imü dilbilimi

OPTIONAL SUBJECT-VERB AGREEMENT IN HERITAGE TURKISH[1]

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ABSTRACT

In Turkish, 3rd person plural subjects normally appear with verbs that are unmarked for number, rendering these verb forms indistinguishable from the singular form. The plural morpheme *–lAr* is preferentially omitted from the verb, especially in spoken discourse, so as to avoid repeating the same morpheme that also marks plurality on nouns. Plural suffix omission in Turkish is optional and is affected by grammatical, surface-level, and semantic constraints such as subject animacy and subject position. The present study investigates to what extent Turkish heritage speakers are sensitive to these constraints and whether they differ from non-heritage speakers. 48 non-heritage Turkish speakers resident in İstanbul, Türkiye, and 58 heritage Turkish speakers resident in Berlin and Potsdam, Germany, were tested by using a scalar acceptability judgement task. The experimental stimuli were created by manipulating both subject animacy and subject position to test the effect of animacy and subject-verb distance on the acceptability of overt plural marking on the verb. Besides confirming the general preference for singular verb forms, participants' judgement patterns were affected both by subject animacy and by subject position. Significant differences were observed between heritage and non-heritage speakers in their acceptance of plural-marked verbs, suggesting that the relatively subtle interplay between subject animacy and subject position on optional subject-verb agreement marking is not always fully acquired under heritage language conditions.

Keywords: Subject-verb agreement, Turkish, Heritage speakers, Subject animacy, Subject position

ÖZ

Türkçede 3. çoğul şahıs özneleri normalde fiilde 3. çoğul şahıs eki olmadan kullanılır, bu durumda bu fiil biçimleri 3. tekil şahıs çekiminden ayırt edilemezler. Çoğul eki olan

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–lAr, özellikle konuşma dilinde isimlerde de çoğul durumu belirten aynı eki tekrarlamaktan kaçınmak için tercihen fiilde kullanılmaz. Türkçede 3. çoğul şahıs ekinin fiilde kullanılmaması tercihe bağlıdır ve bu durum öznenin canlı olup olmaması ile öznenin cümle içindeki konumu gibi dilbilgisel, yüzeysel ve de anlamsal kısıtlamalardan etkilenmektedir. Bu çalışmanın amacı Türkçe miras dil konuşucularının bu kısıtlamalardan ne derecede etkilendiklerini ve D1 Türkçe konuşucularından farklılık gösterip göstermediklerini araştırmaktır. Türkiye'nin İstanbul şehrinde yaşayan 48 D1 Türkçe konuşucusu ile Almanya'nın Berlin ve Potsdam şehirlerinde yaşayan 58 miras dil Türkçe konuşucusu skaler bir kabul edilebilirlik yargı testi kullanılarak test edildiler. Deneyde kullanılan cümleler fiilde 3. çoğul şahıs ekinin bulunmasının kabul edilebilirliği üzerinde öznenin canlı olup olmaması ile öznenin cümle içindeki konumunun etkisini ölçmek amacıyla hem öznenin canlılığının hem de öznenin cümledeki konumunun manipüle edilmesiyle oluşturulmuştur. Fiilin 3. tekil şahıs olarak kullanılmasına yönelik genel tercihin doğrulanmasının yanı sıra, sonuçlar katılımcıların yargı kalıplarının hem öznenin canlı olup olmamasından hem de öznenin cümle içindeki konumundan etkilendiğini göstermektedir. Fiilin 3. çoğul şahıs eki ile kullanımı konusunda D1 ve miras dil Türkçe konuşucuları arasında önemli farklılıklar gözlemlenmiştir. Bu durum, tercihe bağlı olan 3. çoğul şahıstaki özne-fiil uyumunda etkili olan öznenin canlılığı ve konumu etkileşiminin miras dil koşulları göz önünde bulundurulduğunda tam olarak edinilemediğini göstermektedir.

Anahtar Sözcükler: Özne-fiil uyumu, Türkçe, Miras dil konuşucuları, Öznenin canlılığı, Öznenin cümledeki konumu

1. Introduction

In languages with subject-verb agreement (SVA) marking, the verb has to correspond in number with the subject for the sentence to be grammatical; that is, the verb has to be properly inflected. Previous research has reported that heritage speakers (HS) experience difficulties with inflectional morphology and morphosyntax, including SVA marking in their heritage language (HL) (see Benmamoun et al., 2013a, 2013b for reviews). HS are considered a subset of (unbalanced) bilinguals who were raised in homes where a language other than the dominant community language was spoken, resulting in some degree of bilingualism in both the heritage and the community language (Scontras et al., 2018). Because HS acquire the non-dominant language from reduced input and practice it less, they struggle a lot with inflectional processes and frequently make SVA marking errors, such as failing to produce the correct agreement or accepting agreement mismatches (Polinsky, 2018; Scontras et al., 2018). HS have also been reported to be inclined to use more singular forms (Prada Pérez & Pascual y Cabo, 2011), and Polinsky and Scontras (2020) claim that HS show a tendency to simplify agreement systems by using singular forms as a default. While most of the HS studies have investigated the categorical SVA marking in different languages such as Arabic, Russian, and Spanish, very few studies have focused on the optional agreement. It has been argued that optional SVA marking is more vulnerable and more likely to be affected under HL conditions when

compared to the categorical SVA marking (Benmamoun et al., 2013a, p. 161-166).

