which belong to the morphological class of feminine gender, but are semantically masculine (*tata* 'Dad', *papa* 'pope'...), and have straightforwardly semantic agreement. We present the two ways in which grammatical gender classes are determined in Serbian as follows [tab. 1].

Table 1   Declension classes in Serbian language

	First declension class			Second declension class	Third declension class		Fourth declension class
	Masculine		**Neuter**	**Neuter**	**Masculine**	**Feminine**	**Feminine**
	cons.Nom. Sg.	*o/e* Nom.Sg.	*o/e* Nom.Sg.	*o/e* Nom. Sg. (with extension in Gen.Sg.)	*a* Nom.Sg.	*a* Nom.Sg.	cons. Nom. Sg.
Animate	*čovek* 'man'	*Slavko*, *Milivoje*		*pile* (Gen. Sg. *pileta*) 'chicken'	*tata* 'Dad'	*žena* 'woman'	
Inanimate	*telefon* 'phone'	*sto* 'table', *radio* 'radio', *kupe* 'compartment', *tupe* 'taupe'	*selo* 'village', *polje* 'field'	*bure* (Gen. Sg. *bureta*) 'barrel'		*olovka* 'pencil'	*peć* 'furnace', *krv* 'blood'

Agreement patterns:
Masculine: *lep/lepi čovek* (beautiful man); *lep/lepi telefon* (beautiful phone); *lep/lepi Slavko* (beautiful Slavko); *lep/lepi kupe* (beautiful compartment); *lep/lepi tata* (beautiful Dad)
Feminine in a consonant: *lepa peć* (beautiful furnace)
Neuter: *lepo selo* (beautiful village); *lepo dete* (beautiful child)
Feminine in -a: *lepa žena* (beautiful woman)

Items that agree with nouns, like the mentioned adjectives above, come in three-agreement classes, which is one class fewer than nouns (Arsenijević, Borik 2020, 10). Like the case is with Serbian, German exposes a three grammatical gender system, with masculine, feminine and neuter. While biological sex can play a role in the grammatical gender of the noun, especially for nouns denoting a representative of one of the sexes (*der Mann* 'man' [masculine]; *die Frau* 'woman' [feminine]), there can also be some mismatches in the grammatical and semantic gender of the noun (*das Mädchen* 'girl' [neuter]), with appropriate syntactic agreement. Also, unlike Serbian, in

which nouns are classified by their declension classes (and therefore, by the typical endings the in nominative singular form), in German there are quite rarely some morphophonological cues to what the gender of the noun is. So, we can expect that being a three-gendered language, German as the dominant language can have a facilitating effect on Serbian heritage, but at the same time, the lack of declension on the nouns in German might create a challenge for those speakers who have not mastered the declension system in Serbian, and therefore might rely on a simplified classification of the nouns based entirely on their endings.

4 Research Questions and Hypothesis

Our research questions are:
1. What are the overall similarities/differences between heritage speakers and their monolingual peers in patterns of noun-adjective agreement?
2. How are the error patterns explained in terms of gender, animacy and noun ending (canonical vs. non-canonical)?
3. How are factors such as language proficiency and age affect correlated to gender agreement in heritage speakers?

We hypothesized that monolinguals would perform at ceiling, while heritage speakers would show results of incomplete acquisition (Polinsky 2008) in agreement of nouns with non-canonical endings.

