Addendum to: Graded KMS Functionals and the Breakdown of Supersymmetry

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The assumptions of Corollary 8 are unnecessarily strong. In fact, they would exclude many examples of interest [2]. We thank Ola Bratteli for pointing out this reference to us.

The statement holds, however, in more generality if one replaces in the definition of $\varphi$-supersymmetric dynamical systems the algebra $\mathcal{M}_\text{an}$ by any weakly dense $\widetilde{\gamma}$-invariant subalgebra $\mathcal{M}_0 \subset \mathcal{M}$ which is contained in the intersection of the domains of $\tilde{\delta}_0$ and $\tilde{\delta}^2$. The existence of such a subalgebra is clearly a necessary prerequisite for the definition of supersymmetry.
The proof that $\tilde{\delta}_0 = 0$ remains true in this more general situation since $\tilde{\delta}_0$ is a weakly closed operator. If such an operator vanishes on some dense domain, it vanishes identically. By the original argument, $\tilde{\delta}_0 | \mathcal{M}_0 = 0$, so one arrives at the statement of the corollary also under these weak conditions.

References