One example of the optional SVA marking languages is Turkish. Although Turkish is an agreement-marking language with specific person markers, it has been observed that under certain circumstances, the 3rd person plural marker *–lAr* can be omitted from the verb. The omission of the plural marker *–lAr* is affected by grammatical, surface-level, and semantic constraints. The omission of the plural marker makes the verb form indistinguishable from the 3rd person singular form, in which no person marker is added to the verb (e.g., Göksel & Kerslake, 2005; Kornfilt, 1997; Schroeder, 1999; Sezer, 1978). This situation is illustrated in (1).

(1) Çocuk-lar kütüphane-den gel-di-(ler).
child-PL *library-ABL* *come-PST-(PL)*[2]
'Children came from the library.'

Although native Turkish speakers have the tendency to avoid multiple occurrences of plural markers within a single clause or phrase, prescriptive grammar books clearly prohibit the omission of plural agreement markers (Göknel, 2013, p. 424-425; Korkmaz, 2009, p. 27). According to Johanson (1998, p. 37), this phenomenon is a feature of Turkic languages, which is applied with an attempt to use morphological devices economically and avoid redundancy. Yet, some factors, such as subject animacy (Sezer, 1978) together with the subject position (Bamyacı, 2016) have been found to affect the possible omission of the plural marker from the verb.

The current study aims at exploring the effect of subject animacy and subject position in the acceptance of plural marker in the verb forms with 3rd person plural subjects in an acceptability judgment experiment and comparing heritage and non-heritage Turkish speakers in their optional agreement marking. As HS receive limited and qualitatively different input when compared to monolingually-raised individuals, this may result in divergent attainment in their HL (Scontras et al., 2015) and differences in the usage of the optional agreement marking due to their problems with morphosyntatic operations (Montrul 2008). The present study also investigates how and to what extent subject animacy interacts with subject position in the optional agreement marking. Finally, the design of the stimuli intends to find out how both groups' optional acceptance of plural verb forms is affected when the distance between the subject and the verb increases.

[2] Abbreviations used for morphemic glosses: 1ST PERSON PL = first person plural marker; ABL = ablative; ACC = accusative; AOR = aorist; DAT = dative; GEN = genitive; INABIL = inability marker; LOC = locative; PART = participle; PL = plural; POSS = possessive; PRS = present tense; PST = past tense; REL CL = relative clause; REP PST = reported past tense; SP = subject participle.

1.1 Subject-verb agreement in heritage languages

The agreement relation between the subject and the verb has been an ideal linguistic phenomenon to investigate with HS, and most of the previous studies have focused on the agreement errors during production. Polinsky (1997, 2006) found a clear proficiency effect for HS in their SVA marking; that is, highly proficient Russian HS had an accuracy rate of 66% in their correct SVA marking, whereas the low proficiency group's accuracy was only 30%. In another study with Egyptian and Palestinian Arabic HS, Albrini et al. (2013) found an error rate of 18% in SVA marking. It is crucial to note that non-heritage speakers also make SVA marking errors during production; however, their error rate is quite low, remaining below 5% (Poulisse, 1999). From the studies above, it can be inferred that there is a considerable difference in the error rates of heritage and non-heritage speakers, confirming that SVA marking is a vulnerable grammatical domain for HS.

Conversely, there are also studies that show SVA marking in HS is unaffected and native-like. For example, studies with Hungarian HS (De Groot, 2005; Fenyvesi, 2000) demonstrate no vulnerability in their SVA marking. Similar results were also obtained for English-Hungarian bilingual children living in the United States and whose Hungarian is the HL (Bolonyai, 2007). In another study, Montrul et al. (2012) used an oral production task with Hindi HS living in the United States and found that they had approximately the same accuracy level as the non-heritage speakers in their production of correct SVA marking (99.87% vs. 99.76%).

There are also studies that explore SVA marking errors in the comprehension of HS. By employing an untimed grammaticality task, Sherkina-Lieber (2011) and Sherkina-Lieber et al. (2011) investigated SVA marking with HS in an agglutinative language, Labrador Inuttitut. The results indicated 75% accuracy in HS with high proficiency and 33% accuracy in HS with low proficiency. These numbers suggest that SVA marking errors can be observed in comprehension as well. In another study, Foote (2011) used a word-by-word sentence reading task and tested SVA marking in Spanish non-heritage speakers, Spanish HS, and L2 Spanish learners. Foote observed that all participating groups were sensitive to number agreement errors since they displayed longer reading times for ungrammatical sentences. Finally, Scontras et al. (2018) replicated the design and materials of Fuchs et al. (2015) to investigate Spanish agreement marking with HS. The results of an auditory sentence rating task showed differences between heritage and non-heritage speakers, as HS were found to lose sensitivity to agreement errors.

To recapitulate, previous production and comprehension studies show that categorical SVA marking can be vulnerable in HS not only in production but also in comprehension. Yet, very little is known about the optional SVA marking, and few studies have focused on how HS would perform in this phenomenon, which serves as the main motivation of the present study.

1.2 Optional Subject-Verb Agreement in Turkish

Although Turkish is an SVA marking language, it is also a good example of the optional marking. While 1st and 2nd person singular subjects are marked with singular verb forms, their plural counterparts are marked with plural verb forms. Yet, 3rd person plural subjects have optional verb marking and can also be used with unmarked (Ø) singular verb forms, where the omission of the plural suffix *–lAr* renders the verb form indistinguishable from the 3rd person singular form (Bamyacı et al., 2014; Bamyacı, 2016; Göksel & Kerslake, 2005; Kornfilt, 1997; Schroeder, 1999; Sezer, 1978); see (1) above. According to Kirchner (2001), the preferential omission of the plural marker from the verb is mostly seen in the spoken discourse but not in the formal written discourse. Previous theoretical and experimental studies have shown that the subject's degree of animacy plays a significant role in the usage of the plural marker on the verb for sentences with 3rd person plural subjects (Bamyacı et al., 2014; Bamyacı, 2016; Göksel & Kerslake, 2005; Kirchner, 2001; Kornfilt, 1997; Lago et al., 2019; Schroeder, 1999; Sezer, 1978; Uygun & Felser, 2023). The general consensus is that 3rd person animate plural subjects may take either the plural marker on the verb or remain unmarked (2), while 3rd person inanimate plural subjects usually remain unmarked (3), taken from Sezer (1978, p. 26).

