Errata for “Parameter Estimation: Towards Data-Driven and Privacy Preserving Approaches”

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• In page 11, $1_A\{\cdot\}$ should be changed to $1\{A\}$.

• Assumption 5.6 on page 44 should be modified as “$F(\cdot; \theta)$ has connected support and $F^{-1}(\cdot; \theta)$ is a differentiable function for each $\theta \in \Theta$”.

• In page 47, the text starting from $P(y_\theta(\gamma N) - q_\theta(\gamma) > \varepsilon)$ until the end of the proof should be modified as follows:

$$P(y_\theta(\gamma N) - q_\theta(\gamma) > \varepsilon) = \mathbb{P}\left( \frac{1}{N} \sum_{n=1}^{N} \mathbb{1}\{y_n(\theta) \geq q(\gamma) + \varepsilon\} \geq 1 - \frac{[\gamma N]}{N} + \frac{1}{N} \right) \leq \mathbb{P}\left( \frac{1}{N} \sum_{n=1}^{N} \mathbb{1}\{y_n(\theta) \geq q(\gamma) + \varepsilon\} \geq 1 - \frac{[\gamma N]}{N} \right) = \mathbb{P}\left( \frac{1}{N} \sum_{n=1}^{N} (\mathbb{1}\{y_n(\theta) \geq q(\gamma) + \varepsilon\} - \mathbb{E}[\mathbb{1}\{y_n(\theta) \geq q(\gamma) + \varepsilon\}]) \right. \geq 1 - \frac{[\gamma N]}{N} - \mathbb{E}[\mathbb{1}\{y_n(\theta) \geq q(\gamma) + \varepsilon\}] \right) \leq \exp\left( -2N \left( F(q(\gamma) + \varepsilon; \theta) - \frac{[\gamma N]}{N} \right)^2 \right) \leq \exp\left[ -2N \left( F(q(\gamma) + \varepsilon; \theta) - \gamma \right)^2 \right],$$

where (c) follows from (5.8), (d) follows from Hoeffding’s inequality [37], and (e) follows from the inequality $[\gamma N] < \gamma N$. Note that $F(q(\gamma) + \varepsilon; \theta) - \gamma > 0$ due to Assumption 5.6, according to which $F(\cdot; \theta)$ has connected support.

Similarly, $P(y_\theta(\gamma N) - q_\theta(\gamma) < -\varepsilon) < \exp[-2N(F(q(\gamma) + \varepsilon; \theta) - \gamma)^2]$ by applying Hoeffding’s inequality in the opposite direction. Combining this with (5.7), we see that $P(A_{m,\varepsilon}^c) \to 0$ as $m \to \infty$, which means that $P(A_{m,\varepsilon}) \to 1$.

• In page 59, $L_f$ and $L_r$ should be changed to $l_f$ and $l_r$, respectively, in (6.7).

• In line 90 of page 60, $\Theta$ should be changed to $\theta$. 