Sensitivity to grammatical gender cues in the acquisition of heritage Russian

Natalia Mitrofanova[1], Yulia Rodina[1], Olga Urek[1] & Marit Westergaard[1, 2]

1 UiT The Arctic University of Norway, 2 NTNU Norwegian University of Science and Technology

Introduction The present study investigates whether Russian heritage speakers are able to predict gender based on phonological information. The Russian gender system is relatively transparent, i.e. the form of the noun typically predicts its gender, although certain types of nouns are opaque. Previous studies have found that the N gender is the most problematic, with American-Russian heritage speakers typically replacing it with F, and Norwegian-Russian bilinguals overusing M (Polinsky 2008, Rodina & Westergaard 2017).

Experiments We have carried out three experiments with German-Russian bilinguals (n=19, age range 4-8) and Russian monolinguals (n=87, age range 3-7). Experiments 1 and 2 elicited adjectival agreement with real and novel nouns, involving either a transparent gender cue, i.e. final non-palatal consonant (Mt), stressed *-a* (Ft), or stressed *-o* (Nt), or an opaque gender cue, i.e. unstressed vowel (F/N) or palatalized consonant (M/F); Table 1. The stimuli in Experiment 3 were NPs with familiar color adjectives and novel nouns with transparent cues that either matched or did not match the cues on the adjectives (cf. Karmiloff-Smith 1979); Table 2.

Results
1) There is cue-driven agreement patterns in the nonce-word experiment in all conditions – but significantly more defaulting to M than in monolinguals; Fig. 1.
2) Bilinguals default to M significantly less with real words than nonce words; Fig. 2.
3) Real nouns with the opaque M/F cue are more error-prone than nouns with transparent M and F, suggesting that transparent cues facilitate acquisition of gender features; Fig. 3.
4) N is most vulnerable in all experiments. Both mono- and bilinguals tend to overuse M (and not F) with N nouns. Possible explanations: M agreement is syntactically unmarked/underspecified; N is attracted to M rather than to F due to substantial paradigm overlap in oblique cases.
5) Both participant groups show preference for F in the opaque M/F condition (Fig. 1). Further investigation of this phenomenon based on Russian corpus data reveals that some palatalized endings are characteristic of F and others of M. On closer inspection, the test items in Experiment 1 (M/F condition) predominantly contain F cues. This finding suggests that both mono- and bilinguals are sensitive to even finer gender cues than what has been reported in the literature.
6) Adjective agreement plays a facilitating role in all gender match conditions in bilinguals, over and beyond the phonological cue on the noun itself. In the mismatch conditions (i.e. where the adjective and the nonce noun have different cues), bilinguals are more similar to younger monolinguals who use noun endings to predict gender more frequently than older children (who tend to use agreement) (Fig. 4-6). This indicates that acquisition proceeds from sensitivity to features on the noun itself to a higher sensitivity to gender agreement.

Conclusion Although German-Russian bilinguals exhibit significantly more defaulting to M across all nonce noun conditions than monolinguals, their differentiated use of adjectival agreement suggests that they are sensitive to formal gender cues. (493 words)

References

Karmiloff-Smith, A. 1979. *A functional approach to child language: A study of determiners and reference.* Cambridge: Cambridge University Press.

Polinsky, M. 2008. Gender under incomplete acquisition: Heritage speakers' knowledge of noun categorization. *Heritage Language Journal*, 6, 40-71.

Rodina, Y. & M. Westergaard. 2017. Gender agreement in bilingual Norwegian-Russian acquisition: The role of input and transparency. *Bilingualism: Language and Cognition*, 20, 197-214.

