Results of Experiment 1 (offline)

For Experiment 1, the three-way repeated measures ANOVA on reaction times showed a statistically significant main effect only for subjective significance, $F(2, 78) = 3.52$; $p = .034$; $\eta_{p^2} = 0.08$. However, the post hoc tests with the Bonferroni correction were nonsignificant. The main effect for arousal was not significant, $F(2, 78) = 2.77$; $p = .07$; $\eta_{p^2} = 0.07$, nor was the main effect for valence, $F(2, 78) = 0.25$; $p = .78$; $\eta_{p^2} = 0.01$.

However, we did observe an interaction effect between valence and arousal, $F(4, 156) = 4.66$, $p = .001$, $\eta_{p^2} = 0.11$. As shown in Fig 1, for the group of highly arousing stimuli, the participants reacted faster to negative stimuli ($LN = 6.67$, $SEM_{LN} = 0.04$; $M = 885$ ms, $SEM = 47$ ms) compared to emotionally neutral stimuli ($LN = 6.73$, $SEM_{LN} = 0.04$; $M = 946$ ms, $SEM = 54$ ms), $t(39) = 3.19$, $p = .008$, $d = 0.51$. In addition, for emotionally neutral stimuli, the participants responded faster to minimally arousing stimuli ($LN = 6.64$, $SEM_{LN} = 0.04$; $M = 846$ ms, $SEM = 36$ ms) than to highly arousing stimuli ($LN = 6.73$, $SEM_{LN} = 0.04$; $M = 946$ ms, $SEM = 54$ ms), $t(39) = 4.16$, $p < .001$, $d = 0.66$.

