

1 We'd like to sincerely thank all the reviewers for a careful reading of our paper in these difficult times and welcome
2 their suggestions. Below, we respond to each reviewer individually.

3 **Response to Reviewer #1:**

4 - [Novelty of our work] We would like to emphasize that the core conceptual novel contribution of our work is the
5 establishment of connection between the testing in the dual access model (and in the conditional sampling model) to
6 testing and distance approximation in the standard sampling model. These two models have been investigated separately.
7 Here we use the former results to derive several new efficient tolerant testing algorithms in the standard model for high
8 dimensional distributions, thus extending the state-of-the-art in this area. In this regard, we extend [CR14] to derive
9 Algorithm 1, which in our view is intended to be simple and flexible, as acknowledged by Reviewer 4 as well. We
10 consider the simplicity of Algorithm 1 a core strength of our work.

11 - [Comparison with [CR14]] Technically, [CR14] assumes perfect access to the probability mass functions of the two
12 distributions. Instead we work with approximate access to p.m.f.s, the approximation being parameterized by β and
13 γ . In our opinion, the generalization (in Appendix A.1) does not follow trivially. The usage of approximation has
14 allowed us to obtain results for several high dimensional distributions that do not follow from [CR14]. For example,
15 let us consider the Ising model. In this case, given samples from two ferromagnetic Ising models P and Q , we
16 approximately learn the model parameters [KM17] and estimate the partition functions [JS93], to evaluate the p.m.f.s
17 approximately. The later result takes parameters of a ferromagnetic Ising model as input and returns a (randomized)
18 PTIME $(1 \pm \epsilon)$ -multiplicative approximation of its partition function, and therefore we obtain a PTIME algorithm. In
19 contrast, since the computation of the partition function given a fully known ferromagnetic Ising model is known to be
20 #P-complete [JS93] (Theorem 15) and as [CR14] does not allow for multiplicative errors, [CR14] would lead to an
21 algorithm with $P^{\#P}$ complexity. As R1 pointed out, we should have included the above discussion in the paper itself.
22 We will do so in the final version contrasting the limitations of directly using [CR14] for all the different families.

23 We appreciate and agree with your valuable thoughts regarding the restructuring of the paper. We will incorporate them
24 in the final version to the extent possible.

25 **Response to Reviewer #3:**

26 We appreciate this reviewer for acknowledging our Bayes net learning algorithm from the Appendix. Please see our
27 response to the Reviewer #1 presented above for the other novelties of our work.

28 **Response to Reviewer #4:**

29 - [Tightness of our bounds] We note that the $\Omega(n/\log n)$ lower bound from [CDKS17] that we cite on line 152-154
30 for tolerant testing of production distributions implies the same lower bound for tolerant testing of Bayes nets. Same
31 lower bound also holds for tolerant testing for the class of atomic interventional distributions. For the Ising model,
32 currently we do not have a lower bound and in general, we agree with the reviewer that proving improved lower bounds
33 for the tolerant testing problems we consider here is an important open direction - in this paper our focus was mainly
34 establishing upper bounds. We will include this discussion in the final version.

35 - [Using a better learning algorithm for Ising models] Thanks a lot for bringing arXiv:1806.06887 to our notice. The
36 approach you suggested should give a substantially better sample complexity dependence on n , for learning the Ising
37 model. Since we plug in the learning algorithm as a black-box, this directly improves sample complexity of our
38 algorithm. However, as noted in Section 6 of their paper, this algorithm is not polynomial time and hence we will not
39 get a polynomial time algorithm.

40 We appreciate and agree with the rest of your suggestions for improving the presentation of the paper and we will
41 incorporate them in the final version as appropriate.