5 Methodology

5.1 Task Design

The participants performed a production task. They were shown pictures of pairs of objects, animals or people contrasting in some distinct feature and were asked to either finish the sentence e.g.: On the table there is a… 'blue egg'; or give complete answers: What's under the table? A 'yellow egg' (*Na stolu je… 'plavo jaje'. A ispod stola? 'Zeleno jaje'*). The initial existential sentence enforced nominative case in the subject's answer. Stimuli consisted of 6 groups of nouns (three genders, with canonical and non-canonical endings), with at least 6 examples in each group. In Serbian, the -*a* ending is the canonical ending for feminine (in)animate nouns, and noncanonical for masculine animate nouns, the -*o* and -*e* endings are canonical for (in)animate neuter, and noncanonical for inanimate masculine, while nouns ending in consonant are canonically (in)animate masculine, noncanonically feminine inanimate. The choice of lexicon items was

established on the overall highest frequency among the nouns with the canonical null and non-canonical -a ending, and it included typical representatives of nouns with non-canonical endings, including animacy as criterium in masculine nouns ending in *-o/-e* (according to CHILDES database for Serbo-Croatian). Given the fact that the latter group is significantly infrequent and underrepresented in the everyday language, we expected that these items are not part of the active nor passive lexicon of all participants, and especially heritage speakers. This 'gap' was solved by introducing the novel noun items explicitly, while the speakers were supposed to describe them by its size, color etc. (*Ovo je tupe. Tupe je…/ This is a taupe. The taupe is…*). Those contexts gave us valuable insight into the acquiring mechanism in which grammatical suffixes pose as the only gender cues, and the learners are manipulating novel noun stems. We give the full list of the used lexicon items below. Their order of appearance was randomized in the actual task **[tab. 2]**.

5.2   Participants

In total, nine heritage speakers of Serbian from German-speaking areas participated in our study. The term *Serbian heritage speaker* covers children who have been exposed to Serbian since their birth in their home, but whose dominant language is different from this 'home language'. All the participants could technically be considered bilinguals, since all of them, to some degree, speak and understand their heritage language, in addition to speaking the dominant language of their society (Montrul 2004, 125; Valdes 2000, 1). In our case, these speakers represent second generation immigrants in dominantly German-speaking environments. We chose this particular case of HS because of the last decade's increase in immigration from the Balkans, especially to most sought and favorable European countries, among which are Germany, Switzerland and Austria. In addition to that, there are a lot of Serbian communities in metropolises, and the children often attend Serbian Saturday schools, usually organized by local churches.

Preceding the task, participants' parents were given a questionnaire concerning their children's linguistic background, which included a consent form. Heritage speakers were given a standard proficiency level test for Serbian language, according to the CEFR (Common European Framework of Reference for Languages) (2020), which consists of 6 levels, A1-C2. The oldest participant was 15 and the youngest 4 years old (mean age of participants is 8;7), with a high school student and a preschooler on both ends of our age scale. Therefore, their results could be taken into consideration for either confirming the hypothesis that older bilinguals perform better, or,

