Context-specificity of inhibitory control in dogs
Animal Cognition
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Experiment 1Results excluding the three dogs with no value preference (N = 27)

Pre-test: Value Discrimination. In the food preference trials, 25 out of 27 dogs chose the proximal plate containing the high-value reward on the first trial. Throughout the pre-test, dogs chose this plate on the vast majority of trials (mean = 82 ± 2%). All dogs chose the high-value reward more frequently that the low value reward.

Reputation Formation. In the reputation trials, 14 out of 27 dogs chose the generous experimenter on the first trial. To determine whether dogs approached the generous experimenter (associated with the distal plate) with increasing frequency across the reputation trials, we assessed the percent of dogs choosing the generous experimenter as a function of trial number. A Spearman's Rank-Order Correlation revealed a positive but non-significant correlation between trial number and the percent of dogs choosing the generous experimenter ($r_s(18) = 0.371$, $P = 0.107$).

We also evaluated whether dogs chose the generous experimenter at different frequencies in the first versus the second half of reputation trials. Although dogs approached the generous experimenter more often in the second half of trials, this different was not significant (mean 1st half: 43± 4%; mean 2nd half: 50± 4%; Wilcoxon signed-ranks test: $Z = -1.855$, $N = 27$, $P = 0.064$).

Test Trials. If dogs were able to inhibit the desire to approach the stingy experimenter even when she presented the high-value reward, we expected that they would approach the low-value reward more often in test trials than during the baseline value discrimination trials. To test this hypothesis, we evaluated whether dogs chose the distal plate, which always contained the

low-value reward, more frequently in the 10 test trials (when the more desirable closer plate was unobtainable) than the 10 value discrimination trials (when the more desirable closer plate was obtainable). This analysis revealed a significant difference between conditions (Wilcoxon signed-ranks test: $Z = -3.976$, $N = 27$, $P < 0.001$) with dogs choosing the low-value reward more frequently in the test trials (47 ± 4%) than in the initial value discrimination (18 ± 2%). These results confirmed a deviation from baseline performance, with the majority of dogs showing a change of behavior in the predicted direction (mean difference between conditions = 29%).

To evaluate whether the experimental manipulation of endowing the stingy experimenter with a more desirable reward affected dogs' behavior, we compared the last 5 trials from the reputation phase (both experimenters had equal amounts of food) to the first 5 test trials (stingy experimenter possessed the high-value reward). We predicted that if this manipulation made the task more difficult for dogs, subjects would exhibit a decreased tendency to approach the generous experimenter (correct choice) once the stingy experimenter offered the high-value reward. The results of this analysis were not significant, but did indicate a trend in the predicted direction (Wilcoxon signed-ranks test: $Z = -1.817$, $N = 27$, $P = 0.069$) in which dogs tended to approach the generous experimenter less frequently in the first 5 test trials (43 ± 5%) than in the last 5 reputation trials (53 ± 5%). On the first test trial, 12 out of 27 dogs chose the generous experimenter with the low-value reward.

Finally, to examine whether dogs were able to bypass the stingy experimenter's plate on control trials when she presented no food, we examined whether dogs showed greater preference for the generous experimenter and the low-value reward during (a) the 10 control trials, when the stingy experimenter possessed no food, or (b) the 10 test trials, when the stingy experimenter possessed the high-value reward. This analysis indicated a significant difference

(Wilcoxon signed-ranks test: $Z = -2.516$, $N = 27$, $P = 0.012$), showing that dogs approached the generous experimenter more often when the stingy experimenter possessed no reward (mean = 56 ± 4%) than when the stingy experimenter possessed the high-value reward (mean = 47 ± 4%).

There was no effect of age or sex on the overall number of test trials that dogs went to the generous experimenter ($r_s(25) = -0.09$, $P = 0.643$; Mann-Whitney Test: $U = 72.5$, $P = 0.36$, $r^2 = 0.03$) or on the social difference score ($r_s(25) = -0.25$, $P = 0.21$; Mann-Whitney Test: $U = 64.0$, $P = 0.185$, $r^2 = 0.07$).