

## **Appendix A.** Order of test administration.

The standard test order for a 6- or 7-year-old child is shown in Figure A1. The standard test order was the same for children ages 3–5 years, except they attempted the conditions of the Localization test in the following order: 60°, 30°, 15°. The standard test order was the same for children ages 1–2 years, except they did not attempt the Localization and Toy Discrimination tests. Occasionally, a test would be stopped and resumed later in the session in order to reengage a child's interest.

**Figure A1.** The standard test order for a 6- or 7-year-old child. The order of conditions of the Toy Discrimination Test in noise was counterbalanced across participants.

## Appendix B. Supplementary analyses of the Toy Discrimination Test.

### Rationale

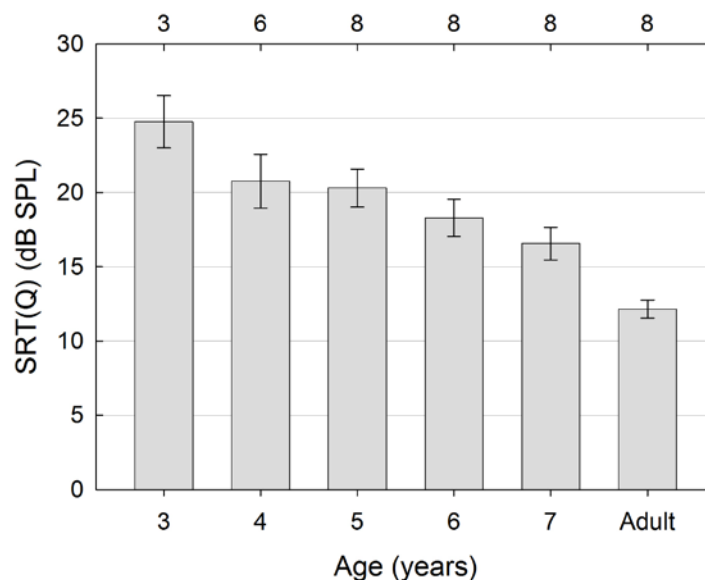
The main article reported primary analyses of speech reception threshold in quiet (SRT[Q]), speech reception threshold in noise (SRT[N]), and spatial release from masking (SRM), with data from children who used 4 toys ( $n = 7$ ), 10 toys ( $n = 1$ ), or 14 toys ( $n = 43$ ). There was a concern that SRT(Q) and SRT(N) would be affected by the number of toys that the child used during the test. Accordingly, this Appendix reports secondary analyses of SRT(Q) and SRT(N) with data only from normal-hearing children who used 14 toys.

### Statistical Analysis

A one-way independent analysis of variance (ANOVA) was used to assess the effect of age group on SRT(Q). Tukey's honestly significant difference (HSD) post hoc tests were used to assess whether any of the groups of children showed higher SRT(Q) than the adults. A two-way mixed ANOVA was used to assess the effect of age group and noise location on SRT(N). Tukey's HSD post hoc tests were used to assess whether any of the groups of children showed higher SRT(N) than the adults. Planned comparisons with a Bonferroni correction were used to investigate the effect of noise location on SRT(N).

