Abstraction and the Economy

Talk given at the celebration meeting for the 12th anniversary of **Filosofia sui Navigli**, centered on the topic *La crisi: il contributo della filosofia per uscire dalla crisi*

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Abstraction

What can we learn from the present ecological, economic, social crisis?
I believe we need to revise some deep assumptions which are constitutive of our Western culture and through the process of globalization have become part of our world culture. We need to think in a new way, a new way that actually recovers (on a new level) a very old way.

That our present way of thinking is taking us straight towards a global catastrophe is becoming more evident every day. The notion of unlimited growth on a finite planet is an obvious contradiction. But that contradiction, that hubris, is deeply rooted in our culture, and in order to change it we need to go deep into some of the basic assumptions that have constituted our world view in the last three or four centuries.

The religion of our times, the dominant myth, the new cosmological story is the scientific world view. It is therefore crucially important to understand the basic premises of that view, its essential nature, which is simultaneously the source of its power and of its limitations.

The root of both the power and the blindness of science is the process of abstraction which lies at the base of the scientific enterprise. This is worth clarifying a bit.

The infinite complexity, the infinite qualitative nuances of lived experience are not amenable to scientific study. An essential requirement for something to be the object of scientific study is that the phenomenon at hand be repeatable: that what I observe here today, e.g., may be reproduced tomorrow by somebody else in Tokyo, and that our observations may be compared and analyzed in unequivocal common language.

But in reality nothing is ever truly repeatable. What may be repeated is only an abstract skeleton of our total lived experience. Out of the totality of the present I select a set of measurable quantities which can indeed be reproduced by another scientist in another space and time. The tentative assumption in any such selection is of course that it should be sufficient to predict some significant consequences - in other words that, although infinitely poorer than the totality out of which it has been abstracted, it is still potent enough to yield some valuable prediction. If that's the case, I am on my way to discovering a naural law.

Prediction means power: by preparing a given set of causes I have the power to bring about a given effect. The practical application of this power is called technology, and that's the force that is shaping our contemporary reality. That is the tremendous seduction of science: that it confers the power of predicting and shaping the future.

Blinded by its dazzling seductive power, we forget about the process of abstraction that lies at its base. The abstract model we have built suddenly becomes more real in our eyes than reality itself. The abstract skeleton more real than the living body.

But this forgetfulness is a tragedy. It is selling our soul to the devil. Because only in the totality of lived experience we find the emotional, esthetic, moral, spiritual qualities that can orient our actions. When the contact with those qualities is lost, our actions, however technically well informed, are blind.

That, I believe, is the root cause of our present collective wanton behavior towards nature and towards our fellow human beings. And in no field this distorted predominance of an abstraction over the concrete totality of human experience is more evident than in the sphere of the economy. The supreme abstraction here is called money.

Money

What is this elusive thing we call money that takes such a large role in our lives? A supreme abstraction, which is supposed to be the general measurement of all energy exchanges. It used to have the appearance of a thing when its concrete embodiment was metal. But even then its "thingness" was rather superficial: Roman emperors quickly discovered that coins can be "shaved", saving on the metal while keeping the nominal worth of the coin unchanged. In modern times the "metal embodiment" of money has been represented by the gold standard, the claimed convertibility of money into gold. But that also is long gone.

Today the circulation of money on the globe is estimated at four trillion dollars a day. This does not include the circulation of derivatives ("futures" etc.), which is estimated to be considerably larger (maybe 50 to 100 times). 2% of these four trillions correspond to actual buying and selling of goods and services. 98% of it is purely speculative, not anchored in any real exchange. That such a situation is intrinsically volatile and unstable is only too obvious.

According to modern monetary theory, the nature of money is that of a credit-debt document. But human societies have always been built on cooperation and exchange. In ancient gift economies, custom would in some measure regulate the exchange of gifts. The credit-debt balance was then something quite concrete and tangible, shaped by personal relationships with all their nuances. Money with its abstract measurability has replaced all that relational complexity and has rendered exchanges

much more rapid and efficient. (Efficiency is a god of our new economic religion. But in a complex system efficiency is only achieved at the cost of resilience. I will return to that.)

