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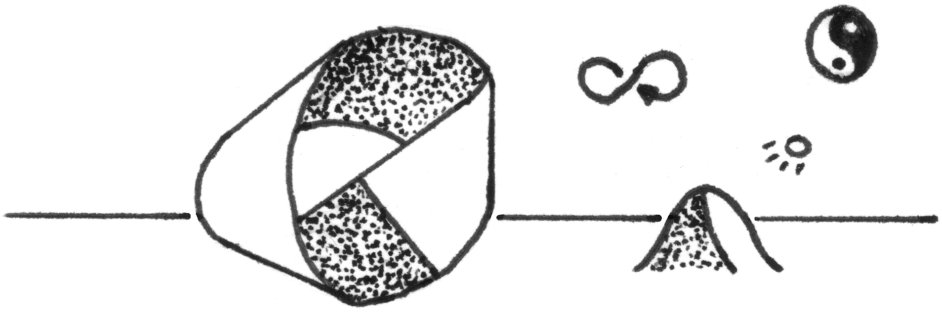
avantgarde

Möbius lego

Two variants of the same idea from this website in 2009. On the following pages to the left the newer version, probably at least initially written with only my left hand, to the right the older version. I still think the idea is beautiful.



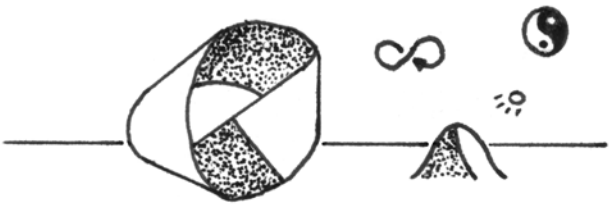
The idea consists essentially of "condensing" all secrets of the world into something like a Möbius strip as an alternative to "elementary particles", so that the most elementary components of the world would already contain the deepest secrets, which can maybe never be resolved anyways.

Both versions are also part of the copy of my website of 2009, although the older version is somewhat hidden there.

moebius lego

If you step into the same river twice, the waters will be different. — Heraclitus

How about not describing the world with units, but with something that contains already all irresolvable dualities within itself, something like a Möbius strip ?



In early ancient philosophy, opposites are often not fully separated, yet. Heraclitus says, for example, that "the path up and the path down are one and the same".

The Chinese Yin-Yang symbol has its origin in the image of a hill, in its sunny and shadowy sides, which gradually trade places during each day. So in a way space repeats in time, twice before returning to the starting point.

Similarly, if you imagine you are an ant that walks along the number 8 or on the symbol for infinity ∞, you get to the central point twice, but coming from different directions. On an infinitely narrow Möbius strip, you even get to *every* point twice, but on different sides of the strip.

Kant realized that space and time are a priori necessary for thinking. What is also needed, is to remember things, to *repeat* things mentally. When thinking, you remember different things, you recreate them from memory and recombine them. So thinking requires mental loops in space and time, which reminds of the mentioned images.

Any scientific theory of the world that claims to be complete creates at least one loop of self-reference: It must be able to describe itself, since it is part of the world.

This has so far always lead to paradoxes in one way or the other. Also, new experiments can at any time change specific answers to quite fundamental question like whether the future is really or just practically not fully predictable. The former is the current view in quantum mechanics, the latter was the view in classical mechanics.

So, why not concede that some fundamental questions cannot be answered, and *embed* them into something like a Möbius strip, as a way of preserving both possibilities ? The rest of the world would then presumably be relatively easy to handle, in terms of such dual building blocks that embed all insolvable questions. . .

Of course this is quite an abstract idea, but still: Can it be turned into something more concrete and specific ?

moebius lego

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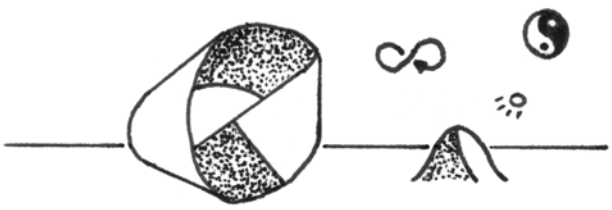

Kant recognized that space and time are necessary for thinking. But what is also needed, is to remember things, to repeat things mentally. If the images in your mind were always just 1:1 copies of what is seen outside, there would be no thinking. When thinking, you remember things, you recreate them from memory and recombine them.

If you imagine that you are an *ant* that is walking on the number 8 or on the symbol for infinity ∞, then you get to the same point twice, but coming from different directions.

On a Möbius strip, you even get to *every* spot twice, but on different sides of the strip.

These are symbols for things that are both 1 and 2 at the same time, like also the Chinese Yin-Yang, which was in its origins related to the sunny and shadowy sides of a hill, which switch roles during a day. By the way, this image fuses also Aristotle's pairs of opposites dry/wet and hot/cold into one entity: The sunny side of the hill gets warmer and dryer than the shadowy side.

Any description of the world that claims to be complete has the problem of self-reference: It must be able to describe itself. Hence a theory of everything must combine two complementary views: subject-object and one world. This causes many logical problems, of which none has been really solved in the history of humanity.

So, why not concede that some things are inseparable and isolate them into a single concept, something like a Möbius strip ? And then use such *dual units* as elementary "particles" to build the world, like with lego bricks ?

Would such a separation of concerns be possible in principle, and, if yes, how exactly would you do it ?

leads

- Is mathematics the best tool for this or would a modified form of mathematics be better suited for the task?

