

## Subject-verb agreement marking in Turkish heritage speakers:

### Offline vs. online experiments

In Turkish, 3<sup>rd</sup> 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/ler* 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 also affected by semantic factors including the degree of subject animacy (Bamyacı et al., 2014; Schroeder, 1999).

The phenomenon has mostly been investigated via offline tools and previous studies reveal that Turkish heritage speakers (HS) accept overt plural marking more readily than monolingually-raised Turkish speakers (MS) (Bamyacı, 2016; Lago et al., 2019; Uygun & Felser, 2023). The present study investigates to what extent HS living in Germany are sensitive to grammatical, surface-level and semantic constraints in optional plural marking by using an acceptability judgment (offline) and a timed sentence completion task (online), in which they were presented one word at a time. In the acceptability judgment experiment (AJ), 58 HS and 48 MS were tested and in the timed sentence completion experiment (TSC), 37 HS and 47 MS were tested. All HS were early bilinguals with an age of acquisition of German below age 7. The main motivation of using two different experiments was to examine HS' linguistic performance in different tasks with an attempt to obtain a comprehensive picture of the factors affecting their knowledge and use of the heritage language (Bayram et al., 2021).

The experimental stimuli used in both experiments was exactly the same and consisted of 24 sentences in total. These sentences were created by manipulating both subject animacy (animate [ANI] vs. inanimate [INANI]) and subject position (subject first [SF] vs. scrambled [SC]) with an attempt to explore how these manipulations affected the acceptability and choice of the overt plural marking on the verb in two different experiments. In SF sentences, the subject is sentence-initial (e.g. **Dağcılar/Kavalar** dün akşam yüksek ve karlı dağdan düştü/düştüler “*Mountaineers/Rocks fell (SG/PL) from the high and snowy mountain last night*”) but in SC sentences it appears just before the verb (e.g. Dün akşam yüksek ve karlı dağdan **dağcılar/kavalar** düştü/düştüler).

The results of the offline and online experiments display crucial differences between the groups (see Table 1). The MS group has a clear preference for unmarked verbs in general both in AJ and TSC experiments. On the other hand, the HS group displays a clear preference for plural-marked verbs in TSC experiment, but this preference is not so strong in the AJ experiment. This shows that HS perform differently under time pressure indicating the importance of using time sensitive tools to investigate their implicit knowledge and to obtain a more comprehensive picture of their heritage language knowledge. Modelling the obtained results via a constraint based approach to language, namely Gradient Symbolic Computation (Smolensky et al., 2014) determines the relative weighting of the constraints in the optional agreement for 3<sup>rd</sup> person plural subjects. The results of the modelling show that these weightings differ according to the nature (offline vs. online) of the task and both groups assign different weights to the constraints (see Table 2).

Table 1: Plural response percentages of both experiments for both groups.

Condition	MS		HS	
	AJ	TSC	AJ	TSC
SF-ANI	46.4	47.5	55.6	77
SF-INANI	31.3	23.9	50.4	63.1

SC-ANI	28.6	35.5	44	55
SC-INANI	18.2	7.7	23.7	33.2

Table 2: Constraint weights for participant groups

Constraints	MS		HS	
	AJ	TSC	AJ	TSC
Agreement	1.3	1.4	1.7	1.4
Redundancy	1.8	1.4	1.5	0.9
Animacy	0.2	1.0	0.3	0.5
Distance	0.2	0.4	0.35	0.4

*Agreement:* This is a grammatical constraint that requires sentences containing 3<sup>rd</sup> person plural subjects to show overt 3<sup>rd</sup> person plural agreement marking on the verb. This constraint is violated whenever a verb appears in the unmarked form.

*Redundancy:* This is a surface-level economy constraint which prohibits the duplication of the plural morpheme *-lar/ler* within the same clause or phrase. A violation occurs whenever the verb carries the 3<sup>rd</sup> person plural suffix.

*Animacy:* This constraint is semantic in nature and relates to the influence of subject animacy on agreement marking. Sentences containing animate subjects incur no violation since 3<sup>rd</sup> person plural marking is optional. However, for inanimate subjects, a violation occurs if the verb carries a plural suffix because inanimate subjects normally require unmarked verb forms.

*Distance:* This constraint considers the position of the subject and its linear proximity to the verb. Overt plural marking on the verb violates this constraint if subject and verb are immediately adjacent but not otherwise.

## References

- Bamyacı, E. (2016). *Competing Structures in the Bilingual Mind*. Berlin: Springer.
- Bamyacı, E., Häussler, J. & Kabak, B. (2014). The interaction of animacy and number agreement: An experimental investigation. *Lingua*, 148, 254-277.
- Bayram, F., Di Pisa, G., Rothman, J., & Slabakova, R. (2021). Current trends and emerging methodologies in charting heritage language bilingual grammars. In S. Montrul & M. Polinsky (Eds.), *The Cambridge handbook of heritage languages and linguistics* (pp. 545-578). Cambridge University Press.
- Lago, S., Gračanin-Yukse, M., Şafak, D. F., Demir, O., Kırkıcı, B. & Felser, C. (2019). Straight from the horse's mouth: agreement attraction effects with Turkish possessors. *Linguistic Approaches to Bilingualism*, 9, 398-426.
- Schroeder, C. (1999). *The Turkish nominal phrase in spoken discourse*. Wiesbaden: Harrassowitz Verlag.
- Smolensky, P., Goldrick, M., & Mathis, D. (2014). Optimization and quantization in gradient symbol systems: A framework for integrating the continuous and the discrete in cognition. *Cognitive Science*, 38, 1102-1138.
- Uygun, S., & Felser, C. (2023). Constraints on subject-verb agreement marking in Turkish-German bilingual speakers. *Linguistic Approaches to Bilingualism*, 13(2), 190-217.