Deterministic Modelling: Epidemic Spreading (Individual Part)

Andreas Radke

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The initial plot (Figure 1) contains the results for the values $N = 150$ and $T = 250$ which were taken from the paper. We then increased N to 200 and 250 and T to $300, 350$ and 1000. The final results are the average over 100 runs.

1. Increasing N has no impact on the results/graph (compare Figure 2). But if we increase T we get a later but steeper incline for the fraction of sick people (see Figure 3). That is for bigger β it stays longer at or closer to 0. This is especially visible around the 0.38 to 0.4 region.

2. It seems that the results with periodic boundary conditions (we call it circular) are (during the incline) slightly higher than without boundary conditions. Although the difference seems to be really small and rather negligible.

This is only a selection of plots. More are in the zip file. Note: In the zip file one can find each plot as a .png and .svg file. Especially the latter file format offers a better interactivity if its opened with a suitable program (like a web browser).

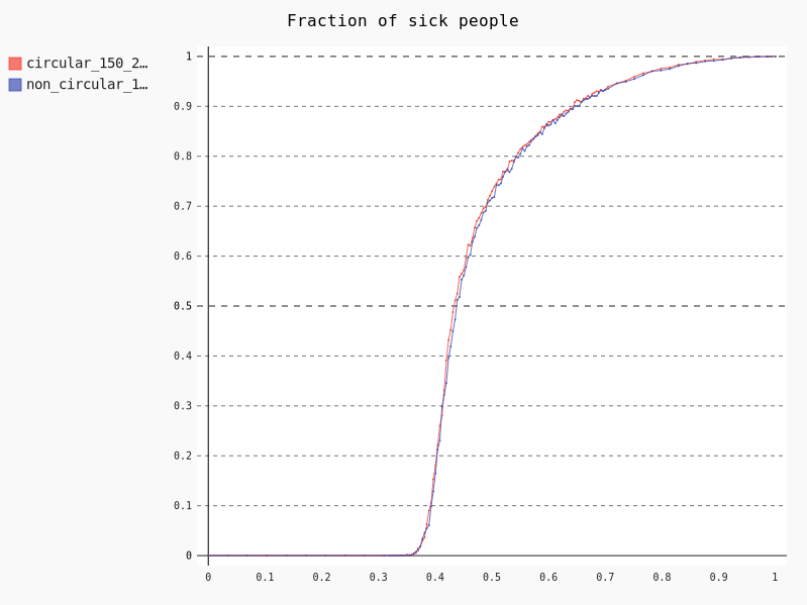

Figure 1: Fraction of sick people for both (with and without periodic boundary conditions). Number of people $N = 150$, number of time steps $T = 250$.

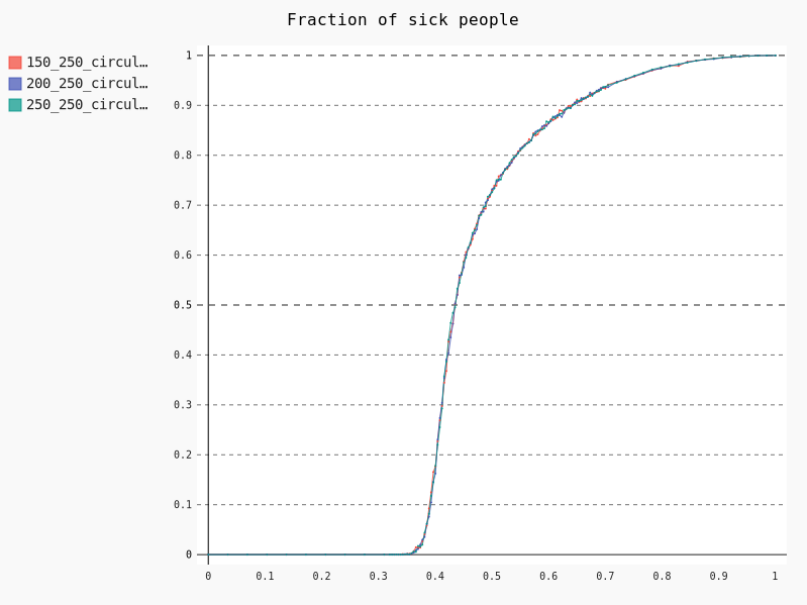

Figure 2: Fraction of sick people in circular arrangement. Number of people varies from 150 over 200 to 250. The number of time steps stay at $T = 250$.

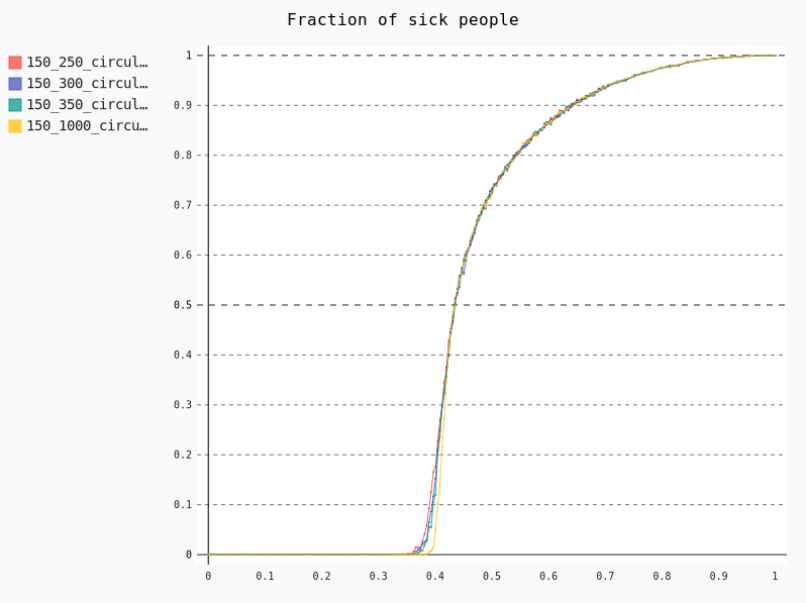

Figure 3: Fraction of sick people in circular order. Number of people stays at $N = 150$, number of time steps varies $T \in \{250, 300, 350, 1000\}$.