**Dear Reviewer#1:**

> The lower bound requires that $T <= N^{3/2}$ (roughly) which weakens the result slightly.

We agree with this comment. As we mentioned in lines 63–68, we believe that this requirement can be removed by more sophisticated analysis. This requirement comes from the fact that our proof relies on a union bound on all possible choices of actions, which is closely related to the following concern and questions posted by the reviewer.

> The proof of Lemma 2 (line 239) starts by conditioning on $\{T_i\}$, ...

Lemma 2 is **not** about the posterior distribution conditioned on $\{\mathcal{T}_i\}_{i=1}^N$, but we regard the value $\sum_{i=1}^N \min_{j \in [N] \setminus B} L'_{ij}$ as a function in $\{\ell'_t\}_{t=1}^T$ for an arbitrarily fixed $\{\mathcal{T}_i\}_{i=1}^N$. Hence, we may assume the losses are i.i.d. Bernoulli. We shall stress this in the revised version.

> The only way that I can see how to fix that is by taking a union bound on all possible choices of the $n_i$'s

Yes, as the reviewer mentions, we indeed applied a union bound on all possible choices of $\{\mathcal{T}_i\}$'s, which is explained in lines 230–234. (We applied union bound because posterior distributions are not i.i.d. Bernoulli as the reviewer pointed out, which seem too complicated to analyze.) The union bound leads to $\Omega(\sqrt{TN \log N})$-lower bound (though the assumption of $T = \Omega(N^{3/2}/\log N)$ is required here) as follows: The number of possible choices is at most $N^T = \exp(T \log N)$ and, from Lemma 2, the probability that $\sum_{i=1}^N \min_{j \in [N] \setminus B} L'_{ij} > \frac{T}{2} - \frac{\sqrt{TN \log N}}{512}$ is at most $2\exp(-N^{3/2}/128)$ for each choice of $\{\mathcal{T}_i\}$. Hence, $\sum_{i=1}^N \min_{j \in [N] \setminus B} \leq \frac{T}{2} - \frac{\sqrt{TN \log N}}{512}$ for all possible choices with probability at least $1 - 2\exp(-N^{3/2}/128 + T \log N)$. This probability is $\Omega(1)$ under the assumption of $T = O(N^{3/2}/\log N)$, which leads to an $\Omega(\sqrt{TN \log N})$-lower bound for swap regret, as discussed in lines 228–238.

**Dear Reviewer#2:**

> The paper is heavily based on reference [9].

Yes, the reference [9] is the most important previous work the present paper relies on. For the key update presented in our study, we would like you to refer to the comment by Reviewer#4 and our response to it.

**Dear Reviewer#3:**

> I would recommend adding a citation to Hart and MasCollel, ...

Thanks for providing information on relevant work. The revised manuscript shall refer to this paper.

> In table 1, doesn't Theorem 1 also improve the lowerbound for the full information setting?

As stated in the caption of Table 1, the lower bound in Theorem 1 applies to the full-information as well as to the bandit settings.

**Dear Reviewer#4:**

> From Section 4.2, it seems as though the key innovation of this paper is that instead of bounding each term $E[\min_{j \in [N]} L_{ij}]$ individually, the tighter bound comes from analyzing the entire $\sum_{i=1}^N \min_{j \in [N]} L_{ij}$. ..

Yes, the point the reviewer mentioned is a key idea of our analysis. An intuition for an additional $\Omega(\sqrt{\log N})$ factor comes from a property of order statistics: for $k = O(N)$, the $k$-th largest value of $\{n_i/2 - L'_{ij}\}_{j \in [N]}$ is $\Omega(\sqrt{n_i \log(N/k)})$ with high probability (as can be seen from Lemma 10). Combining this and the fact that $L_{ij} = L'_{ij}$ holds for any non-blocked action $j$, we want to get a tighter upper bound for $\min_{j \in [N]} L_{ij}$. When bounding $\min_{j \in [N]} L_{ij}$ individually as the previous work, since the number of blocked action is at most $(N/8)$, by considering the *worst-case* w.r.t. the blocked actions (when top $N/8$ actions regarding $\{n_i/2 - L'_{ij}\}_{j \in [N]}$ are blocked) we have $\max_{j \in [N]}\{n_i/2 - L_{ij}\} = \Omega(\sqrt{n_i \log(N/(N/8))}) = \Omega(\sqrt{n_i})$. This bound is not satisfactory since there is no $\log N$-factor. On the other hand, when analyzing the entire $\sum_{i=1}^N \min_{j \in [N]} L_{ij}$ as in our study, we can exploit the fact that the blocked actions are *shared by all $i$'s*, to improve upon the worst-case analysis w.r.t. blocked actions. As formally stated in Lemma 4, we can see that top $\sqrt{N}$ actions ($j$'s) cannot be blocked for most of $i$'s. For such $i$'s, we get $\max_{j \in [N]}\{n_i/2 - L_{ij}\} = \Omega(\sqrt{n_i \log(N/\sqrt{N})}) = \Omega(\sqrt{n_i \log N})$, which includes an additional $\Omega(\sqrt{\log N})$ factor.

> what was already there in Blum and Mansour ’ s [ ’ 07] paper and what ’ s new to this paper.

Thanks for your helpful comments. In the revised version, we shall divide the paragraph into the parts of existing ideas and new ones, in order to clarify what's new.