

The Dissolution of Dawkins' Riddle Is Not So Hard

Andrea Bucci

Abstract

In this paper, I propose a metaphysics of group selection that solves the conundrum without appealing to the biological research in modern evolutionism but taking it in the background and citing it when needed. In my opinion, the group selection is practically possible and it does not contrast with the other fact, that natural selection involves individuals' genes only. I propose this metaphysics as a reasoned narration of how the group selection works and I will show how the conundrum can be solved. The point seems to me that differently from what done till now, the description of the evolutionary mechanisms of individuals at the genes level must to correspond to the behaviour of individuals us such at least for what we know about it.

Key Words: evolution theory, individual selection, group selection, Dawkins, genes' transmission

213

DOI: 10.5281/zenodo.10199809

During the last meeting of the Italian Society of NeuroEthics "Mapping New Challenges in The Neuro-Ethical Landscape" I heard Patricia Churchland talking about the "Dawkins' Conundrum" as one of the challenges of the philosophical and biological research. I read a lot of year ago *The Selfish Gene* but I have taken at that time the question as concluded. I have had the doubt that the group selection was practically possible and real in a lot of occasion but Dawkins with his book convinced me that natural selection involves genes an than act at individual level only.

Patricia forced me to think about the Dawkins' riddle in an intellectual sense. In this paper, I propose a metaphysics of group selection that solves the conundrum without appealing to the biological research in modern evolutionism but taking it in the background and citing it when needed. In my opinion, the group selection is practically possible and it does not contrast with the other fact, that natural selection involves an individual's genes only.

Corresponding author: Andrea Bucci

Address: MSc in Philosophy, Italian Society for Neuroethics (SINe), Milan, Italy

e-mail ✉ andrea86bucci@gmail.com

I propose this metaphysics as a reasoned narration of how the group selection works and I will show how the conundrum can be solved. The point seems to me that differently from what done till now, the description of the evolutionary mechanisms of individuals at the genes level must to correspond to the behaviour of individuals us such at least for what we know about it. The narration is a way to show how the things goes and it is useful due to the power to show this correspondence to fact although the related scientific theories could be forged as well known.

I will narrate the story that goes from the selection of the genes for the evolution of individuals to the evolution of groups and to new species. At the end of the narration, the Dawkins' conundrum should be solved or at least I will show a solution to the Dawkins's conundrum. The narration will stop to a medium level, a level between what a geneticist can control and what an ethologist can observe. The knowledge of both, ethologists and geneticist will rise to them without further discussion. It seems to me that the evaluation is up to those who know in depth how genes are transmitted and how individuals behave. At the and, I will recap what we have gained from this factual narrative and make some thoughts on why the Dawkins' puzzle has so far seemed so difficult to solve.

Everyone interested in evolution theory face the Dawkins' conundrum. The problem is that we cannot resist saying that nature selects individuals because the individual is the only owner of his genes that he transmits to the next generation. When someone says that the interactions in a group are expression of the genes and nature selects them as a group, they say at the same time that nature selects each individual who transmits his genes to the next generation making the group selection something redundant. We are in trouble because animals are adapt to the environment as a group in many cases and, at the same time, nature selects them only as individuals. The evolution theory says that nature selects who achieves the transmission of his genes. Procreation transmits the genes from an organism to another, from an individual to another. Saying that the nature selects a group, it does not differ from the fact that nature selects each of the members of the group. Even if relations identify something as a group, when a member of the group is not selected the group could be exists again because nature selects the other individuals one by one.

Some philosopher has observed that in the case of extinction, we have to talk about group extinction. From the point of view of the evolution theory, we can say that the extinction is equally the fact that each of the individuals failed the transmission of his genes anyway. Why do we have to solve Dawkins' puzzle if it seems that at the end of the story there is no puzzle to solve? The puzzle remains unsolved because is difficult or almost impossible at practical level stop talking about group selection or at least stop to think that talking about group

selection has some sense. In fact, we cannot negate that even if nature selects individuals, nature selects a group of animals at the same time.

