Jules et Jim

Three stories

The real story

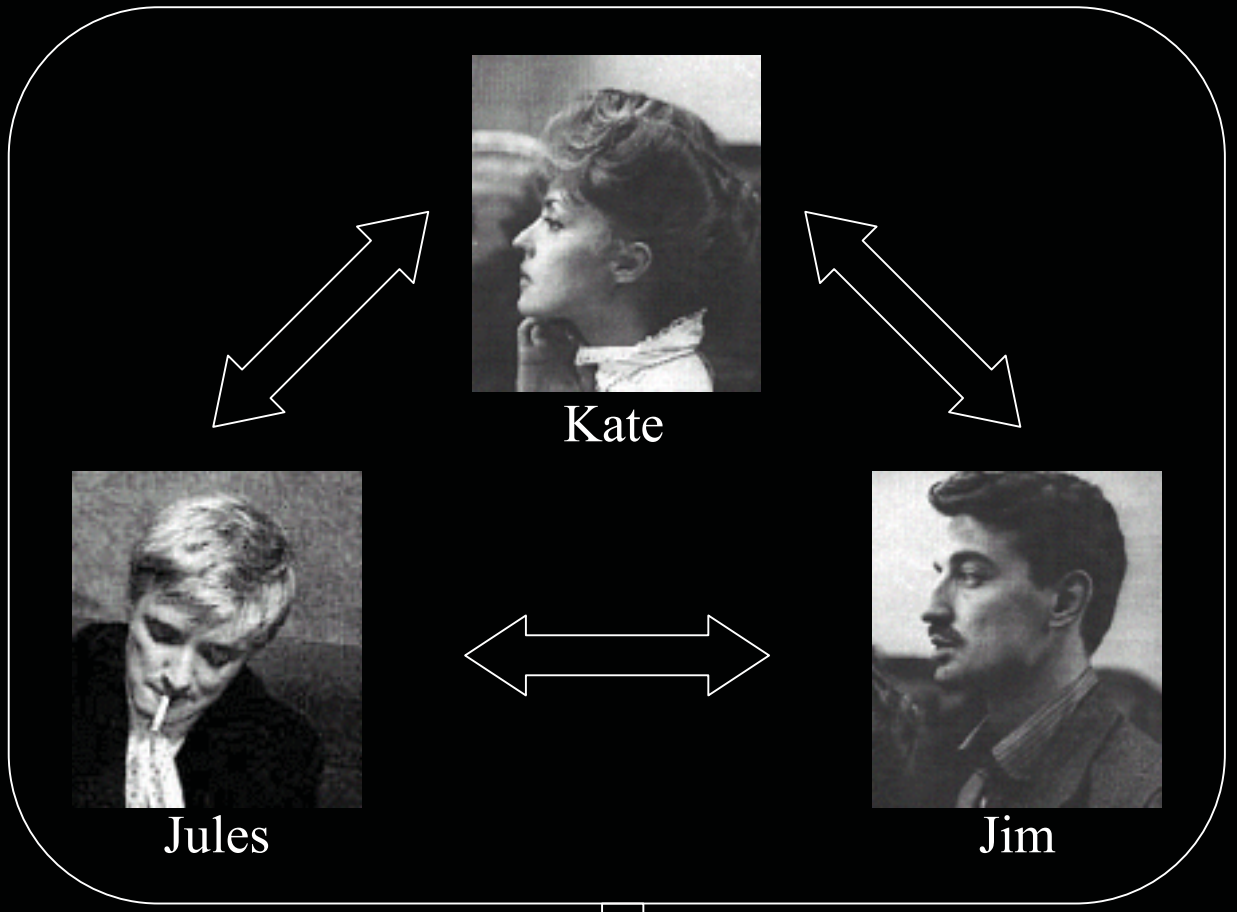
The novel by Henri-Pierre Roché

The movie by François Truffaut

The characters

Franz Hessel	Helen Grund	Henri-Pierre Roché
Jules	Kate	Jim
Oskar Werner	Jeanne Moreau	Henri Serre

