Supplementary Information

1 Duration of data

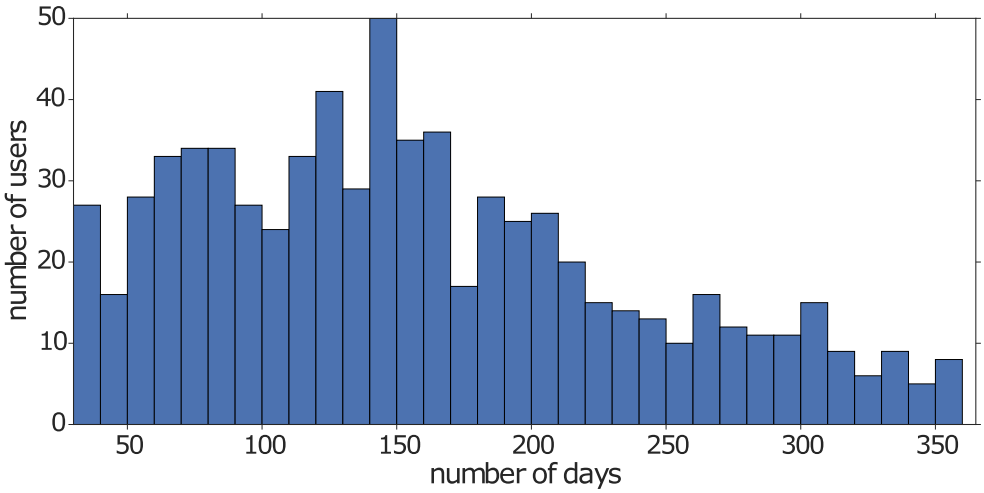

Figure 1: Durations for the periods of collected data for all 454 users. For each user we select the longest period that has at least one sample in 90% of the 15-minutes time-bins.

