CTM 2018. Peter Flemming. Spiderlogic (2017).

Melissa Aguilar. UNAM, 2018

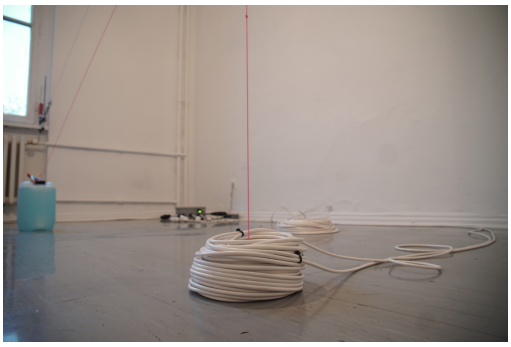
Spiderlogic | in-situ improvised kinetic and sound installation | diverse materials and objects found on-site, rope, stretch cord, iron columns as electromagnets, HVAC sound distribution system, mechanical actuators, stepper motors, custom microcontroller network, custom software

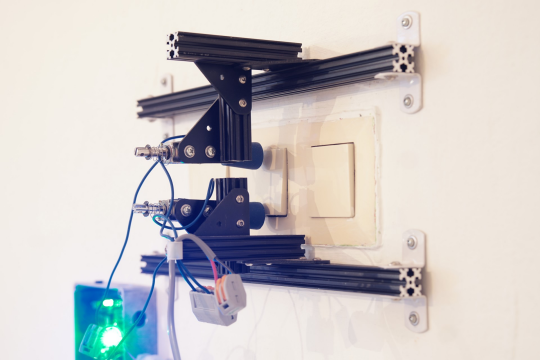
I. INTRODUCTION

The 2018 CTM exhibition *Uncanny Valleys of a Possible Future*, 2018 (Berlin, GE), included the Peter Flemming's (CAN) installation *Spiderlogic*. The work proposes immersion into a complex weaved system. Comprised of everyday objects including ladders, containers, buckets, water, hoses, strings, switches, a wheel barrow and more, the piece entangles a kinetic objectual choreography. Flemming created a mechanism using actuators as motors, electro magnets, pulleys that extend through the entire space, along the walls, floor and ceiling, interacting with light and randomness, powered by customized software.

Upon entering the space, the visitor must measure their movement in order to avoid colliding with the suspended ladder that balances above independently. One moves around the space, between the multiple interconnected elements amazed by the very life of the piece while calculating their steps and contemplating fractions of the totality as their peripheral vision warns them of tripping over cables or buckets strategically placed around the room. It consists of a

kind of closed system[1], in which its functional logic is not easily perceived, despite the fact that the guts of the system are wide open.





Detail. The connections also depend on the electric system of the building. This means, a system within a system, the system of art within the institutional system, the synergy between ideas and structures that allows us to propose alternative realities. Photo Peter Flemming, 2017.

Spiderlogic plays with the visitor's vulnerability, uncertainty and curiosity. Even though they may not understand the system completely, visitors must trust it, co-habit with it and explore it.

Vision, hearing and balance, are stimulated with this immersive installation: subtle sounds remind us of the physical energetic forces of everyday life's environment; the ones we usually ignore, evidencing, for example, electromagnetic fields, gravity, and time.

In this sense, Flemming makes visible the invisible in an artificial environment, ruled by universal physical-natural laws represented through the interaction between "common" objects and energies. Every component of the system has a specific function, no matter how small or random it seems.

"Object Oriented Ontology (OOO) steers a path between the two, drawing attention to things at all scales (from atoms to alpacas, bits to blinis) and pondering their nature and relations with one another as much with ourselves" Ian Bogost, Alien Phenomenology, 2012. --- P. 7

Spiderlogic evokes Ian Bogost by highlighting the existence of objects and the different relations entangled to their presence, centering philosophical attention – and in this case, also artistic attention - on them as components external or independent of the human (the viewer, despite being immersed in the artwork, is not indispensable to its functionality).

Peter Flemming invites us to take a closer look, to reflect on time, on how each event is related, a consequence of a previous one. We might not be able to tell what will come next, but, we can be aware of the forces that manifest around us to anticipate the crash, and even better, behold it.

II.

Spiderlogic brings up the question: What kinds of matter allow the best manifestation of certain physical phenomena implicit in the human perception universe?

