

Euler circ uses every edge, no repeats.

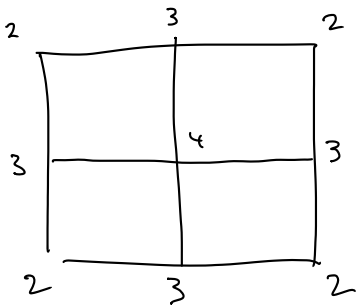
Euler circ exists if all degrees are even
(usually won't be true)

Euler path exists if all are even except 2 odds.
(usually not true)

Even when these don't exist, we often want
paths/circuits which do as few repeats as possible.

This is a Minimum Duplication Circuit (Path)

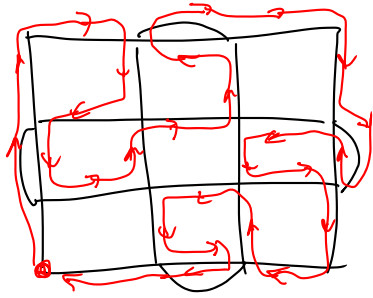
Uses every edge, repeats as few as possible.



Euler circ is impossible

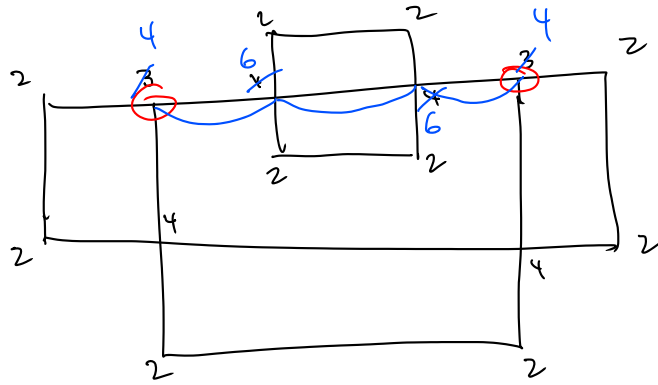
we must have some edge-repeats.

This requires 4 repetitions



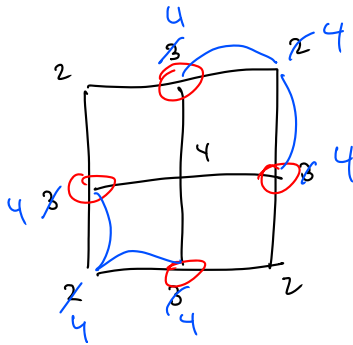
← This is the "Eulerized" version of the graph.

The Min dup circ requires 4 dupes.



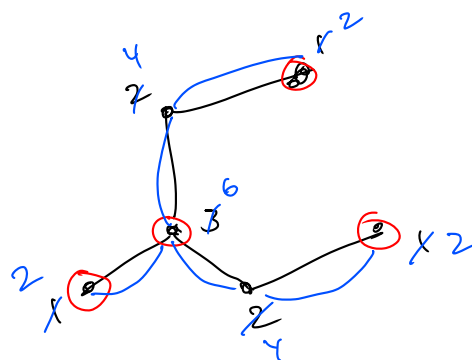
Requires 3 dupes.

2 odds, but they're not connected by an edge.
Duplicate all edges along a path connecting them.



Duplicate edges - don't create new ones.

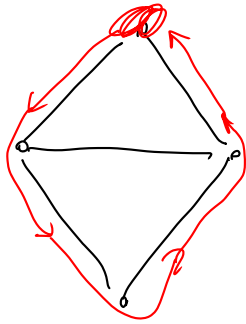
We need 4 dupes



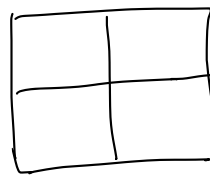
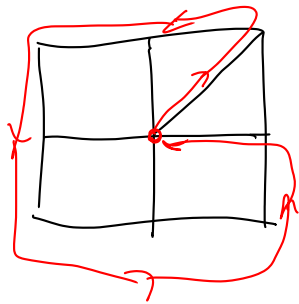
Had to duplicate all of them.

Hamilton Circuits

A circuit which visits every vertex,
no repeated vertices.



A Ham. circ.



Has no Ham
circ,
hard to say
why.

When does a graph
have a Ham circ. →