### Toy Discrimination Test in Quiet

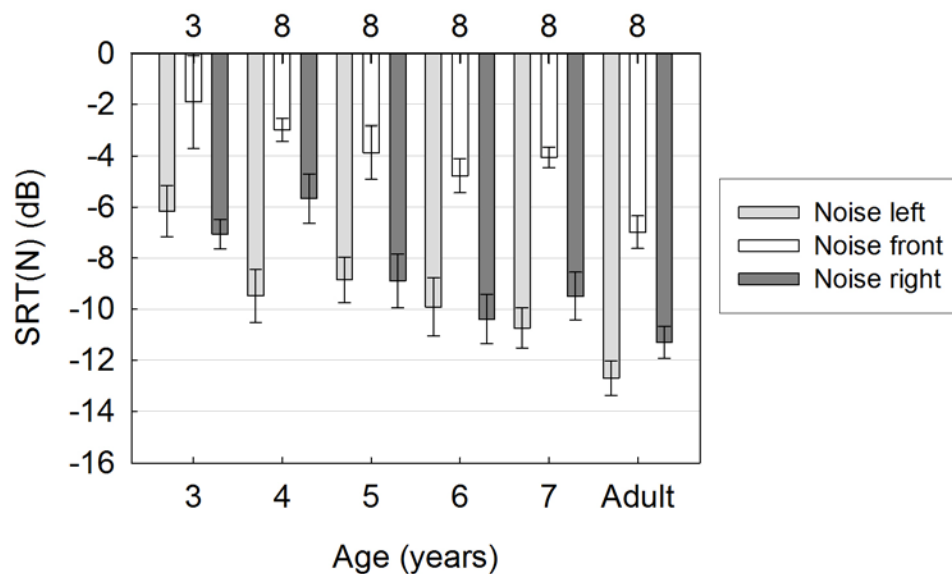
The results of the Toy Discrimination Test in quiet for normal-hearing participants who used 14 toys are shown in Figure B1. There was a significant effect of age group such that younger participants showed higher SRT(Q),  $F(5, 35) = 9.42$ ,  $p < .001$ . The 3- to 6-year-olds all had higher SRT(Q) than the adults ( $p < .05$ ), whereas the 7-year-olds had SRT(Q) that were not significantly different from those of the adults ( $p > .05$ ).



**Figure B1.** Results of the Toy Discrimination Test in quiet for normal-hearing participants who used 14 toys. Bars show mean scores; error bars show the standard error of the mean. The numbers above the upper horizontal axis indicate how many participants in each age group provided data. Children younger than age 3 years did not have the stamina to complete this test.

### Toy Discrimination Test in Noise

Figure B2 shows the results of the Toy Discrimination test in noise for normal-hearing participants who used 14 toys. There was a significant effect of age group such that younger participants showed higher SRT(N),  $F(5, 36) = 7.36, p < .001$ . Post hoc tests indicated that the 3-, 4-, and 5-year olds had higher SRT(N) than the adults ( $p < .05$ ). The remaining groups of children did not differ significantly from the adults ( $p > .05$ ). There was a significant effect of noise location such that SRT(N) was higher when speech and noise were spatially coincident than when speech and noise were spatially separated,  $F(2, 72) = 62.96, p < .001$ . Planned contrasts indicated that SRT(N) was significantly lower in the noise–left,  $F(1, 36) = 129.98, p < .001$ , and noise–right,  $F(1, 36) = 64.73, p < .001$ , conditions than in the noise–front condition. The interaction between age group and noise location was not significant,  $F(10, 72) = 1.19, p > .05$ .



**Figure B2.** Results of the Toy Discrimination Test in noise for normal-hearing participants who used 14 toys. Bars show mean scores; error bars show the standard error of the mean. Light-gray bars indicate noise from the left. White bars indicate noise from the front. Dark-gray bars indicate noise from the right. The numbers above the upper horizontal axis indicate how many participants in each age group provided data. Children younger than age 3 years did not complete this test using 14 toys.

### Conclusions

The results of the secondary analyses were very similar to the results of the primary analyses reported in the main article. The findings regarding SRT(Q) were identical. The findings regarding SRT(N) were identical except that in the secondary analysis, a post hoc test revealed that the 3-year-olds had significantly higher SRT(N) than the adults. This test was not statistically significant in the primary analysis. We expected SRT(Q) to be lower with 4 toys than with 14 toys (Johnstone & Litovsky, 2006). It appears that, in the primary analysis that included all data, a difference between the 3-year-olds and the adults was masked because the 3-year-olds used fewer toys than the adults.

### Reference

Johnstone, P. M., & Litovsky, R. Y. (2006). Effect of masker type and age on speech intelligibility and spatial release from masking in children and adults. *The Journal of the Acoustical Society of America*, 120, 2177–2189.