1. Choose random agent and a random neighbor of this agent.
2. Compare their features and determine the probability of interaction p.
3. If interaction takes place set one feature of the agent to the same trait of the its chosen neighbor which was different until now.
4. Repeat.

3. Dynamics

3.1. Zones & Regions

To explore the dynamics of the model, two properties are of interest: The *zones* and the *regions*. A region is defined as an area on the grid which has borders of zero similarity to its neighbor. A zone on the other hand is defined as an area where the border agent are just not fully similar to their neighboring agents. As illustrated by Fig. 1 in the beginning there is quite a lot of fragmentation, therefore a lot of cultural zones, usually close to the amount of total agents on the grid since the initial traits of their features is random. The initial amount of regions is usually much smaller but also strongly dependent on the amount of features and possible traits.

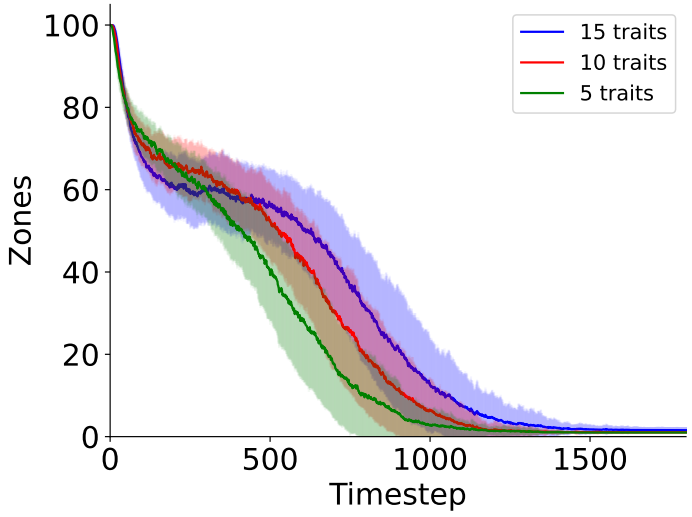

Figure 2. Example of the dependence of the dynamic of the zones on the amount of possible traits. The runs were generated on a 10x10 grid with a cultural vector with ten features. Results were averaged over 100 simulations.

As depicted by Fig. 2 the initial amount of zones roughly stays the same when varying the number of possible traits. This is due to the fact that when initializing the grid with random traits the chance of sharing traits in all the features is small for all numbers of traits shown. The dynamics of the system approaching their fixed point is different though. With more possible traits the initial drop in zones is stronger but overall it takes a longer time until it converges to its final state. Note that one time step is defined as the number of interactions so that each of the agents (on average) was selected one time. For a 10x10 grid one time step would correspond to 100 time repetition of choosing a random agent and performing the interaction with one of its neighbors with the probability based on how similar their cultural vectors are.

For the same conditions as in Fig. 2 the regions were counted. The area around the colored lines marks the respective standard deviations.