> By revealing the basic physical magic within our everyday machines, structures and systems, I wish to show that they are subject to material laws that are fundamentally mysterious and outside of our absolute command. This elusive magic is a worthwhile reminder that we are not in total control in a digitaltechnocratic world where total control seems to be a goal. P. Flemming Vibrations and Waves, 2011.

Various concepts entangling ideas about systems, mechanisms and physical phenomena are researched and put into practice in Flemming's artwork. In the case of *Spiderlogic*, his scientific-artistic concerns are manifested in the creation of complex systems, autonomous or autopoietic mechanisms, that in their independence make the invisible physical forces visible, inherent to the interactions of the components of a closed system that constantly tries to reach equilibrium.

Following Varela and Maturana's definition on autopoietic machines which states: "*Autopoietic machines posses individuality; this is meant by the invariant keeping of their organization they actively conserve an identity that does not depend on their interactions with an observer.(…)"**[2],*** one could consider *Spiderlogic's* mechanism as an autopoietic machine, where the interaction with the visitors does not interfere with the interconected processes of the web and its sequences (protocols, movements, oscillations, etc.). The mechanical installation's movement is perpetuated, and the energetical variants are considerated as perturbations of the system that are accountable in the work's performativity: changing the sound score, including irregularity or errors as valuable components of the artwork (as Flemming states in his text Vibrations and Waves [2011]: "Mistakes and accidents such as the singing motor or leaning on the work table frequently shape the course of my artwork").

We can perceive this the overall concept in every piece of the mechanism: each element is key for the spider web system that he created. If we zoom out and view the installation from the top, we might witness the geometric pattern traced by the cables and cords, organizing the sonic net of multiple hanging nodes. From this point of view, it also becomes possible to visualize the closed system within *Spiderlogic*, and to perceive the piece as a unity in space, a sort of autonomous machine.

Physically, the artwork surrounds the space and visitors, it extends through the walls, ceiling and floor of the room. Due to the moving elements (such as the ladder, cables crossing the floor, buckets or hanging threads), the visitor has to be conciously
aware of their body's presence in the environment, measuring their movements, meditating their transit to experiment the work; therefore becoming an active visitor. There are no barriers such as platforms or security lines to create a sense of distance between the visitor and the objects, and curiosity and intimacy are promoted, allowing every little detail to be experienced closely.

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BRIEF SOUNDSCAPE

Flemming brings out one of the inherent qualities of objects: sound. Objects are more than how they appeal to eye, they are potencially linked in other perceptive ways, and in this case, the sonic potencial of objects becomes very important.

If the visitor closes their eyes and listens closely, they will hear an irrational orchestration: a disharmonic composition of noises in variable intervals. In this way, even though the artwork is visually attractive, one can connect very deeply with hearing, intending that the visitor may hear the system's multiple voices and entangle in deep human-object communication.

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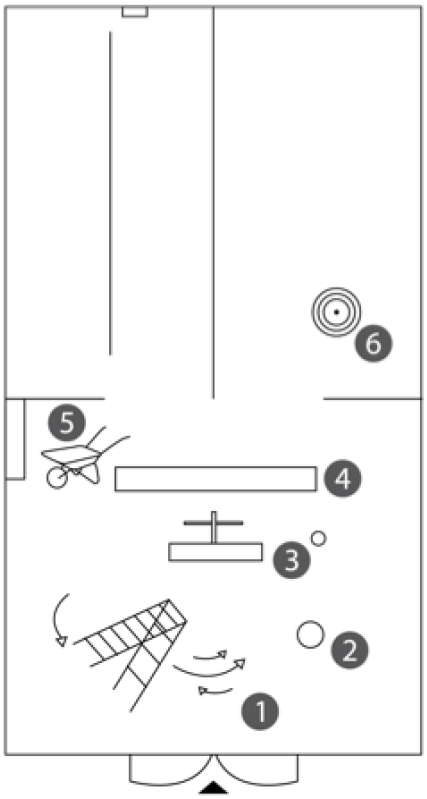
Museography

The exhibition is divided in three areas: a main room and two back rooms separated from one another. Peter Flemming adapts the objects that he brings and that he also finds in the exhibition facilities to the exhibition space, meaning that the museography and the artwork in itself is adjusted and created exclusively for the space that it inhabits (in this case, in Kunstraum Kreuzberg). Therefore, space is also a key element and concept in his work (site-based installations) and determine some of the performative characteristics of the mechanism.