(2) *Öğrenci-ler* *gel-di-(ler).*
student-PL come-PST-(PL)
'Students came.'

(3) *Mektup-lar* *gel-di-(*ler).*
letter-PL come-PST-(*PL)
'Letters arrived.'

The example with the 3rd person animate plural subject (2) shows optional SVA marking. It has been argued that the presence of the plural marker on the verb in sentences with 3rd person animate plural subjects depends on the speaker's stylistic preferences and does not cause a change in the meaning of the statement (Kirchner, 2001; Kornfilt, 1997; Sezer, 1978).

Another crucial factor that affects the optional SVA marking in Turkish is the subject's position in the sentence. Turkish is classified as a head-final and left-branching language whose canonical word order is Subject-Object-Verb (SOV) (Erguvanlı, 1984; Kornfilt, 1997; Göksel & Kerslake, 2005). However, Turkish word order is very flexible and allows all the possible orders. This means that constituents can occur in any order, and each order is equally grammatical (Göksel & Kerslake, 2005, p. 343). Erguvanlı (1984) claims that the grammatical role of a Turkish constituent does not depend on its position in the sentence since Turkish constituents are morphologically marked to signal their grammatical role, leading to

flexibility in word order. Johanson and Csató (1998) claim that when a 3rd person plural subject appears close to the verb, especially in Object-Subject-Verb (OSV) sentences, the SVA marking shows optionality and occurs less frequently. Turkish speakers exhibit a general tendency to use morphological markers economically, and this tendency leads them to avoid duplicating plural markers that are very close to each other. This is illustrated by (4) taken from Schroeder (1999, p. 117-118).

(4) *Türkiye'nin* *çeşitli* *yer-ler-in-den* *gel-en*
Türkiye'GEN various region-PL-POSS-ABL come-SP

organize *ol-ama-mış* *gemi* *adam-lar-ın-ı*
organized be-INABIL-REP PST ship man-PL-POSS-ACC
bu *simsar-lar* *sat-ar*.
this agent-PL sell-AOR
'It is these job agents who manage the sailors which come from different regions of Turkey and could not organize themselves.'

The information-structure dimension of sentence interpretation in Turkish has assigned three sentence positions: immediately preverbal, postverbal, and sentence-initial (Erguvanlı 1984, Kornfilt 1997, Kılıçaslan 2004, Göksel & Kerslake 2005). The immediately preverbal position is used to emphasize a particular constituent, which is also called *focusing*, to highlight the information provided by the constituent. Postverbal position is for de-emphasizing a particular constituent or constituents, which is also known as *backgrounding*. Finally, the sentence-initial position is used to make a particular constituent or constituents the pivot of the information that is provided in a sentence and is also referred to as *topic* (Göksel & Kerslake, 2005, p. 344). According to Bamyacı (2016, p. 120), if a subject appears in the non-initial position, this subject cannot be interpreted as topic, and this situation also affects the omission of the plural marker on the verb. A 3rd person plural subject that is in the sentence-initial position can trigger the use of the plural marker on the verb as it is the topic of the sentence; however, the same subject in the immediately preverbal position may trigger the use of a singular verb form because it is the focus of the sentence (Bamyacı, 2016, p. 127).

The final factor that affects the optional SVA marking is the linear distance between the subject and the verb. According to Göksel (1987), if there are many sentence materials between the 3rd person plural subject and the verb, then the verb takes the plural marker without considering the animacy of the 3rd person plural subject. The example with the animate subject (5) is taken from Schroeder (1999, p. 117), and the one with the inanimate subject (6) is taken from Göksel (1987, p. 71).

(5) *Tabii kadın-lar toplum-umuz-da bizim için*
of course woman-PL society-POSS-LOC our for
çok çok önemli bir yer teşkil ed-iyor-lar.
very very important a place form-PRS-PL
'Of course, for us, women are of great importance in our society.'

(6) *Kitap-lar ya dün akşam-ki deprem-in*
book-PL either last night-REL CL earthquake-GEN
şiddet-in-den ya da o eski kütüphane zaten
force-POSS-ABL or that old library already
çürük ol-duğ-u için yer-e düş-müş-ler.
rickety be-PART-POSS because floor-DAT fall-REP PST-PL
'The books have fallen on the floor either owing to the force of last night's earthquake or because that old library was rickety anyway.'

To encapsulate, the animacy of the 3rd person plural subject, the word order, and the linear distance between the 3rd person plural subject and the verb have been found to be crucial factors that influence the optional SVA marking in Turkish.

1.3 Experimental approaches to optional subject-verb agreement marking in Turkish

Few experimental studies have been conducted to explore the optional SVA marking in Turkish. In one of these studies, Bamyacı et al. (2014) employed a magnitude estimation acceptability judgment task to investigate the interaction of the optional SVA marking and the subject's level of animacy[3] in two-word sentences that consist of a plural subject noun phrase followed by a verb. The experiment was conducted with young (between ages 21-35) and old (between ages 40-54) non-heritage Turkish speakers living in Türkiye. The researchers observed an overall preference for the singular verb forms and concluded that these forms were considered as default forms by non-heritage Turkish speakers. The researchers also found a strong effect of the subject's level of animacy on the optional SVA marking. When the subject was animate, the omission of the plural marker on the verb was optional; however, the plural marker was preferentially omitted when the subject was inanimate. Subtle differences were also observed between the young and old participant groups such that older participants had a stronger preference to accept the plural marker on the verb when compared to younger participants. In addition, the subject's level of animacy affected the older participants differently than the younger participants. The researchers concluded that the observed differences between the younger and older participants indicate synchronic language change, in which the omission of the plural marker on the verb becomes the norm.

