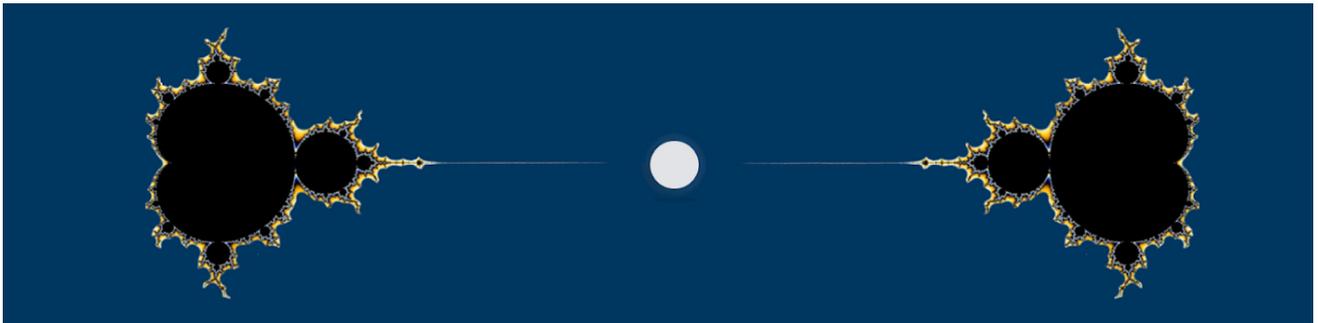




Constantin Hering Stiftung
für homöopathische Medizin

Explanations regarding the introductory image for the chapter on homeopathy



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The introductory image in the header of the chapter on [homeopathy](#) shows two Mandelbrot sets - the best-known example of fractal geometry, which illustrates the principle of recursion.

(There are also video animations on this topic, for example here:

<https://www.youtube.com/watch?v=nYJ2WW0i3hk> by Robert Wermuth)

When looking at this, the question arises: what does this have to do with homeopathy? The usual associations when researching online are completely different. It is therefore a matter of perspective and a new image, which requires explanation.

Introductory image "Homeopathy"

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Contents

Mandelbrot set and recursion.....	2
Recursion and biology	2
What does recursion have to do with homeopathy?.....	3

Mandelbrot set and recursion

The *Mandelbrot set* is the geometric representation of recursion. It is named after the French-American mathematician *Benoit Mandelbrot*, who developed an iterative calculation rule for complex numbers that mathematically defines the phenomenon of recursion.

The recursion formula continues indefinitely into the infinitely small, while the original pattern is retained. For those with a background in mathematics or an interest in the subject, a comprehensive explanation can be found on Wikipedia (https://en.wikipedia.org/wiki/Mandelbrot_set).

Recursion thus describes a cycle that persists as a pattern of itself, as part of itself, and continues to repeat itself ad infinitum. It describes the *self-similarity* of a pattern that can be found on both a large and small scale.

Recursion and biology

The Mandelbrot set shows the beauty and complexity of a fascinating principle that is also found in biology.

With the help of recursion, biology can be used to represent the occurrence of repeating patterns and structures that can also be used to describe life processes. There are numerous examples of this at different levels:

- **Growth concepts:** The repeating patterns of tree branches, the structure of fern fronds or pineapple scales, as well as the growth of sunflower seeds or snail shells (which follow logarithmic spirals and can be described using the Fibonacci sequence) are all forms of recursion.
- **Development of complex organ structures:** The branching pattern of lungs (bronchial tree), the branching of blood vessels or even the nervous system, which always divide and branch from the whole into smaller and smaller sections, follow the principle of recursion.
- **Representation of phylogenetics:** The visual illustration of evolutionary relationships, in which species split into subgroups, each with their own branches and specific characteristics, follows the recursive concept.

Behind this perspective lies a very broad understanding of biological principles.

- **Fractal patterns:** These describe the self-similarity of patterns that repeat and can be determined in different sizes (fractals). They enable the efficient development of complex structures from a few simple rules.
- **Evolution:** The principle of recursion can also be found in the analysis of evolutionary processes: specific characteristics are passed on recursively over generations and changed through selection,

which affects the results of future developmental steps. Such processes can now be modelled using appropriate algorithms and illustrate how minor deviations can lead to significant changes.

Mendel's inheritance pattern of dominance and recession can also be understood as a recursive process in which characteristics are passed on and combined from generation to generation, which can also be mathematically represented by recursion.

- **Cognition:** Recursive concepts can also be found in cognitive research, for example the ability to nest sentences arbitrarily deeply: "The child who loved the woman whom the dog saw" – is a core feature of human language across all cultures and points to a profound *recursion in the syntax of language construction*.
to reflect on one's own way of thinking (theory of mind) or
travelling through time – directing thoughts visionarily into the future or retrospectively into the past – is essentially based on recursive *mental processes in consciousness*.
Planning complex actions and using tools also follows recursive structures to organise and solve tasks, which is also being studied in animals, especially primates, as a problem-solving ability.

What does recursion have to do with homeopathy?

Back to the image: two Mandelbrot sets are reflected above a sun, symbolising energy, with the globule as the connecting link in the middle. This representation has abstract and concrete references:

In the abstract, the globule symbolises the bridge, the link between pattern formation in nature, disturbed regulation and pathological processes, and its counterpart, the self-similar pattern of the homeopathic remedy, which is diagnosed according to the concept of similarity.

On a cognitive level, the mirrored Mandelbrot sets refer to perception and reflection in consciousness, indicated by a bridge that symbolises the core of case understanding, symbolically corresponding to *cognition-based medicine (CBM)*.

In concrete terms, the concept of recursion in homeopathy fits in with the essential core content of homeopathy:

- the process of potentization in the manufacture of homeopathic drugs, in which iterative dilution and shaking breaks down the pattern of the starting material into ever smaller components and transfers it to the drug carrier
- the diagnostic-therapeutic cycle in general, which penetrates ever deeper into the understanding of the individual case through a recursive concept of individual, spiral-like repetitive work steps ([diagnostic-therapeutic cycle - DTZ](#)),
- where the understanding of the case follows an iterative-hermeneutic concept, which is unique in medicine in its complexity and also has recursive features,
- the doctrine of doses, whereby the administration of homeopathic drugs is based on repetitions in ascending potencies, in other words, on progressively refining pattern repetitions to enhance the effect.