

Outsourcing Life

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Analogue and digital

One of the most mentioned differences between “analogue” and “digital” is that the former is continuous and the latter is discrete. But when comparing the magnification of an analogue and a digital photograph, none of them shows continuity but rather discontinuity. Both analogue and digital pictures show patterns of discrete, non-continuous configurations. The difference is that in an analogue photograph the form and size of the silver salt grains that codify and compose the image vary all along the photosensitive surface, while in the digital photograph the shape and size of the pixels are the same all over the picture’s surface. The distinction between “discrete” and “continuous” cannot be assumed as absolute in differentiating between analogue and digital, because it is a function of the magnification process: it depends on the scale and resolution at which the phenomenon is considered. This can be extended to a more general purpose: both analogue and digital are discontinuous, discrete, the difference is that digital is “discrete regular” and analogue is “discrete chaotic” or “discrete unordered”.

The living

The living can be emulated by increasingly powerful, complex and autonomous devices and machines, since it is the best model when making artifacts that have to survive to damages and errors, be able to self-repair, autonomously work in the environment and adapt to it, interact with unexpected situations and hitches, like the living normally does. The living is the best model because it has demonstrated its efficiency in the last four billions years of evolution, it already has experience of the world.

In the last decades, thanks to the biological disciplines, genetics and related technologies, it has become possible to modify existing organisms and create new ones, in a process that through selection and breeding has been running since the dawn of humanity. Scientific and technological evolution seems leading to an extension of the idea of life, from the organic ecosystem to a landscape with very different subjects, organic, inorganic and mixed. Some of them are really here, some others are just promised, but they seem to identify a clear direction. Examples are: inorganic immaterial entities from Artificial Intelligence, Artificial Life, autonomous agents and algorithms; inorganic material entities, such as increasingly sophisticated machines, devices and robots; artificial and expanded organisms obtained by creating, cloning and modifying natural subjects through synthetic life; artificial organisms newly created through Synthetic Biology and Genetics; hybrid entities that combine organic and inorganic elements, as in the field of bio-robotics; while de-extinction promises to revive extinct organisms.

The Third Life and the externalization process

Humans have always been inspired by the living, trying to represent, simulate and emulate it. Gods and heroes are present in religion and mythology, and then unicorns, dragons, centaurs, chimeras, cyclopes, sirens... Many heroes, characters and antique legendary creatures are still living in the contemporary human imaginary and in today's movies and narratives. We have been copying life and Nature's appearance and behavior in images, design, architecture, tools, devices, machines. In parallel, since prehistory, humanity has been really creating new life forms selecting and hybridizing animal and vegetal species, until today's varieties that would have likely never evolved outside the human culture. The thrust of creating real life-like entities has been pervading the whole human history worldwide, from machines and automata to robots and biological organisms. Sciences and technologies are expanding the boundaries of life and evolution. Many artefacts, devices and machines are becoming increasingly powerful and autonomous, presenting behaviours that are similar to the living. In the laboratories scientific research can modify the existing organisms and create new ones that would have never evolved. We are witnessing the extension of life to a complex scenery with organic, inorganic and mixed living forms. A "Third Life" originating from the human culture that expands Nature from within its own domain. "Third Life" being the "First Life" the biological life and the "Second Life" the life in the symbolic dimension. The more the anthropic sphere expands and develops, the more the Third Life will proliferate and evolve.

This process is perfectly consistent with the progressive externalization outside the body of human functions and activities. In the beginning, with tools and weapons, of body parts; then, with pictures and writings, of knowledge and memory; then, with machines and more or less automatic devices, of activities and labour; and recently, with Artificial Intelligence, Robotics, Artificial Life, algorithms, of some narrow reasoning and autonomous action. If this trend goes on in the future, more and more human activities will be externalized, and the outcomes of human culture will become increasingly independent, evolving, as noted above, into Third Life. Transdisciplinarity, complexity and awareness are at the basis of imagining, participating and designing in such an evolution.

Nature, life and the arts

In the arts which deal with Nature and life it is possible to identify three main operating functions. More than independent, alternative and unrelated art states, they should be considered as constituting a bunch of functions, that can coexist and cooperate, similarly to the functions that Roman Jakobson developed in the field of linguistics. In the first operating function, that from the prehistoric body paintings arrives to today's art, fashion and design, Nature and life are being represented as *formal simulations*. This is, for instance in traditional painting and sculpture, in simulations like photography and related techniques, and in the many computer-based simulations. The second art function Nature and life appear as *behavioral simulations*, like for instance in some algorithmic applications, in the generative arts, in Robotics, Artificial Intelligence and Artificial Life based arts. In the third operating function, Nature and life can *constitute themselves the matter and the processes* of the artwork, that becomes a complex living construct, that often mixes organic and inorganic elements.