What can a deterministic algorithm do?

- Starts with deterministic matrices $S_1^{(1)}, \ldots, S_t^{(1)}$ and obtains

- Based on responses, pick $S_1^{(2)}, \ldots, S_t^{(2)}$ and so on

- Assume $\text{vec}(S_i^{(j)})$ are orthonormal w.l.o.g

- Are first round responses enough to pick good measurements in second round?

$$r_i^{(1)} = \langle \text{vec}(S_i^{(1)}), (\alpha/\sqrt{n}) \cdot u \otimes v \rangle + \langle \text{vec}(S_i^{(1)}), \text{vec}(G) \rangle$$

$$u \otimes v = \text{vec}(uv^T)$$

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Deterministic Algorithm