The walkthrough would follow a possible sequence like this:
After crossing into the space, the visitor faces the suspended ladder, which balances mechanically. Then comes a sucesion of objects including buckets, a pendulum, lightbulbs and cables. A wide column separates the first room and holds a moving element created with disposable plastic dishes, plastic bags and rulers that wave as if saluting the visitors. This column leads to a large upside down table, suspended approximately 170 cm above the ground, which holds a special speaker that amplifies the sounds of the other objects. To the left, the visitor faces a closet with pulleys and bottles that seem to be static, but they are actually moving in extremely slow motion, as if time has stopped. After, the visitor may choose to enter the left or right back room. As the visitor enters the room on the right, they find a a pair of magnets inside a plastic bottle that seem to be alive, struggling with each other, or with an invisible force: it is

the electromagnetic field delimitated by the wires that surround them and activate this physical alchemy that also contributes to the saturation of irregular sounds.

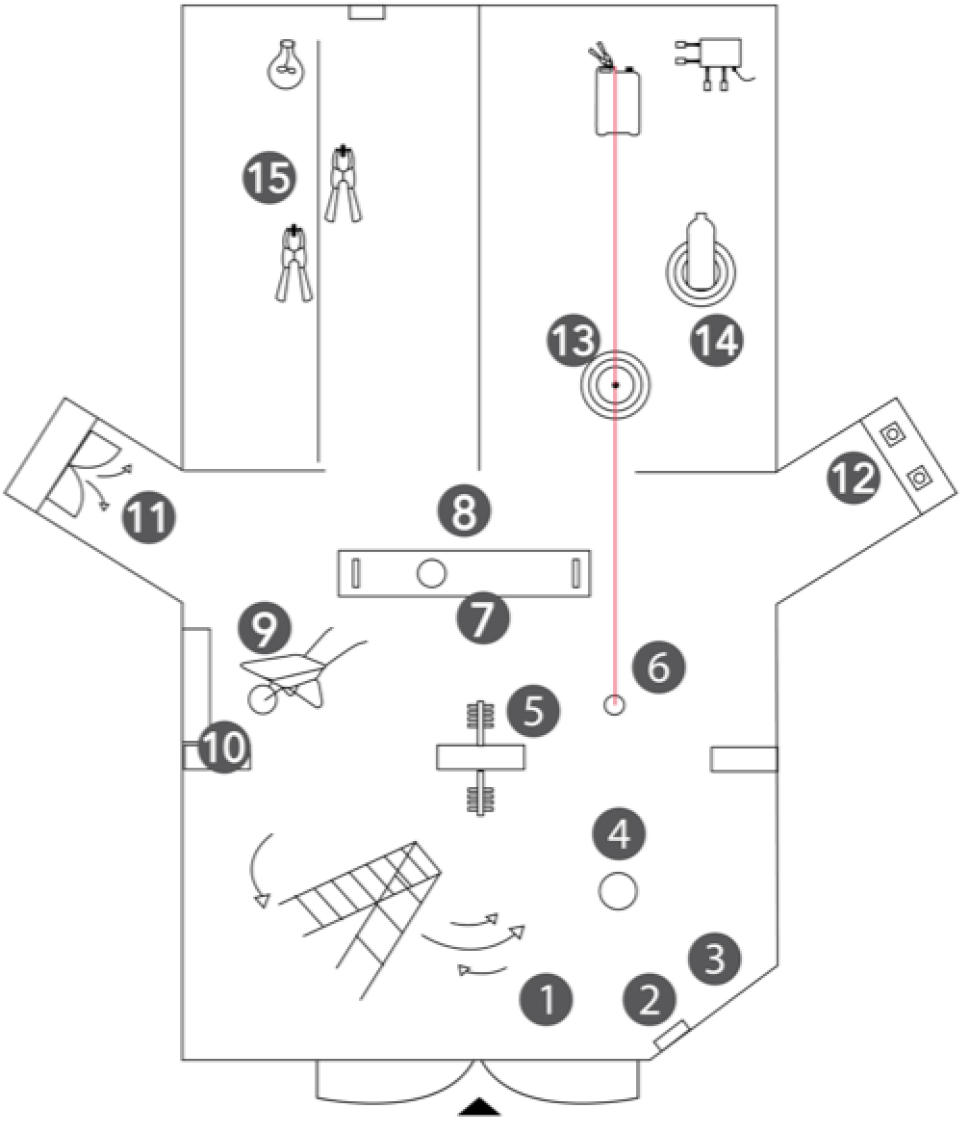


Spiderlogic distribution at CTM 2018. Kunstraum Kreuzberg. Some artwork details (selected for their perceptual relevance and deeper interaction in the writer's experience)