[3] The levels of animacy included human, animal, quasi-animate, and inanimate.

In another study, Bamyacı (2016) explored the interaction of the optional SVA marking and the subject's level of animacy by comparing heritage and non-heritage speakers of Turkish. She used the same stimuli and task and obtained similar judgment patterns from both groups. A general preference for the omission of the plural marker on the verb in two-word sentences was also observed in the HS. In addition, HS accepted plural-marked verbs more when the subject was animate but preferred the omission of the plural marker for inanimate subjects. Yet, Bamyacı also observed some differences between the groups. For example, HS had a greater likelihood of accepting plural-marked verbs, and the subject's level of animacy affected them differently. That is, both groups exhibited similar judgment patterns for inanimate subjects, whereas HS had a preference to accept plural-marked verbs more when the subject was animate. These findings show that the modulation of animacy on the optional SVA marking was different in the grammar of HS.

Lago et al. (2019) used a binary-choice acceptability judgment task and investigated the optional SVA marking in heritage and non-heritage speakers only with animate subjects. The researchers obtained some group differences in the judgment patterns, such as while the non-heritage group preferred the omission of the plural marker on the verb, HS accepted the plural-marked and singular forms of the verb to similar extents (86% and 91%, respectively). The researchers also found a significant effect of the age of acquisition (AoA) of German; that is, HS with later AoA of German performed similar to non-heritage speakers, whereas HS with early AoA of German preferred the plural-marked verb forms more.

Uygun and Felser (2023) recently examined the effect of both subject animacy and subject position (SOV vs. OSV) on the optional SVA marking with heritage and non-heritage speakers in a set of 24 experimental items consisting of five words. The HS were divided into two groups based on their AoA of German: lower proficiency HS (LPHS) were born in Germany and had an AoA of German below age seven, and advanced proficiency HS (APHS) were born in Türkiye and had an AoA of German after age seven. The results showed that singular verb forms were generally rated more favourably than plural-marked forms by all participant groups. All groups rated plural-marked verbs significantly better when the subject was animate, while singular verb forms were rated numerically better when the subject was inanimate. However, the effect of animacy was found to be less in OSV sentences, in which the subject was directly adjacent to the verb. In OSV sentences, singular verb forms were rated better than plural-marked forms by all groups regardless of animacy. The researchers also found significant differences between the LPHS and the two comparison groups. The LPHS over-accepted plural-marked forms with animate subjects in SOV sentences whilst they over-accepted singular verb forms in OSV sentences, indicating that they are particularly keen to

avoid morpheme duplication in OSV sentences. They also contrasted the two animacy conditions more strongly than both comparison groups.

Taken together, these results indicate that Turkish HS are sensitive to subject animacy that plays a role in optional SVA marking with 3rd person plural subjects. Compared to non-heritage speakers, they have a greater likelihood of accepting plural-marked verbs, which is especially observed in HS with early AoA of German. Due to the paucity of the previous studies, it is not completely clear if the observed pattern is a general feature of heritage Turkish or if the obtained divergences are specific to grammatical phenomena that allow optionality (Bamyacı, 2016). The effect of subject position in optional SVA marking needs more empirical evidence to make any generalizations. Therefore, the current study aims to build on and extend previous research by examining the effect of subject animacy and subject position in HS by further exploring the effect of linear distance between the subject and the verb on the optional SVA marking.

1.4 Purpose of the present study

The present study investigates to what extent Turkish HS with an early AoA of German are sensitive to grammatical, surface-level, and semantic factors on optional Turkish SVA marking in longer (8-word) sentences with an attempt to explore the following research questions:

RQ1: Do heritage and non-heritage speakers show any differences in accepting plural-marked vs. singular verb forms across different subject animacy and subject position conditions?

RQ2: If so, how do subject animacy and subject position conditions affect heritage and non-heritage speakers' acceptance of different verb forms?

Based on the results of the previous studies, an overall preference for singular verb forms in both groups is expected. Regarding the effect of subject animacy, more singular verb forms are predicted for sentences with inanimate than animate subjects. When it comes to the effect of subject position, the most plural-marked verb acceptances are anticipated in SOV sentences, where there is a lot of sentence material between the subject and the verb, whereas singular verb forms are predicted to be accepted mostly in OSV sentences, when the subject and the verb are adjacent constituents. Finally, as the HS participants have an early AoA of German, significant differences with the non-heritage group are expected. The first difference is assumed to be observed in the acceptance of different verb forms. If HS accept more singular verb forms, this will show their tendency to simplify the optional SVA marking and use singular verb forms as default. Conversely, if HS accept more plural-marked verbs, this can be related to their tendency to regularize the optional SVA marking. The second difference is foreseen in the effect of subject animacy and subject position because previous studies have shown that HS are more strongly affected

by their effects and exhibited more divergent sensitivity to their effects in the optional SVA marking.