Table 2   Lexical items used in the study

masculine gender				feminine gender		neuter gender	
canonical ending	non-canonical ending			canonical ending	non-canonical ending	canonical ending	
consonant	O	e	a	A	consonant	O	e
žuti/crveni telefon 'yellow/ red phone'	zeleni/beli auto[1] 'green/ white car'	crni/plavi tupe 'black/blond taupe'	mladi/stari sudija 'young/ old judge'	mršava/ debela devojka 'thin/fat girl'	plava/žuta noć 'blue/ yellow night'	veliko/ malo ogledalo 'big/small mirror'	plavo/žuto jaje 'blue/ yellow egg'
crni/ žuti ključ 'black/ yellow key'	veliki/mali pikado 'big/ small dart-board'	plavi/crveni kupe 'blue/red compartment'	mladi/stari papa 'young/ old pope'	velika/ mala devojčica 'big/small girl'	crvena/crna peć 'red/ black stove'	veliko/malo drvo 'big/ small tree'	žuto/zeleno polje 'yellow/ green field'
beli/crni sat 'white/black clock'	plavi/sivi tornado 'blue/ gray tornado'	zeleni/crveni kanabe 'green/ red sofa'	mršavi/ debeli deda 'skinny/ fat grandpa'	crna/siva mačka 'black/ gray cat'	velika/ mala kost 'big/ small bone'	zeleno/žuto selo 'green/ yellow village'	zeleno/ crveno dugme 'green/red button'
veliki/mali nož 'big/small knife'	odrasli/ dečji džudo 'adults'judo/ kids' judo'	beli/crni tabure 'white/black tabouret'	mladi/stari vladika 'young/old high priest'	bela/ crna ovca 'white/ black sheep'	crvena/ zelena mast 'red/yellow ointment'	plavo/ narandžasto nebo 'blue/ orange sky'	veliko/ malo bure 'big/small barrel'
beli/plavi jastuk 'white/ blue pillow'	odrasli/dečji tekvondo 'adults' taekwondo/ kids' taekwondo'	veliki/ mali pire 'big/small puree'	mladi/stari ujka 'young/ old uncle'	žuta/ zelena žaba 'yellow/ green frog'	crvena/bela reč 'red/ white word'	žuto/crveno slovo 'yellow/red letter'	plavo/sivo more 'blue/ gray sky'
sivi/ beli oblak 'gray/ white pillow'	plavi/crveni biro 'blue/red office'	veliki/mali bife 'big/small buffet'		visoka mama/ niska mama 'tall mother/ short mother'	velika/mala kokoš 'big/ small hen'	crno/belo vino 'red/ white wine'	moje/tvoje ime 'my/ your name'
						svetlo/ tamno pivo 'light/dark beer'	

1   Interestingly, the noun *auto* showed stable target-like results in almost all heritage speakers, which can be attributed to the high frequency of the word. However, it must be noted that in some varieties of Serbian language, this noun is in neuter gender, so its agreement can be explained as a result of the direct input.

on the contrary, that the process attrition increases with age progression. The control group were monolinguals from age 4 to age 10, that were hypothesized to have acquired gender agreement almost completely at a very early age. By monolinguals we refer to children who were born and still live in Serbia, whose dominant language both at home and in the social surrounding is Serbian. Taking into account the relatively small number of participants (<10), we cannot draw relevant statistical inferences about the correlation between factors such as proficiency or age, but we can at least point out the general tendencies.

Five heritage speakers were from Germany, two from Switzerland and two from Austria. All the participants are simultaneous bilinguals, since they were born in these countries and were exposed to both Serbian and German from an early age. It is important to point out that out of five participants from Germany, three were siblings, and the two HS from Switzerland are brothers, as well. Seven participants come from monolingual families, meaning that both of the parents are Serbian, and two participants' mothers were even born in the diaspora. Other two participants are actually two of the three brothers from Germany, whose mother is German, but their father remarried to a Serbian woman (mother of their half-brother).

Six heritage speakers were placed on lower proficiency levels (A1 and A2), and three participants were ranked as with higher proficiency levels (B1 and B2), which matches with the evaluation grades estimated by their parents. Expectedly, the proficiency level can be correlated with the level of everyday input and use of Serbian language, since lower-ranked HSs use more German than Serbian in their home environment, as opposed to higher proficiency HS. Two of the three brothers from Germany, who have a German mother, previously spoke only German at home with their parents, and since their parents' divorce, and their father's marriage to a Serbian woman, they started speaking Serbian on weekends, during their regular visits of their father and step-mother. It is important to note that the use of Serbian is mainly restricted to home environment, for both parties – both lower and higher proficiency speakers. In addition, these speakers have never gained any formal education on Serbian language.[3]

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3   The parents also noticed that the frequency of visiting Serbia was somewhat reduced due to the COVID 19 pandemic restrictions in the years 2020-23.

6   Preliminary Results

We present here results of our first study, which, if we take into account the relatively small sample of participants, are considered as a possible tendency in error patterns among Serbian monolingual and heritage children.

6.1   Percentage of Errors

In Table 3 we show the percentage of errors among heritage speakers for each gender of the nouns, dividing the three categories into the ones with canonical and non-canonical endings. The most errors occur with feminine gender of non-canonical ending.

