

1 Suchetan

Overall, the chapter looks good, and I think you basically did as best that you could have in the quantum max-cut section without going into the details of quantum computing. Just one error though is that you define an entangled qubit (a single qubit on its own cannot be entangled). I think it would be better to state that a set of n qubits is a vector in C^{2^n} , and that the qubits form a product state if there exists no entanglement (qubits are uncorrelated and hence correspond to classical n -bit string).

2 Connoer Clayton

1. Top of page 3: “70 (65%) thought $FACT \notin P$ ”
2. Theorem 6.2: last part, there should be an ‘OPT’ in the error bound
3. Definition 5 (cut): there is a period in the middle of the first sentence
4. Definition 8 (quantum supremacy): after (a), change ‘formulating’ to ‘formulate’ Problem 11.1: “... outputs n qubits ...”

3 Amin

1. Page 1: It should be Nielson & Chuang instead of Nielson & Chung.
2. Point 4 of Theorem 3: I think the deterministic complexity is $O(N - M)$ but the randomized complexity in this case is $O(N/M)$. Usually, when we compare quantum complexities to classical complexities, we mention which model we are comparing to (deterministic or randomized). You might want to explain their distinction and state clearly which model you are comparing to. Based on my experience, the randomized model is more common for such a comparison.

Also, any such comparison is based on the query model. If you have not explained the notion of query complexity anywhere in the book, you might wanna explain it in this chapter.
3. Theorem 4: I think these results are with respect to the query complexity and not the time complexity. Moreover, the papers mentioned in

points 1 and 2 use $\text{poly}(n)$ quantum queries (rather than $O(n)$ quantum queries). However, there is a recent paper

<https://arxiv.org/abs/2208.13492>

that shows that it can be done in $O(n)$ queries.

4. Point 3 of Theorem 4: The paper cited here is published in the 14th Innovations in Theoretical Computer Science (ITCS).

Also, I would like my name to be changed to A. S. Gilani (from A. Gilani). (Also, Andrew might prefer his name to be consistently referred to as A. M. Childs.)

4 Yingkang Cao

1. Page 5. Typo in Thm 4: should be “a sequence $\{G_n\}_{n=1}^\infty$ ”
2. Page 7. Typo in Thm 8: $O(n^{1+\epsilon})$.

5 Sam Tan

He emailed annotated pdf