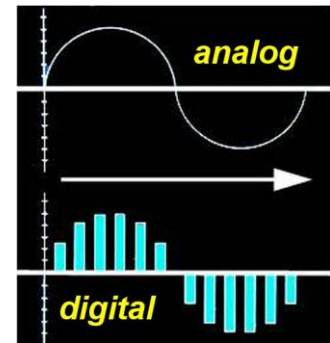


Analog and digital, fundamental complements

There is a rift between science and spirituality, between the tangible and rational and the irrational but heartfelt beliefs. A dichotomy that has held our Western world in a paradigmatic stranglehold that surely needs bridging. At least we should acknowledge that both are true and virtuous, a polarity rather than an opposition. The essential monad doesn't divide in good and bad, but in dialectic dichotomies like truth and love, where a synthesis reveals the true nature of the monad. Analog and digital are one of those dialectic sets.



For me, trained as a physicist and with a career in the digital coldness of the computer and communication industry, the challenge has always been to see what the digital would bring in terms of meaning; understanding what matters, what really makes a difference. 'A bit is only information if it bytes' was my motto; finding out what information really means was the challenge. And biting, changing, it means having an effect. In the real world however effects are analog, not digital like a bit, so understanding information also means looking at the processes that link the digital 'hard' data to the 'soft' results (especially in our psyche). Over time I realized that information, consciousness, chi, love and quantum collapse are only different notions of the same underlying connectivity. My focus became bridging the rift between digital and analog, honoring each as essential and in the same way cooperating as truth and love together showing the One

For awhile, I believed everything could be measured. I still think we (in science) haven't finished this effort. The analog, however, can NOT be measured exactly, merely approached by inadequate and subjective indicators. Beauty, justice, love, kin, our lives and reality are more than what a set of symbols like bits or words can render.

The difference between analog and digital is very fundamental, in a practical as well as in a social and philosophical context. The word digital comes from digitus (Latin for finger), as fingers are often used for discrete counting and pointing. These days most people think that digital means 0/1 binary coding, but the notion applies to all coding with a discrete and limited set. We are trained and programmed to live within limited sets of symbolic representations like bits, bytes, numbers and alphabets, all essentially digital. Using them requires following certain rules and that poses restrictions. As humans we can turn the symbols into analog renderings. Typing for instance is by nature digital, while speaking a text is analog, we can endlessly vary intonation and rhythm. Reading is digital and a linear, unidirectional experience, visuals offer an overview, non-linear and more complex than text. An image can not only replace a thousand words, but offers us a whole, a more holistic and analog opportunity. It can convey nuance, cohesion between parts of the picture, offers but not forces connections and intangible qualities. A digital text or webpage, with the hypertext possibilities, already expands beyond the printed text; becomes more analog, offers more options.



In the prevalent materialist perspective it feels that digital is the way to go. Digital is progress and analog is old fashioned, even out of date. There are of course clear advantages to using digital. In ICT technology the error reduction and elimination of noise quality of digital signals, while allowing compression, made modern computers and communication possible. Today we take this for granted in our world of internet, computers and media. Digital uses rules and discrete sets, where something is true or not; it means abandoning ambiguity. The truth reduced to yes or no answers.

The digital creeps upon us. Slowly all our media are digital; the most used tool these days to escape the analog is the smartphone. Texting is obviously digital. For many, clicking on their digital pocket-secretary replaces the analog medium of speech. We bow to the digital; Wikipedia is becoming the standard of collective human knowledge.

Analog refers to continuous, non discrete phenomena, something beyond rules, limits, naming and framing, concepts like love and beauty. Most things in nature are essentially analog. Operating in an increasingly digital world, we are moving away from the analog and holistic. We believe we will find truth in big data and ever more refined reductionist pixilation of reality.

If I try to list fundamental dichotomies (and already Plato pointed out they start in our psyche) it becomes clear that digital/analog resonates with many others. Digital means hard (discrete) steps, and thus rules to establish truth or lawfulness, security, rationality; it points at limiting but efficient things necessary for the group and coordination rather than for the individual.