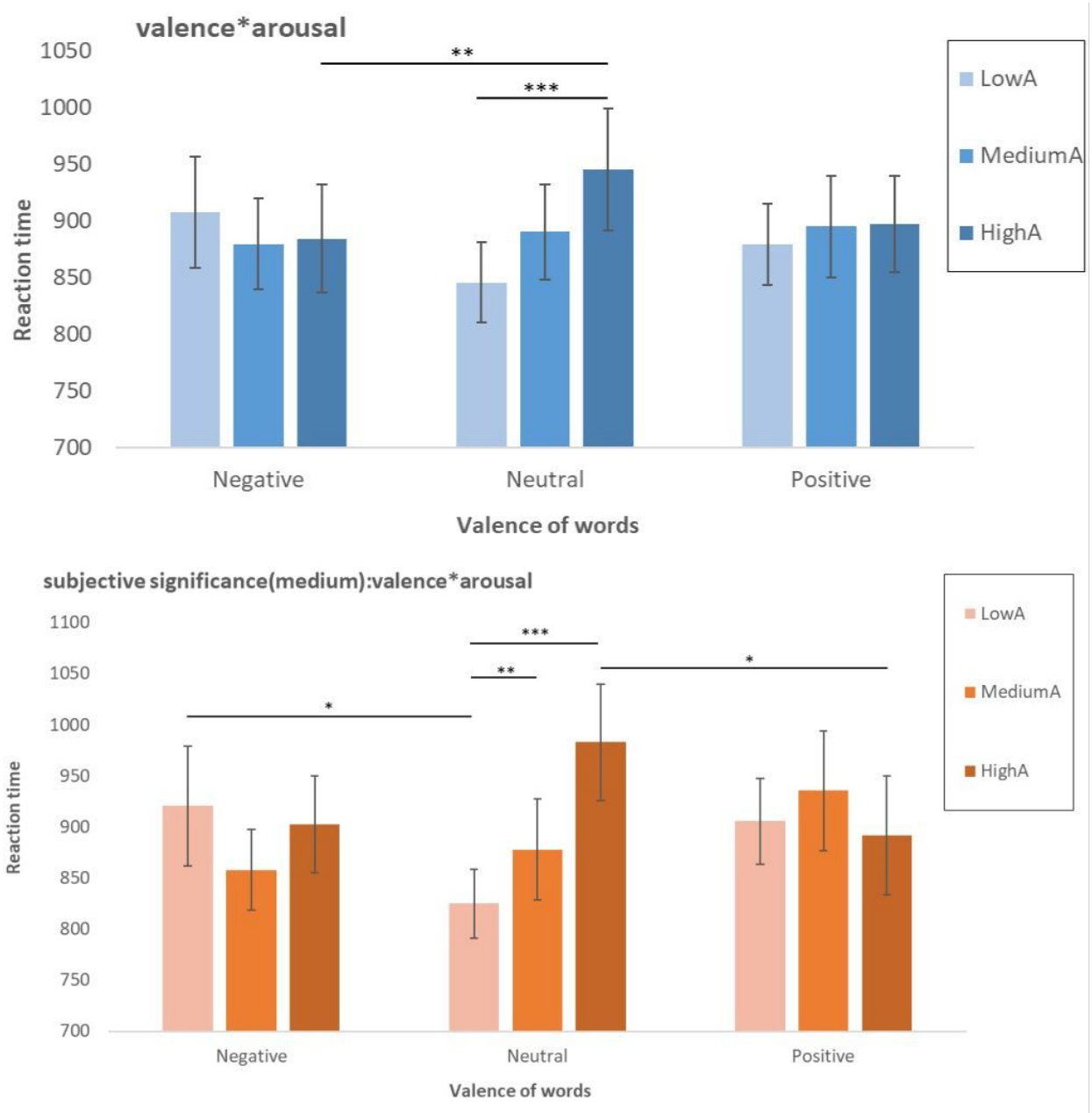

Fig 1. The interaction between A) valence and arousal, and B) valence, arousal, and subjective significance (effects for moderate subjective significance only) in the first experiment. The bars represent the mean response time in milliseconds, the error bars show the standard error of the mean, the black horizontal lines indicate significantly different means, and the asterisks indicate the level of significance. ***$p < .001$, **$p < .01$, *$p < .05$.

We also observed a statistically significant interaction between all three factors, $F(5.44, 212.32) = 2.37$, $p = .04$, $\eta_{p^2} = 0.06$. In order to determine exactly what the interaction consisted

of, post hoc tests were performed with the Bonferroni correction. As can be seen in Fig 1, for stimuli of moderate subjective significance and neutral emotionality, the participants responded slower to high arousal words (LN = 6.77, SEM_{LN} = 0.04; M = 983 ms, SEM = 57 ms) than to low arousal words (LN = 6.62, SEM_{LN} = 0.04; M = 825 ms, SEM = 34 ms), $t(39) = 4.10$, $p < .001$, $d = 0.70$ and moderate arousal stimuli (LN = 6.66, SEM_{LN} = 0.04; M = 878 ms, SEM = 49 ms), $t(39) = 3.53$, $p = .003$, $d = 0.56$. For moderately significant and low arousal stimuli, the participants responded slower to negative words (LN = 6.70, SEM_{LN} = 0.05; M = 921 ms, SEM = 59 ms) compared to emotionally neutral ones (LN = 6.62, SEM_{LN} = 0.04; M = 825 ms, SEM = 34 ms), $t(39) = 2.64$, $p = .04$, $d = 0.42$. Also, for the group of moderately significant and high arousal stimuli, the participants responded faster to positive stimuli (LN = 6.67, SEM_{LN} = 0.05; M = 892 ms, SEM = 58 ms) than to emotionally neutral stimuli (LN = 6.77, SEM_{LN} = 0.04; M = 983 ms, SEM = 57 ms), $t(39) = 2.62$, $p = .04$, $d = 0.42$.

For stimuli with high subjective significance (Fig 2) and positive emotionality, the participants responded faster to low arousal stimuli (LN = 6.67, SEM_{LN} = 0.04; M = 883 ms, SEM = 46 ms) than to high arousal stimuli (LN = 6.75, SEM_{LN} = 0.04; M = 961 ms, SEM = 50 ms), $t(39) = 2.51$, $p = .049$, $d = 0.40$. In the group of highly significant and highly arousing stimuli, the participants responded faster to negative (LN = 6.64, SEM_{LN} = 0.05; M = 862 ms, SEM = 49 ms) than to positive stimuli (LN = 6.75, SEM_{LN} = 0.04; M = 961 ms, SEM = 50 ms), $t(39) = 2.64$, $p = .04$, $d = 0.42$.

