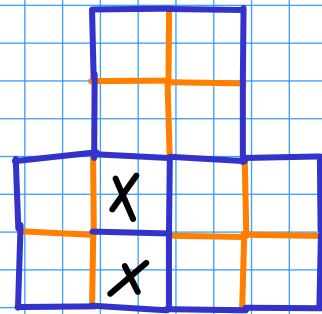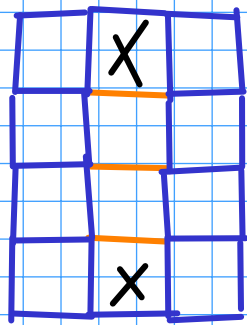# 1.

Plaquette is frustrated if it has an odd # of AF bonds
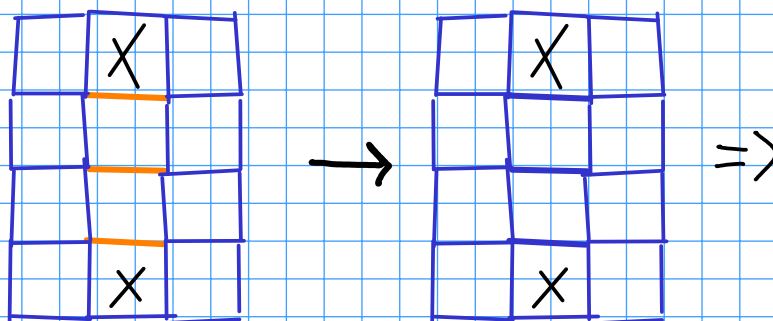
In (a), their positions are:
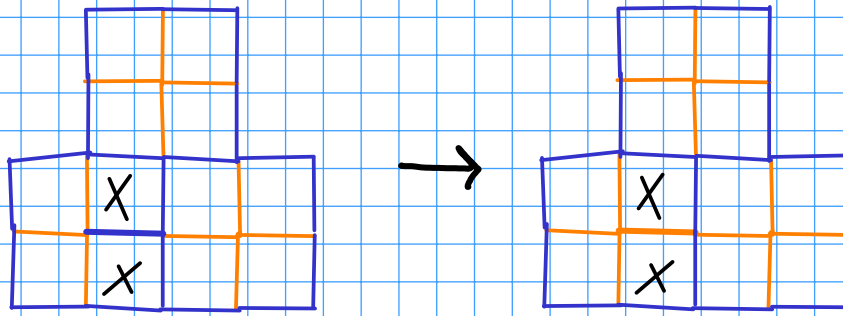

The g.s. is found by finding the minimal chain of bonds terminating on the frustrated plaquettes and flipping them (F $\longleftrightarrow$ AF).

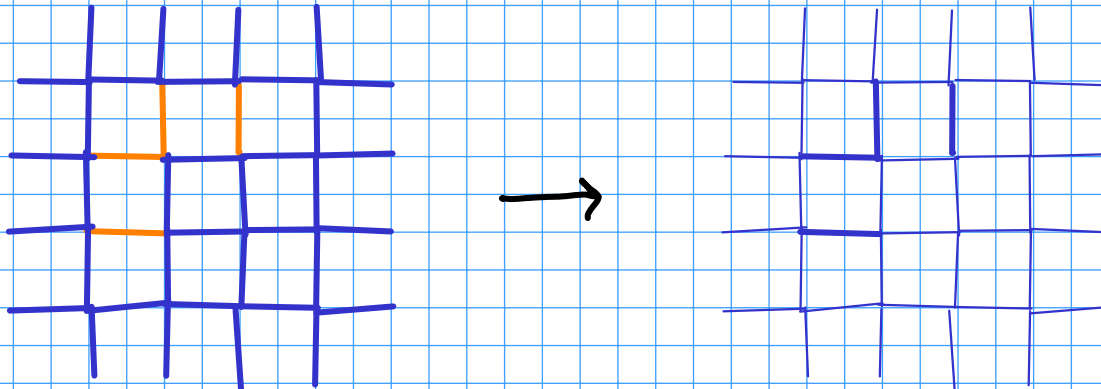The g.s. of this new non-frustrated Hamiltonian is the g.s. of the original one.
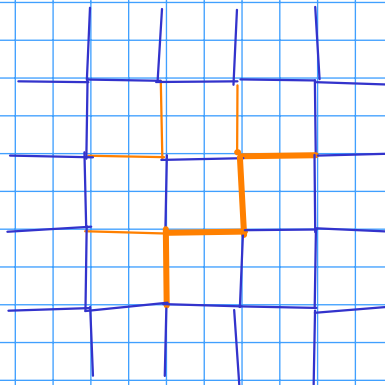
For (a)

Sometimes there is more than one minimal
path, and ∴ a multiplicity of ground states.

For example, for (c)

or

etc

2.

In both cases, grow a single domain

Energy is related to surface area

a) For 2D, max is $O(L)$. This occurs when the flipped domain has $\frac{1}{2}$ the spins in.

b) For 1D, energy stays constant at $O(1)$.