The evolution theory assumes that the expression of his genes gives all aspects of an individual. If an individual reaches the goal of procreation, he transmits his genes while the genes of individuals that does not procreate are lost. Nature gives the conditions to animals to adapt or to evolve because to reach the goal of procreation means that in a way or another that the individual is able to live under those conditions. Natural selection is the mechanism that maintains individuals able to live and procreate under nature conditions and their genes and that makes lost the genes of individuals not able to live and procreate under the same conditions.

Animals manifests group behaviour and sometime social interactions as in humans. The natural selection of group of individuals is the riddle named “Dawkins’ conundrum”. In Dawkins’ opinion, there is not something as group selection because the evolution of species and the group selection acts on the genes of individuals. In *The Selfish gene* Dawkins argues that even if animals exhibit group behaviour and sometimes proper social behaviour the unit of natural selection cannot be the social and group behaviour because what is transmitted are the genes and the individuals as expression of the genes and not the behavior of an individual or a group of individuals.

Let’s see now how the group selection go on without denying that the units of selection are the genes of individuals. An animal fits his natural environment whit particular natural conditions. He can live alone or as a member of a group that we can call specie sometime if they are similar in some fundamental aspect as genetically. The hypothesis that animals can be a member of a group from the beginning is hard to sustain because they should be shaped for this goal. A goal that ask to share many relational properties. Even if animals shared group or social properties from the beginning, my purpose is to narrate the story of a group of individual that has not group and social properties.

If a group of animals similar in some fundamental aspect as lions or humans fits their environment, there is no problem for them. They can procreate and transmit their genes easily or at the end of a fight for reproduction with other member of the group, that in the case of fitted animals and groups is something like a ritual. What happens if the natural conditions of an individual change? If the new conditions adversely affect an animal and its fellows, an individual could fail to procreate and if his fellows are in trouble too, this group of animals could to come at the end. We cannot call this cases group selection because the natural selection concern every member as individual and the term “group” is an abstract and logical term. Say group selection or, better, group extinction and to say that each individual is not selected is, generalizing, the same thing.

In other cases, due to the nature conditions changes, it could be useful that individuals were able to interact each other as a connected group if the interactions help them to fit better to the new natural conditions. In this case, we can talk of group selection because the selection is over each individual that has that genes expressing group interaction. In this case the members out of the group because not accepted or because not able of group interactions are not selected. These interactions are proper genetics since every aspect of an individual is expression of the genes. There is no need for each individual to remain in to a group if not requested by natural conditions because he can step back in other natural conditions. A prove could be the existence of animals that have group interactions and sufferance for group interactions. Interactions that they exhibit only in special occasions.

What is important now is that group selection does not seems strange. The natural selection transmits genes of individuals but the group selection transmit genes of individuals in some respect linked to animal interactions such that if an individual has not such genes, nature does not select him. It is true that, *strictu sensu*, the nature selection acts on individual and their genes but it is true that it acts sometime on an individual only if he know how to interact with the other as well. Now we can ask ourselves again if the group selection is a logical or a factual question. In my opinion, it is a logical question because nature selects not an individual as a member of a group but an individual able to interact with the other us such. "Group selection" means "Nature selects each individual that is able to interact with others in a way or another". This worth for an ecosystem or for an interrelated group of similar animals.

Social interactions can be analysed from the same point of view. In some cases natural selection could have selected animals in general and humans in particular that can not only interact each other but stay well together ever because there is not a way for them to stay alone and be selected along with their genes. This social interaction foresee the respect of other emotions and so on in a way similar to contemporary society because individuals can be forced to live together and then forced to find a way to remain together. The motivations that brings animals to stay with the other except the natural selection are not important. The important are the rules to go on and stay together at the coast of lose the "fight for reproduction" once alone. One of the example in contemporary societies that show how humans can win natural selection are that welfare societies were an individual is helped from the born to the death. This kind of societies seems to me one of the best kind to go beyond laws of nature as that of evolution and that do not replicate the nature us such.