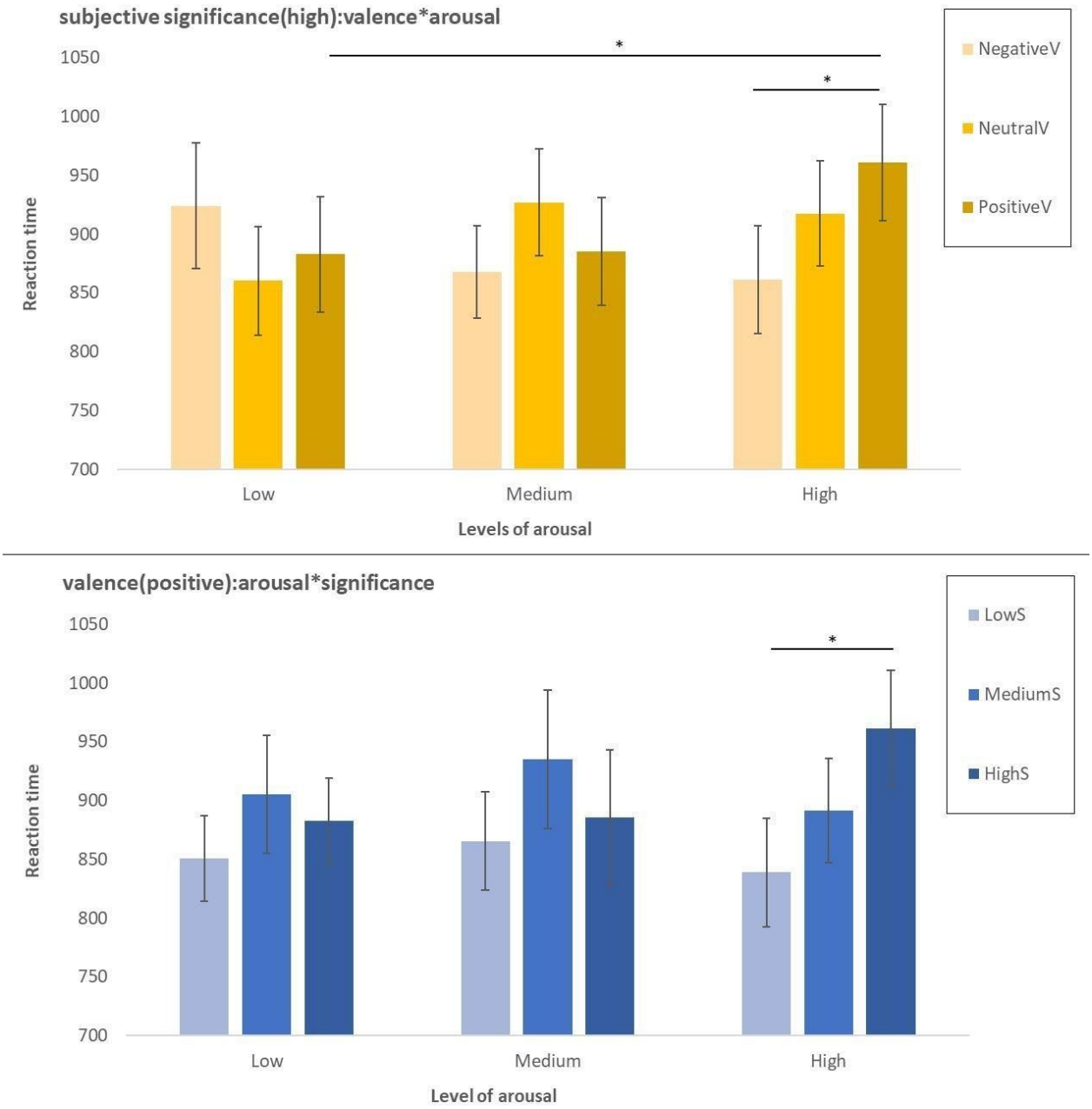

Fig 2. The interaction between A) valence and arousal for a high level of subjective significance, and B) arousal and significance for stimuli of positive valence. The bars represent the mean response time in milliseconds, the error bars show the standard error of the mean, the black horizontal lines indicate significantly different means, and the asterisks indicate the level of significance. ***$p < .001$, **$p < .01$, *$p < .05$.

As shown in Fig 2, for positive stimuli, the participants responded faster to highly arousing and low significance stimuli ($LN = 6.63$, $SEM_{LN} = 0.04$; $M = 839$ ms, $SEM = 37$ ms)

than to highly arousing and highly significant stimuli (LN = 6.75, SEM_{LN} = 0.04; M = 961 ms, SEM = 50 ms), $t(39) = 2.99$, $p = .01$, $d = 0.47$.