2. Method

2.1 Sample

48 non-heritage Turkish speakers were recruited and tested in İstanbul, Türkiye. All spoke the standard dialect of Turkish, and none of them reported any knowledge of German. This group (37 females, between ages 19-60, *M* = 36.25, *SD* = 9.94) will be referred to as non-heritage control speakers (CTR). All of them were either studying at the university or were university graduates when they were tested. The HS group involved 60 participants who spoke both Turkish and German daily and were recruited from the large Turkish community in Berlin and Potsdam. 2 participants from the HS group were excluded, one due to low Turkish proficiency and one due to high error rates (> 30%) in the experiment. The remaining 58 HS (41 females, between ages 18-50, *M* = 27.78, *SD* = 6.11) were exposed to Turkish from birth and had an early age of acquisition of German (between ages 0-6, *M* = 3.06, *SD* = 1.82). The Turkish proficiency of the HS group was measured with the language structure section of the Turkish TELC (The European Language Certificates) test, which is designed for B2 level according to the CEFR (Common European Framework of Reference). The language structure section consists of two cloze tests comprising 20 questions in total. Participants who received less than 12 out of 20 were excluded because this number indicates a proficiency lower than B2 level. The HS group had a high Turkish proficiency score out of 20 (*M* = 18.45, *SD* = 1.63). The HS group also self-rated their Turkish skills on a 10-point scale for speaking (*M* = 7.95, *SD* = 1.59), listening (*M* = 8.85, *SD* = 1.16), writing (*M* = 7.20, *SD* = 2.01), and reading (*M* = 8.16, *SD* = 1.73). Both the TELC scores and the self-rating scores indicate that the HS group had a high Turkish proficiency, and they were using Turkish actively in their daily lives (*M* = 60.58%, *SD* = 23.28).

2.2 Instrument

The materials of the present study were adapted from the 24 experimental sentence sets that were used by Uygun and Felser (2023)[4]. Uygun and Felser (2023) constructed five-word sentences in which they manipulated the subject's position (SOV vs. OSV), subject animacy (animate vs. inanimate), and verb marking (plural vs. singular). The subject of the experimental sentences was always a 3rd person plural subject, and all animate subjects referred to human entities. In SOV sentences, the subject appeared in the initial position of the sentence while it was adjacent

[4] A full list of Uygun and Felser's (2023) experimental sentence sets can be found at the Center for Open Science Framework website at https://osf.io/9caxb.

to the verb in OSV sentences. In the present study, these 24 experimental sentences were made eight words long without changing their subjects and the manipulations described above. This resulted in eight different conditions of an experimental sentence, which is illustrated in (7a–h).

(7) a. SOV – ANIMATE – PLURAL (SOV-ANI-PL)

Dağcı-lar dün akşam yüksek ve
climber-PL last night high and
karlı dağ-dan düş-tü-ler.
snowy mountain-ABL fell-PST-PL
'Climbers fell from the high and snowy mountain last night.'

b. SOV – ANIMATE – SINGULAR (SOV-ANI-SG)

Dağcı-lar dün akşam yüksek ve
climber-PL last night high and
karlı dağ-dan düş-tü.
snowy mountain-ABL fell-PST-Ø
'Climbers fell from the high and snowy mountain last night.'

c. SOV – INANIMATE – PLURAL (SOV-INANI-PL)

Kaya-lar dün akşam yüksek ve
rock-PL last night high and
karlı dağ-dan düş-tü-ler.
snowy mountain-ABL fell-PST-PL
'Rocks fell from the high and snowy mountain last night.'

d. SOV – INANIMATE – SINGULAR (SOV-INANI-SG)

Kaya-lar dün akşam yüksek ve
rock-PL last night high and
karlı dağ-dan düş-tü.
snowy mountain-ABL fell-PST-Ø
'Rocks fell from the high and snowy mountain last night.'

e. OSV – ANIMATE – PLURAL (OSV-ANI-PL)

Dün akşam yüksek ve karlı dağ-dan
last night high and snowy mountain-ABL
dağcı-lar düş-tü-ler.
climber-PL fell-PST-PL
'Last night, climbers fell from the high and snowy mountain.'

f. OSV – ANIMATE – SINGULAR (OSV-ANI-SG)

Dün akşam yüksek ve karlı dağ-dan
last night high and snowy mountain-ABL
dağcı-lar düş-tü.
climber-PL fell-PST-Ø
'Last night, climbers fell from the high and snowy mountain.'

g. OSV – INANIMATE – PLURAL (OSV-INANI-PL)

Dün akşam yüksek ve karlı dağ-dan
last night high and snowy mountain-ABL
kaya-lar düş-tü-ler.
rock-PL fell-PST-PL
'Last night, climbers fell from the high and snowy mountain.'

h. OSV – INANIMATE – SINGULAR (OSV-INANI-SG)

Dün akşam yüksek ve karlı dağ-dan
last night high and snowy mountain-ABL
kaya-lar düş-tü.
rock-PL fell-PST-Ø
'Last night, climbers fell from the high and snowy mountain.'

By using the Latin-square design, eight different experiment lists were created, and each participant completed only one list. In each list, there were 24 experimental sentences that were pseudo-randomized. 48 filler sentences were created and mixed with the experimental sentences, resulting in 72 sentences in each list. All of the filler sentences were 8-word long and had the same structure as the experimental sentences. The subjects of the filler sentences were first person plural, second person plural, or third person singular, and in half of the filler sentences the verb was correctly conjugated, whereas in the other half the conjugation was not correct (8a–b).

(8) a. GRAMMATICAL FILLER

Biz geçen akşam yaşlı bir kadın-a
we last night old one woman-DAT
yardım et-ti-k.
help-PST-1ST PERSON PL
'We helped an old lady last night.'

b. UNGRAMMATICAL FILLER

Biz geçen sabah kahvaltı için
we last morning breakfast for
taze simit al-dı.
fresh bagel buy-PST-Ø
'We bought fresh bagel for breakfast yesterday morning.'