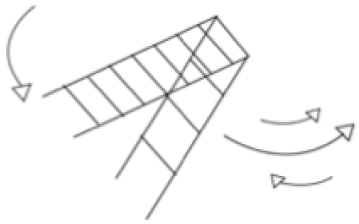
(1) The visitor enters, faces the vertiginous ladder; (2) On the right, a water bucket; (3) further ahead, a pendulum balancing next to a mechanism with plates and plastic bags attached to a column; (4) Wood plank with speakers hanging from the roof connected by strings to the (5) hanging wheelbarrow next to closet with internal mechanism of water and pulleys. (6) On the left room, cables and magnets in perpetual electromagnetic movement.

The entire artwork is constituted as an analog mechanism. To facilitate a better understanding of its behavour, the reader may find a detailed description of all the elements-instruments that the artist uses to orchestrate the installation as follows:

Spiderlogic. Detailed description of Physical Elements



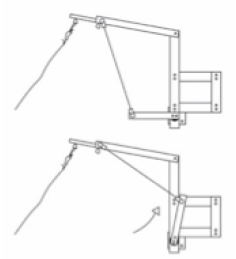
1. LADDER



The metal ladder hangs from four points by cables attached to the walls of the first room. Attached to the the ladder are two lightbulbs attached, which turn on automatically due to the movement of the entire artwork, that, at a certain point, makes contact with the room´s light switch.

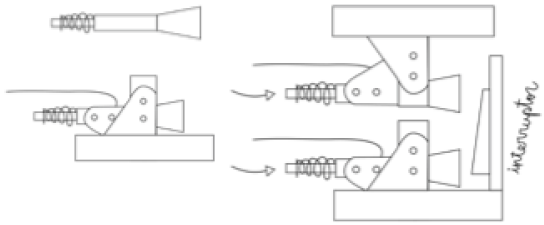
The ladder occupies the principal point of view when first entering the exhibition room, balancing vertiginously from one side to the other in preprogrammed time intervals.
On its lower side, the ladder has a surface transducer, turning a regular ladder into a sound-vibration amplifier. Surface transducers convert almost every surface into a speaker or amplifier, the only structural difference between it and a regular speaker is that they don't have a conic shape and the coil sticks to a pad that conduces the vibration towards the material that it is pressed against and connects to an audio source in order to transmit the sound.

2. MECHANICAL HANDLERS



Placed in different corners of the room, mechanical handlers hold and move the installation, according to the network of controllers specially programmed for the installation. In the case of the setup for 2018's CTM, four handlers were used to hold the ladder and the upsidedown table. They also have tension cables attached, as extensions to hold and influence other structures of smaller size, such as the light swith and pendulum.
These consist of a metallic frames attached to the wall, two metal bars that move by rotative motors placed on the sides. From the upper metal bar tension cables are tied to hold the bigger objects of the installation.

3. LIGHT SWITCH:

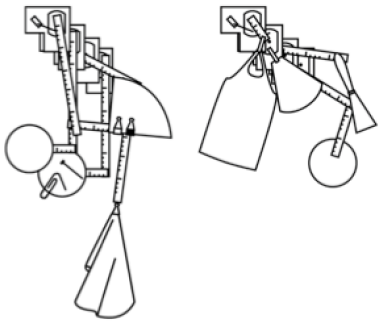


The light switch is activated by electric pulses. The pulse hits a buttom with a tension coil spring that holds back after swithching on or off. Each one is connected to a coil and to an electric current.

4. WATER BUCKET

In the first room, on the right side, towards the intersection of an arch, a plastic black bucket hangs with water. The bucket acts as counter weight for the structure. The use of water weights is common in Flemming's works.

