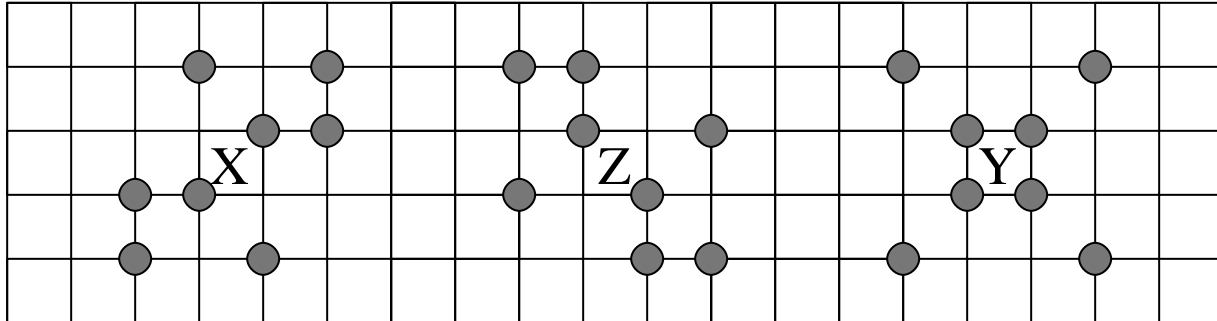


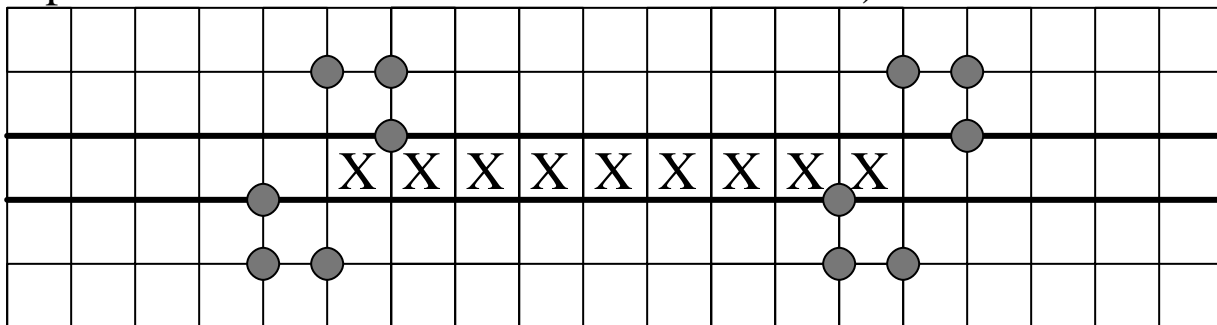
Check operator,
 applied to all vertices
 in lattice, gives
 $2L-1$ redundancies

X	Y		Z
	X	Z	Y
Y	Z	X	
Z		Y	X

Response is even along rows and columns



Upon separation, response is locally odd on two rows (if separation is horizontal – columns otherwise)



- Straight cycles of $XXXX$ s and $ZZZZ$ s and $YYYY$ s are the only obvious non-trivial 1D cycles that commute with check operator.
- Encoded Z operations produced from standard form are, with one simple exception, $ZZZZ$ -style cycles (horizontal and vertical).
- Encoded X operations are area-filling, not chain-like at all.
- If there are actually no other forms for these operations (not proven), encoded states should be easy to protect with 1D error correction.