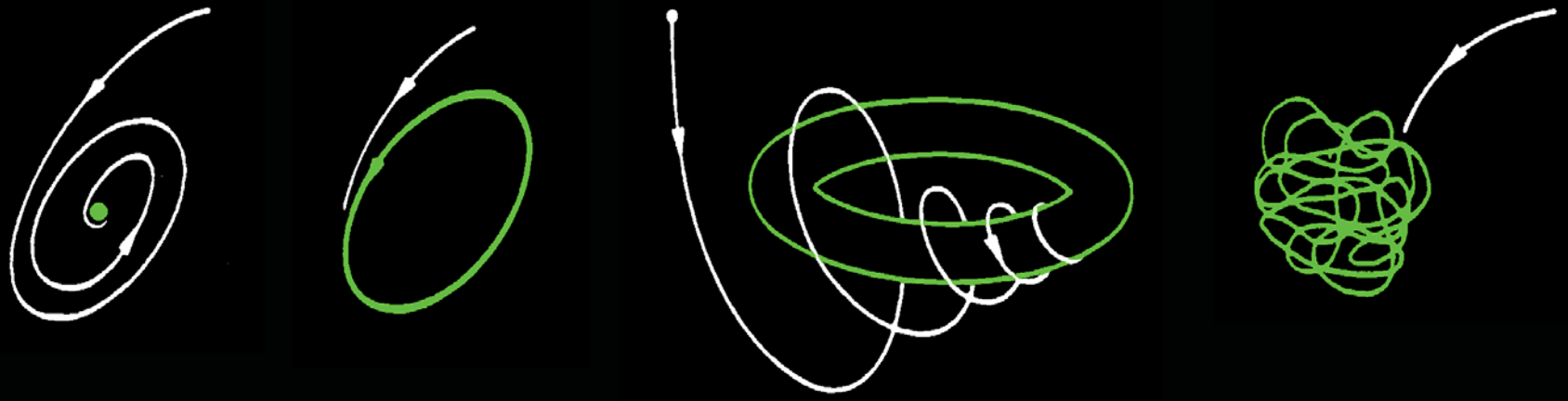
The conjecture



Chaotic dynamics

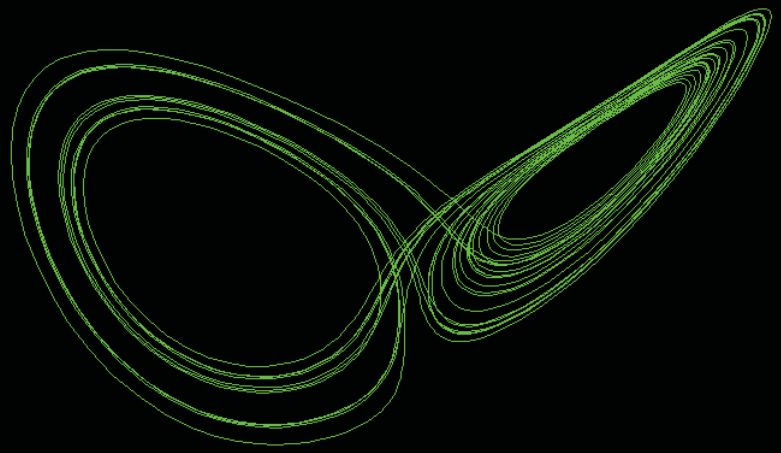
Dynamical system theory in a glance

Four possible asymptotic regimes

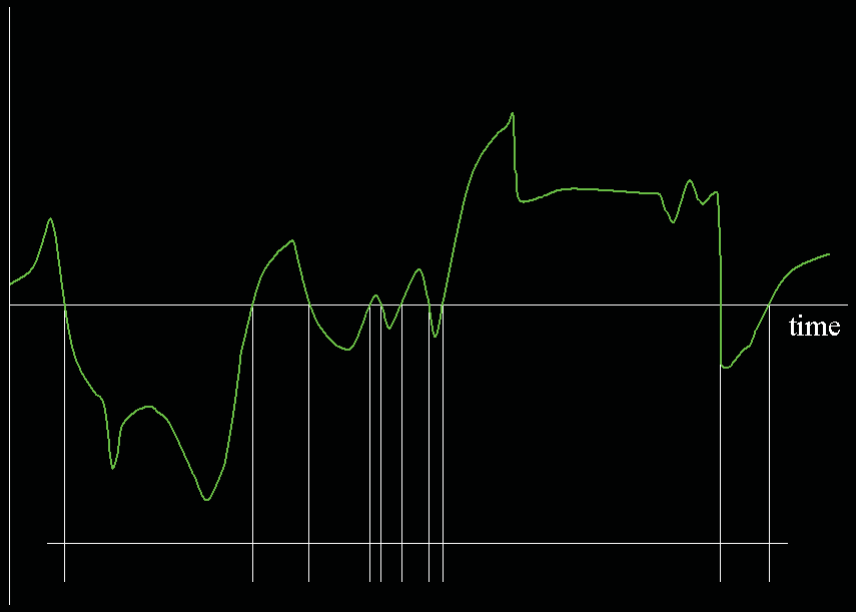


stationary periodic quasi-periodic chaotic

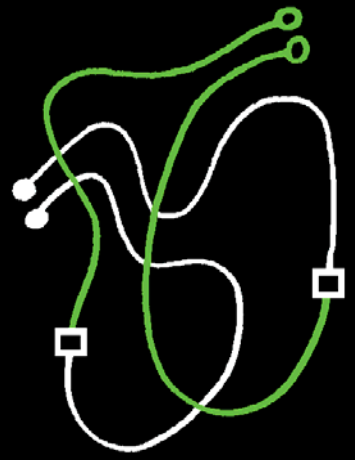
The Lorenz's attractor [1963]



The characteristics of chaotic dynamics



irregularity and unpredictability



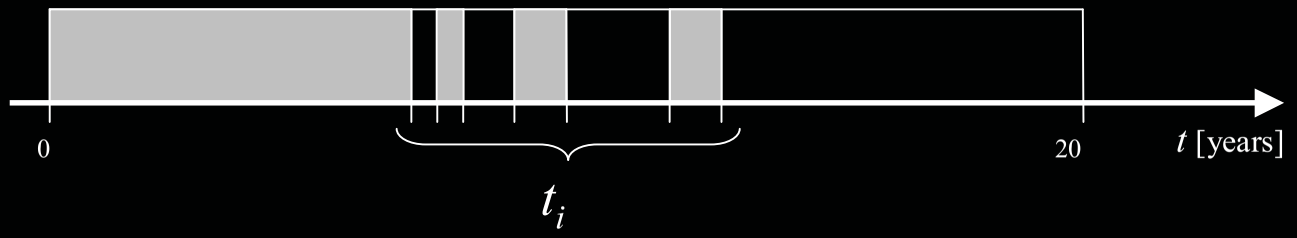
stretching and folding

Examples in everyday life

flames in the fireplace
river water downstream of a stone
sea sickness
…

Elements of chaos in the novel

irregular switch of partnership



unpredictability of the story (?)

Elements of chaos in the movie

unpredictability of the story (!)

voice-over technique

the song “Le Tourbillon”