5. Objects in column



These are two mobile motor mechanisms in the front and back side of the central column.
The front one has four motors that move remants of random things found during the exhibition setup. Pieces of wooden rulers with paper pins hold, in the following order: a piece of plastic

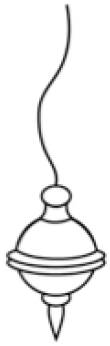
with green paint, a plastic lid, a dirty cloth and a plastic disposable dish with leftovers of yellow glue, a metallic clip and nails. These objects are well viewed when motors stop, but otherwise are perceived as a windy blurry patch of colors.

On the other side of the column, three motors places one after the other move a red plastic bag, another piece of plastic with green painting and a metallic spatule. The motors' speed and the side to side movement provoke a peculiar dry sound from the plastic bag.

On both sides of the column, the drivers of each motor are placed, meaning there are five on one side and three on the other, organized meticulously and a reminder of the importance of absolutely every detail and component of the installation.

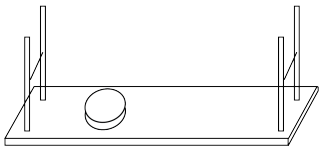
Flemming uses mostly white cables, just like the color of the walls, so that connections are not always evident to the eye. In some cases, where there is the need to show the connection, he uses cables, tensors or black and red laces, these last ones in very specific cases, such as with the pendulum tied to magnets in the right room.

6. Pendulum



In the second half of the main room, a red thread holds a copper pendulum. Visitors can play with it by moving it and explore its oscillations and balance, since it works as counterweight to the magnets that hang in the room on the right, further ahead.
In this sense, the pendulum becomes one of the objects that connects one room to the other representing the natural flow and expansion of the system's energy.

7. Upside down table



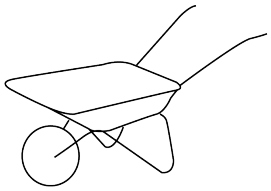
In the second half of the first room, in front of the column, an upsidedown wooden table with metallic green legs hangs and swings from side to side. Another surface transducer allows sounds coming from other elements in the weaving to be heard through the table. Ladders and magnets, tables (being objets commonly available) are recurrent in IO *Spiderlogic* works.

8. Lightbulb-

There are a total of four lightbulbs in the artwork, the first two on the ladder. The third one is located in front of the table, the black cable that holds it has been carefully hung to reach the desired height.

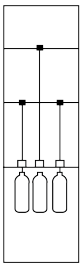
Along the installation, the light of the room is modified by extensions that in Peter's conception "parasite" the light dimmers, transforming the flow of light energy by voltage changes in sonic pulses as part of the artworks score.

9. Wheelbarrow



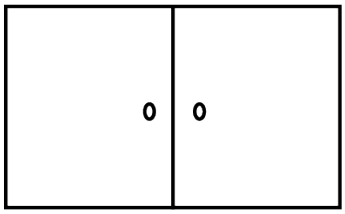
The wheelbarrow is metallic and inverted, with the principal objective of functioning as a resonator, making the most of its bell shape. A transducer is adhered to its surface to replicate the sound of its back and forth movement and to amplify certain noises.
It is placed above a closet, and therefore works as an instrument in motion that amplifies the reverberation of objects inside the closet.

10. Closet



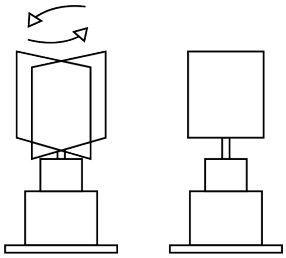
The closet, placed in the second half of the main room on the left wall, stores a structure of cables, pulleys and bottles. The structure is divided into three levels that move so slowly in such a way that the movement is almost imperceptible. The two upper levels hold the pulleys and the third one, besides holding power strips, also holds three plastic bottles.

11. Cabinet



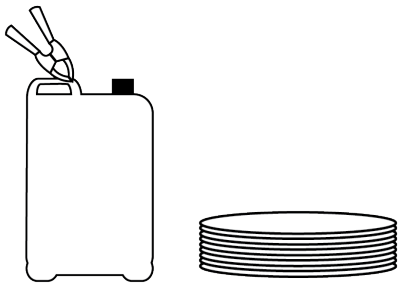
The exhibition room has two spaces of large windows, that were also included in the setup. The left window has a wooden cabinet. Flemming tied retractile cords to the cabinet, so, every now and then they open and close quickly, by mechanical action, provoking a hard dry sound in the piece's sound scape.

