IN·DEI·NOMINE·F

Radboud University Nijmegen

# Behavioural Science Institute

# Not so amazing?

- The reconstructed attractor is *'Topologically equivalent'* not exactly the same!!! (compare to random cloud of points)
  The exact lag is not that important, it is just a way to optimize the reconstruction

- If you are working with ‘real’ data from psychological experiments you will find that the dimensionality needed to describe the system is usually 10 dimensions or higher… No visual inspection anymore!

- Solution: Quantify the dynamic behaviour of the system in state space in terms of periodicity, randomness, etc. This remains similar to the original dynamics even if the attractor is not reconstructed exactly the same way (the reconstructed attractor is still much more constrained than all the states theoretically possible).

- (Cross) Recurrence Quantification Analysis!

48

## Not so amazing?

- The reconstructed attractor is *'Topologically equivalent'* not exactly the same!!! (compare to random cloud of points)
  The exact lag is not that important, it is just a way to optimize the reconstruction
- If you are working with 'real' data from psychological experiments you will find that the dimensionality needed to describe the system is usually 10 dimensions or higher… No visual inspection anymore!
- Solution: Quantify the dynamic behaviour of the system in state space in terms of periodicity, randomness, etc. This remains similar to the original dynamics even if the attractor is not reconstructed exactly the same way (the reconstructed attractor is still much more constrained than all the states theoretically possible).

# Lorenz system – X,Y,Z State space
# Strange Attractor