The steps of the study

psychoanalysis of the characters

⇩

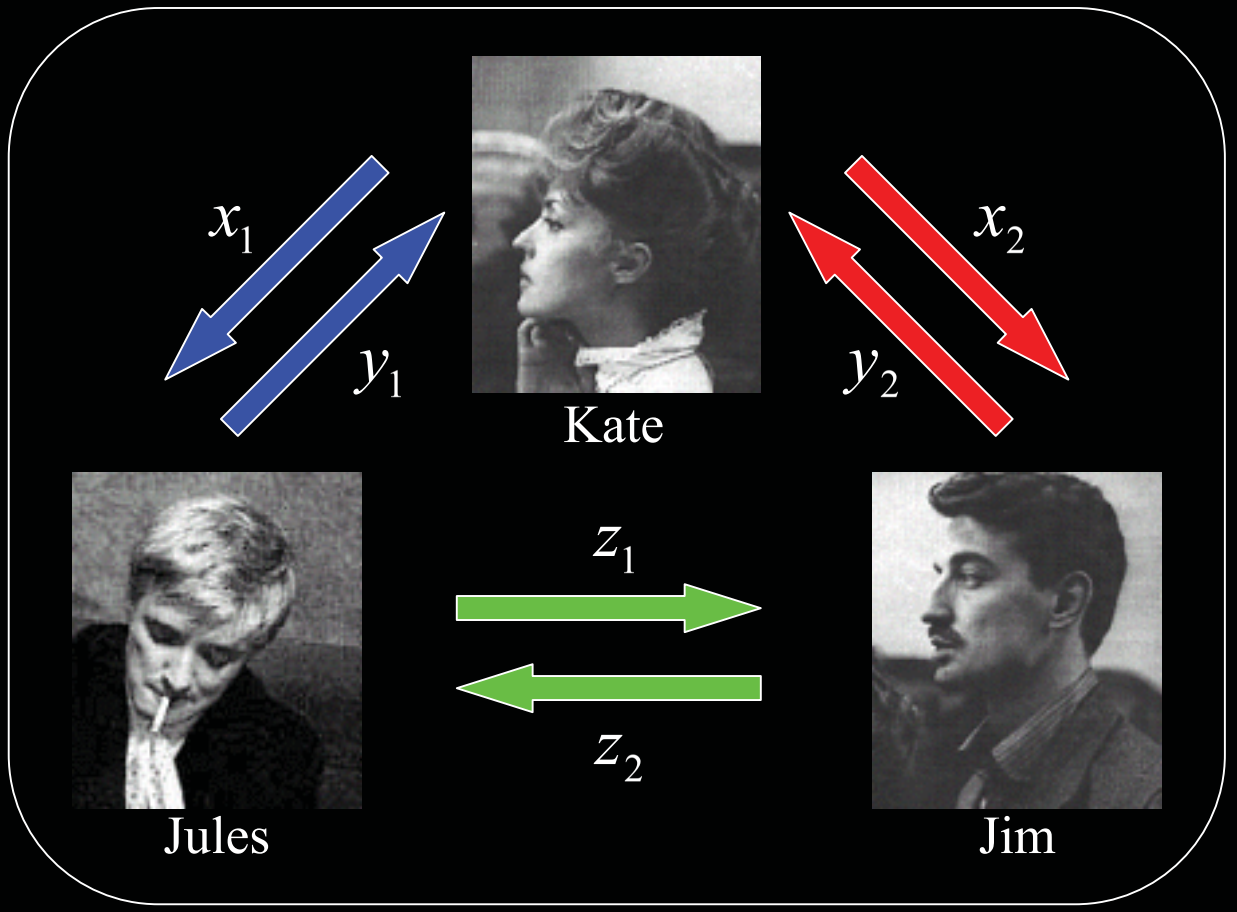
modeling and analysis

$$\dot{x} = ?$$

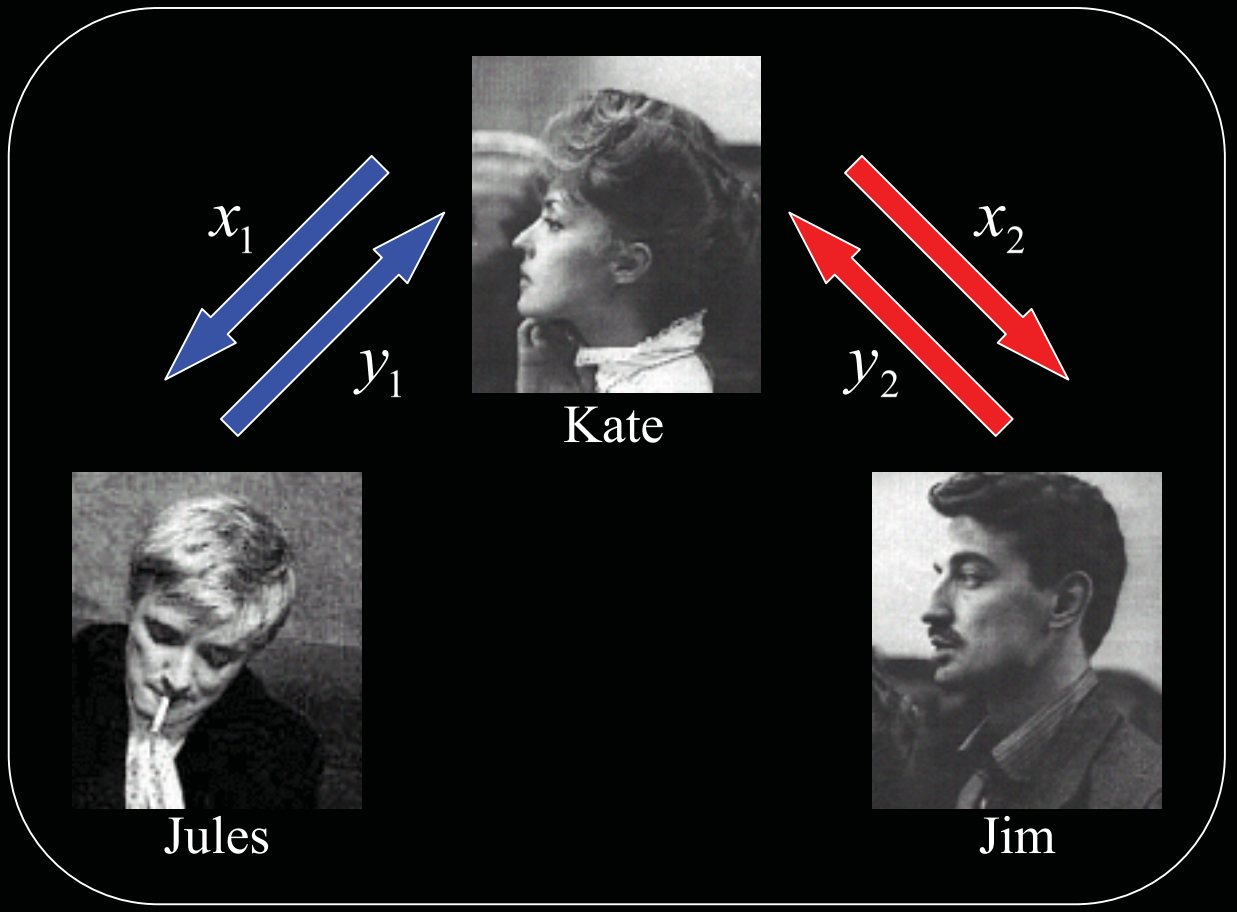
⇩

chaotic dynamics

The variables



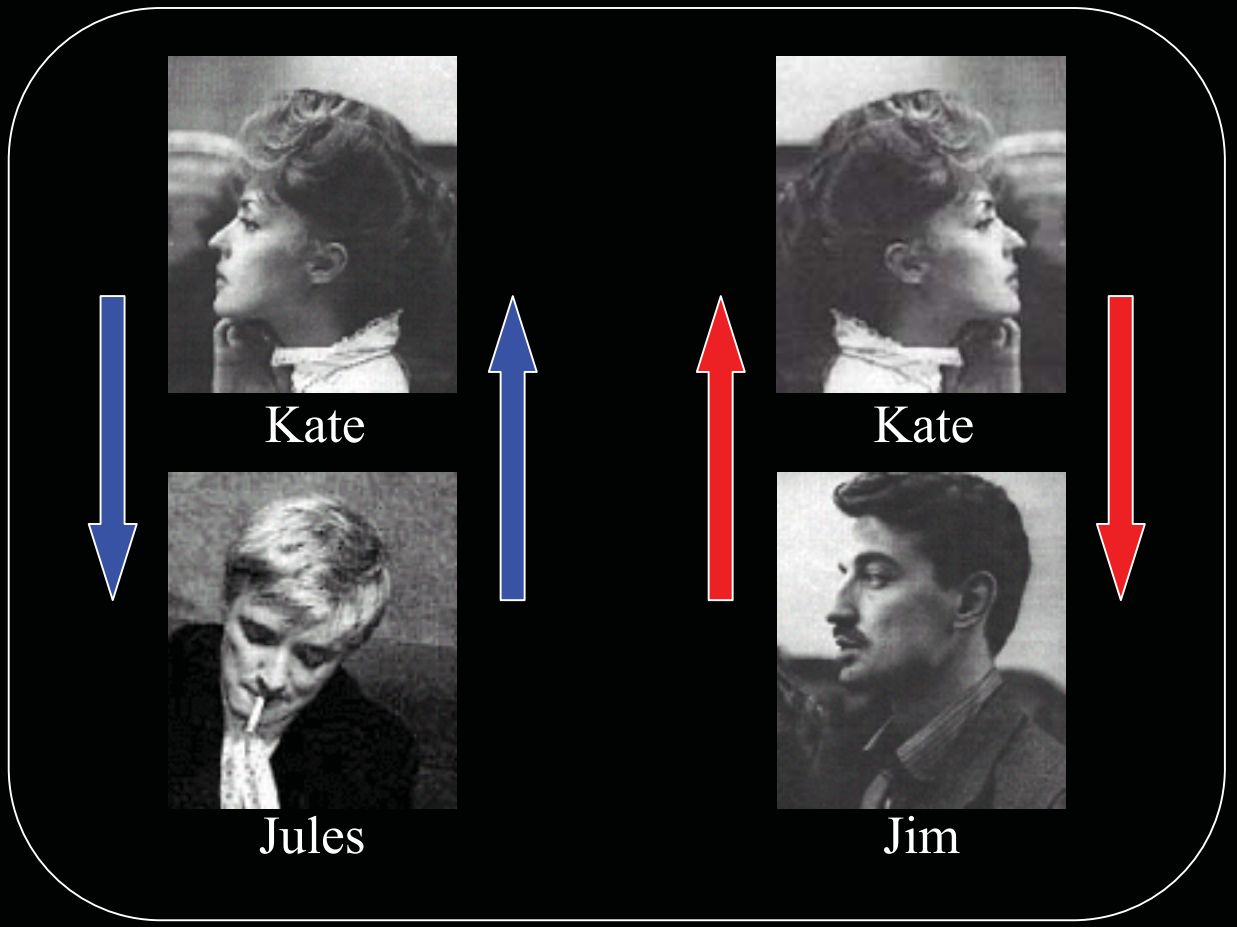
A first simplification



In twenty years Jim and he had never quarrelled. Such disagreements as they did have they noted indulgently. Do lovers ever get on so well together? Jules tried to think of a couple who accepted each other so wholeheartedly as he and Jim (Roché, 1998, pg. 237).

And their long conversation, which had been merely interrupted, began again. Each found that the other had matured, in his own way, but not changed (Roché, 1998, pg. 85).

A second (temporary) simplification



In her mind, each lover was a separate world, and what happened in one world was no concern of the others (Roché, 1998, pg. 108).

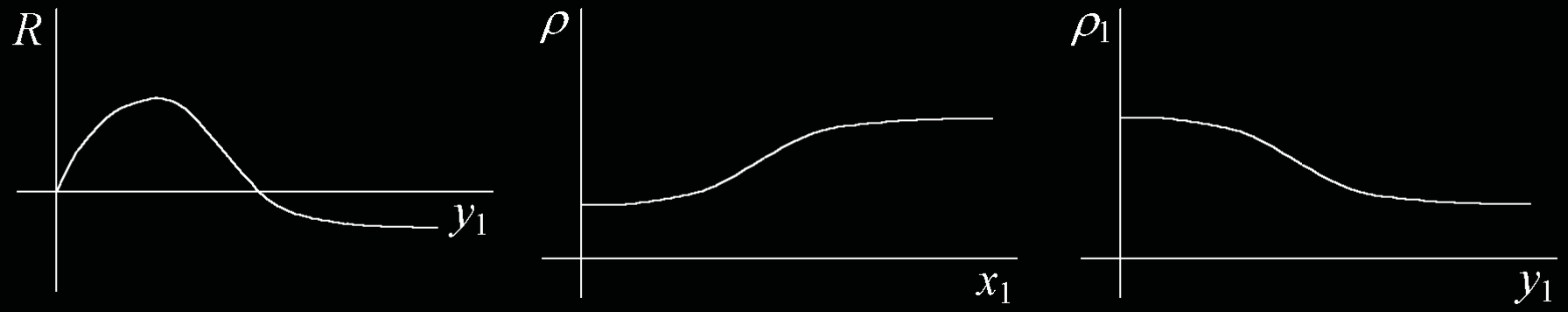
The Kate-Jules model

Kate is “non secure” and “synergic”, Jules is “secure” and “platonic”