12. Singing Stepper motors



Two Stepper motors rotate crystal panes. The motor vibrations resonate in the crystal that acts as a mechanical amplifier producing a tone that varies depending on the speed of the motors.
These two rotative elements are a reference of the artist's previous work: *Stepper Motor Choir* (2008). For the 2008 setup, twelve stepper motors where fed with solar energy stored in solar panels on the roof, and the amount of sunlight detemined the speed –and singing- of the motors. For CTM's setup in 2018, the motors are connected to the electric current and are dependent on the customized microcontroller network.

RIGHT ROOM



Tied to the pendulum of the mainroom is one of the central themes in the artist's material explorations is shown; the visualization of elemtromgnetic forces represented with magnet sound kicks.

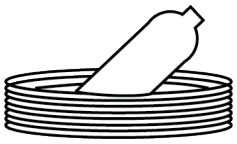
In this room, the visitor encounters a reference to *Ouroboros of Alternating Current* (Flemming, 2014), as part as the ongoing research about electromagnetism, architecture, and reconfiguration of structures that can potencially create strong electromagnetic fields.

13. Magnetic Pendulum

As Peter describes in the text for *Ouroboros of Alternating Current*:
"A looped extension cord plugged into a custom three-headed oroboros cable generates an intense fluctuating electromagnetic field. In-situ iron columns become powerful electromagnets and cube-shaped magnets placed in the field dance erractically."

The customized cable is internally twisted in a way that the ground, usually parallel to the hot and negative lines of the extension, are arranged in series from one extreme to the other, making a large return coil inside the cable, just like a snake that eats its own tail.

14. Magnets in bottle

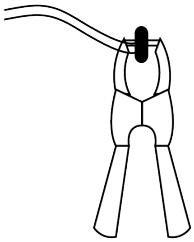


From a power supply, another group of cables organized with the same ouroboros principle unfold. The current variations create an interesting arhytmin melody, due to the use of a plastic bottle containing two super magnets.
In this way, the plastic acts as a drum taking advantage of its percussive surface.

LEFT ROOM

In the upper frame of the door, three light sensitive oscillators influence a thin cable magnetically that continues into the interior of the room.

15. Pliers with weights



From the thin cable mencioned before, two hanging pliers hold a pair of magnets that receive electric current. Because of the current between the cable and the magnets, a fine , sharp noise is produced and amplified in other spaces of the room. The fluctuations vary as the lightbulb that hangs on the cable turns on or off (just like the lightbulb in the main room, close to the upside down table).

III. CLOSING

Charm is an emotion that characterizes an extraordinary situation, where expectation is surpassed beyond simple comprehension towards contemplation of a certain phenomena. In this case the charm of *Spiderlogic* resides in the complexity of the system created and the incognita about how it works, where the circuit starts, according to which parameters sequences are activated, etc… This associated “magic” to *Spiderlogic’s* system causes an overwelming experience in which the visitor is summerged in an experiencial flux.

By using everyday objects in an artistic installation, the encouragement of physical proximity between visitor and artwork, and the fact that the piece adapts differently to each arquitecture and uses whatever is available in order to exist, are factors that potenially inspire creativity in visitors. They might be inspired also, due to the representation of the importance of materials in themselves (the content rather than the shape). In this sense, Flemming’s art is accesible, because the complexity resides in the setup and deep concept within. Value in Flemming’s art resides in his creative capacity, the using of energy for the visualization of physical phenomena and connection to human emotions.

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· Jentsch, E. **On the On the Psychology of the Uncanny** (1906).

Related Websites>

· Peter Flemming: http://peterflemming.ca/

· CTM Festival: http://www.ctm-festival.de/

· CTM. Uncanny Valleys of a Possible Future: http://www.ctm-festival.de/concerts/calendar/concert/calendar/2018/01/26/event/tx_cal_phpicalendar/uncanny-valleys-of-a-possible-future-10/

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[1] "Conventional physics deals only with closed systems, i.e., systems which are considered to be isolated from their environment. (…) In particular, the second principle of thermodynamics states that, in a dosed system, a certain quantity, called entropy, must increase to a maximum, and eventually the process comes to a stop at a state of equilibrium" (Bertalanffy, 1967, p 39)

[2] Varela and Maturana On Machines and Living Beings, 1994.