**Erratum: Constraints on correlations in multiqubit systems
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In the original paper, we claimed in the paragraphs on p. 3 (preceding Lemma 5) that “[$\dots$] if a state $|\psi\rangle$ is uniquely determined among all states by certain sets of correlations (for example, odd-body correlations), then $|\psi\rangle$ is the unique ground state of some Hamiltonian having interaction terms from that set only.” This statement is not correct, as a recently found analytical counterexample on six qubits shows [1].

The error in the reasoning on p. 3 occurs after Lemma 5: The conclusion “As $\mathcal{R}(|\psi\rangle\langle\psi|)$ is extremal, there exists a linear witness L in the projected space $\mathcal{R}(\mathcal{O})$ of all Hermitian operators $\mathcal{O}$ with $\langle\psi|L|\psi\rangle$ being minimal” is wrong. An explanation of the fallacy is already given in Ref. [2] (cf. Fig. 1): An explicit two-dimensional set is constructed in which some extremal points cannot be separated from all other extremal points by any linear witness. Thus, any such witness cannot detect a single state uniquely. In our context, such a witness cannot be used as a Hamiltonian with nondegenerate ground-state space.

We stress that our main observation based on this result, namely, that “[$\dots$] all pure states of an odd number of parties are unique ground states of odd-body Hamiltonians,” remains correct. To see this, consider the following argument: The odd-body correlations of state $|\psi\rangle$ under consideration can be expressed as $P_o = 2^{n-1}(|\psi\rangle\langle\psi| - |\tilde{\psi}\rangle\langle\tilde{\psi}|)$, where $|\tilde{\psi}\rangle$ is the inverted state satisfying $\langle\tilde{\psi}|\psi\rangle = 0$. Indeed, P_o is of rank 2 only, whose unique eigenvector corresponding to its maximal eigenvalue is $|\psi\rangle$. The operator $(-P_o)$ can thus be interpreted as an odd-body Hamiltonian, whose unique ground state is $|\psi\rangle$. Also, Lemma 5 and its proof remain correct.

[1] S. Karuvade, P. D. Johnson, F. Ticozzi, and L. Viola, [arXiv:1902.09481](https://arxiv.org/abs/1902.09481).

[2] J. Chen, Z. Ji, B. Zeng, and D. L. Zhou, [Phys. Rev. A **86**, 022339 \(2012\)](https://doi.org/10.1103/PhysRevA.86.022339).