Homework: MATSim

Hayden Atchley

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I ran the example MATSim Sioux Falls scenario for 100 iterations. The following sections discuss some of the results of the simultaion run.

1

The average executed, average, worst, and best average scores are presented in Figure 1. As the number of iterations increases, all of these scores also increase, though not uniformly. There are a couple of "spikes" in all scores around iterations 12 and 19. Additionally, for all but the "worst average" score the rate of increase slows as the number of iterations increases. Interestingly, the "worst average" score seems to increase faster starting around iteration 50. The scenario is not really converged; the average score and worst score measures are still increasing. However, the model appears to be not too far off from convergence with the exception of the "worst average" score.

2

The mode split over the iterations is shown in Figure 2. As the simulation runs more iterations, more people are walking, and a few more are taking public transit. This is likely due to the observed road congestion in earlier iterations. Driving is the fastest mode at free-flow speed, but once the network is loaded with cars, driving becomes slower than other modes.

3

Figure 3 shows the car leg distribution for a simulation day for both iterations 0 and 100. In iteration 0, cars do not arrive nearly as quickly as they depart, resulting in tens of thousands of cars en route by the end of the simulation day. This is due to similar reasons to the changes in mode split across the iterations: nearly everyone drives in iteration 0, and fewer people
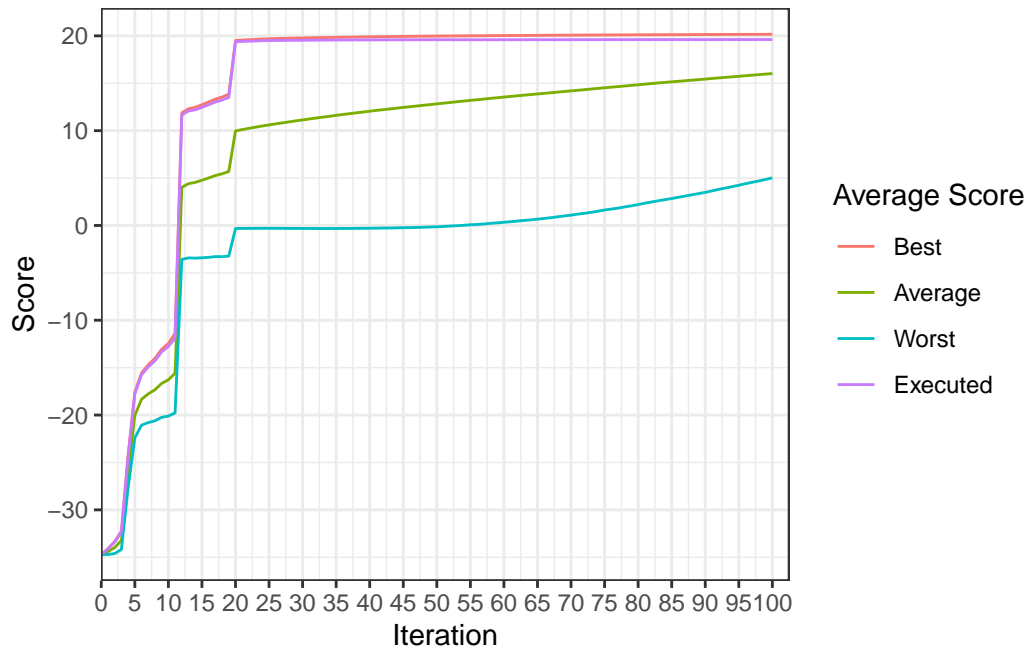
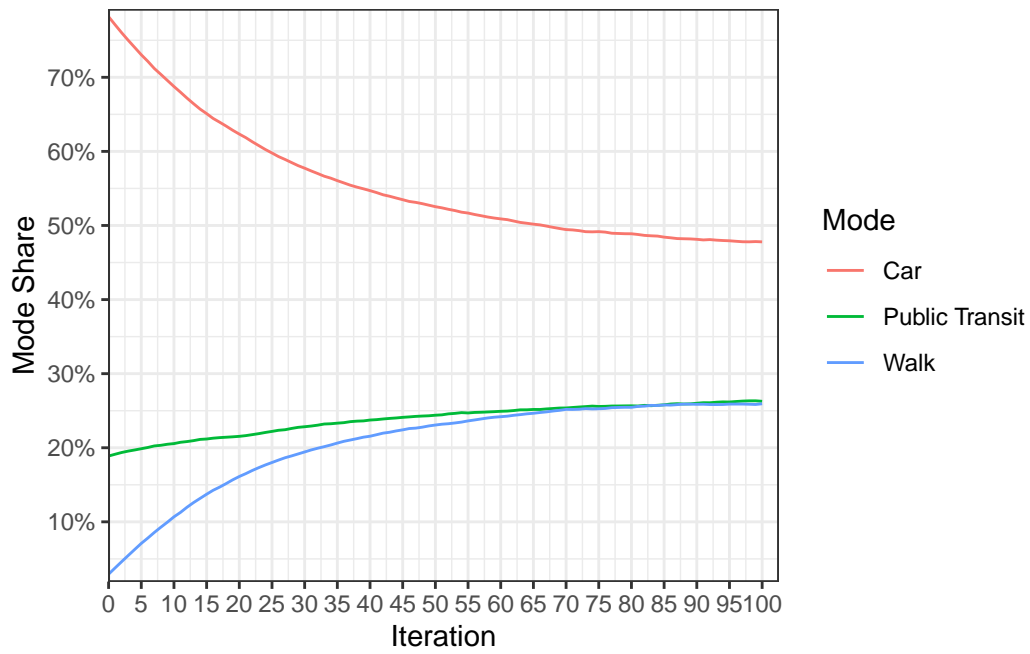Figure 1: Score statistics for Sioux Falls MATSim run.