There were three main motivations for including these filler sentences in the experiment. The first motivation was to add some variety to the stimulus list with an attempt to reduce the likelihood of participants' developing a response strategy for the experimental sentences. The second motivation was to assess whether the participants were sensitive to the obligatory SVA marking in Turkish. This was important to eliminate the possibility that the heritage group's performance on the experimental sentences might indicate a general problem with the SVA marking system

of Turkish. And the final motivation was to check whether the participants did the experiment conscientiously.

2.3 Design

The acceptability judgment experiment was prepared using Google® Forms, which is also used as a web-based survey administration. The experiment was set up on a five-point scale where 1 refers to "absolutely acceptable" and 5 refers to "absolutely unacceptable". Participants were instructed to rate each sentence they saw on the computer screen intuitively. Sentences were presented one by one, and there was no time limitation. Each sentence was presented separately, and the five-point rating scale with reference to what 1 and 5 refer to was placed below each sentence. Participants made their ratings via mouse click, and when they pressed the next button, the next sentence was presented to them. A bar on the page allowed the participants to keep track of their progress.

The participants in the CTR group were sent a web link to the experiment and completed it remotely on their personal computers. The HS group was invited to the laboratory room and did the experiment on the laboratory computer under supervision. Before starting the experiment, HS were asked to fill in a consent form and a detailed background questionnaire and to provide self-rating for their four skills in Turkish. The experiment started with an instruction page followed by a short bio form of the participants. After reading and completing these two pages, participants completed the experiment, which took approximately 20 minutes. After the experiment, the HS group completed the Turkish proficiency test.

Before starting the data analysis, the collected rating data were z-transformed with an attempt to eliminate possible bias such as scale compression or scale skew (Schütze & Sprouse, 2014). Statistical analyses on the rating data were conducted with R, which is an open-source programming language and environment for statistical computing (R Core Team, 2021). Linear mixed-effects regression models with crossed random effects for items and participants were used to analyze the z-transformed rating data (Baayen et al., 2008). The models included the participant-level variable *group* (CTR vs. HS) and item-level variables *subject animacy* (animate vs. inanimate), *subject position* (SOV vs. OSV), and *verb marking* (plural vs. singular) as fixed effects together with random slopes for item and participant. The models were fitted using the package *lme4* (Bates et al., 2015). For the main effects and overall interactions of the factors group, subject animacy, subject position, and verb marking, sum-coded contrasts (-0.5, 0.5) were employed, while treatment contrasts were employed for single comparisons. A model with maximum random effects and interactions was constructed as a starting point, and when the model did not converge, it was gradually simplified until convergence was reached (Barr et al., 2013). During the simplification process, random slopes by item and participant for each fixed effect in the model were retained only

if they improved the model fit significantly. This improvement was measured by using the Akaike Information Criterion (AIC), which provides a measure that penalizes complexity and leads to predictors being kept only when they substantially contribute to explaining variance in the data (Venables & Ripley, 2002). Each time during the simplification process, the model with the lower AIC was selected until no model with a lower AIC was produced. The final version of the model included random slopes for subject animacy and verb marking by item and the interaction of subject animacy and verb marking by participant. The effect sizes are reported by using model coefficients in log odds (*ß*), standard errors (*SE*), *t*-statistics, and *p* values. P-values were computed by using the *lmerTest* package and the Satterthwaite's approximation for denominator degrees of freedom (Kuznetsova et al., 2014).

3. Results

Table 1 provides an overview of the group's acceptability ratings for each condition. Recall that ratings closer to 1 are considered as better ratings, indicating more acceptance.

Table 1. Means and standard deviations of acceptability ratings for both groups

Condition	CTR		HS	
	M	*SD*	*M*	*SD*
SOV-ANI-PL	1.80	1.15	1.41	0.84
SOV-ANI-SG	1.89	1.20	2.02	1.42
SOV-INANI-PL	2.93	1.56	1.78	1.09
SOV-INANI-SG	1.88	1.22	1.98	1.31
OSV-ANI-PL	2.76	1.32	2.19	1.30
OSV-ANI-SG	2.09	1.09	1.99	1.25
OSV-INANI-PL	3.83	1.30	3.22	1.58
OSV-INANI-SG	1.94	1.10	1.73	1.01

SOV: Subject-Object-Verb sentence; OSV: Object-Subject-Verb sentence; ANI: Animate subject; INANI: Inanimate subject; PL: Plural-marked verb; SG: Singular (unmarked) verb form.

Table 2 presents the full results of the omnibus analysis. The main effect of subject position (*ß*: -0.375, *SE:* 0.036, $t = -10.478$, $p < .001$) shows that SOV sentences ($M = 1.96$) were rated significantly better than OSV sentences ($M = 2.47$), the main effect of verb marking (*ß*: 0.310, *SE:* 0.079, $t = 3.921$, $p < .001$) reflects that plural-marked verbs ($M = 2.49$) were rated significantly worse than singular verb forms ($M = 1.94$), the main effect of subject animacy (*ß*: -0.310, *SE:* 0.061, $t = -5.113$, $p < .001$) indicates that animate subjects ($M = 2.02$) were rated significantly better than inanimate subjects ($M = 2.41$). Finally, the main effect of group (*ß*: 0.222, *SE:* 0.073, $t = 3.042$, $p < .003$) reveals that the HS group's ratings ($M = 2.04$) were significantly better than the CTR group's ratings ($M = 2.39$), indicating more accepting responses for the HS group in general.