Table 3 Heritage speakers

masculine gender				feminine gender		neuter gender	
canonical ending	non-canonical ending			canonical ending	non-canonical ending	canonical ending	
consonant	O	e	a	a	consonant	o	e
10%	50%	40%	0%	10%	90%	20%	20%

In Table 4 we show the percentage of errors among monolingual speakers for each gender of the nouns, dividing the three categories into the ones with canonical and non-canonical endings. Likewise, the most errors occur with feminine gender of non-canonical ending.

Table 4 Monolinguals

masculine gender				feminine gender		neuter gender	
canonical ending	non-canonical ending			canonical ending	non-canonical ending	canonical ending	
consonant	o	e	a	a	Consonant	o	e
	10%	10%	0%	0%	90%	0%	0%

Em. (9) had the most deviant gender agreement from the target language, as the sole agreeing pattern he demonstrated for attributive adjectives was masculine, which is the non-marked, default form. This implies that he exposed correct agreement on all masculine nouns (with canonical and non-canonical endings) by chance, without any indication of genuine gender distinction.
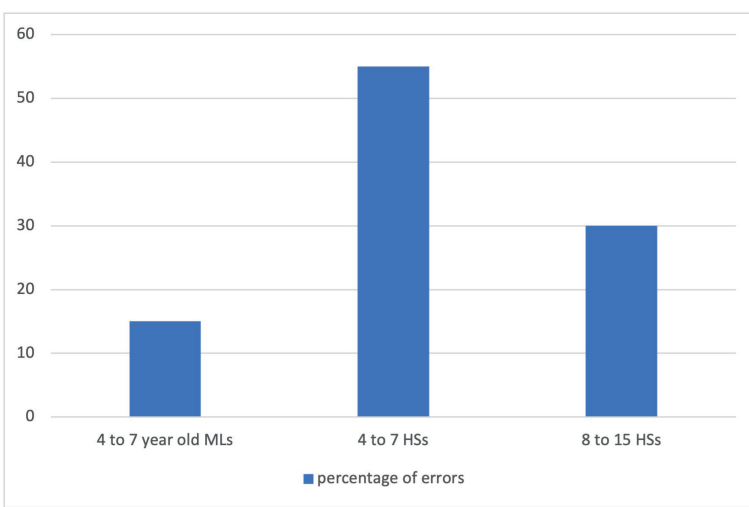
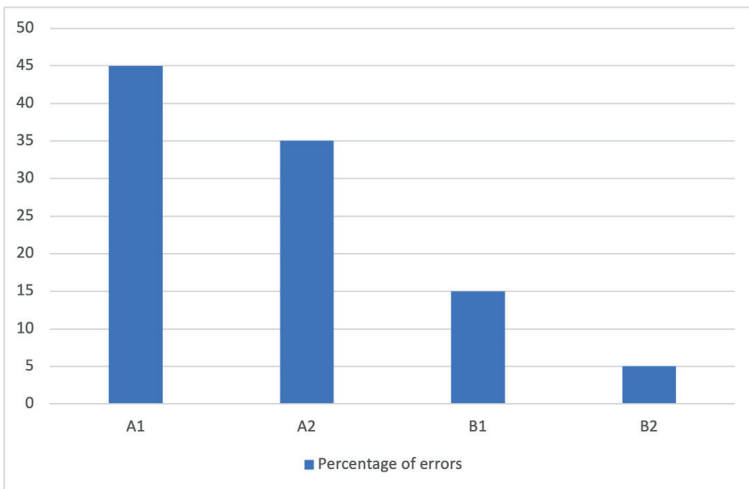**Chart 1**   Percentage of errors among MLs and HSs, presented by age