Figure 2: Mode split of the Sioux falls model for each iteration.

drive in iteration 100. In iteration 0 the roads are extremely congested, and so vehicles are not able to reach their destinations. However, in iteration 100 this is not the case as there is less congestion.
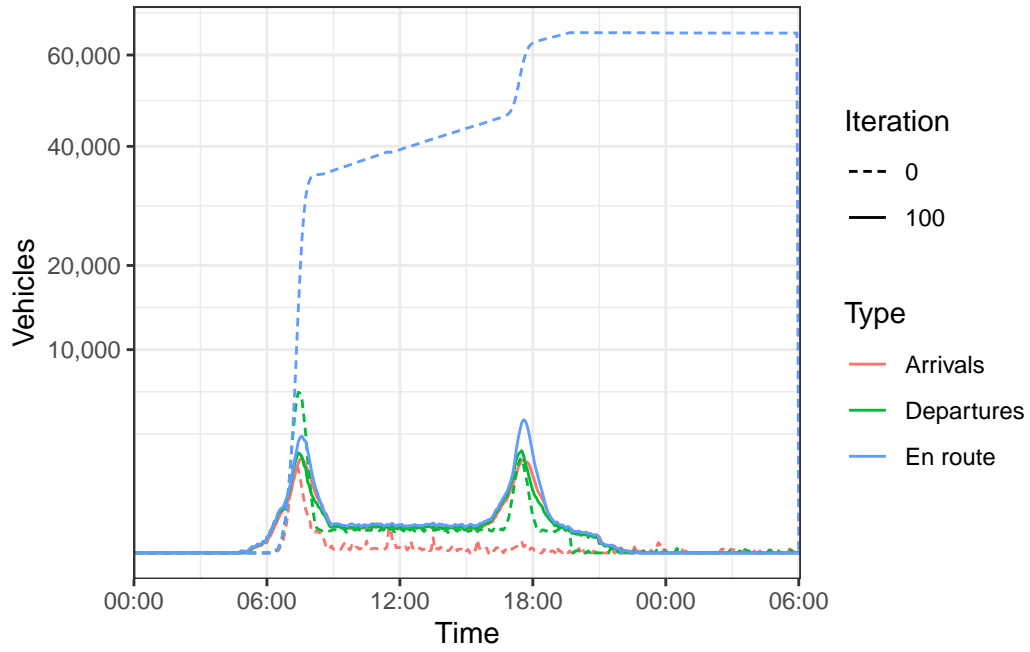

Figure 3: Car leg distributions for iterations 0 and 100.