The paradox of our modern economy is that this useful tool, money, has taken on a life of its own. It governs our own lives and has its own impact on the ecology of the planet. Three characteristics of its dynamic are crucial in this respect:

- a tendency to exponential growth of all economic activities
- a tendency towards concentration of money in the hands of a few
- the system instability (recurring crises)

Exponential growth - Money, as the universal exchange medium, is desirable and therefore it can be offered at an interest. Thus money creates more money, and more money creates more more money, etc. This creates both the medium and the expectation of an ever increasing production of goods.

Concentration of wealth - Owning a lot of money gives you a better chance of acquiring more money than if you had just a little. This not only through the straightforward mechanism of compound interest, but much more significantly, at the scale of multinational corporations, through being able to shape the playing field of your financial or economic activity (controlling information media, lobbying, bribing, etc.). This being so, as long as the rules of the game do not change, the final result is inevitably the concentration of wealth in the hands of a few big institutions and the people who control them.

Recurring crises - In a complex system reducing the interactions to a more limited, standardized form may make the system more efficient (in terms of throughput of energy), but it makes it also more brittle, while a more complex and redundant web of interactions decreases the efficiency, but increases resilience. E.g., a rich and varied ecosystem, with many interacting feeding cycles, will much more easily recover after a shock than one in which, e.g., a single prey-predator loop is present. The present economic system, with one exchange medium increasingly concentrated in the hands of a few actors, and increasingly disconnected from the complex network of actual goods and services exchange, is a highly unstable one.

The consequences of these three effects are far reaching.

Exponential growth on a finite planet means we are on a collision course with mother earth supporting us. We are depleting her resources and destroying what supports our own life and that of all our fellow creatures. Eventually we may end up destroying ourselves.

The most serious consequence of concentration of wealth is not necessarily the impoverishment of the masses, which may or may not go with it. A conceivable

scenario (at least in the short or medium term, before the depletion of resources and deterioration of the environment goes too far) is one in which the economic condition of the poor majority remains stable or marginally improves while the rich minority becomes enormously rich, i.e. the gap between rich and poor correspondingly increases. But even this relatively optimistic version of the future is not a desirable scenario. It creates two races of people and spells the end of the dream of democracy.

Democracy is a relatively late invention in the evolution of humankind, and a fragile one. It may well be that it is a passing phase in our history, having flourished, under favorable circumstances, in a few parts of the globe for a brief period of two or three hundred years. If the present trend towards the concentration of wealth - and correspondingly of power - is not checked or reversed, the prognose for the future of democracy is not very favorable. There is no real democracy when public opinion is shaped by the media, and these are controlled by money.

This is already largely the case. Political campaigns coincide more and more with image building through the media. Political image is skillfully crafted by specialists and can be bought just like any other merchandise. In fact, the cost of presidential campaigns in the US has increased a hundredfold over the past fifty years. The Kennedy and Nixon presidential campaigns in 1960 costed about ten million dollars. The Obama and McCain campaigns in 2008 costed one billion dollars. And in both these cases the highest investor was the winner. Similarly, in the French presidential elections of May 2012 Hollande invested more than Sarkozy.

Finally, recurring crises: while by no means the most dramatic of these three effects, are still causing tremendous suffering to many, especially among the poor. Interestingly enough, are probably the one point conventional economists are most prone to pay attention to. While they may tend to view the ecological catastrophe and the demise of democracy as somewhat beyond their territory, recurring crises are smack in their department, are a symptom of some serious malaise in the system, which would be their task to diagnose and cure.

Entropy, order and the economy

The physical notion of entropy suggests an interesting overall perspective on the phenomena just described. Entropy is usually described in heuristic terms as a measure of "disorder", but we should be aware that what physics calls disorder is not necessarily the same thing we mean in our everyday use of the word. The second law of thermodynamics states that in an isolated system, a system left to itself without interaction with its surroundings, entropy always grows. In other words things move sponaneously towards disorder. Only a very special interaction of a system with its environment can produce a decrease of entropy, a higher level of order in the system, and this is always accompanied by a corresponding (actually bigger) increase of entropy in the surroundings. Life is the stupendous example of such a countercurrent in the cosmic river of increasing entropy. The growth of a living organism is a

process of creation of order, and therefore lower entropy, in the organism itself. But that is necessarily correlated with the creation of disorder in the environment. Life feeds on life: we destroy living organisms to sustain our life and change our environment in one thousand other entropy increasing ways.

