SCARCITY AND ADAPTIVE BEHAVIOR

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Abstract

The scarcity is one of the fundamental features of life in the universe. The resources for survival were, are and always will be scarce. Therefore, all creatures had to adapt to this situation. The fundamental purpose of this article is to demonstrate that over time all living organisms went through a severe and selective adaptation to the rarity. The main tool for fighting rarity was the adoption of the economic behavior. This type of behavior is widespread in the animal world. The long process of natural selection and the survival instinct had made possible that all creatures possess the ability to adapt to the limited amount of resources. In the absence of developed intelligence, the animals have adopted a conduct adaptate to scarcity by a ritualized behavior and, to a lesser extent, by learning. Unlike animals, the humans have reacted against the rarity with their exceptional comparative advantage, that is, an unusual development of the brain. Thus, they were able to adjust the volume of resources limited by the limited understanding of cause-effect relationships. Over the time, the humans have learned that the their reaction against scarcity must be the reflection and the sober behavior. The greatest difference between humans and other living organisms is that the humans have the ability to fight scarcity with conducts transmitted by cultural way. The exceptional brain development and the learning ability are the most important human weapons against scarcity. Unlike the biological adaptation, the cultural adaptation allows to purchase and send a huge amount of knowledge from one generation to another, which is impossible on the way biological selection. Therefore, the human behavior is much better adapted to scarcity than the animal behavior.

Key words: scarcity, behavior, survival instinct, cultural adaptation, biological adaptation

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Life is an accident of the Universe. The evidence gathered by scientists show that Earth is the only planet where life forms exist. But even in these conditions, the essential feature of life on Earth is the scarcity. Creatures do not have the desired amount of subsistence. Therefore, between the amount of available resources and the needs of living things there is a ceaseless conflict. In order to survive, each species has had to adapt to scarcity by all means provided by nature. Both animals and humans carry a fight millennia of scarcity, in order to perpetuate their species. Because scarcity, all species were forced to adjust their behavior to environmental conditions so as to provide survival and reproduction. In this paper, we analyze how creatures adjust their behavior to the poor quantity of the resources offered by the natural environment.

MATERIAL AND METHOD

The basic idea of this article is that all living things have to adapt their behavior to the environmental conditions because the scarcity of resources offered by nature. To prove this, we show that the prudent, wise or economic behavior tends to be reflected in every corner of life on Earth. It may be noted especially in human individuals because they possess the most advanced brain of all creatures. The creatures with a poor brain performance fight against scarcity mainly through biological adaptation. Economics and evolutionary biology show that scarcity imprints to all living organism a specific behavior. Unlike animals, man, the possessor of an exceptional brain, tries to improve his material condition using the cultural adaptation. In developing this assumption, we use evolutionary theories offered by biologists such as Darwin, Mayr or Dawkins and fundamental concepts of economics, which assumes that scarcity requires prudent behavior. Biology, economics, sociobiology states that all living organisms had to adapt their behavior to scarcity. Animals have used biological adaptation, while humans have used especially a cultural adaptation. A multidisciplinary approach will allow us to examine this hypothesis.

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RESULTS AND DISCUSSIONS

The immediate consequence of scarcity is a danger that every living organism under pressure to disappear due to insufficient volume of means of subsistence. Many living species and a small quantity of resources means that some of these living organism can disappear before reaching maturity. The first reaction of organisms to a such situation is the biologically adaptations. For example, during the summer, a bear's body stores a high amounts of fats used in winter, when the weather conditions impede this animal to obtain the amount of food necessary for survival. Physiological adaptations allow to enter hibernation, in fact, a state in which its activities are reduced to a minimum, the energy stored during the summer allowing only survival and not pursuing other activities. The same happens in the case of human individuals. Severe lack of resources has forced humans to adapt. Therefore, nature has endowed with a physiological device that has the capacity to store some food as fat deposits, especially in the middle of the body. This situation, especially noticeable in overweight people, is an unconscious adaptation of the body to scarcity of resources. Economics shows that the only way to combat scarcity is saving. The same happens with the human body which, under certain conditions, "realizes" that it faces a relative surplus of food. Therefore, the organism saves calories in the tissues and will consume them when the quantity of food proves to be insufficient. Saving is, above all, a biological weapon used by living creatures against insufficient resources. Unlike saving, which is a calculated act, the fat storage in tissues is an unconscious adaptation of living organisms to scarcity. In other words, we deal with a biological adaptation type. Obviously, the living organisms have learned to save resources and needs a conduct adapted to the environmental conditions. There is a fundamental difference between humans and other living organisms. Man has learned to save because, over time, he had a comparative advantage reltative to animals: a complex brain. Thus, to a certain extent, he could resort to the calculation and the use of such causal relations. Therefore, man has learned to save because his superior intelligence said to him that a a wise consume may extend his life. The others brain owners use savings as a result of biological adaptation; they save food by instinct and not by intentional behavior. A squirrel does not understand why is important to deposit seeds or berries because its behavior is instinctive, innate. The imperative of survival and reproduction conduct imposed it a prudent conduct throught the biological evolution. Over time, the necessary information for this type of behavior has been transmitted via genetic adaptation, which has allowed to this species to survive. The squirrel saves scarce resources and tries to survive, but does not understand the root of his conduct. Its reaction is instinctual. The same type of reaction is in dogs, cats, birds. Without realizing it, the most creatures have adapted their behavior to the resources scarcity.

