;:enago

Ly ⊖ two

The most frequent employed example of non linear ~~2~~-dimensional map, the "E. Coli" of

⊖

nonlinear dynamics, is the *Hénon map*:

$$
\begin{aligned}
x_{n+1} &= 1 - a x_n^2 + b y_n \\
y_{n+1} &= x_n .
\end{aligned}
$$

It is two

sometimes written equivalently as the ~~2~~-step recurrence relation

$$
\begin{aligned}
x_{n+1} &= 1 - a|x_n| + b y_n \\
y_{n+1} &= x_n .
\end{aligned}
$$

ital " " #

The Lozi *map*, ~~is~~ a linear "tent map" version ofthe Hénon map, is given by

$$
x_{n+1} = 1 - a x_n^2 + b x_{n-1} .
$$

Al, it is

Though not realistic as an approximation to a smooth flow, the Lozi map is a very helpful

intuition about an entire # the

tool for developing ~~guess on~~ the topology of ~~a whole~~ class of maps ofthe Hénon type, so called once-folding maps.

to

The Hénon map is the simplest map ~~that~~ captures the "stretch & fold" dynamics of return

, map are

maps such as the Rösslers. The Hénon map dynamics ~~is~~ conveniently plotted in the (x_n, x_{n+1}) plane, ~~an example is given~~ in fig. 2.

as shown

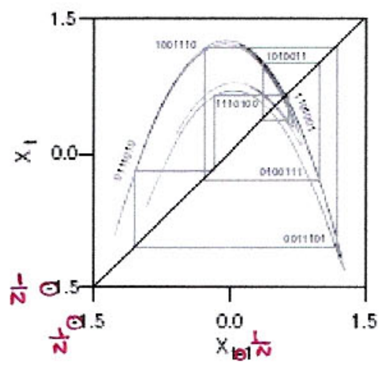

Fig. 2: ~~The~~ strange attractor (unstable manifold) and ~~a~~ period 7 cycle of the Hénon map;

a=1.4, b=0.3.