2 Map of location samples

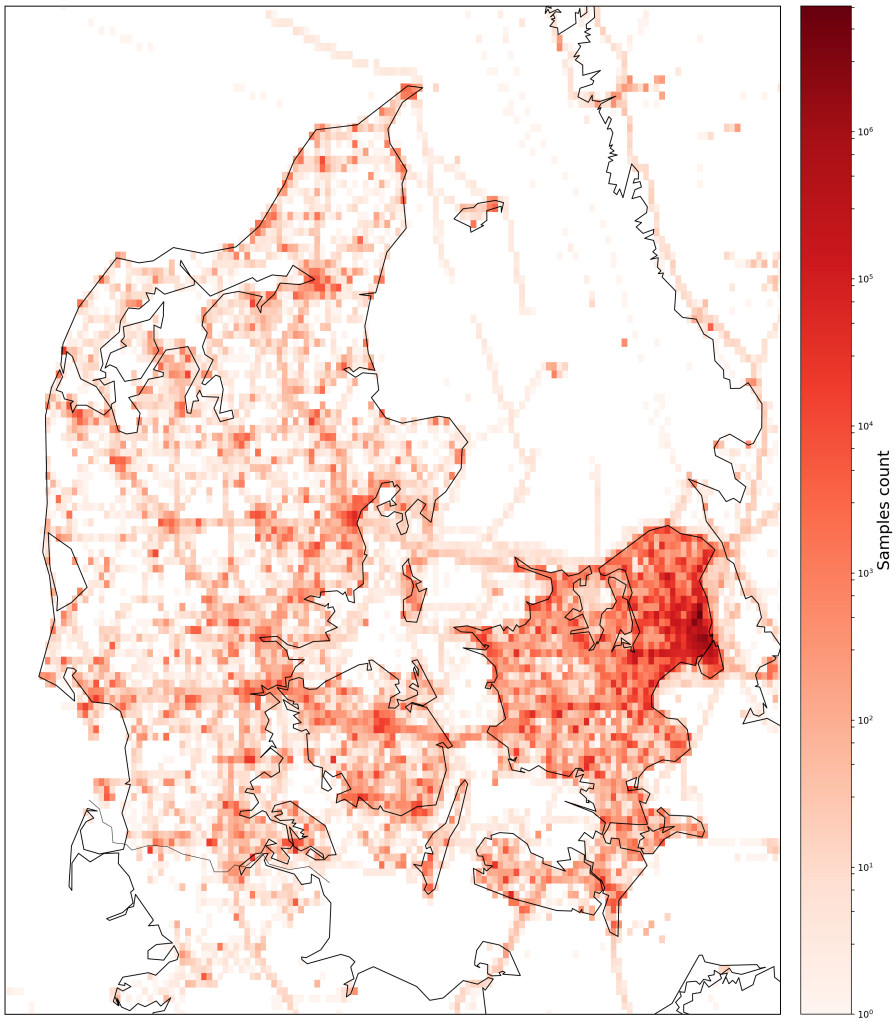

Figure 2: Heatmap of the locations recorded in Denmark (log scale).

3 Correlation between the accuracy for the Markov model and the stationary model

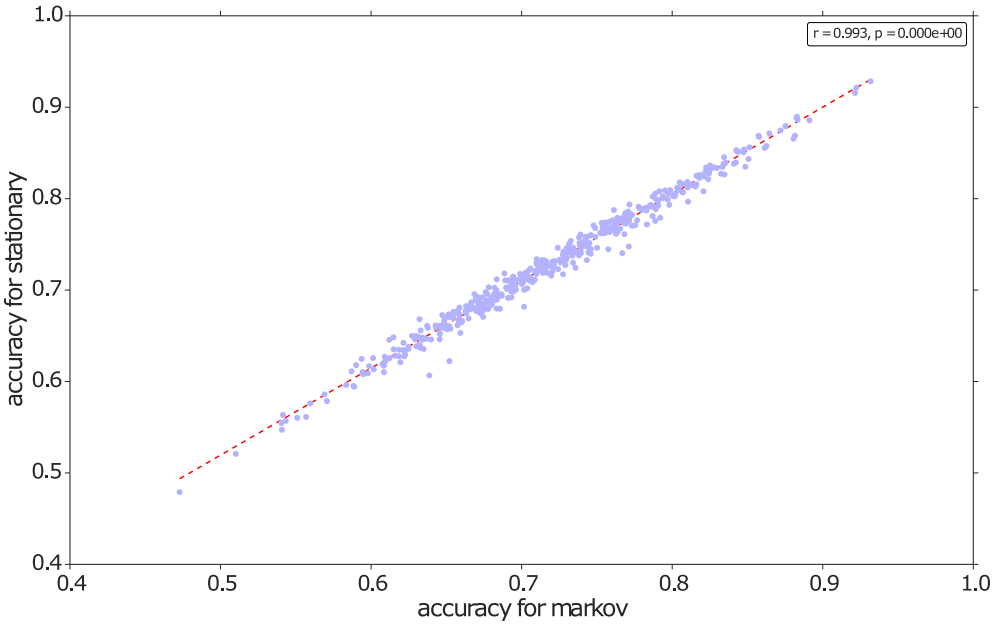

Figure 3: Correlation between the accuracy for the Markov model and the stationary model in the next-cell formulation.

