

The difficulties of Biocommunication

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Communicating modern biotechnologies is certainly no easy task. To tackle such a complex and future-oriented assignment, help may arrive, paradoxically, from the past, from ancient rhetorical tradition, and in particular from Aristotle, the most renowned rhetoric teacher of all time. In his *Rhetoric*, Aristotle suggested that to be persuasive speakers should make use of widely accepted opinions (*endoxa*), i.e. the common sense shared by all. Common sense is expressed in common truths and value-laden maxims. Common sense, however, is not flat but dialectical, in that it includes contrasting subjects. While reasoning, orators do not just passively report a conception of an unchanging world, but they reproduce the contrasting conceptions included in common sense. In the case of the debate about Biotechnologies, the contrasting conceptions can be found in the Natural/Artificial dualism, in the dichotomy between an attitude marked by obscurantism and suspicion of scientific and technological innovation and that of a scientific attitude

Communicating modern biotechnologies is certainly no easy task. A teeming jungle of fears, perplexities and, at the same time, hopes and expectations renders the task of “biocommunicators” an unprecedented challenge, requiring profound knowledge of the public perception of this new technological revolution (cf. Cerroni 2002).

To tackle such a complex and future-oriented task, help may arrive, seemingly paradoxically, from the past, from the philosophical tradition of ancient Greece, from the very origins of European culture. There is now widespread awareness that tradition cannot and must not remain relegated to historical and philological analysis per se; tradition must also be “re-owned”, one must learn how to rediscover it and reinterpret it from a contemporary point of view.

Ancient Greece, the cradle of Western civilisation, was also the place which first saw the clear emergence of the autonomy and independence of the sphere of communication, and where communication, seen mainly as dialogue, became the object of a specific discipline, handed down to us in the name of rhetoric.

Although the first rhetoricians were Empedocles, Corax and Tisias, followed by the Sophists, Aristotle is certainly the most renowned rhetoric scholar and teacher of all time. In his *Rhetoric*, he suggested that to be effective and persuasive speakers should make use of widely accepted opinions (*endoxa*), i.e. the common sense shared by all.

Common sense is expressed in common truths and maxims, with strong references to values. Common sense, however, is not flat and formless but dialectical, “dilemmatic” – as pointed out by Billig (1995) – in that it includes contrasting subjects.

While reasoning, orators do not just passively report a monolithic conception of an unchanging world, but they reproduce the contrasting conceptions included in common sense. Speakers should exploit one of these conceptions to be convincing. Rhetoric manuals cite the example of judicial oratory: the defence was suggested to utilise clemency, while the prosecution could resort to justice and rigour. So, the defence could say “clemency is necessary, clemency reveals magnanimity, etc.”, and the prosecution would object with a speech based on the idea that “rigour is indispensable, as it is imposed by the sense of justice”.

These “ideological” maxims can consequently be seen in contrast: justice *vs.* clemency, courage *vs.* prudence, and so on. Aristotle himself showed, in *Topica*, that the strategies of thought are shaped in polar opposites each being a mirrored negation of the other.

This “rhetorical” approach to what is defined as communication in modern terms is, to my mind, fundamental, in that it fits in the concreteness of general discourse, shedding light on the nature of public opinion. In championing and justifying beliefs and attitudes for themselves and others, individuals do not limit themselves to

replicate inherited prejudgements passively and without reflection, as if they were information processing rules (according to the dictates of a certain area of cognitivist-computational psychology; cf. Billig 1991: 54). As a matter of fact, individuals inevitably argue, discuss or at least their attitudes implicitly reveal the embryos of discussions that could potentially evolve into critical arguments: “People (the ‘subject’ of ideology) are no blind puppets, whose minds have been filled through external pressures, nor do they react without reflecting; the subject of ideology is a rhetorical being that thinks about it and discusses it” (Billig 1991: 4).

Attitudes and beliefs are, after all, always connected to a debate and, in the final analysis, are always “viewpoints taken in contexts of controversy” (Billig 1991: 76). An attitude in favour of a certain stance is never an isolated phenomenon: considered in its “polemical” dimension, it entails a reference to an opposite viewpoint, of which it is the negation. To fully understand any stance, therefore, the opposite viewpoint needs to be considered, even if this is only a potential one.

In the case of the debate about Biotechnologies, the two contrasting conceptions can be found in the dualism *Natural/Artificial*, that is, in the dichotomy between an attitude marked by obscurantism, biased against scientific and technological innovation and that of an attitude based on reductionism and scientism.

The anti-scientific attitude prevails in Italy, a country known to be steeped in an idealistic cultural tradition, and is widely felt amongst the intellectuals and liberals.

This attitude avails itself of rhetorical strategies founded on the belief in a good and generous Nature (cf. Cerroni 2002 and Cerroni et al. 2002) and turns on the ancient myth of the Mother Earth Goddess. It is a kind of *intuitive cosmology* of an organicistic type, which considers nature an animal organism.

This would explain the great communicative success of the “Gaia hypothesis” (after the name of the ancient Earth Goddess, worshipped as a supreme deity in pre-Hellenic Greece). This hypothesis holds that the biosphere, the atmosphere and the soil of the Earth make up one living organism, like a complex dynamic system, whose purpose is to guarantee an optimal chemical and physical environment to sustain life on the planet¹.