$$\dot{x}_1 = -f x_1 + R(y_1) + \rho(x_1) a_1$$

forgetting | response | attraction

$$\dot{y}_1 = -f_1 y_1 + r_1 x_1 + \rho_1(y_1) a$$

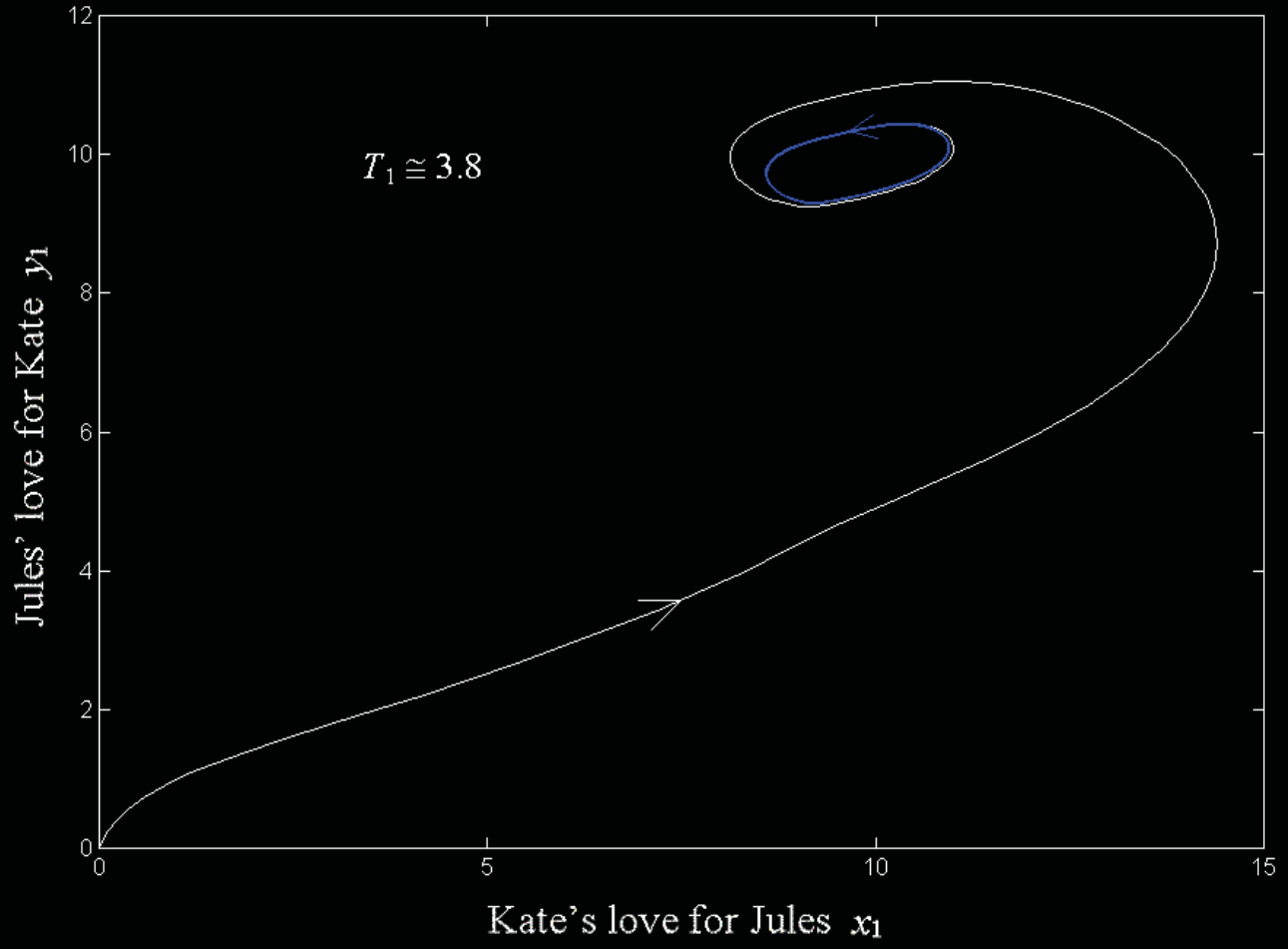


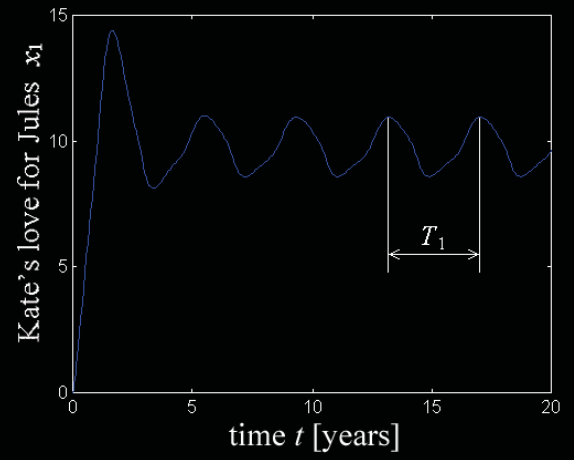
But then, he wasn’t the husband she needed, and she wasn’t the woman to bear that (Roché, 1998, pg. 89).

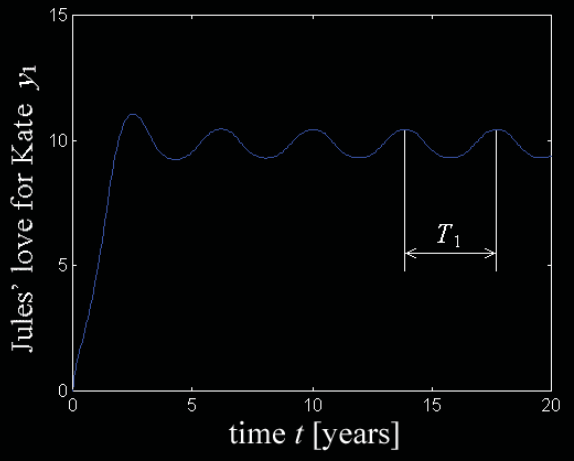
She had been drawn by his mind, his gift of fantasy. But she needed, in addition to Jules, a male of her own sort (Roché, 1998, pg. 90).

Really, Jules is happy, in his own way, and just wants things to go on. He’s seeing you often, in idyllic circumstances, and he’s living on hope (Roché, 1998, pg. 24).

