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ART AS CREATIVE COMMUNICATION

The traditional picture of a communication act implies an information transmitter, an information receiver, and a transmission channel possibly subject to external noise (Fig. 1). An internal state of the transmitter may influence the parameters of the signal that can be detected by the receiver and decoded in such a way that the resulting internal representation in the receiver would be isomorphic, in certain respect, to the original source states. To allow quantitative analysis, it is usually assumed that the content of the message can be completely reflected in the statistical characteristics of the signal, so that the quantity of information received can be identified with the *negentropy* of the signal. Thus defined quantity of information can only decrease in the communication channel because of the noise and various decoherence processes, and hence the best the receiver can manage is to get as much information as it has been sent by the transmitter.

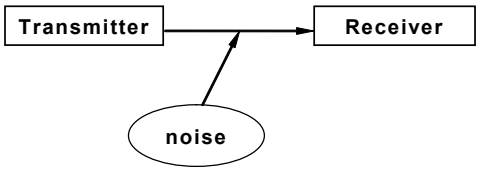

Figure 1. Passive communication.

This description only refers to what could be called *passive* communication; however, there are cases when a communication act may deliver more information to the receiver than it was originally "intended"—almost all of the human communication can be shown to possess this quality. In the present work, I conjecture that the principal mechanism of art is *creative communication*, introducing new information into the message, beyond its original content. This can only be possible due to the indirect interaction of the source and destination of information via a common cultural environment, so that every single communication act (including self-communication) must be considered in a broader context as a part of a global social process.

The passive-communication model is syncretic in the sense that the message is supposed to be indistinguishable from mere interaction, dynamically mapping the states (processes) of the source into the states (processes) of the receiver. Merely introducing the stages of encoding and decoding, one would break this syncretism and observe that the parameters of signal do not necessarily reflect the content of the message, becoming just a *hint* for the receiver to reproduce the full message in the decoding process. Thus, reading the words "She walks", one may recall the whole text of the famous Byron's poem, or even the *Hebrew melodies* in full. This kind of communication could be called *elliptic* (Fig. 2), and it is widely used in digital technologies today. The basic mechanism of elliptic communication is *association*, while the correct decoding of the message depends on the existence of a collection of *encoding schemes* in common for both the sender and addressee of the message. In fact, the very procedure of digitalisation implies the convention that any signal will be composed of only two distinct "characters" (conventionally designated by "0" and "1"), and all the variations of the parameters of (actually analogue) signal within the zone should not be treated as different values by the decoder. As a result, the content of the message (that is, information conveyed) may remain intact even if the signal's entropy significantly increased in the transmission channel because of the noise.

From the viewpoint of the traditional communication theory, elliptic communication is characterised by rather high *redundancy* of the content of the message, so that it could be encoded in a

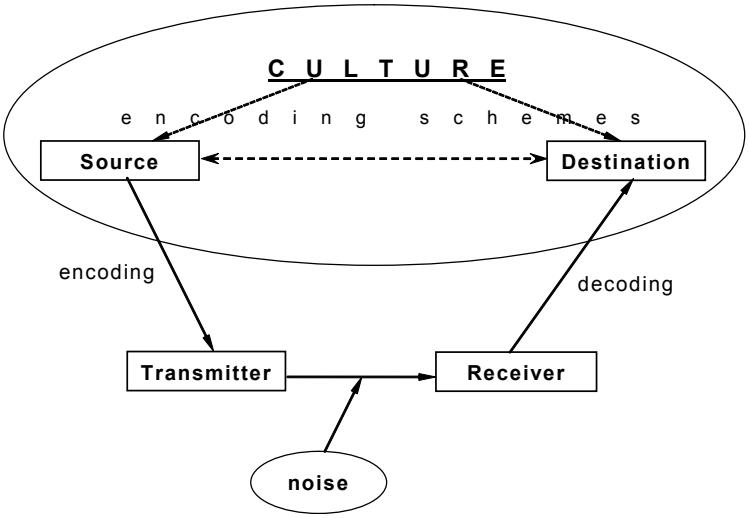

Figure 2. The scheme of elliptic communication.

more compact way, *compressed*. Various compression schemes based on the structure and statistical properties of the message are quite popular in modern computing; however, they (except "lossy" compression like in the JPEG/MPEG format) are different from the elliptic compression described above in that any ellipsis requires extensive communication of both the sender and the receiver with their common environment, ensuring the commonality of encoding schemes. There are two principal mechanisms of establishing such a commonality: meta-communication and correlation. Meta-communication assumes communicating encoding schemes (e.g. encoding/decoding procedures) directly from one person to another prior to data transfer; however, this requires a rather high degree of formalisation, unachievable in many real cases. Much of conceptual commonality gets established indirectly, through similar education in similar cultural environment (Fig. 2).