¹ Lovelock J.E. (2000): *Gaia: A New Look at Life on Earth*. Oxford University Press.

This organicistic and finalistic conception is revived in environmentalist fundamentalism, and has been re-proposed to the general public through the “New Age”. The sacred organicistic vision is seriously threatened by science and technology, and even more by biotechnologies, which modify the “whole” in the most intimate aspect of the living organism. Such a threat must be countered at any cost. Advertising communication has drawn plentifully on this rhetoric in the past, by proposing genuine, “natural” products. Owing to the threat of genetically modified products, today, advertisements are following this trend, by bombarding the public with messages linked to “organic products”.

The organicistic conception, as pointed out by geneticist Richard Lewontin, is a pre-modern holistic stance, revived as a reaction to the uneasiness felt before the modern world, and to the “discomfort of civilisation” that Freud analysed in a well-known essay of the late Twenties:

“For those who are dissatisfied with the modern world and have an aversion to the artefacts of science, pollution, noise, industry, hypermechanical medical treatment [...], for the people who want to get back to nature and to the good old times, the reaction has been a return to a description of the world as an inextricable whole are wrecking through dissection. For them, trying to break down something is pointless, because the essence is unavoidably lost, and the best thing to do is to treat the world holistically” (Lewontin 1993).

Consequently, the widespread sense of discomfort towards modern biotechnologies should not be surprising. The very term “biotechnologies”, as noted by Cerroni (2002), really looks like an oxymoron: as *bio* it obviously refers to nature and to the living world in particular, as *techne* it recalls human intervention and the uncalled for and “contrived” interference with the “pre-established harmony” of the natural world.

Jeremy Rifkin, in his popular *The Biotech Century* (1998: 67-72), underlines this dichotomy and goes so far as to define the new approach to nature that is implicit in biotechnologies as “algeny”, a kind of modern alchemy striving to modify the very essence of a living creature for human needs.

The other attitude turns on scientism and reductionism. It is still pretty popular, in the scientific community and with the public, despite numerous critical stances.

From a rhetorical point of view, this attitude is based on a totally obsolete and ingenuous positivistic faith; and yet it is still more or less unconsciously alive in the

minds of certain scientists². Science and technology tend to be assigned the absolute power to mould and reshape nature according to human needs. The founding ontological-metaphysical conception is that nature is “nothing but” (cf. Rose 2001: 339) the aggregation of its elementary components, i.e. nuclear particles, or the DNA molecules in living beings:

“The ideology of modern science, including modern biology, sees in the atom or in the individual the causal source of the properties of larger collections. It has established a way to study the world, segmenting it into individual pieces that are its cause, and studying the properties of those isolated pieces” (Lewontin 1993: 12).

As for biology, this view has undeniably been reinforced over the past few years, owing to the extraordinary progress both in the study of genes and of the brain. The Human Genome Project on the one hand (which has recently completed the sequencing of all human genes) and the “Brain Decade”³ of the neurosciences on the other, have not only led to an incredible advance in the understanding of human organisms, but they have also foreshadowed a growing technological power capable of manipulating our genes and our minds. The result of this was what Steven Rose (2001: 313-343) has defined “neurogenetic determinism”, meaning that the real causes of all human behaviour lie in the structure of the brain and of the neurons, in biochemical phenomena or in the gene pool of an individual:

“There are genes with which we can explain every single aspect of our lives, from personal success to existential despair: genes for health and illness, for crime, for violence and for ‘anomalous’ sexual preferences, even genes for ‘compulsive shopping’” (Rose 2001: 7).

To conclude, at the foundation of this reductionist, and paradoxically, even anti-scientific, attitude lies a “miracle-based” conception of science and technology. This conception consists in the belief that “scientists and technologists are almighty and endowed with the almost magical power to quickly transform the world and humanity” (Buiatti 2001: 95). Nacci (2000) notes that the great twentieth-century intellectuals had basically disassociated themselves from the “technique”, though at times they had found it extremely positive. Rarely could they “conceive it realistically: they

² Although logical neo-positivism has been notoriously declining for decades, it still “sets the criteria with which many scientists [...] avail themselves when defining the field of action of good science” (Bechtel W. 1988: 84).

³ The last decade of the 20th century has been labelled “Brain Decade” in America and Europe.

considered technique a demiurge capable of anything, in any place and at any time” (Nacci 2000: 3).

Valid scientific communication should expose the limits of both ideologies, their rhetorical stratagems and their distorted conception of the natural world, which hinders a full appraisal of its wonderful richness and complexity:

“Both ideologies, one reflecting a social world that is feudal and pre-modern, the other based on a modern, competitive, individualist and industrial conception, do not allow us to see all the richness of the interactions present in nature. By way of conclusion, they prevent us from fully understanding nature and from solving the problems science is supposed to apply itself to” (Lewontin 1993: 15).

The creation of “a third way” (Lewontin 1993: 15) unavoidably constitutes the arduous but exciting task that scientists and communicators should undertake in the future.

*Translated by **Matteo Cais**, Scuola Superiore di Lingue Moderne per Interpreti e Traduttori, Trieste, Italy.*

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