Results of Experiment 2 (online)

The three-way repeated measures ANOVA showed a statistically significant main effect for valence, $F(2, 116) = 4.79$; $p = .01$; $\eta_{p^2} = 0.08$. The participants reacted faster to negative stimuli (LN = 6.70, SEM_{LN} = 0.02; M = 879 ms, SEM = 24 ms) than to neutral ones (LN = 6.72, SEM_{LN} = 0.02; M = 905 ms, SEM = 25 ms), $t(58) = 3.07$, $p = .01$, $d = 0.40$. In addition, there was a statistically significant main effect for arousal, $F(2, 116) = 8.26$; $p < .001$; $\eta_{p^2} = 0.13$. The participants responded slower to highly arousing stimuli (LN = 6.73, SEM_{LN} = 0.03; M = 911 ms, SEM = 26 ms) than to moderately arousing stimuli (LN = 6.70, SEM_{LN} = 0.02; M = 883 ms, SEM = 24 ms), $t(58) = 2.85$, $p = .01$, $d = 0.37$ and low arousal stimuli (LN = 6.70, SEM_{LN} = 0.02; M = 878 ms, SEM = 25 ms), $t(58) = 3.84$, $p < .001$, $d = 0.50$. The main effect for subjective significance was not statistically significant, $F(2, 116) = 0.82$; $p = .44$; $\eta_{p^2} = 0.01$.

As can be seen in Fig 3, similar to results for Experiment 1, we observed a statistically significant interaction between valence and arousal, $F(3.479, 232) = 4.09$, $p = .005$; $\eta_{p^2} = 0.07$. It showed that, for the group of highly arousing stimuli, the participants responded slower to emotionally neutral stimuli (LN = 6.77, SEM_{LN} = 0.03; M = 951 ms, SEM = 29 ms) than to positive (LN = 6.71, SEM_{LN} = 0.03; M = 892 ms, SEM = 26 ms), $t(58) = 3.57$, $p = .002$, $d = 0.47$ or negative stimuli (LN = 6.71, SEM_{LN} = 0.03; M = 891 ms, SEM = 26 ms), $t(58) = 3.82$, $p < .001$, $d = 0.50$. Additionally, for the group of neutral stimuli, the participants reacted slower to high arousal stimuli (LN = 6.77, SEM_{LN} = 0.03; M = 951 ms, SEM = 29 ms) compared to moderate (LN = 6.71, SEM_{LN} = 0.03; M = 898 ms, SEM = 27 ms), $t(58) = 3.40$, $p = .004$, $d = 0.44$ and low arousal stimuli (LN = 6.69, SEM_{LN} = 0.02; M = 868 ms, SEM = 24 ms), $t(58) = 4.55$, $p < .001$, $d = 0.59$.

