Attachment to answer to referee 3

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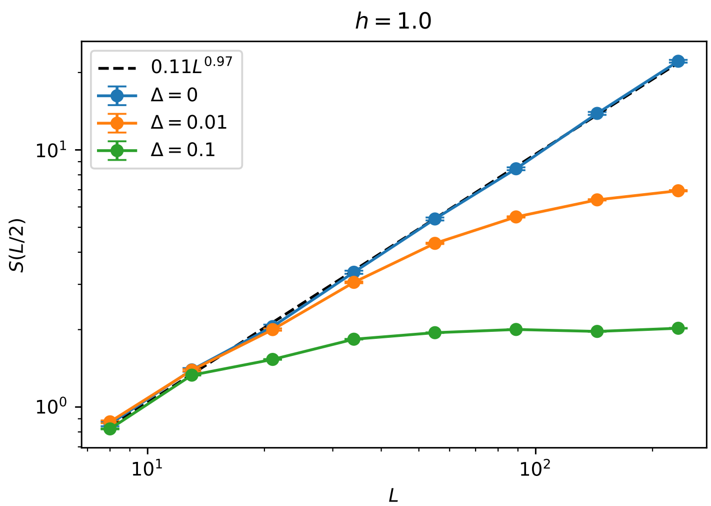

Figure 1: Half-chain entanglement entropy in the mean-field setup. Entropy is averaged over many high energy eigenstates after convergence of the mean-field procedure.

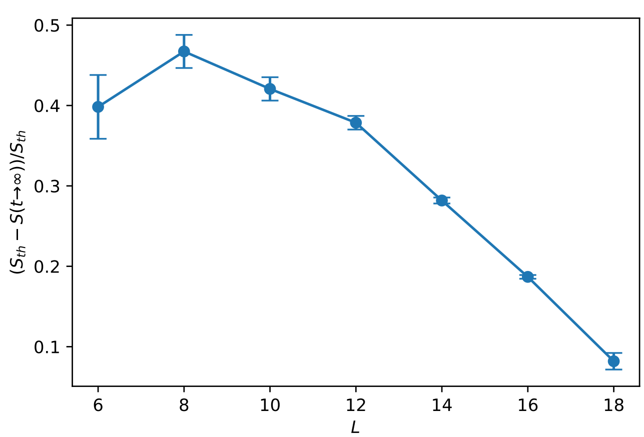

Figure 2: Saturation half-chain entanglement entropy divided by the Page prediction for the thermal value $S_{\text{th}} = \frac{L}{2} \ln 2 - \frac{1}{2}$. Initial states are product states whose average energy is at one sigma from the infinite temperature energy $E_{T=\infty} = -\Delta/4$, except for the $L = 18$ data where the average is performed over the 50 product states whose energy is the closest to infinite temperature energy.

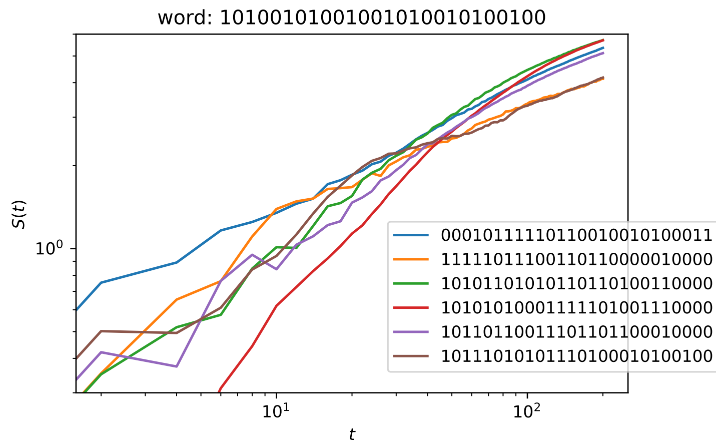

Figure 3: Entanglement growth of different product states of identical average energy $\overline{E} = E_{T=\infty} = -\Delta/4$, on a chain of $L = 26$ sites, with $\Delta = 1$ and $h = 1$, for a given "word" whose pattern of $-h/+h$ potentials is indicated by a string of 0/1 on top of the figure. Initially, the states are polarized as indicated in the legend, 0/1 indicating a down/up spin.

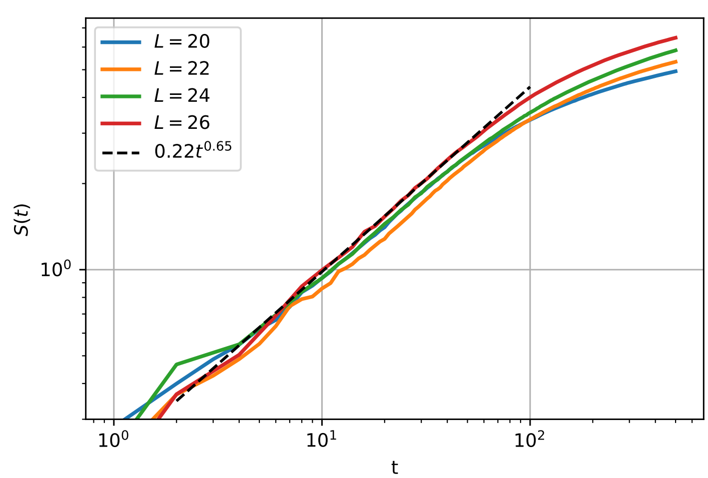

Figure 4: Entanglement growth for initial high energy product states at $h = 1$, for a fixed sample which is progressively extended on its right.

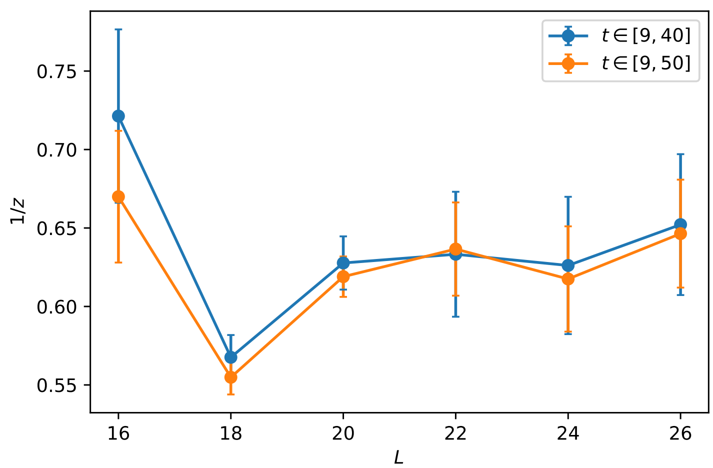

Figure 5: Fit of the dynamical exponent $z(h = 1)$ using entanglement growth data in a two time windows, as a function of system size. For $L \geq 20$, the numerics is compatible with a size-independent exponent.