IN·NOMINE·PATRIS

Radboud University Nijmegen

- **Iterative processes -** (coupled) difference / differential equations that represent autocatalytic change processes, the time-evolution of a system observable

- **Timeseries -** a record of values generated by an iterative / change process

- **Solution -** if available, actual iterations of the function are not necessary. Only available for a very limited set of (coupled) equations.

- **The return plot -** a scatterplot of Y_i vs. $Y_{i+1..n}$

- **The state / phase <u>space</u> -** A space spanned by **M** observable **dimensions** of the system.

- Depending on parameter settings a system can be attracted to just a few states: *Attractors*

- *Not discussed: The cobweb method*

- **The phase / bifurcation <u>diagram</u> -** diagram representing the parameter space of a system. Its dimensions represent the possible values of the control parameter(s) of the system. Stable regions are often labelled by an order parameter (solid, liquid, gas).

- Today: **Potential Functions -** A functions describing the relative stability of the ‘end-states’ of

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Story so far - Assignments session 1:
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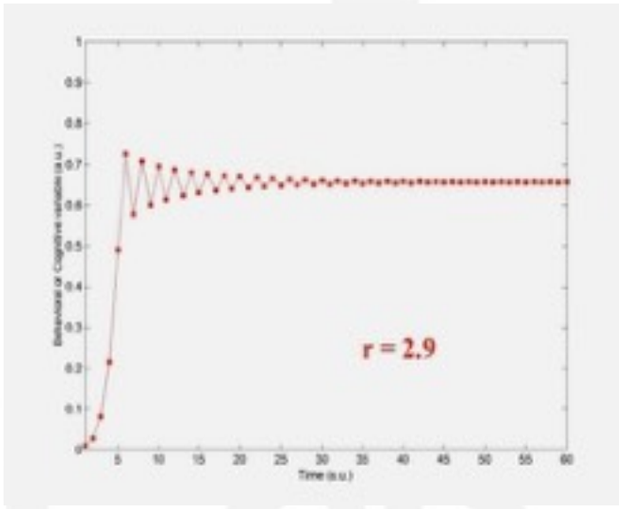
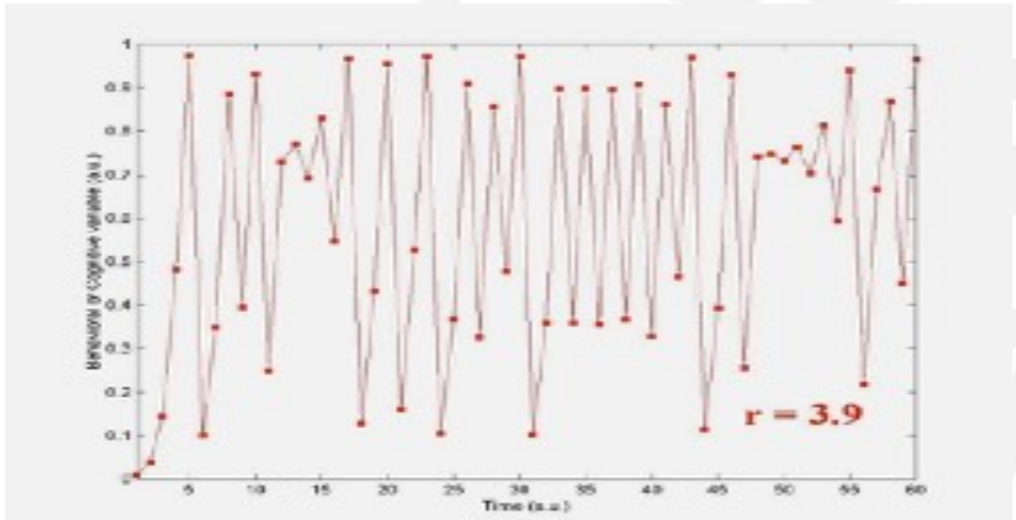
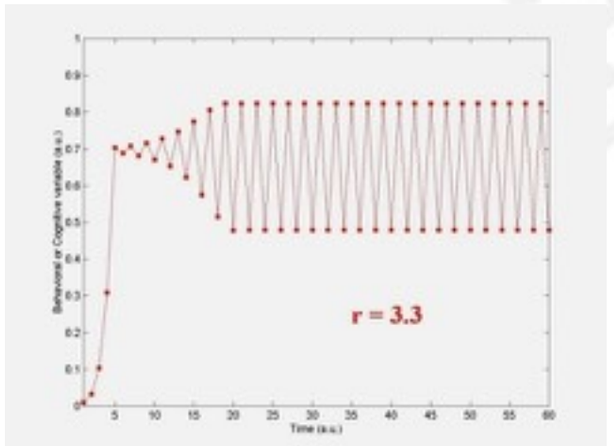
Story so far - Assignments session 1: Return plot of the logistic map







$$L_{i+1} = r L_i (1 - L_i)$$