Table 2. Linear mixed effects model output of the omnibus analysis

	β	*SE*	*t*	*p*
Subject position (SOV vs. OSV)	-0.375	0.036	-10.478	**.000**
Verb marking (plural vs. singular)	0.310	0.079	3.921	**.000**
Subject animacy (animate vs. inanimate)	-0.310	0.061	-5.113	**.000**
Group (CTR vs. HS)	0.222	0.073	3.042	**.002**
Subject position*Verb marking	0.754	0.072	10.532	**.000**
Subject position*Subject animacy	-0.044	0.072	0.608	.544
Subject position*Group	0.034	0.072	0.473	.636
Verb marking*Subject animacy	0.668	0.088	7.608	**.000**
Verb marking*Group	-0.545	0.123	-4.419	**.000**
Subject animacy*Group	0.259	0.074	3.524	**.000**
Subj position*Verb marking*Subj animacy	0.360	0.143	2.514	**.012**
Subj position*Verb marking*Group	0.338	0.143	2.360	**.018**
Subj position*Subj animacy*Group	-0.232	0.143	-1.623	.104
Verb marking*Subj animacy*Group	-0.230	0.176	-1.312	.190
Subj position*Verb marking*Subj animacy*Group	0.582	0.287	2.033	**.042**

Formula in R: rating_z ~ subject position * verb marking * subject animacy * group + (1 + verb marking + subject animacy | item) + (1 + verb marking * subject animacy | participant).

A number of significant interactions were also observed; however, as the focal point of the research questions was on group differences, significant interactions without the fixed effect *group* are not reported. Instead, significant interactions involving *group* are reported and discussed in detail. Two significant two-way interactions were obtained. The significant verb marking and group interaction (*β*: -0.545, *SE:* 0.123, t = -4.419, $p < .001$) shows that while both groups provided worse ratings for plural-marked verbs than for singular verb forms (CTR: $M = 2.83$ vs. 1.95, $p < .001$; HS: $M = 2.15$ vs. 1.93, $p = .698$), the observed difference in plural-marked vs. singular verb forms was significant only for the CTR group. In addition, the HS group rated plural-marked verbs significantly better than the CTR group ($M = 2.83$ vs. 2.15, $p < .001$), while there was no statistical difference regarding the singular verb forms ($M = 1.95$ vs. 1.93). Another significant two-way interaction was obtained for subject animacy and group (*β*: 0.259, *SE:* 0.074, $t = 3.524$, $p < .001$). This interaction indicates that while both groups rated sentences with animate subjects significantly better than sentences with inanimate subjects (CTR: $M = 2.14$ vs. 2.65, $p < .001$; HS: $M = 1.90$ vs. 2.18, $p < .013$), in general, HS provided better ratings for both animacy conditions. The interaction reflects the fact that both groups provided similar ratings for animate

subjects (M = 2.14 vs. 1.90, p = .266), yet the group difference was significant for inanimate subjects (M = 2.65 vs. 2.18, p < .001).

There was also a significant three-way interaction of subject position, verb marking, and group (β: 0.338, *SE:* 0.143, t = 2.360, p < .019). To resolve this interaction, the fixed effects subject animacy and group were excluded from the best fit model of the analysis. The results show significant subject position and verb marking interactions for both the CTR (β: 0.569, *SE:* 0.115, t = 4.953, p < .001) and the HS (β: 0.952, *SE:* 0.108, t = 8.793, p < .001) groups. When the verb was plural-marked, both groups rated SOV sentences significantly better than OSV sentences (CTR: M = 2.37 vs. 3.30, p < .001; HS: M = 1.60 vs. 2.71, p < .001). Within SOV sentences, while the CTR group provided significantly worse ratings for plural-marked verbs (M = 2.37 vs. 1.89, p < .007), the HS group performed differently and rated plural-marked verbs significantly better (M = 1.60 vs. 2.00, p = .011). When it comes to the singular verb forms, the CTR group rated SOV sentences numerically better than OSV sentences (M = 1.89 vs. 2.02, p = .242), whereas the HS group had a different preference and rated SOV sentences numerically worse than OSV sentences (M = 2.00 vs. 1.86, p = .174). Within OSV sentences, both groups rated plural-marked verbs significantly worse than singular verb forms (CTR: M = 3.30 vs. 2.02, p < .001; HS: M = 2.71 vs. 1.86, p < .001). The HS group's rating of sentences in the opposite direction when compared to the CTR group is the primary source of the significant subject position, verb marking, and group interaction.

Finally, a significant four-way interaction of subject position, verb marking, subject animacy, and group was obtained (β: 0.582, *SE:* 0.287, t = 2.033, p < .043). The results indicate no significant subject position, verb marking, and subject animacy interaction for the CTR group (β: 0.067, *SE:* 0.193, t = 0.347, p = .728) but a significant three-way interaction for the HS group (β: 0.674, *SE:* 0.205, t = 3.286, p < .003). Therefore, further interaction resolution analysis was carried out only for the HS group. When the verb was plural-marked, the HS group rated SOV sentences significantly better than OSV sentences regardless of animacy (animate: M = 1.41 vs. 2.19, p < .001; inanimate: M = 1.78 vs. 3.22, p < .001). With singular verb forms, the HS group rated SOV sentences numerically worse than OSV sentences when the subject was animate (M = 2.02 vs. 1.99, p = .840) and marginally worse with inanimate subjects (M = 1.98 vs. 1.73, p = .064). In addition, in SOV sentences, plural-marked verbs receive significantly better ratings than singular verb forms only when the subject was animate (M = 1.41 vs. 2.02, p < .001), but with inanimate subjects, the difference was numerical (M = 1.78 vs. 1.98, p = .266). Conversely, in OSV sentences, plural-marked verbs receive numerically worse ratings than singular verb forms with animate subjects (M = 2.19 vs. 1.99, p = .264) but the difference was significant when the subject was inanimate (M = 3.22 vs. 1.73, p < .001).