Chart 2   Percentage of errors among HSs categorized by proficiency level

One step further in gender agreement acquisition went Em.'s (9) older brother K. (15), who utilized a two-gender system, with all nouns (including neuters) except the ones with the -*a* ending interpreted as masculine, and all -*a* nouns referring to human females identified as feminine. Ev.'s (9) results conveniently illustrate the following learning phase, a three-gender system based predominantly on semantic

gender, with a clear distinction between masculine (canonical null suffix and non-canonical ending with -*a*) and feminine nouns (canonical ending with -*a*), while the non-canonical masculine nouns are (morphophonologically) analysed as neuter.[4]

E. (7) and M. (4) surprisingly had very similar results to V. (7), even though the first two demonstrated lower language proficiency levels, while V. was ranked higher. All three of them produced no errors when manipulating nouns with canonical endings. The same has been confirmed when dealing with masculine nouns ending with -*a*. Nevertheless, masculine nouns ending in -*o* or -*e* were mostly analyzed as neuter (80%) and feminine nouns ending with a consonant were interpreted as masculine (90%).

Quite unexpectedly, S. (8) and B. (10) also showed similar results, even though their proficiency level difference is considerable. In their case, most of the agreement was target-like, even in masculine nouns ending with -*o* or -*e* (around 70%). Even so, deviant gender agreement in these speakers was identified with feminine nouns ending in a consonant, which were regularly interpreted as masculine. Finally, L. (10), who demonstrated the highest proficiency level at our initial testing, accordingly exposed a completely target-like agreement behaviour.

Out of the six monolinguals aged 7, only one participant had completely target-like agreement, and the rest performed almost at ceiling, with feminine nouns ending in a consonant being agreed as masculine. The one monolingual aged 4 was almost the same as them, except she treated all the nouns ending in -*e* and -*o* as neuter.

7 Discussion

The results display the expected correlation between proficiency level (which is congruent with the percentage of input and use of Serbian, according to the parents' questionnaire answers) and the number of produced errors. This means that higher proficiency level HSs demonstrated a more target-like agreement, and utilized a three-gendered system, while the lowest proficiency speakers used rather deviant agreement patterns with a simplified gender system, with default neuter, or default masculine. However, there were two cases when lower proficiency participants showed similar results to a higher proficiency participant – in one case the agreement was more target-like, while in the other, this stage was still not reached. Looking

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4 It's important to note that the speakers on lower proficiency levels often mispronounce or did not pronounce the target words in the task, irrespective of their overall frequency and transparency.

at the participants' age, this (confounding) variable was expectedly in correlation with the number and types of errors – less target-like agreement was confirmed with subjects aged around 7, while more target-like agreement was found with 8 to 10-year-olds. The confounding effect of age is most distinctly seen in L., who is 10 and at the same time of the highest proficiency. He outperforms even the monolinguals, who, even though are of the same proficiency by default, still haven't acquired agreement in what seems to be the most difficult category – feminine nouns ending in a consonant. This notion matches Schwartz's (2014) observation that feminine nouns ending in a consonant are acquired last in monolingual acquisition, and is in line with Slobin's (1985) hypothesis that children will have more difficulties with less identifiable morphemes. Nevertheless, age cannot be the deciding factor in performing in a target-like manner, if the level of proficiency is very low, as we have witnessed with K.'s (15) performance. Otherwise, if certain minimum input has been provided to the HS, it follows a progression path similar to the one attested with monolinguals and bilinguals.

As for the types of errors, we can conclude that masculine nouns ending with -*a* had target-like agreement among all participants, mainly because they are animate (and could possibly be primed by the stimulus pictures): *papa* 'pope', *sudija* 'judge', *vladika* 'high priest', *tata* 'Dad'. In K.'s (15) and Em.'s (9) case, this could also be a consequence of the default masculine agreement pattern shown with almost all nouns. The overall results similarities shared by HSs and MLs are in line with Laleko's (2019) study on Russian HS, emphasizing that HS performed better than SLA students in noun-adjective agreement of masculine nouns ending with -*a*.