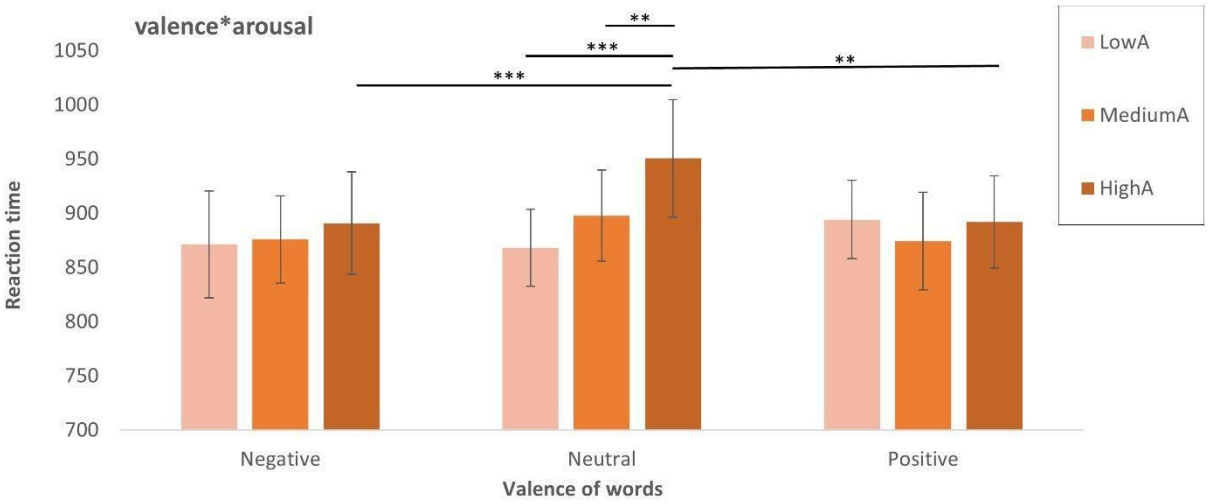

Fig 3. The interaction between valence and arousal (A) in the second experiment. The bars represent the mean response time in milliseconds, the error bars show the standard error of the mean, the black horizontal lines indicate significantly different means, and the asterisks indicate the level of significance. ***$p < .001$, **$p < .01$, *$p < .05$.

We also found a significant three-way interaction, $F(8, 464) = 2.07$, $p = .048$, $\eta_{p^2} = 0.03$. As can be seen in Fig 4, for the group of emotionally neutral and highly arousing words, the participants responded faster to highly significant stimuli ($LN = 6.72$, $SEM_{LN} = 0.03$; $M = 895$ ms, $SEM = 27$ ms) than to low ($LN = 6.81$, $SEM_{LN} = 0.03$; $M = 994$ ms, $SEM = 38$ ms), $t(58) = 4.11$, $p < .001$, $d = 0.54$ and moderately significant stimuli ($LN = 6.78$, $SEM_{LN} = 0.03$; $M = 962$ ms, $SEM = 32$ ms), $t(58) = 2.80$, $p = .02$, $d = 0.36$. On the other hand, for neutral and low arousal words, the participants responded slower to highly significant stimuli ($LN = 6.72$, $SEM_{LN} = 0.03$; $M = 897$ ms, $SEM = 28$ ms) compared to moderately significant ones ($LN = 6.67$, $SEM_{LN} = 0.03$; $M = 845$ ms, $SEM = 26$ ms), $t(58) = 2.70$, $p = .03$, $d = 0.35$. For neutral and low significance stimuli, the participants responded slower to highly arousing stimuli ($LN = 6.81$, $SEM_{LN} = 0.03$; $M = 994$ ms, $SEM = 38$ ms) than to moderate ($LN = 6.72$, $SEM_{LN} = 0.03$; $M = 904$ ms, $SEM = 34$ ms), $t(58) = 3.45$, $p = .003$, $d = 0.45$ and low arousal stimuli ($LN = 6.68$, $SEM_{LN} = 0.03$; $M = 862$ ms, $SEM = 25$ ms), $t(58) = 4.58$, $p < .001$, $d = 0.60$. Also, for the group of neutral and moderately significant words, the same effect was observed. In this case, the participants responded slower

to highly arousing words (LN = 6.78, SEM_{LN} = 0.03; M = 962 ms, SEM = 32 ms) than to low (LN = 6.67, SEM_{LN} = 0.03; M = 845 ms, SEM = 26 ms), $t(58) = 4.28$, $p < .001$, $d = 0.56$ and moderately arousing stimuli (LN = 6.71, SEM_{LN} = 0.03; M = 891 ms, SEM = 29 ms), $t(58) = 2.94$, $p = .01$, $d = 0.38$.