  Take Hilbert's second problem, the question whether arithmetics is free of internal contradictions. As Gödel has shown, using also self-reference in the proof, it is not possible to prove so strictly *within* that system. Quite generally, mathematical statements about the internal consistency of mathematics itself can arguably not be trusted with absolute certainty. So there seem to be unsolvable fundamental questions in mathematics, too, hence something to *embed* before proceeding?

- The wave-particle duality in quantum mechanics comes maybe close to the proposed idea. A least in the original Copenhagen interpretation, the duality is considered a fundamental duality that can never be resolved, except for quantitative predictions in which experiments which aspect will show more.

- Spacially separated particles with correlated quantum states can depending on the experiment be considered to be individual particles or need to be treated as an entity, despite a possibly spacelike separation between measurements that allows no signals to travel in between.

- Since according to quantum field theory all elementary particles have come to be from elementary processes, like pair production, the world would in principle be filled with quantum mechanical correlations. Even though these would usually not be directly visible, they might even show in cases not covered by the statistical approach of decoherence.

- Virtual particles can depending on the observer be particle or corresponding antiparticle and 'fly' one way or the other.

- The image of a hill for Yin-Yang fuses Aristotle's fundamental opposites hot-cold and dry-wet into a single unity. Its sunny side gets warmer and dryer than the shadowy side.

- How about turning the circle of elements into a Möbius strip of elements?

  Using the association between elements and trigrams that I give under *ancient philosophy*, the male trigrams might form one circle and then switch in-out into a second circle of the female trigrams. Male fire, for example, which moves actively outside would be mirrored by a calm active inner flame, by female fire. Psychologically speaking, women are often good at preserving a wish, a dream of how things should be (fire), and wishing for men to realize them in the outer world (move outside, hence fire). Conversely, men seem to be less able to preserve such a dream, hence a mutual dependency between men and women would naturally emerge from this image...

leads

Besides the obvious hint to use higher math, here are some often much less formal leads.

- Søren Kierkegaard. *Repetition.* 1843.

  "[...] *Repetition* is a decisive expression for what was *"recollection"* to the Greeks. Like they taught that all cognition is recollection, so will the new philosophy teach that all of life is repetition. [...] Repetition and recollection are the same movement, only in opposite directions; because that what is remembered, has been, is repeated backwards, while repetition per se is a recollection in forward direction. Therefore repetition, if it is possible, makes a man happy, while recollection makes him unhappy, under the precondition that he gives himself time to live, and does not in the first hour after his birth devise a pretext for stealing himself out of life again, because, say, he forgot something." (translated by me from Hans Rochol's translation to German, Felix Meiner, 2000)

- William James Sidis. *The Animate and the Inanimate.* 1925.

  "[...] The behavior of drops of mercury on a smooth surface, consisting, we may suppose, partly of metal. These drops, in our universe, would roll around under the influence of any external forces that may happen to be present, unite if two happen to come together, and, in case they touch metal, the drop will shrink and partly amalgamate with the metal. In the [time reversed] universe, on the contrary, we have a different arrangement: the drops will roll around as before, but, in their rolling, will avoid the pure metal surfaces, but will tend to roll over the amalgam surfaces. When in contact with the amalgam, they will extract the mercury, and thus the drops will keep growing. When the drop grows in this manner to a large size, there will appear a constriction, and finally a division into two drops, each like the original. This action of ordinary mercury drops in the reverse universe corresponds in many details to the growth and division of living cells in our universe." (quoted from sidis.net)

  Ingenious observation—even though the apparent correlation of time reversal and flipping between animate and inanimate processes is scientifically rather a coincidence, since, while life locally creates order, thus *apparently* reducing entropy, in reality an equal or greater amount of entropy is simultaneously exported into the environment.

- The *lunar nodes* in astrology are a concept that is in many respects very similar to a Möbius strip, but in a way goes even beyond that. The nodes are often related to reincarnation, i.e. to another possible form of loops in life(s), and also to happiness in life, which reminds of Kierkegaard above.

- Most primary concepts in astrology are more or less related. Besides the nodes, maybe most directly retrograde Mercury and the element air.

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  Ingenious observation, even though—from a strictly scientific point of view—rather an illusion: Life creates order locally, but at the same time exports disorder into the environment, hence only *mimicking* inanimate processes in reverse order, since inanimate processes often visibly reduce order.

- The *lunar nodes* in astrology are a concept that is quite similar to a Möbius strip. The two nodes, physically the points were the lunar orbit crosses the ecliptic, are always on opposite spots in the zodiac. So they trade opposing attributes with time, reminding of Yin-Yang. The nodes are also associated with reincarnation, which is a form of loops in space and time, and with happiness in life, which remind both of Kierkegaard's considerations above.

- The concept of a Möbius strip is in a way so universal that practically all other concepts in astrology besides the nodes are somewhat related, too, but also none more than the other, except maybe Mercury, including its retrograde phases.

- The universality of the Möbius strip makes it in my experience a very helpful *tool* for learning to understand almost *any given thing* by trying to relate it associatively to the strip.

  Note that, since almost any thing relates to the strip, one is often tempted to think that one has also learned something *specific* about the strip, but that is usually not really so...

- Quantum mechanical correlations are 'both 1 and 2' in a way. Two elementary particles with correlated quantum states can, depending on the experiment, be considered as individual particles or must be treated as an inseparable entity. Assuming the whole universe has come to be from pair production of elementary particles, any local measurement has in principle an effect somewhere else in the universe. This raises the question if what we consider macroscopically to be separate spots in space is fundamentally really so far away. Maybe it is just current perceptions that are limited, not much better than in flat-earth-in-the-center-of-the-universe times.

- Werner Held. *Die 1 und die 2.* FU Berlin (2000).