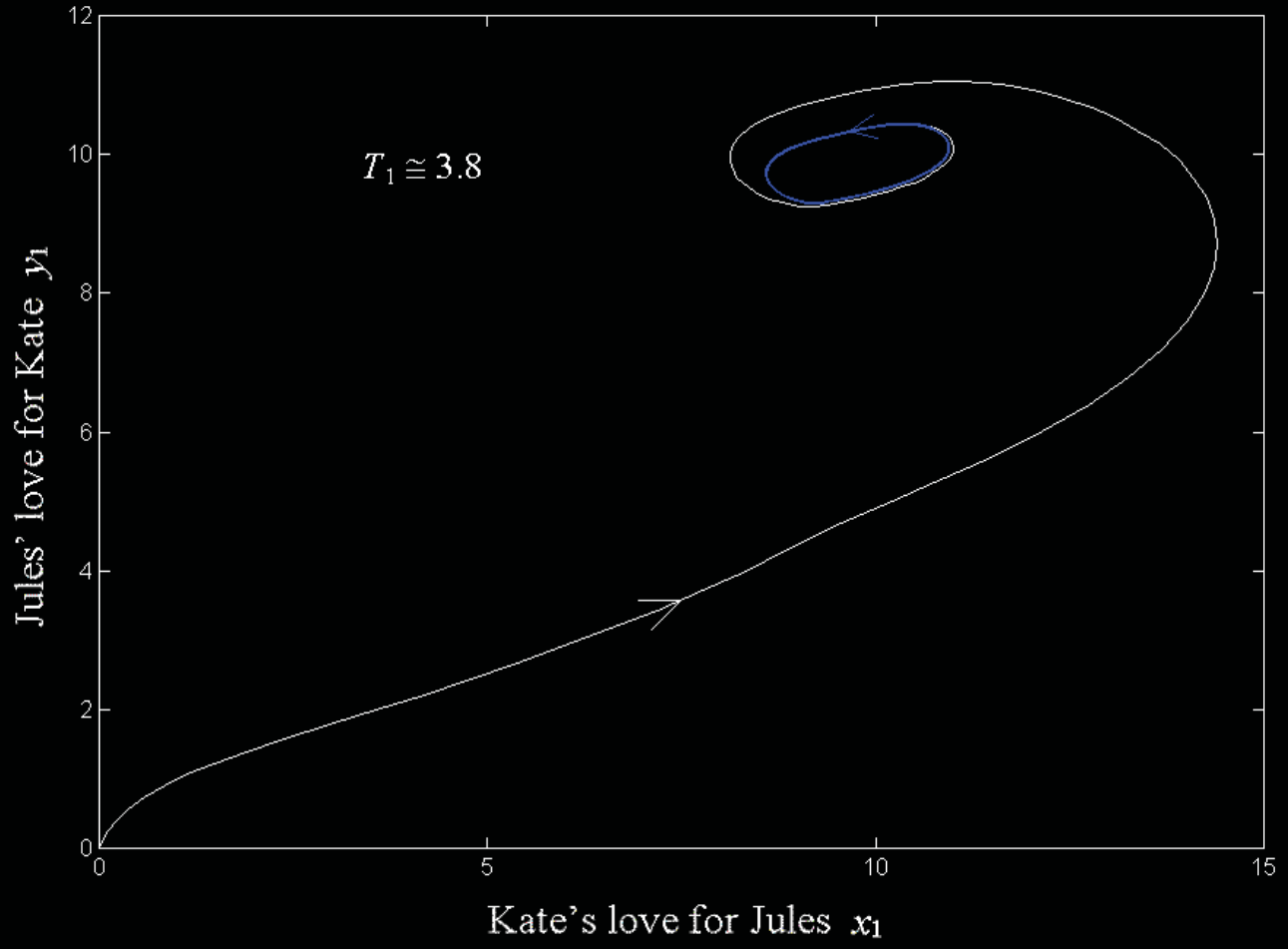
The Kate-Jules cycle

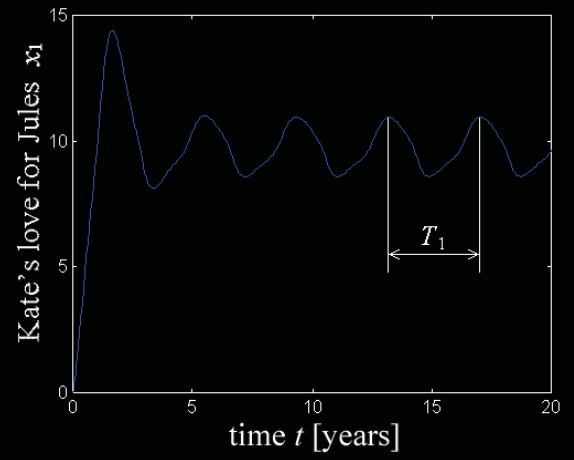


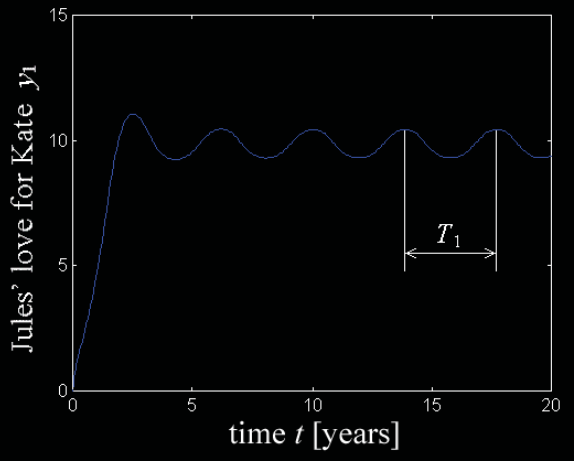




The Kate-Jules cycle







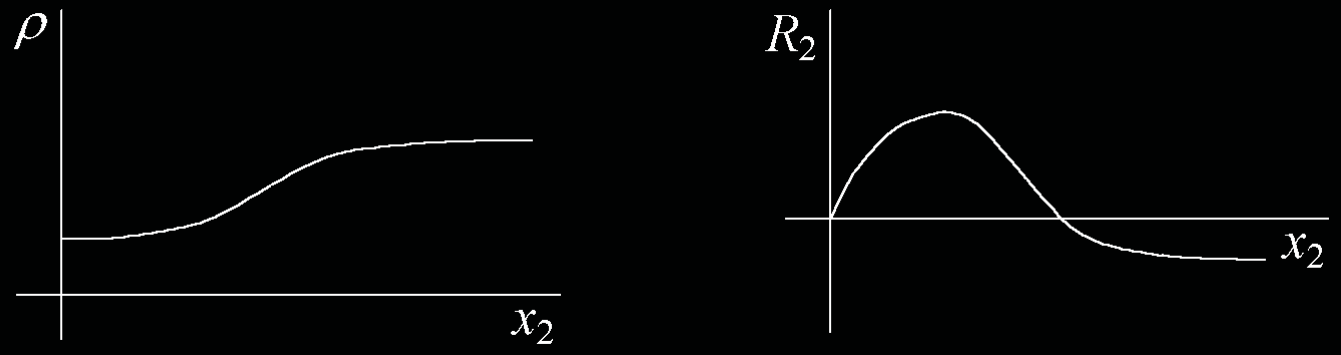
The Kate-Jim model

Kate is “secure” and “synergic”, Jim is “non secure” and “non synergic”

$$\dot{x}_2 = -f x_2 + r y_2 + \rho(x_2) a_2$$

forgetting | response | attraction

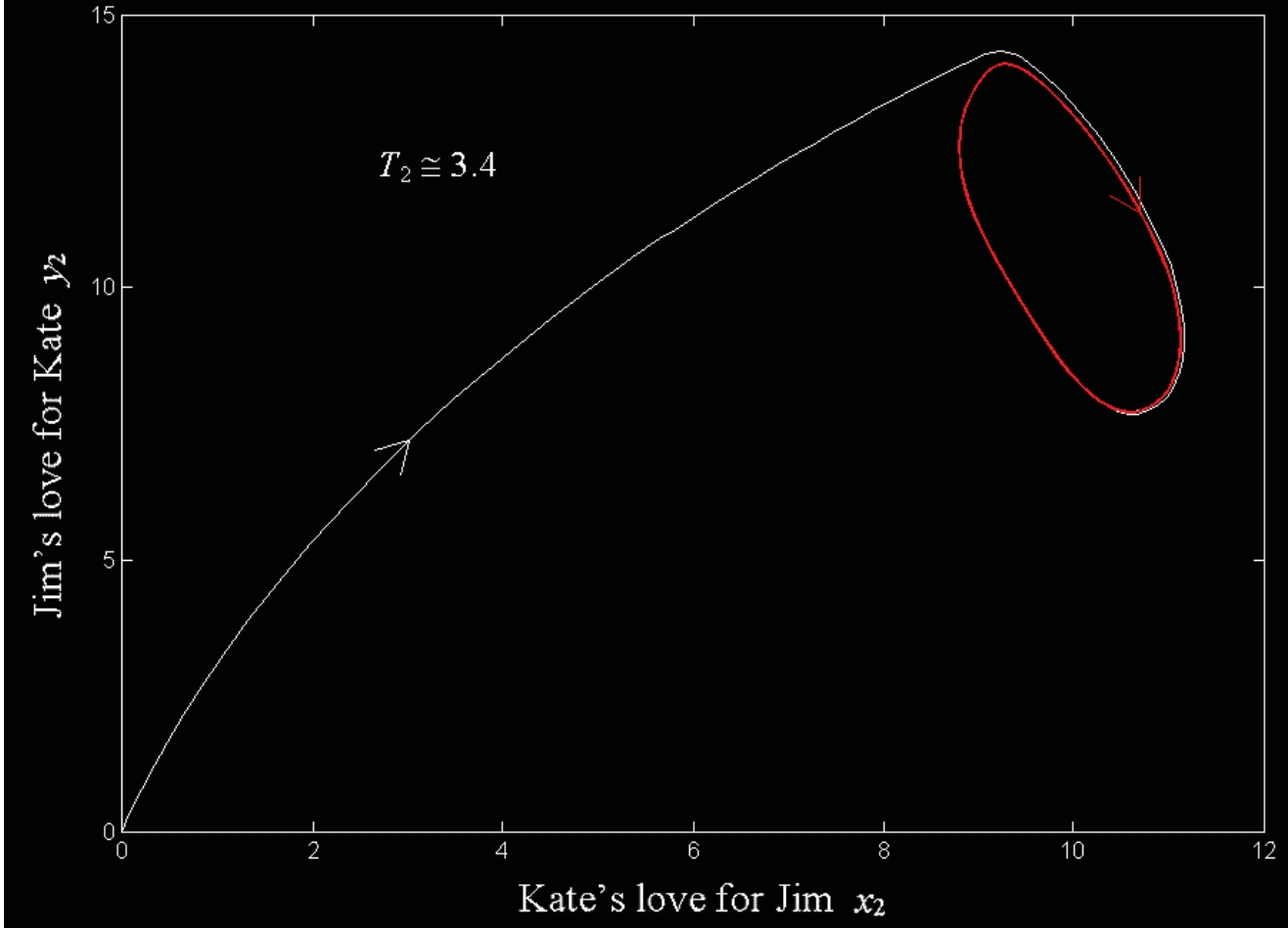
$$\dot{y}_2 = -f_2 y_2 + R_2(x_2) + \rho_2 a$$