But life holds on to a precious balance of order and disorder. It is not a hundred percent orderly, hundred percent efficient, because that would make it very fragile. Its resilience is based on a large duplication of processes: nature finds many ways of reaching the same goals. A wonderful example is our brain: when some neural connections are damaged or lost, the brain starts recovering the corresponding functions along different paths. So life actually rides a thin ridge between order and disorder, between predictability and complexity. When things deviate from that ridge, life is impossible. When things are too orderly, too predictable, we are in the realm of billiard balls, not of living things. But also when things are too chaotic, e.g. in the heart of our sun, life is impossible. We are a perfect mix of order and disorder.

When we look at the economy in that perspective, we realize that modern capitalist economy replaces the variety and complexity of exchanges of a "natural" economy with increasingly standardized and concentrate processes. The resources accumulate in a few power centers and the landscape of commercial centers becomes identical all over the world. Food is sold in supermarkets belonging to a few major chains in identical conditions, uniform quality, identical packaging. Industrial agriculture, characterized by monoculture over vast extensions, mechanized processes and intensive chemical interventions, transforms the land from mother of all life forms into a production factor. The capitalist economy appears to be forcing order on nature in a way that goes way beyond the natural processes of life. In the language of entropy, it forces a decrease of entropy in one specific dimension of human relationships, that of monetary exchanges and the production of goods, at the cost of a much larger increase of entropy, i.e. disorder, in all other dimensions that constitute the surroundings of economic exchanges, namely the larger set of human interactions and the natural environment proper.

The implication of this (admittedly heuristic) argument is clear: the efficiency brought to the marketplace by the capitalist economy has a high price in terms of its disruption of society and nature. We should take it as a warning about the dangers of abstraction. A more and more abstract economy causes very concrete damage to the global context of life of which the economy is a part. The more simplified, standardized, concentrated is the economy, the more chaos it pours out into the surrounding systems (society and environment). A return to more localized, smaller scale enterprises and to more diversified exchanges is needed if we want to avert the global catastrophe we are heading to. E.F. Schumacher in the '70s had already pointed the way with his "Small is Beautiful: Economics as if People Mattered".

Local and global action

In many ways countercurrents to the present dominant economic trends are already visible and they all move in the direction of decentralizing, diversifying, recovering the human dimension of the marketplace, working with nature rather than subduing nature, valuing the small, valuing quality over quantity, etc. An interesting experiment taking many different forms is the creation of alternative currencies: a town, a region, a community may decide to print their own money, breaking the monopoly of central banks on the creation of money. The way this local money is shaped and the way it is used may serve specific community supporting goals. E.g., it may favor local exchanges over carbon costly and community disruptive global imports; it may have a "negative interest" (money devalues in time if you hold on to it) discouraging accumulation and favoring its pure medium of exchange function, etc. Another interesting phenomenon spreading like wildfire are the consumer associations establishing a direct link with local food producers, especially organic farmers, small farmers applying traditional eco-friendly methods of cultivation, etc. These are win-win situations: consumers get better food at reasonable prices, producers get much better value for their work.

All these are auspicious beginnings: we are beginning to think differently, we are beginning to break free from the powerful spell of abstraction. But we need to be realist: these changes still involve a small minority of the world population. At the same time the global capitalist machine is running its course at breakneck speed, devastating society and nature on a planetary scale. Some intervention at the global level is necessary if we want to have time for consciousness to evolve, for new forms of thought to take roots.

I say at the global level, because it is becoming increasingly clear that national governments are impotent when confronted with the power of international finance. E.g., imposing a substantial tax on speculative transactions would greatly help to bring the economy closer to its real function, that of facilitating value exchanges, buying and selling goods and services. Why no government is daring to take such an obvious measure? One reason may be the power of money to actively influence the political process. But no less important may be a form of passive influence: capital simply moves away from places that penalize it and goes to places that offer it the best conditions. Controlling the world-wide power of international finance requires world-wide political decisions. Unfortunately we are still far from such a level of global political collaboration. The weakness of political organizations like the United Nations has its counterpart in the strength of monetary organizations that uphold the interests of international finance, like the World Bank and the International Monetary Fund. The big challenge of our times is that we need to work simultaneously at the very local and at the very global level. The old politics of national governments is obsolete, it is fast becoming a mere façade.