The interdependence and not only opposition between analog and digital is like that between security and freedom. A most actual debate these days, and regrettable equally less understood. More security should not take away from freedom, the tamed and the wild horse should move in the same direction.

Digital efficiency

The digital age is not new. It started when God commissioned Adam to name all animals and birds (Genesis 2:19). Thus the process of 'Naming is framing' began. Applying a limited set of symbols or indicators like the names of the species is essentially digital, a good way to organize things, but it also restricts.

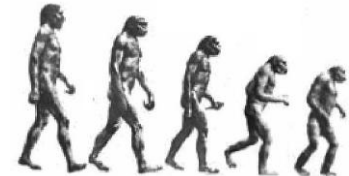
It's not all man-made. Nature also uses digital. On the most fundamental level, quantum states are a discrete, limited set.



DNA/RNA notation is essentially a digital copy system with 4 base-pairs and self-repairing codons, leading to just 20 amino-acids. Note that our gene-pool survived countless generations using this digital backbone of life. By the way the DNA is not the really active part, organisms as a whole direct what's happening.

The reproduction by way of digital coded genes is just part of the game. Epigenetic activators, in turn obeying impulses and controlled from some kind of field that also radiates and is influenced by biophotons. We identify the resulting biophotonic music as 'life' or the essential negentropic force of organisms. They are amazingly and beautifully synchronized to use (all of) the digital coded DNA in ways we barely understand.

The music however seems goal oriented, is very analog but thanks to the digital resilience has come back to a track that has led to the most flexible and adaptive kind of animal, we humans. For me, the similarities of embryo development, the neoteny of humans and DNA comparison with older lifeforms indicate that the human form is more fundamental than the form of primate big apes. I even hypothesize that the large apes we know are degenerated and re-specialized humans; humans are thus not evolved proto-apes. Evolution has direction and purpose. Using the digital DNA as both data-storage and an antenna for a teleological course seems one of evolution's tools. The digital complements the analog, not opposes it.



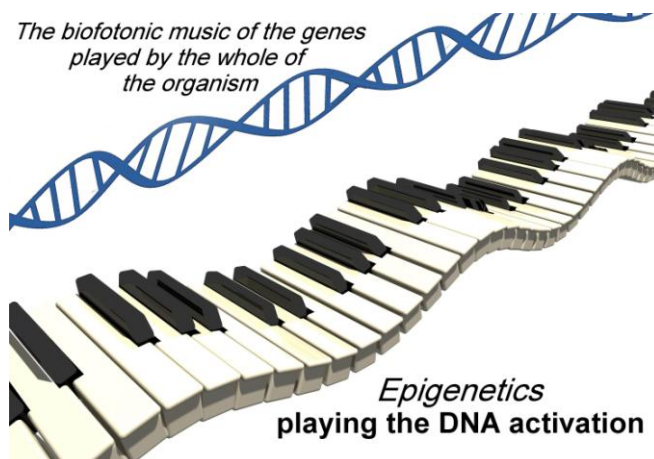
LEGO discrete building blocks with a digital identity

The digital essence of Lego

Deconstruction or reduction of a whole into standardized parts has obvious advantages. Neil Gershenfeld of MIT's Center for Bits and Atoms, who champions digital production and FabLabs, uses the example of Lego to illustrate how discrete and limited sets of components are effective, fast and error free. The Lego example also shows that while one can construct very

complex and self correcting structures with digital, achieving true (analog) beauty remains problematic.

Digital embraces the truth in science which is based on fact and evidence. It is more about



measuring, feedback, fast response and effectiveness, using clear rules and unambiguous definitions. Analog is about sharing, about common interest, about timeless sustenance and responsibility for values. It may be slower and more about feeling. Mistakes are more likely as there is less effective error reduction.

Digital is about borders, limited options, distinctions between you and me, your land, my land. Don't enter my territory! In war or

conflict, we can fight about (discrete) borders or rules, or try to look for analog (soft) solutions that serve both parties.

Both approaches have their points, but at the present time the paradigm leans towards digital, scientific truth, hard rules, bombing rather than engagement or negotiations. Rules are necessary, even in playing as children we need rules but then we are still free to make and adapt them. In a ritual the rules, roles and space are already more formal and limiting. The legal system grew out of game/play into ritual and into a code. While the Law is digital, Justice reflects analog.