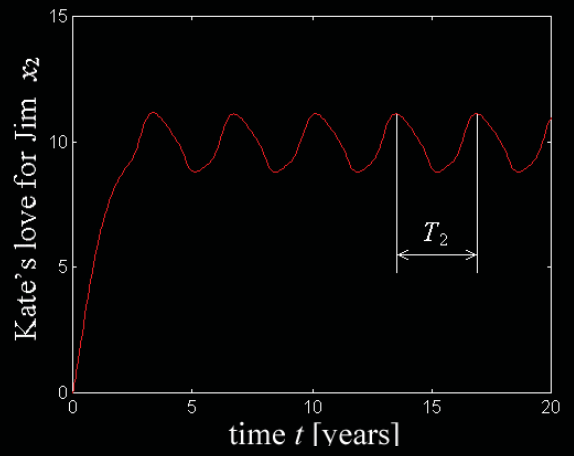


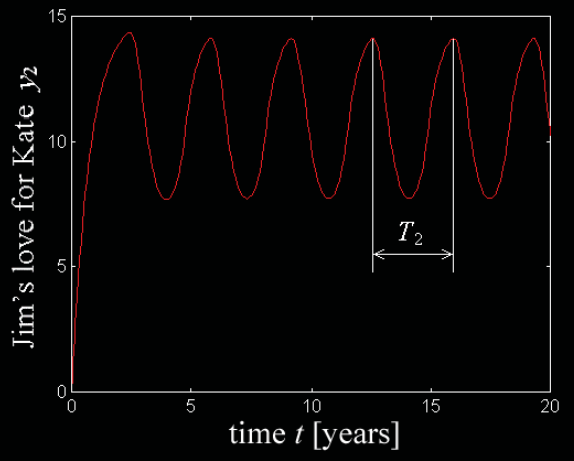
He himself was incapable of living for months at a time in close contact with Kate, it always brought him into a state of exhaustion and involuntary recoil which was the cause of their disasters
(Roché, 1998, pg. 189).

‘Oh, when,’ she said to him one day, — ‘when are you going to stop giving me bits of yourself and give me everything?’ (Roché, 1998, pg. 207).

The Kate-Jim cycle







The complete model

Jules is not jealous and pleased for Jim, Jim is jealous

The complete model

Jules is not jealous and pleased for Jim, Jim is jealous

Kate does not live in separate worlds (temporary simplification)

$$\dot{x}_1 = -\left(f + \delta\left(x_2 - x_1\right)\right)x_1 + R\left(y_1\right) + \rho\left(x_1\right)a_1$$

forgetting

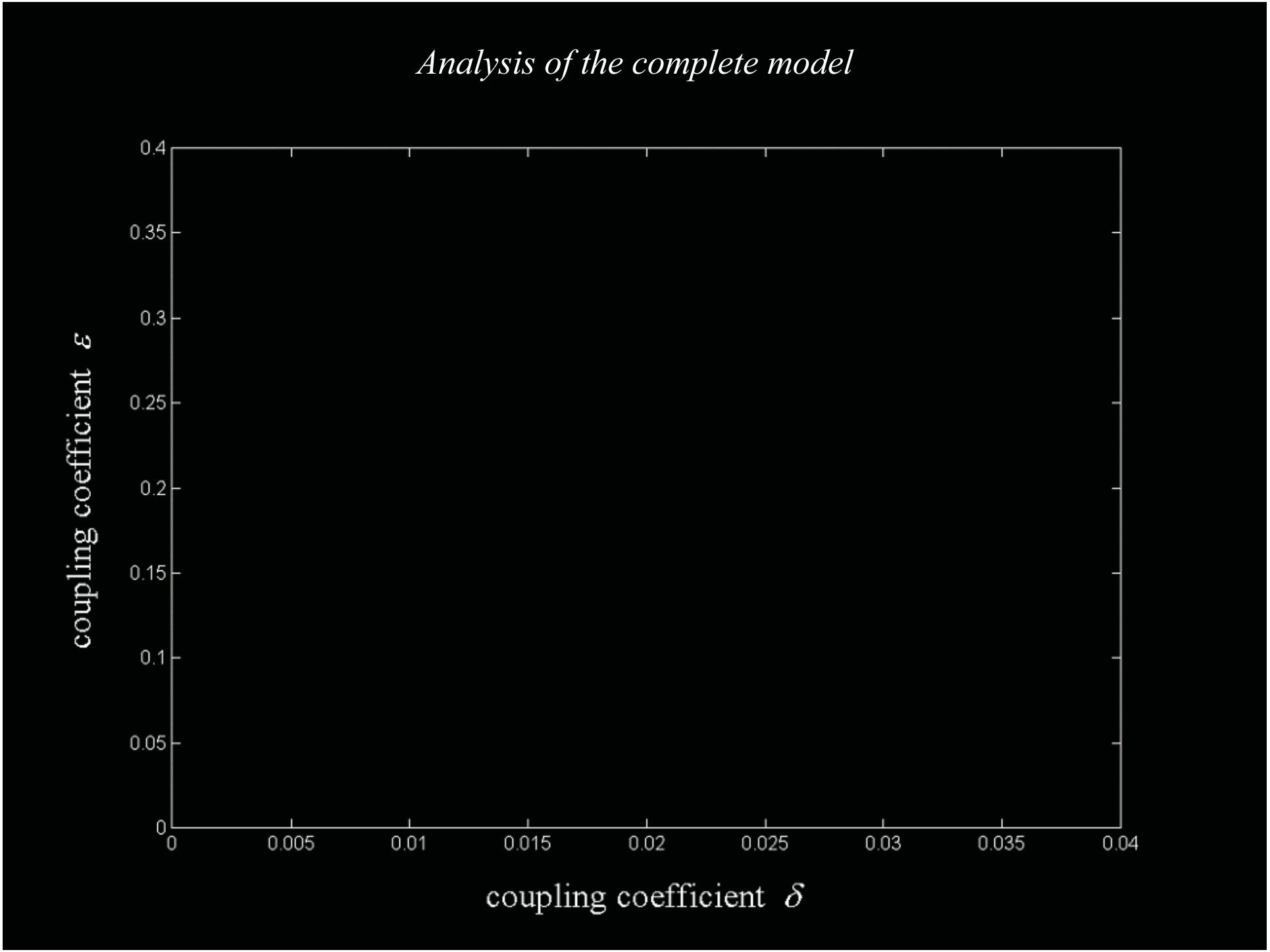
$$\dot{x}_2 = -\left(f + \delta\left(x_1 - x_2\right)\right)x_2 + r\,y_2 + \rho\left(x_2\right)a_2$$

$$\dot{y}_1 = -f_1 y_1 + r_1 x_1 + \varepsilon\left(x_2 - x_1\right) + \rho_1\left(y_1\right)a$$