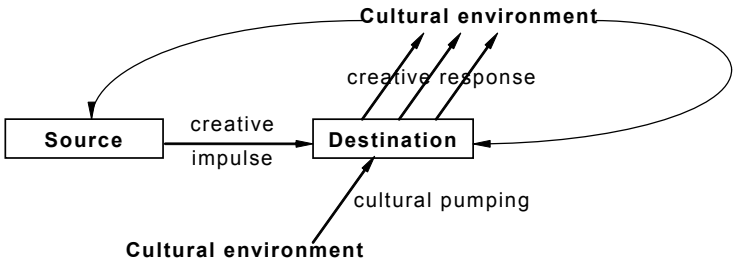

Figure 3. Generation of additional information in creative communication.

When speaking of art, it is not enough to consider passive and elliptic communication only, since the functioning of art can never be reduced to conveying some already existing information, involving an act of co-creation uniting the author of a work of art and its observer. A work of art may be perceived in a way never intended by its author, whose self-awareness may become enriched via regarding the observer's interpretations [1]. Though usually folded, such a co-creation is an indispensable part of aesthetic perception, and there can be no art without the participation of the observer. This level of communication, when the signal received initiates the generation of essentially new information, could be called *creative communication*, being one of the fundamental characteristics of art (Fig. 3).

In the act of creative communication, the possibility of generating new information as a response to the signal received implies the receiver's ability to generate this information on its own, independently of the sender of the signal. However, that particular kind of information would never be generated without certain signals from outside, and the whole process must be triggered by communication. The behaviour of the receiver of the signal is not mere reaction; rather, the external signal just stimulates one's own activity, which, however, would never be as productive without the impulses from the others.

The natural analogue of creative communication is the functioning of lasers, where the power of pumping gets synchronised by a weak driving signal, producing a powerful beam of coherent radiation. The system composed of the author and observer of a work of art could hence be called an "information laser". Another physical analogy is resonant ionisation, with the autoionising states of the target drastically changing the behaviour of cross sections in the resonance region—however, autoionising states cannot exist on themselves, irrespective to any scattering process [2].

The properties of creative communication can be immediately deduced from its notion. Thus, unlike passive and elliptic communication, there is no direct correspondence of the information produced in the receiver by the signal to that originally encoded in it by the sender the message, and creative reactions are not unique. The subjectivity of aesthetic perception is a well-known feature in the arts. However, such stimulated creativity is not entirely arbitrary, being well determined by the place of the person in the cultural environment. This enables the author of a composition to control the perception of the observer to certain extent, correlating the structures restored by the observer with the author's intention [3].

The cultural dependence of creative communication implies the relativity of the aesthetic content of the work of art and its historical development, together with the development of culture. Within the same society, different people will differently react to the same work of art, up to the situation when some social layers do not recognise the thing as a work of art at all, since it has nothing in common with their cultural position. Electric shaver would be useless in a village where nobody has ever heard about electricity—in the same way, a work of art may have no resonance in the souls of people with certain cultural background, so that a European cannot appreciate the art of a Chinese calligrapher without special training.

One more corollary is that, in creative communication, the content of the message is not necessarily related to uncertainty and entropy, being relatively insensitive to the way of communicating the information from the source to the receiver. It is only under certain conditions that the signal's entropy may be related to information; this would mean that the content of the message itself was related to the statistical properties of an external object. The usual formulae of the mathematical theory of information do not directly apply to creative communication. Still, since all the levels of communication are always present in every single communication act, there interfere with each other and influence each other's development. The adequate application of the theoretic-informational notions in aesthetics would describe this multilevel nature within the same conceptual frame. For instance, in the model of scale formation suggested in [4], the consideration of low-level passive communication provides an information measure of the perceptive compatibility of musical tones, which leads to the zone structures that can be associated with musical scales, so that every tone within the zone would be interpreted as the same degree of the scale (the level of elliptic communication); on a higher level, the notion of pitch context is naturally introduced, and the aesthetic perception of the tone implies multiple relations to a hierarchy of interacting scales.

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