

1 We thank the reviewers for their insightful comments. A number of additional experiments were suggested. We  
2 have completed each of these experiments, and we have added them to our current version. We first enumerate these  
3 experiments and then respond to individual reviewer questions. The details of these experiments are as follows:

4 **A1.** Transfer learning with a deeper backbone: We have now tested transfer learning with an adversarially trained  
5 ResNet-50. The deeper backbone actually decreases robust accuracy on few-shot tasks compared to the much shallower  
6 R2-D2 backbone (15.63% vs. 17.72% on 1-shot mini-ImageNet). We have updated our paper to include these results.

7 **A2.** Additional attack norm: We have now implemented the  $\ell_2$  PGD following Madry, and we find that AQ models  
8 are also robust to these attacks. For example, our adversarially queried R2-D2 model achieves 35.53% robust 5-shot  
9 accuracy on mini-ImageNet, while the analogous transfer learned model achieves only 15.92% on the same task.

10 **A3.** Out-of-distribution testing: We have now evaluated our models on Meta-Dataset. For example, on the FGVC-  
11 Aircraft dataset, R2-D2 AQ gets 36.65% 5-shot robust accuracy, while the analogous transfer learned model gets  
12 20.83%. For the same models, on the CUB-200 dataset, the robust accuracies are 29.04% and 20.05%, respectively.

13 **A4.** Additional meta-learning algorithms: We have now implemented and run adversarial querying with the state-of-the-  
14 art meta-learning method, MCT. This experiment yielded high robustness and small natural accuracy tradeoff. MCT  
15 (AQ) simultaneously achieves 79.9% natural accuracy and 53.2% robust accuracy on 5-shot mini-ImageNet.

16 **A5.** Reptile: We have trained an adversarial Reptile variant, and we are updating our paper to include these experiments.

17 **Reviewer 1:**

18 *"Multiple small tables makes the paper difficult to read. . . Table 9 could have been included along with the main results."*  
19 Thank you for your suggestions. We have merged tables and highlighted these results in our current version.

20 *"It seems that perturbing support data does not provide any advantage."* Thank you for pointing this out. In Section 4.2,  
21 we note that perturbing support data optimizes the network for adversarial fine-tuning. Likewise, in Table 8, we see that  
22 models trained with adversarial support achieve better robustness than the naturally trained model (still worse than AQ  
23 models) only when adversarially fine-tuned at test time. We have added a subsection to better explain this phenomenon.  
24 *"It is unclear why AQ is more robust than transfer learning."* Ding et al. 2019 found that unlike natural accuracy,  
25 robustness does not generalize well under transfer learning. AQ produces models specifically optimized for robust  
26 few-shot adaptation. We have updated our paper to discuss this issue in detail.

27 *"Attacking only support data can be seen as maximizing clean test accuracy when fine-tuned in a robust manner"*  
28 The meta-objective in this case is clean query loss after optimization on adversarial support data. This optimization  
29 simulates natural performance at test-time after fine-tuning on adversarial few-shot data.

30 *"We expect adversarial accuracy to increase as  $\frac{1}{\lambda}$  increases."* Thank you for pointing this out. When  $\frac{1}{\lambda}$  is sufficiently  
31 large, the network is encouraged to behave as a constant function and to neglect accuracy (both natural and robust).  
32 Consider that a network need not make correct predictions to achieve low KL divergence loss.

33 **Reviewer 2:**

34 *"Only four meta-learning algorithms are tested."* We have now tested adversarial querying on the state-of-the-art MCT  
35 method, and we have updated our paper accordingly. See A4 above for additional details.

36 **Reviewer 3:**

37 *"Show at least one visual case."* We agree that visualizations could make our work easier to understand. We have now  
38 both visualized adversarial examples and constructed a visual representation of our algorithm.

39 **Reviewer 4:**

40 Regarding your suggestions concerning table aggregation and captioning, table referencing, and moving Algorithm 1 to  
41 the Appendix, we agree with your assessment, and we have updated our current version to reflect these changes.

42 *"I am surprised at the difference in  $A_{adv}$  values of "MAML adv. query" and "MAML adv. query and support"...  
43 perturbing the query data and not the support data"* Thank you for pointing this out. In Section 4.2, we note that  
44 perturbing support data optimizes the network for adversarial fine-tuning. Likewise, in Table 8, we see that models  
45 trained with adversarial support achieve better robustness than the naturally trained model (still worse than AQ models)  
46 but only when adversarially fine-tuned at test time. We have updated our explanation of this phenomenon in Section 4.2.  
47 *"AQ causes a big drop [in natural accuracy]"* This massive trade-off exists in the standard setting where SOTA robust  
48 ImageNet models achieve 65.30% clean accuracy while clean-trained models achieve 88.50%. We agree that this is an  
49 obstacle for deployment. In our new MCT tests (see A4 above), we see a far smaller drop of only 6%.

50 **Reviewer 5:**

51 *"...results on some datasets and not others. For example: section 4.2 presents results on only 5-shot ImageNet."* The  
52 appendix in our submitted version contains these experiments. We agree that these experiments are important.

53 *"...meta-learners that minimize \*support\* set loss."* Thank you, we have now included your suggestion (see A5 above).

54 *"test out-of-distribution generalization."* We have now evaluated our models on Meta-Dataset (see A3 above).

55 *"A few minor points..."* Thank you for pointing these out. We have added clarification to our current draft.

56 *"...considerably worse when no attack is present."* This massive trade-off exists in the standard setting where SOTA  
57 robust ImageNet models achieve 65.30% accuracy while clean-trained models achieve 88.50%. We agree that this is an  
58 obstacle for deployment. We like your average performance metric and have updated our current version to include this.