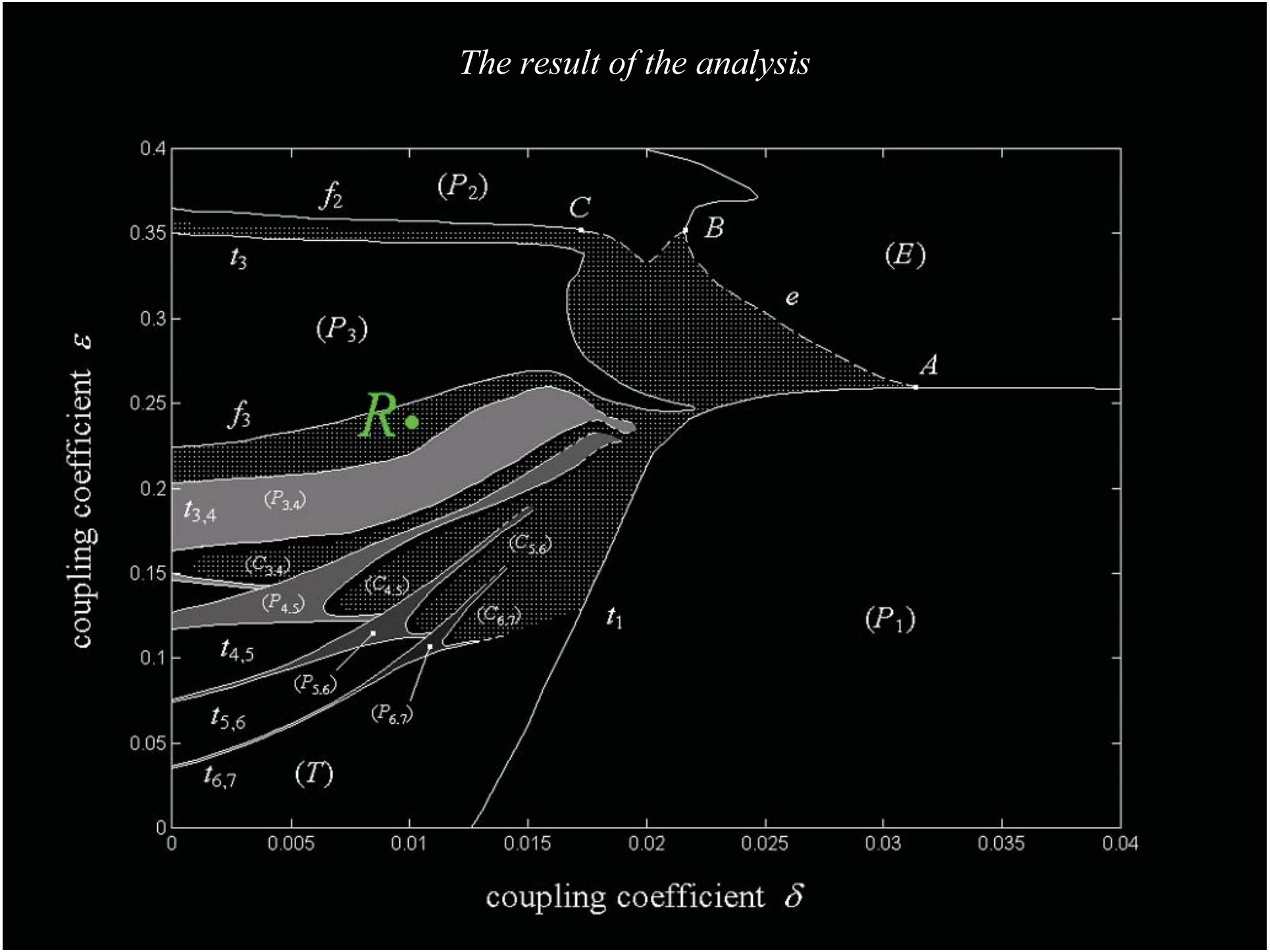
response

$$\dot{y}_2 = -f_2 y_2 + R_2\left(x_2\right) - \varepsilon\left(x_1 - x_2\right) + \rho_2 a$$