Choices here have practical consequences. The Anglo-Saxon legal approach is more digital and has been more based on rules and rulings; American contracts stipulate each and every eventuality. What is not included in a clause is not part of the deal. This system is more digital than the Roman/Rhineland Legal system, where principles, fair play and a sense of due diligence are more prevalent.

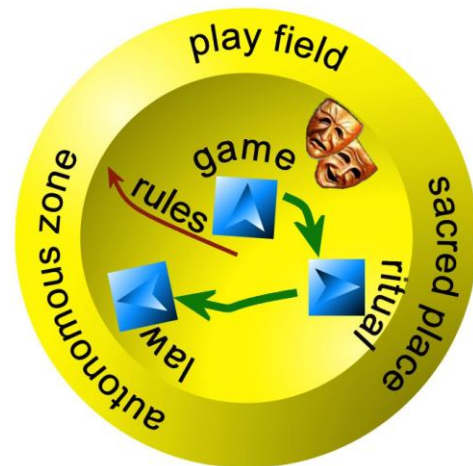
In religion we see a similar division. There are rule based and thus more digital religions which tend to stick to the book; the set of rules is fixed, no bending allowed. You are with us or against us! Truth cannot be compromised! Then there are the more lenient religions, where rules are less strict; belief, forgiveness and love are more prevalent. This distinction has deep roots. In essence this is about magical and anti-magical religions or such a distinction within the faith, like the Shia and the Sunni in Islam. The more analog religions cherish and honor the mystical, the intangible and timelessness over sticking to the rules. Some religious thinkers were typically digital reformers, doing away with the ritual. They steered back to the rules, the book and the rational.

Understanding the difference between rule-based digital and more flexible analog applies to many fields. In the medical field, the digital way is to use chemicals, surgery and 'hard' methods, while the spiritual, herbal and holistic approaches to healing herald more analog, focusing on restorative treatment.

By way of our emergent human self-consciousness we have become obsessed with fixed truth, inventions and individual recognition, trading in love and inter-connectedness. We started to live in larger cities and at the same time, developed individuality. Our language developed beyond the merely indicative. World culture moved toward a digital approach, with more rules and 'hard' truths while being less guided by principles, moral values, intuitions and undefined feelings. Increasingly we have placed our preference on the digital over analog; we send drones, no preacher men.

Causation and karma

This has also to do with ethics. For example, think about causality and time. The normally rational causality remains unidirectional, clock-time bound and strictly categorized as true or false, good or bad, a zero or a one, a rigid truth. The time-arrow of cause and effect governs whether result B follows from cause A or not. But what if time also can run backwards, then the result could also be the cause. In the oriental and much more analog concept of karma the notion of causation is less



games, rituals and the law evolve from each other and share specificity of roles, space, rules and timing

rigid. I see Karma as a fundamental balance mechanism in the wider reality that includes the intangible spiritual realm beyond time and space. Karma is like the overarching second law of thermodynamics, ruling the endless exchange and yet balance of entropy and negentropy.

Inverting (or escaping) the normal cause and effect relation offers us a way of defining magic. Magic defies the rational, and is by nature ambiguous. The result can become the cause, the correspondence goes both ways, we turn or disable the arrow of time and place. The so much more analog and unlimited magical is in many ways the opposite of rational but restricted truth.

In analog there are no absolute truths, fixed rules, or even errors. Everything flows, the symbolic merges with the presence, the goal with the path. Flexibility is the name of the game, freedom the direction of evolution. We move back to the unity and wholeness the Bible claims we lost by eating the apple. Adam and Eve were charged with the burden of self-consciousness, separating our selves, our assumed me's from whom we really are. We developed an ego, basically a set of inner rules and truths, to protect our vulnerable inner self, but in the process lost much of the flexibility and softness.

Obviously life is not a dichotomy, a one-sided game, it needs both sides. It is an ever emerging and unfolding experience! So let's try to bridge that gap this essay started with.

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