To some extent, people have the same type of behavior. It can be easily observed in children, i.e., human beings which resort in a large scale to instinctive reactions because of an incompletely developed brain. Obviously, everyone knows that many children hide food, toys, sometimes coins. They do not understand why they do so because the behavior is instinctive, acquired through biological evolution. Obviously, the enormous differences between humans and animals are derived from a much larger extent of human brain and its main consequences: calculation, reflection, thinking in terms of relations of cause - effect. The human individual can fight against scarcity using his superior intelligence, the learning from experience, the reflection. At the same time, he may resort to practices already adopted by the group to which he belongs. The cultural heritage provides it with a behavior already tested, selected through repeated use, successfully used its predecessors.

One of the most important consequences of scarcity was the adoption by the creature of the territorial behavior (Wilson, 2006; Ardrey, 1997). Resources needed for survival are ordered in time and space. Because of the weak time perception of, the animals were forced to acquire a good perception of space. Therefore, every living organism is endowed by nature with an instinct that allows him to delineate a space for private use only. Of course, animals have not acquired the instinct of territoriality through rational calculation because they do not have a brain so developed. The territorial behavior is instinctive, acquired throught a long biological evolution. He is present in mammals, insects and even plants. At the same time, there is a direct proportional relationship between brain size and the use of territorial behavior, which means that it is also an important component of rationality.

In a given area, the amount of resources necessary survival was always limited. It is not enough to meet the needs of all living organism. To ensure survival, animals were forced to fight to achieve a defined territory. However, the territory provides food, shelter and breeding opportunities.

In addition, the territorial delimitation was used as a means of avoiding conflicts generated by the relative scarcity of means of subsistence. The continue struggle for resources would jeopardize the life of every member of a species and its uncertainty would be too high. The adoption of territorial behavior eliminates these drawbacks by allowing the democratic access to territories and means of survival. In order to take possession of the benefits derived from territorial behavior, the most creatures have been adopted significants biological, physiological and behavioral changes. For example, the wolves mark their territory by some substances which have a ”personal”. The entire organization of the primate groups is strongly influenced by the instinct of territoriality. The social hierarchy, the relations between members of a group and the groups are ultimately influenced by territorial behavior. However, the territory is owned. Therefore, we can say that scarcity caused creatures to adapt their behavior to an insufficient amount of resources and the long biological evolution has endowed them with instinctual desire to hold a territory which offers a minimum of feeding and breeding opportunities. It is, in fact, the instinct of ownership.

The property is one of the best tools to fight against scarcity. It allows the rising of the territorial barriers which prove a small but relatively democratic access to resources. Property is not a result of rational calculation, the reflection, intelligence or social contract. It derives from the primordial need to survive, the instinctive striving of all living organism to preserve life. The origin property is in instinct, not in the rational choices. Largely, it is the effect of biological adaptation to the natural environment with insufficient quantities of resources. Every living organism has a property gene and the conduct of any creature is strongly influenced by it. The exception is humans. Unlike all other animals, humans possess an exceptional brain. Therefore, they can think, calculate, analyze, establish causal relationships. In addition, they have a memory that allows them to store past experiences and to guide their conduct using the successful experiences. They can learn on their own, can adopt by mimic behaviors the experiences that proved appropriate in certain cases. Humans can experience, ie, can learn step by step, adopting the rules of conduct that ensures their success. However, their conduct in relation to resources is not fully rational. People do not have a so powerful brain that act on basis on the comprehension of the relationship scarce resources - unlimited needs. Therefore, their behavior is guided rather by cultural rules, adopted slowly, through the trial and error method. Obviously, a part of their behavior has a biological or a instinctual determination, but its share is much lower compared to cultural ritualized behavior. Animals are biological machines, humans are cultural machine. Their adapted behavior is not revealed on the path of reason.

