**Topic of study**

What we see happening a lot during the Corona lockdown is that though people do try to keep distance, they at times still visit different parts of their contact network. While they might only interact with small groups, people still interact with many different small groups and thus help the spread of the virus. We want to see what kind of effect changing the group people still interact with has on R0 and the spread of a disease.

*Other research (Not necessary but they would like it). Use hourglass way of writing things: Start broad, first define broad contact networks and epidemic spread. Then make it smaller and focus on our specific area. Then get broad again in our final discussion. Make formal (very important!)*

**Research question**

What effect has changing the rate at which people switch their contact networks on R0?

*What change are we looking at.*

**Initial working plan**

We will work with a cellular automaton SIR type model to see what changing possible infectious contacts does to the spread of a disease. For example, to represent people having a smaller social network during quarantine, a cell in our cellular automaton only still has contact with 3 (random) neighbours out of its 8 direct neighbours. To represent people changing their smaller social circle on a regular basis, these random 3 change every couple of steps and are replaced with a new set of 3 picked from the 8 direct neighbours. To see how the rate of change affects R0, we will keep the base infection and percolation numbers static. Doing this would give us an idea of how regularly changing contact groups (though smaller than the initial full contact group) can affect the spread of a disease.

*Find initial settings such that it dies without changing connections (Otherwise our change doesn’t matter). Once we have this start changing our parameter. Collect that data. See what patterns we find. Think about the patterns. 2nd phase: explain where the patterns come from and what effect they have. We might not have time for the second phase but we should define how we would go about this second phase.*

**Possible extensions**

Measure how the spread of the disease is affected by the speed in which a country is put in lockdown. So start off with initial large contact networks, and vary how quickly the contact networks become limited. Then the long-term effects of a quick lockdown can be compared with those of a late lockdown.