4 Process for extraction of stops and places

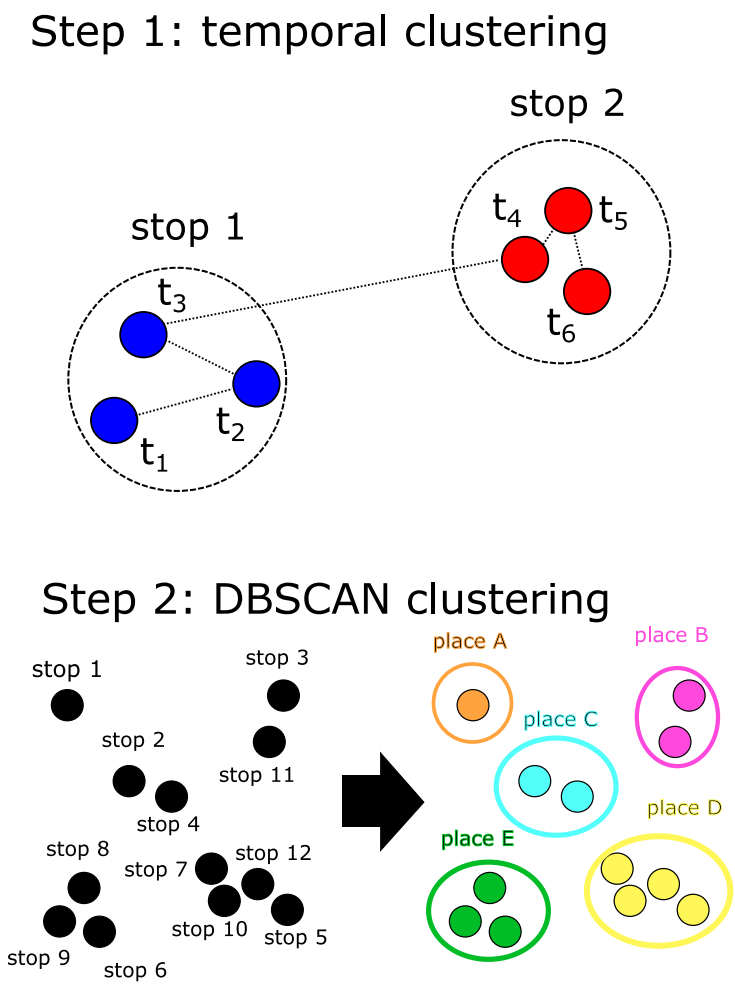

Figure 4: Step 1: location samples $t_1, ..., t_6$ are examined sequentially, and are grouped into a stop as long as they are within a distance threshold. In the example, t_1, t_2 and t_3 are assigned to the first stop but t_4 does not, since it is too far away. Subsequently t_4, t_5 and t_6 are assigned to stop 2. Step 2: stops are spatially clustered into places using the DBSCAN clustering algorithm, which groups stops according to their haversine distance. The left panel shows all stops before the algorithm is run, and the right panel shows the assignment of places labels, with each place represented by a different color.