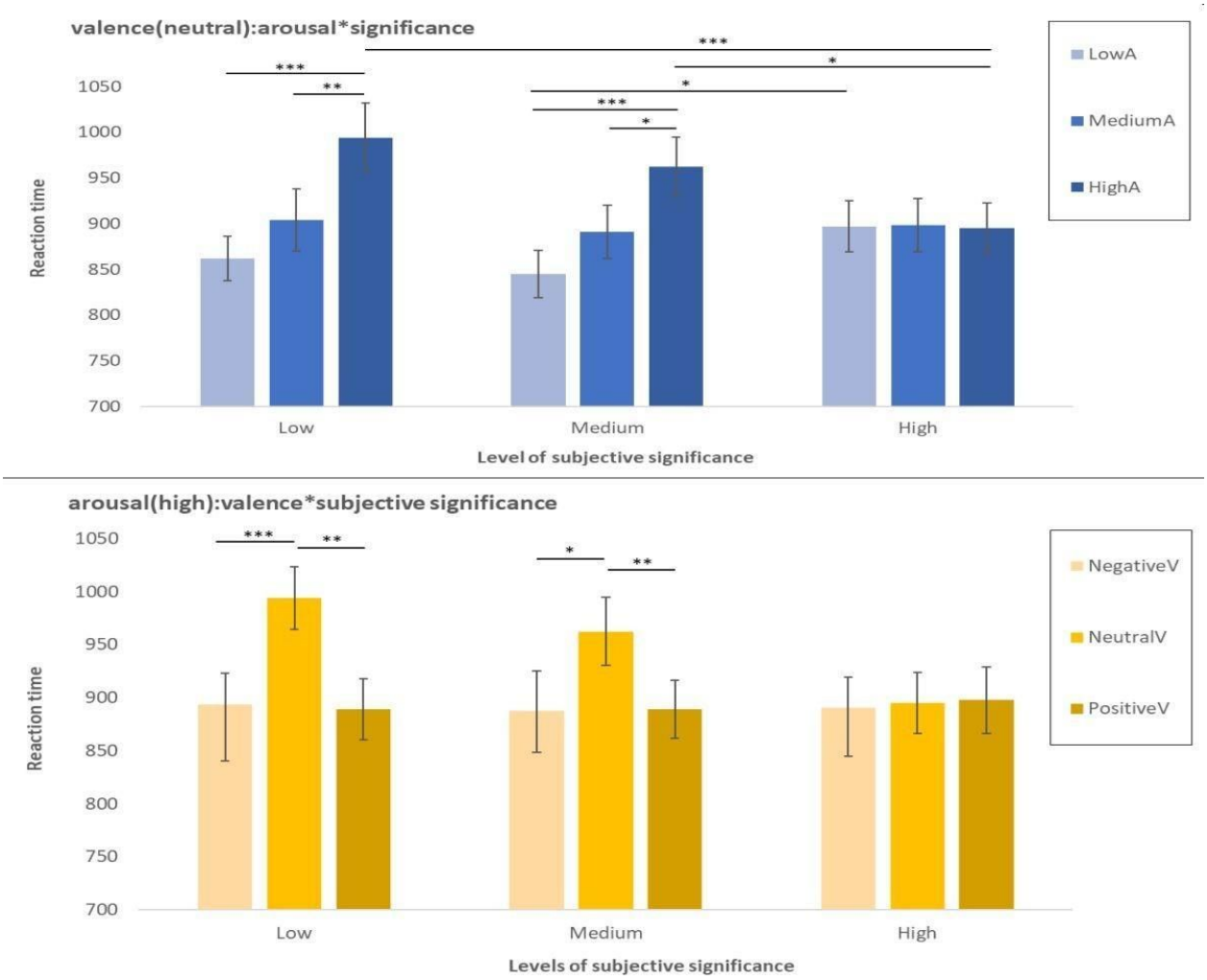

Fig 4. The interaction between A) arousal and significance for stimuli of neutral valence, and B) valence and subjective significance for a high level of arousal. The bars represent the mean response time in milliseconds, the error bars show the standard error of the mean, the black horizontal lines indicate significantly different means, and the asterisks indicate the level of significance. ***$p < .001$, **$p < .01$, *$p < .05$.

For highly arousing and low significance words, the participants needed more time to respond to emotionally neutral words (LN = 6.81, SEM_{LN} = 0.03; M = 994 ms, SEM = 38 ms) than to negative (LN = 6.71, SEM_{LN} = 0.03; M = 894 ms, SEM = 29 ms), $t(58) = 4.13$, $p < .001$, $d = 0.54$ or positive words (LN = 6.71, SEM_{LN} = 0.03; M = 889 ms, SEM = 29 ms), $t(58) = 3.81$, $p = .001$, $d = 0.50$ (Fig 4). An identical pattern of results was observed for highly arousing and moderately significant stimuli. The participants responded slower to emotionally neutral words (LN = 6.78, SEM_{LN} = 0.03; M = 962 ms, SEM = 32 ms) than to negative (LN = 6.71, SEM_{LN} = 0.03; M = 888 ms, SEM = 29 ms), $t(58) = 2.78$, $p = .02$, $d = 0.36$ or emotionally positive words (LN = 6.70, SEM_{LN} = 0.03; M = 889 ms, SEM = 29 ms), $t(58) = 3.63$, $p = .002$, $d = 0.47$.