4. Discussion

The present study employed an acceptability judgment task and investigated to what extent Turkish HS were sensitive to grammatical, surface-level, and semantic factors on optional Turkish SVA marking in long (8-word) sentences and compared their ratings to the CTR group.

The results of the judgment data showed that SOV sentences were rated significantly better than OSV sentences by both groups, which replicates Uygun and Felser's (2023) study regarding the effect of subject position. In addition, both groups preferred singular verb forms over plural-marked forms overall, and this finding is in line with previous studies (Bamyacı, 2016; Lago et al., 2019; Uygun & Felser, 2023). Furthermore, both groups rated sentences with animate subjects significantly better than inanimate subjects, and animate subjects received better ratings for plural-marked verbs compared to inanimate subjects. This finding provides support for the subject asymmetry in Turkish (Sezer, 1978) and replicates previous experimental findings as well (Bamyacı, 2016; Lago et al., 2019; Uygun & Felser, 2023).

The first research question investigated if HS and CTR groups display any differences in accepting plural-marked vs. singular verb forms across different subject animacy and subject position conditions. The results indicated that the HS group performed differently from the CTR group. First of all, the HS group gave significantly better ratings than the CTR group in general, indicating more accepting responses. In addition, the HS group had a greater likelihood of accepting plural-marked verbs and rated sentences with plural-marked verbs significantly better than the CTR group. The acceptance of the plural-marked verbs by HS was also observed in previous experiments (Bamyacı, 2016; Lago et al., 2019; Uygun & Felser, 2023). This pattern provides no evidence for the simplification of the optional SVA marking but implies that the HS group tries to regularize it by accepting sentences with plural-marked verbs more in comparison to the CTR group. In addition, the HS group was affected differently by subject animacy and subject position because many interactions involving the fixed effect *group* were obtained. This finding supports previous studies that also employed HS with an early AoA of German (Lago et al., 2019; Uygun & Felser, 2023) and obtained many differences between the HS and CTR groups.

The second research question explored how subject animacy and subject position conditions affect the HS and CTR groups' acceptance of different verb forms and several differences between the groups were observed. For example, in sentences with plural-marked verbs, both groups performed similarly and provided significantly better ratings for SOV sentences in comparison to OSV sentences. However, in sentences with singular verb forms, a crucial difference between the groups was observed. While the CTR group rated singular verb forms better in SOV sentences than in OSV ones, the HS group rated singular verb forms better in OSV sentences, indicating that they are keen to avoid morpheme duplication in

OSV sentences. The HS group did not favor *dağcılar düştüler* 'mountaineers fell + PL' but preferred *dağcılar düştü* 'mountaineers fell + Ø' much more, which was also observed by Uygun and Felser (2023). Another difference that was obtained was related to the effect of subject animacy. While both groups gave similar ratings for sentences with animate subjects, this difference was significantly different when the subject was inanimate. This result indicates that the HS group contrasted the animacy of the subject more strongly than the CTR group. This result is consistent with the previous studies that found higher levels of sensitivity to the contrast of different animacy levels in HS with an early AoA of German (Krause, 2020; Krause & Roberts, 2020; Uygun & Felser, 2023). Finally, the interaction of subject position, verb marking, and subject animacy did not affect the optional SVA marking of the CTR group, whereas this interaction played a decisive role for the HS group. This interaction showed that the HS group was affected differently by subject animacy and subject position when they had to rate different verb forms. When the verb was plural-marked, the HS group rated SOV sentences significantly better than OSV sentences regardless of animacy. With singular verb forms, the HS group rated OSV sentences numerically better than SOV ones in animate and marginally better in inanimate subjects, indicating a stronger animacy distinction in sentences with singular verb forms.

The HS group did not show a tendency to simplify the optional SVA marking in Turkish and use the singular verb forms as the default form. Instead, HS tried to regularize the optionality and accepted plural-marked verbs more than the CTR group. Meanwhile, subject animacy and subject position also affected their verb form preferences differently when compared to the CTR group. How can the obtained group differences be explained? One possibility might be related to the influence of German. However, it is important to note that SVA marking in German is obligatory and is not affected by subject animacy and subject position. Therefore, the observed pattern of the HS group can only be explained by the conditions in which heritage Turkish is acquired. Reduced input and exposure to the HL, together with the lack of formal education in it, made it more difficult for HS to choose the correct verb form in a structure that involves optionality. The HS group views the effects of subject animacy and subject position on optional SVA marking differently than the CTR group. The acquisition of the optional SVA marking is experience-based, and as HS lack this experience, they cannot use the critical cues provided by subject animacy and subject position as effectively as the CTR group, leading to significant differences in the optional SVA marking in Turkish.

5. Conclusion

The present study employed a scalar acceptability judgement task and investigated to what extent HS with an early AoA of German were sensitive to grammatical, surface-level, and semantic constraints such as

subject animacy and subject position on optional SVA marking in Turkish. While the results indicate several similarities with the CTR group, some crucial differences were also observed. The results indicate that HS try to regularize the optional SVA marking by over-accepting plural-marked verbs. In addition, subject animacy and subject position also affected the HS group in a different way that resulted in divergent rating patterns when compared to the CTR group. The observed group divergencies can be seen as a general feature of heritage Turkish, as these subtle differences are related to the limited and qualitatively different input HS with an early AoA of German received while acquiring their HL. In addition, HS with an early AoA of German also lack the experience of using the language effectively and did not receive formal education in their HL. All of these factors lead to crucial disparities in the usage of the optional SVA marking and the factors that affect the optionality when compared to non-heritage Turkish speakers.

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