It must be noticed that most of the masculine nouns ending in -*e* or -*o* chosen for this study are, in fact, loan words, fairly unknown to the majority, if not to all of our participants, due to the fact that genuine Slavic common nouns never take the -*e* or -*o* ending in Serbian: *kupe* (compartment), *tupe* (taupe), *kanabe* (sofa), *bife* (buffe), *tornado* (tornado), *pikado* (dart board). In order to maintain the same referent type, we chose this solution over utilizing proper names, making it inevitably an experiment design step that could affect our results to certain degree. As one could assume, all the masculine nouns ending in -*e* or -*o* were mostly interpreted as neuter, as these endings in a three-gender system are typical neuter cues. When it comes to participants whose gender system is simplified and is default neuter or masculine, we cannot testify its separate existence. Our subjects' performance is more in line with the attainment of the monolingual participant aged 4, but rather disparate from the older monolingual participants, as monolinguals acquire masculine nouns ending in -*o/-e* agreement only after the agreement patterns of nouns with canonical endings have been entirely accomplished.

A thorough research should be conducted on the agreement pattern progression among Serbian monolinguals. Our participants seem to display different stages of this supposed path. Em. (9) stuck to the non-marked, default, masculine form, being almost insensitive to any gender cues. K. (15) used a two-gender system, in which only -a nouns referring to human females were analyzed as feminine, while the rest of the stimuli were interpreted as masculine. Ev. (9), Em. (7), M. (4) and V. (7) utilized a more advanced three-gender system, in which non-canonical masculine nouns were misinterpreted as neuter and non-canonical feminine items as masculine. S. (8) and B. (10) exposed a non-target agreement pattern only when dealing with null ending feminine nouns. Lastly, L. exposed a completely target-like agreement behavior.

8 Conclusion

The goals of this study were to determine what are the similarities and differences between heritage speakers and their monolingual peers in noun-adjective agreement; what are the error patterns and how the canonicity of the endings influences those patterns; how is proficiency and age related to the results of HL speakers. Based on a rather smaller sample of participants, we could not draw statistically relevant conclusions, but we can at least define the regularities in heritage gender agreement. The main observation is that monolinguals and advanced heritage speakers go through similar progression phases if exposed to a certain minimal input. For both groups, the biggest obstacle were feminine nouns ending in a consonant, which they analyse as masculine, with different success in acquiring other non-canonical agreement patterns. As one could expect, the null ending feminine nouns are with the lowest frequency and are acquired the latest in both types of speakers. Nevertheless, we identified different agreement strategies among the participants, ranging from a simple, masculine-gender-for-everything approach or a basic binomial two-gender system, to quite elaborate target-like agreement patterns.

Future investigation could tackle the comparison between Serbian HSs whose dominant language is German and English-dominant HSs, in order to determine whether German has any positive effect on differentiating grammatical genders in Serbian, as opposed to English, which could be hypothesized to delay gender agreement progress. As a reminder, the German gender system is not as transparent as the Italian and Serbian one. Therefore, its role in acquiring a more predictable system based on transparent gender cues seems still not definite.

Appendix

Table 5   Participants' information

Name	Age	Country	Proficiency level	Percentage of use of Serbian at home	Frequency of stay in Serbia	Duration of stay in Serbia
S.	8	Austria	A2	50%	once or twice a year	three weeks
E.	7	Austria	A1	70%	twice a year	a week
B.	10	Switzerland	B2	95%	once or twice a year	a week or two
V.	7	Switzerland	B1	95%	once or twice a year	a week or two
K.	15	Germany	A2	50%	once or twice a year	a week
M.	4	Germany	A2	70%	every two months	two weeks
Em.	9	Germany	A1	50%	once or twice a year	a week
Ev.	9	Germany	A1	15%	been in Serbia four times	three to five days
L.	10	Germany	B2	100%	twice a year	three weeks

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