At this point, we have not solved the Dawkins' conundrum completely. We have seen that from a logical point of view group selection can act over groups of animals that an ethologist considers

of the same species or over a heterogeneous group of different animals that for a reason or another lives in the same environment. Behaviour of animals that exhibits useful interactions that makes better for each individual adaptation to environment can worth for similar animals and for different animals as well. A way to solve Dawkins' conundrum seems to me to separate the theory level from the factual level. The evolution theory talks about the way a species remains on the earth and the way they change over times. Its concepts are natural selection, fitness or adaptation and so on. We have seen that group selection is a logical term, a term that belongs to the theory level. Can we introduce it in the evolution theory without interference between the theory level and the factual level? Can we introduce it and solve the conundrum at the same time?

If we take the question closely, we can observe that we speak about individuals as subjects of evolution in almost all formulation of the puzzle. If we consider "individuals" as a term of the evolution theory, we can maintain in the theory the group selection and solve the Dawkins' conundrum. At theory level, does not create any problems that "each individuals that belongs to an environment is selected as a group for a long time". From the other hand, we can move genes transmission from the theory level to the factual level. At theory level, there is group selection if nature selects each of the member of a group as in a generalization and genes transmission is what happens at factual level. The theory foresees that natural selection regards individuals if they procreate thanks to their adaptation to the environment. While, taken in consideration some individuals, there is group selection if natural selection regards every individual. At factual level, there are no metaphysical concepts as natural selection, fitness or adaptation and so on. Animals live in their environment with all their interactions. If they procreate, they transmit their genes and maintain their presence in the environment. If not, genes of animals get lost. At factual level, things go as they go and are what they are. "Gene transmission" means "An animal has successful fecundate another animal and a cub is born thanks to the the union of a sperm cell and a gamete containing part of the individual's genetic heritage".

The lack of distinction between Theory Level and Factual Level, between Metaphysics and Physics is at the center of the confusion about philosophical thought on Dawkins' conundrum. If individual selection and group selection are terms of the theory, we can talk about individual and group associating them as members of that group. Say that natural selection acts over individuals is in my opinion inapposite because the use of "acts" is improper, because "natural selection" and "individuals" are terms of the evolution theory while "to act" is a factual verb. If we retain "Natural selection acts over individuals" as composed by concepts of the theory, it is a simple and correct description of what says evolution theory. If we retain "Natural selection acts over individuals" composed by factual terms, there is not something that corresponds in facts to the proposition. If we

describe what really happens saying that nature and his phenomena sometimes they favor and sometimes they do not favor the animals' needs well into adulthood, this is an example of factual description that could retained close enough to a description of simple facts. Evolution theory is a way to understand why and to show how that things go as they go.

References

- Abbot P. et al., Inclusive Fitness Theory and Eusociality. *Nature* 2011;471:E1–E2.
- Birch J & Okasha S. Kin Selection and Its Critics. *BioScience* 2015;65(1):22–32.
- Dawkins R. *The Selfish Gene*, New York: Oxford University Press, 1976.
- Dawkins R. *The Extended Phenotype: The Gene as the Unit of Selection*, Oxford; San Francisco: Freeman, 1982.
- Gardner A & Grafen A. Capturing the Superorganism: A Formal Theory of Group Adaptation. *Journal of Evolutionary Biology* 2009; 22(4):659–671.
- Grafen A. The Simplest Formal Argument for Fitness Optimization. *Journal of Genetics* 2008;87(4):421–433.
- Okasha S & Paternotte C. Group Adaptation, Formal Darwinism and Contextual Analysis. *Journal of Evolutionary Biology* 2012;25(6):1127–1139.

Authors hold copyright with no restrictions. Based on its copyright *Journal of NeuroPhilosophy* (JNphi) produces the final paper in JNphi's layout. This version is given to the public under the Creative Commons license (CC BY). For this reason authors may also publish the final paper in any repository or on any website with a complete citation of the paper.