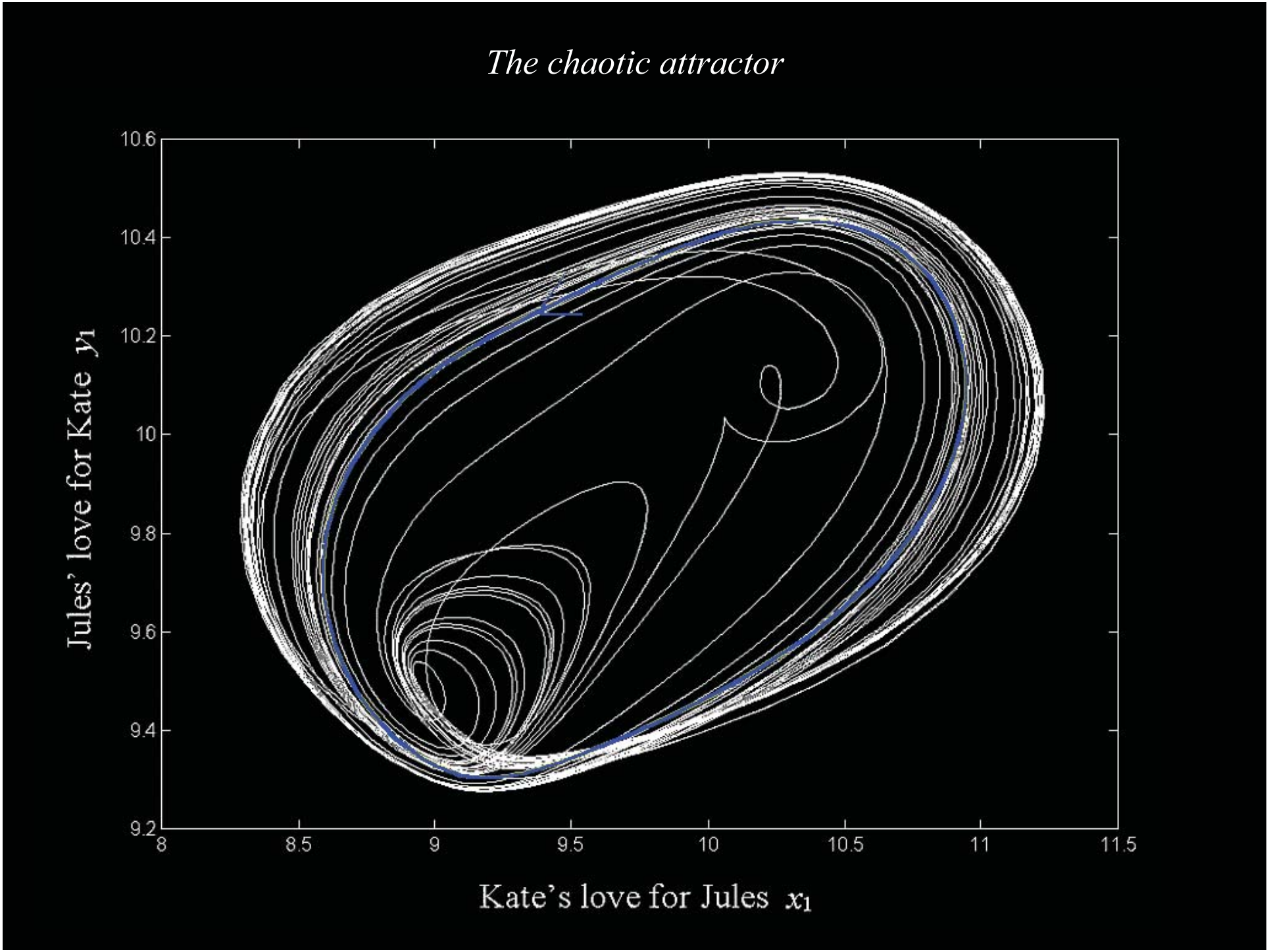
Analysis of the complete model



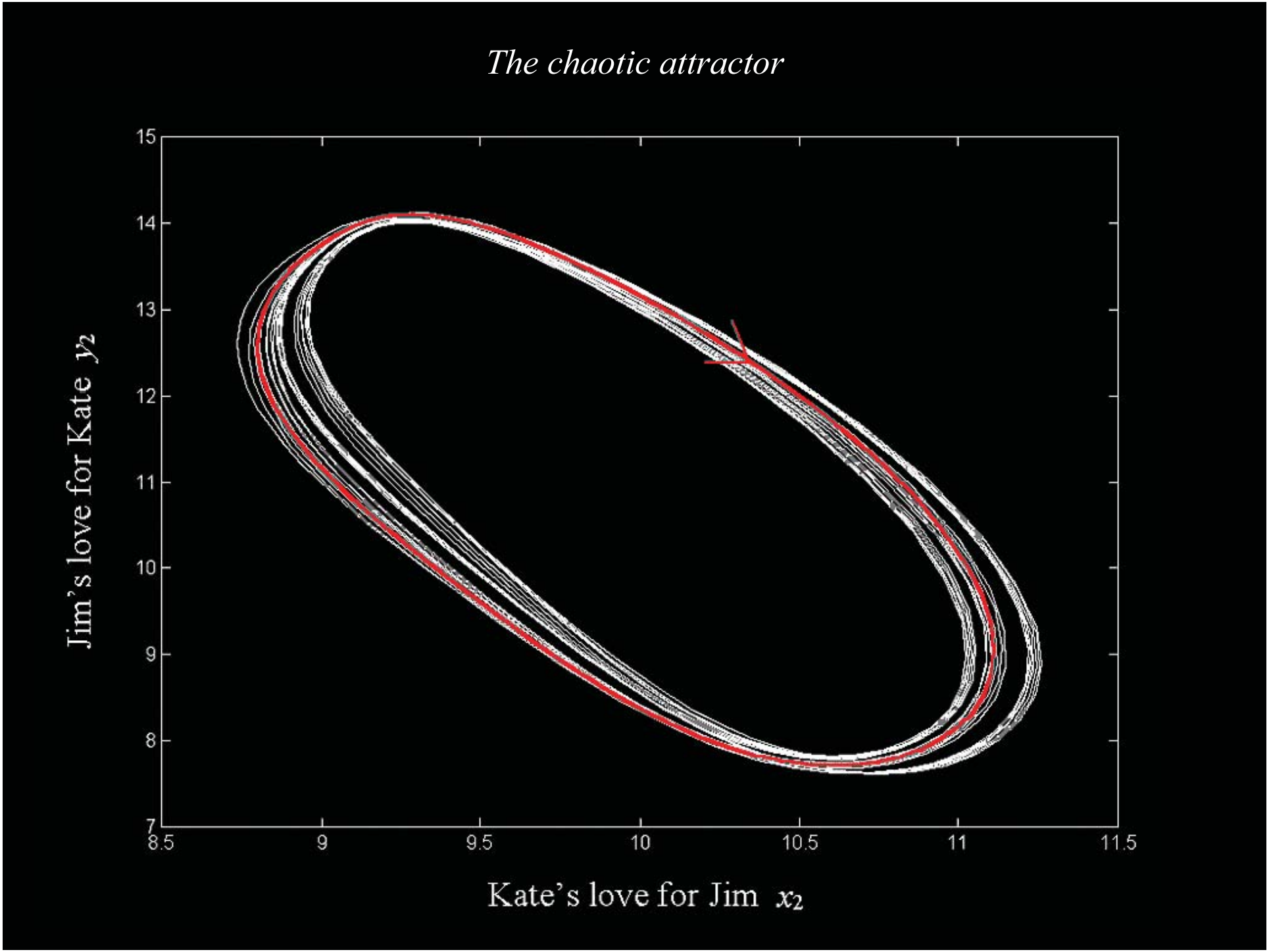
The result of the analysis



The chaotic attractor

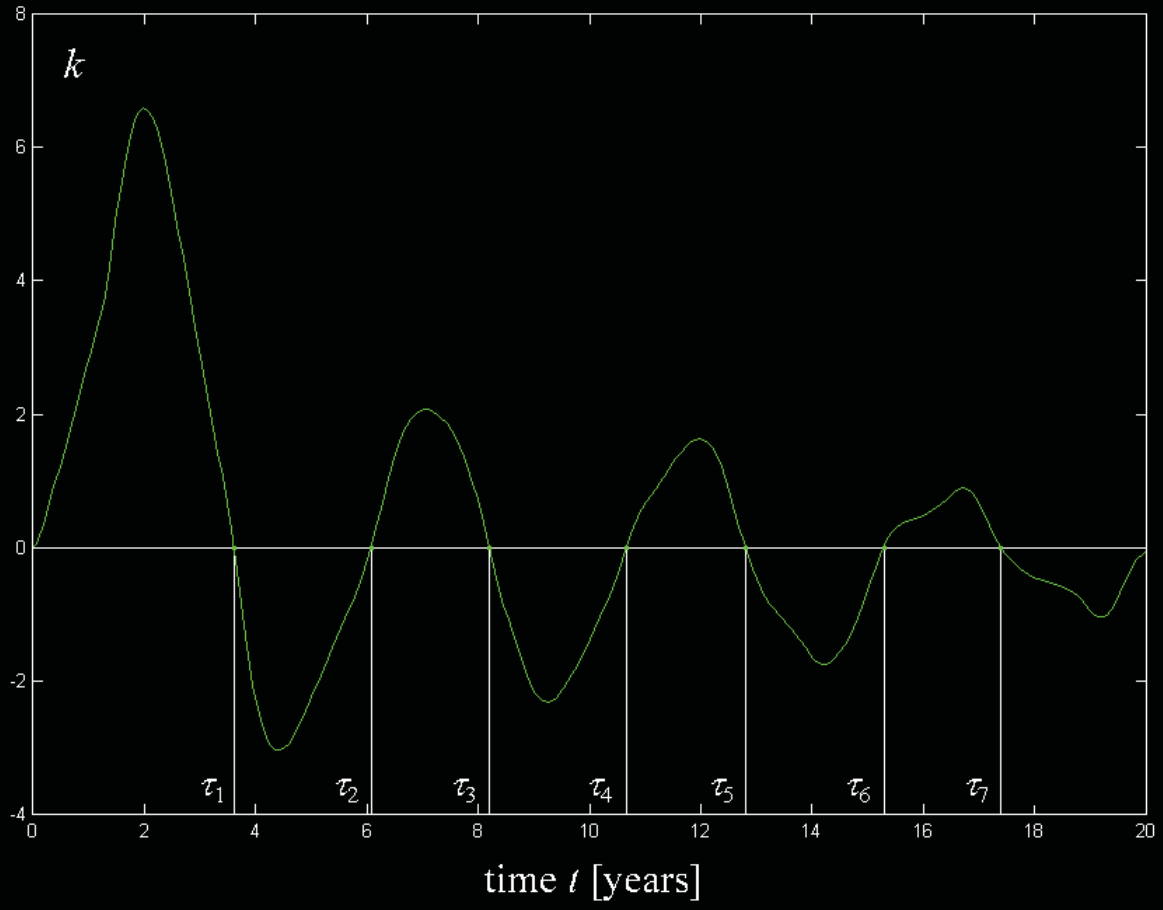


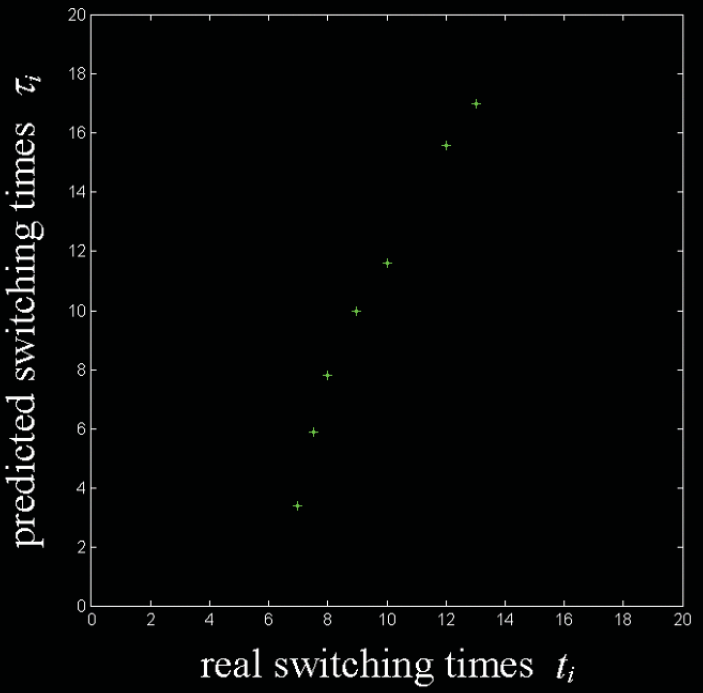
The chaotic attractor



Novel vs model

Kate's differential love: $k = x_1 - x_2$





The end

(The conjecture has been “proved”)