Table 1. Experiment 2: Adjectives and novel nouns

	F-transparent (Ft)	M-transparent (Mt)	N-transparent (Nt)	F/N-opaque (F/N)	F/M-opaque (F/M)
Example	*kluvá*	*punip*	*garpó*	*prúz*/ə/	*dron'*

Table 2. Experiment 3: Adjectives and novel nouns, matched and mismatched cues

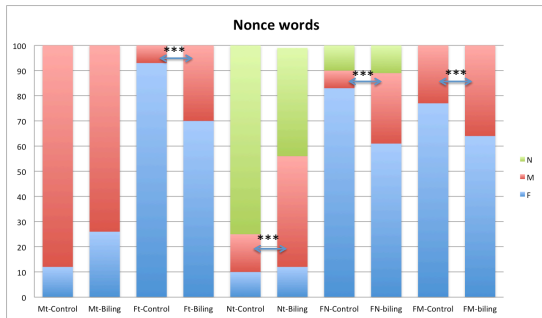| Gender match: Adj-Noun			Gender mismatch: Adj.-Noun					
MM	FF	NN	MF	MN	FM	FN	NM	NF

Fig. 1. Distribution of responses in Experiment 2 (Nonce words)
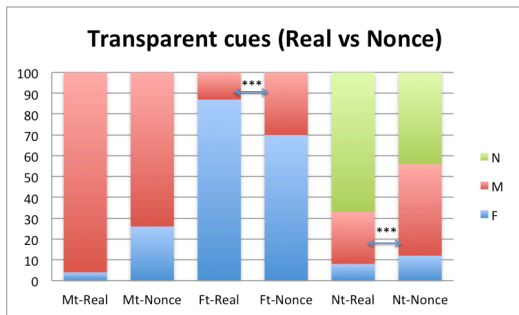
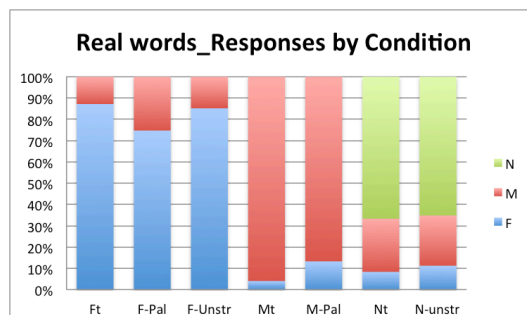Fig. 2. Distribution of responses in transparent in Experiment 1 (Real words)

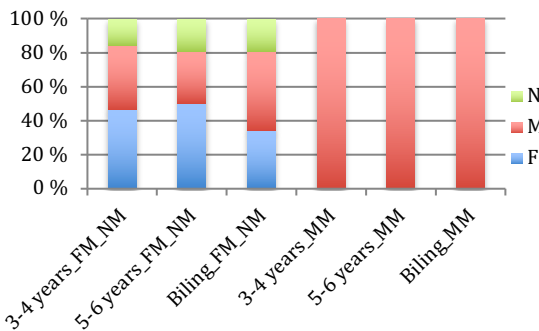Fig. 3. Distribution of responses by cue type conditions, Experiments 1 and 2

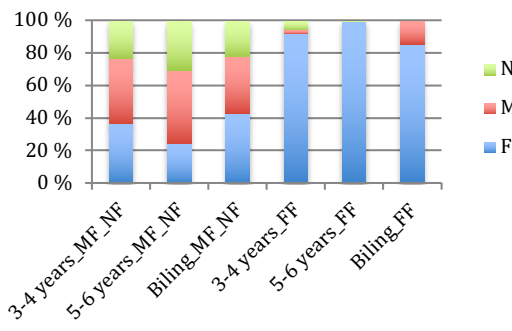Fig. 4. Experiment 3: M nouns, matched/mismatched cues
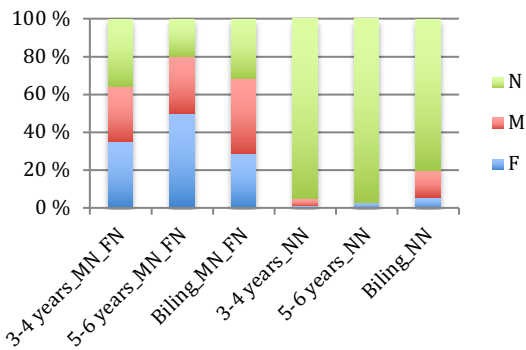

Fig. 5. Experiment 3: F nouns, matched/mismatched cue

Fig. 6. Experiment 3: N nouns, matched/mismatched cue