Another major consequence of the scarcity is the adoption of selfish behavior (Dawkins, 1976). Both people and animals act selfishly. Most times, the source of their actions is a personal purpose. This is true including for the bee conduct, even if their reaction is instinctual (Wilson, 1975; Mandeville, 2010). Limited resources endangers the life of any creature. The natural reaction of each living organism is to prolong its life. Often, this means the ignoring of the interests of other creatures. This behavior is considered immoral, but he is a fearsome weapon for survival when resources are scarce. The logic show us that the selfish human behavior is best adapted to an environment with scarce resources. Obviously, a absolute selfishness harms social life. In addition, it harms individual species. An elephant has to take care of its offspring because a complete ignoring of its needs could lead to the disappearance of entire species. Thus, the particular interests of each species requires a small dose of altruism. Selfish behavior protects the species, but an excessive selfishness destroys them. Therefore, a mother or a father's interest is to offer some of their own resources for child survival. The logic of perpetuating the species involves diminishing selfishness and use a some degree of altruism. Altruism is a necessary compromise for the survival of every species. Therefore, the conduct of every living organism includes personal actions directed toward goals that belong to other individuals. The improving of living conditions needs the restriction of the fully selfish actions and to stimulate the actions that generate social benefits through cooperation. To a certain extent, almost all species resort, the cooperation. By this means, they increase their chances of survival. Therefore, the the wolves hunt in packs, the birds flying flock and the people working in groups. For the benefits of cooperation, all creatures have adopted rules of behavior related to control excessive selfishness and encourage cooperation. To some extent, this behavior is instinctive. Unlike animals, humans have cultivated cultural cooperation by adopting rules of conduct that discourages selfishness by designing theories justifying the benefits of the social life. The gifts exchange, the moral rewards granted to those who put in the service of others, the different habits that support participation in social life are just some examples of conduct that encourage adoption of

social life (Mauss, 2000; Malinowski, 2008). The man has a biological predisposition to establish mutually beneficial relationships with others (Wilson, A. Smith). Meanwhile, his long life in small groups is prone to isolation, intolerance and selfishness of the group. However, the evolution convinced him that the benefits of participation in social life give more chances to survival than solitary life and the narrow selfishness. So, he gradually adopted the behavior adjusted to life in complex societies, even if this situation forced him to control his selfishness by moral rules, to learn to substitute a conduct specific to autarchic societies and to renounce to xenophobic tendencies. In fact, the rapid advance of civilization and the significantly improve of the human condition in last decades are due to the eliminating of the barriers that impeded cooperation between strangers. The exponential growth of the prosperity of a large part of humanity is due to the fact that man has learned to adjust his conduct to a life that involves peace, cooperation, free trade, coordinated action. However, these are among the safest ways to fight against scarcity. Obviously, pressure groups selfishness, xenophobia or racism show that his conduct is not yet fully adapted to this new type of society.

CONCLUSIONS

Scarcity is an essential feature of life on Earth. Over time, the quantities of resources have proved to be insufficient to the needs of living organisms. In order to survive, animals and people had to adapt their behavior to scarcity rarity. Unlike animals, humans have fought against scarcity by rules of conduct handed down from generation to generation by cultural adaptation. In addition, people were able to improve the relationship needs-resource relationship through calculation, intelligence and reflection. An adapted cultural behavior and an exceptional brain are the most importants human tools to to fight against scarcity. This is the main reason for the degree of prosperity of the common man has continuously increased, even though world population grew rapidly in the last two centuries. Obviously, the human behavior was modified by biological adaptations in order to fight against scarcity of resources. The instinct of ownership possesed by every human is the main proof in this regard. However, the essential difference between human and animal behavior is the adoption by humans of the behavioral rules of transmitted by cultural way. This is the main reason why the prosperity of common people have grown at an exponential rate in past centuries.

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