5 Example of sequence of stops at places for one user

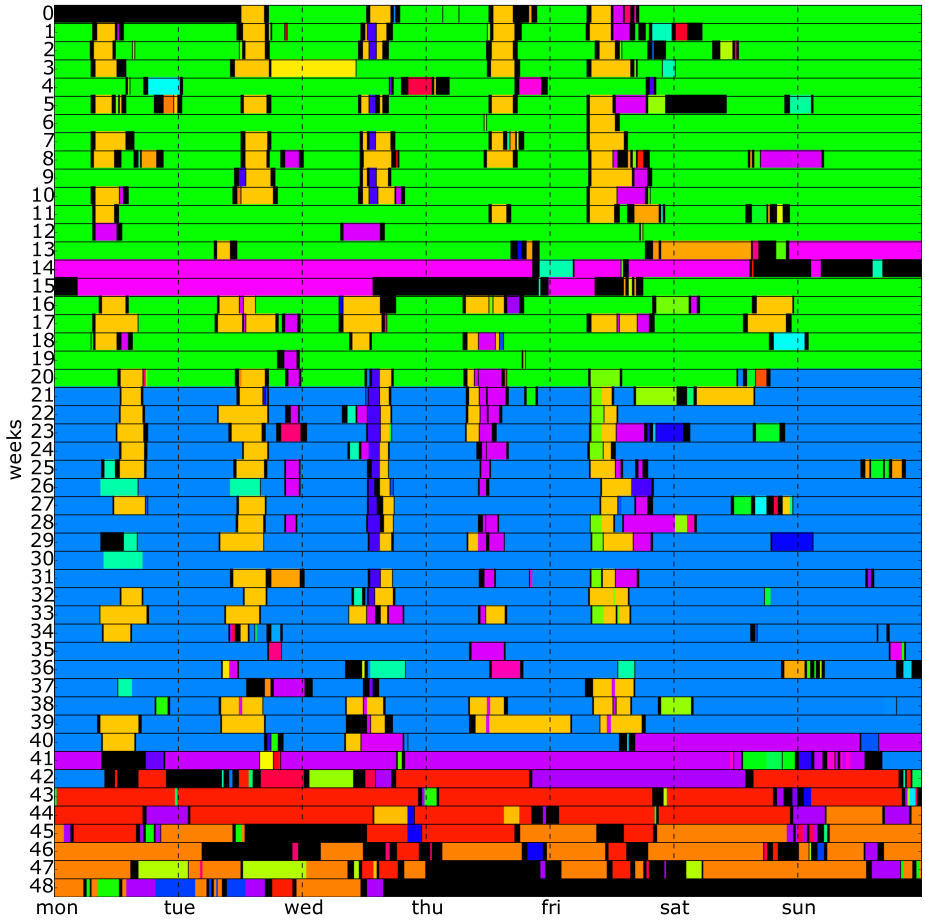

Figure 5: Example of the sequence of stops from one user. Each row represents a week, from Monday to Sunday. Each rectangle represents a stop, and its color encodes the corresponding place. This visualization highlights the complexity of human mobility, with a weekly schedule, periodic returns and irregularities.

6 Accuracy versus training size

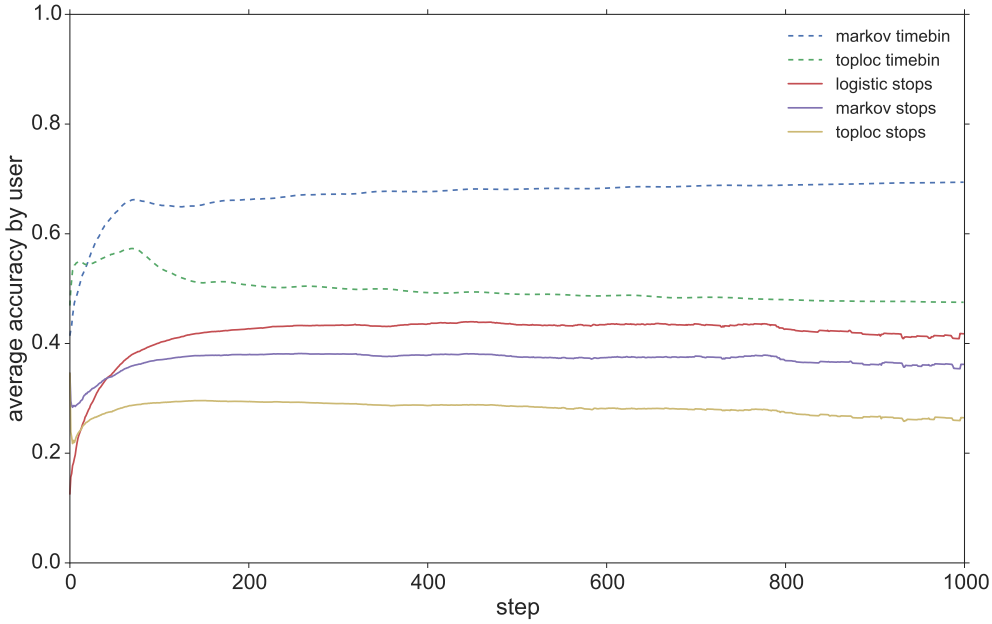

Figure 6: We study the convergence for all models by measuring the achieved accuracy versus the number of training samples. We consider each model individually. For each user, we consider the accuracy achieved over n samples (time bins or stops). This figure reports the accuracy for n from 1 to 1000, averaged by user. We see that for all models the accuracy converges after 50-100 samples.