

# Beyond the margins of neoliberalism: Biological and Neurological Foundations of Action Research

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**Abstract** This text maintains that the presuppositions of individualistic empiricism have been instrumental for the neoliberal revolution, which turns supposed aggressiveness and natural selfishness into a foundation of society. The combination of science that denies the relational, emotional and subjective nature of humans with the naturalisation of individualism and competition as supposed bases of human behaviour combine to hinder Action Research's aim of "self-determination" (Fricke, 2018). However, true relational parameters, located in and empathic with the living, fit perfectly with the assumptions of AR. Therefore, we explain how discoveries in biology not only show that the bases of Action Research are not heretical from a scientific point of view, but that they fit in perfectly with the true parameters of behaviour identified by the life sciences.

**Keywords:** Neoliberalism; Biology; Neurology; emotions; science

## Más allá de los márgenes del neoliberalismo: Fundamentos biológicos y neurológicos de la investigación-acción

**Resumen** Este texto defiende que los presupuestos del empirismo individualista han sido funcionales para una revolución neoliberal que convierte una supuesta agresividad y egoísmo natural en fundamento de lo social. La combinación de una ciencia que niega el carácter relacional, emocional y subjetivo con la naturalización del individualismo y la competencia como supuestas bases del comportamiento humano se conjuran para dificultar la apuesta de la Action Research por la "autodeterminación" de las personas (Fricke, 2018). Sin embargo, los verdaderos parámetros relacionales, situados y empáticos de lo vivo encajan a la perfección con los presupuestos de la AR. Para ello, explicamos cómo los descubrimientos en genética, biología y neurología muestran que las bases de la Action Research no solo no heréticas desde un punto de vista científico, sino que se ajustan a la perfección con los verdaderos parámetros del comportamiento que identifican las ciencias de la vida.

**Palabras clave:** Neoliberalismo; Biología; neurología; emociones; ciencia

I set out really to change the approach, and changing the economics is the means of changing that approach. If you change the approach you really are after the heart and soul of the nation. Economics are the method; the object is to change the heart and soul.

Margaret Thatcher, 3–5–1981, Sunday Times

I would like to acknowledge the suggestive and thoughtful comments made by David Greenwood to the original manuscript.

Our brain is a prodigious enigma made up of tens of billions of neurons, whose connections allow more interactions than the particles that probably exist in the universe (Capra, 1996). Despite not making up more than 8% of our bodyweight, it consumes 20% of our energy because of the permanent monitoring required by “self-awareness” (Ramachandran, 2003; Damasio, 2019). This is an effort compensated for by the emergence of the self and its surprising consequences: reflection on emotions in the form of feelings; the possibility of coordinating reflexive behaviour that language and society allow; even the paradox of being able to think about the origin of what it is to be alive and the meaning of our existence (Damasio, 2010). Researching and acting thanks to our brain, we have identified the principle of homeostasis as the foundation of life (Damasio, 1994). In a constant search for balance, we have found the art of looking for well-being (Diamond, 2013) and compassion in the face of pain (Lozada et al 2011). We have come to understand life as autopoiesis (Maturana & Varela, 1987) and we have even placed ourselves above the living (Leakey & Lewin, 1996). We have created gods and we have believed ourselves to be gods (Harari, 2014). Consciousness derived from the prodigious enigma of our brain has led us to think that we are prodigiously above any enigma (Fromm & Suzuki, 1960). However, despite everything, our brain is easily manipulated. Margaret Thatcher knew it very well, when she ended her interview with the phrase at the start of this text. She knew that whoever correctly defined the approach could control the mind, and from there, they could conquer the soul.

In this text, we want to reflect on how cognitive frames affect the way that we approach reality. The goal is to help understand the practical limits that Action Research (AR) faces. We propose that the hegemonic approach to science and human nature has been instrumental to a “neoliberal governmentality” (Foucault et al. 2008) that seeks to subjectify individuals through isolation and competition. Like Fricke (2018), we trust in human agency; however, we also believe that the unconscious assumption of the framework that naturalises competition and individualism creates practical difficulties in achieving the goals that inspire AR. We believe that despite the fact that human behaviour is based on “the capacity for and interest in democratic participation and self-determination” (Fricke, 2018. p. 90), the project of conquering the soul that this Thatcher quote exemplifies aims to strip society of its agency, laying waste to the ground where AR can germinate.

In fact, one of the key elements that neoliberal governmentality is based on is utter distrust for anyone who is not at the pinnacle of power. Thus the need to audit and discipline continuously. One way to confront this logic is to show resistance, to prevent neoliberal aspiration from becoming a self-fulfilling prophecy (Hürtgen & Voswinkel, 2017). In fact, experiences related on platforms such as ARNA, or articles in IJAR or ARJ are examples of the persistent, constant resistance of groups and communities against neoliberal subjectification. In line with this aspiration to strengthen human agency, we believe it is important to reveal the falsehood of the naturalising assumptions on which the art of neoliberal government is based, since identifying the false conception of human nature on which they stand can reinforce the position of Action Research. As we will demonstrate, the natural sciences, far from confirming the individualistic, distant ethos of the hegemonic framework, legitimise the epistemological and anthropological assumptions of AR.

Consequently, this text aspires to reveal the falsehoods on which the neoliberal framework is built. In parallel, supported by current discoveries in the natural sciences, it seeks to strengthen an alternative interpretation framework about science and human nature that reinforces the role of people as transforming agents. To do so, we propose a route along the

following lines: we begin with a visual exercise that shows how the framing of reality determines the way in which we understand it; next, we contrast the foundations of AR with those of hegemonic science based on positivism, individualistic monism, micro-analysis and the separation between theory and practice. Then we show how these premises about “true” science serve as a runway for a biased approach to biology and neurology that naturalises the neoliberal (self)government framework and the discourse of “no alternative”. We end by showing how these arguments do not hold up in light of recent advances in genetics, biology, and neurology, and conclude by stating that the situated, relational, co-operative and empathic logic of Action Research conform to evolutionary parameters.

Although this approach is not exemplified in a specific experience, it meets a need felt by the author to stimulate participatory-research processes in the Basque Country in his work, and the relevance of adding another argument to the pragmatic, political, epistemological, dialogical and ecological arguments proposed by Streck (2013) when it comes to legitimising AR; the biological. We believe that approaching biology, far from being detrimental to the transforming action of AR, adds legitimising arguments to our action: the commitment to co-operation, empathy, and situated knowledge does not respond to a “should be”, but to the essence of “being”: life. If, according to Krimerman (2010), AR brings democracy to science, this text seeks to strengthen a view in which it also brings “life” to science.

Consequently, we consider that the eclectic and multidisciplinary viewpoint at the base of the pragmatic approach to AR (Greenwood, 2007) should also be open to contributions from the natural sciences, including neurology, as Streck suggests (2013. pp.197–198; 2018). Challenging neoliberalism over the naturalising framework of competition and selfishness by showing that the essence of evolution is co-operation, a relationship with the environment and empathy can help reinforce AR in daily practices. Ultimately, this text aims to provide another look at the aspiration of human self-determination, explaining that “there is an alternative” to the mental framework that causes “basic virtues of ordinary people” to be “today suppressed and aligned by neoliberal-capitalist strategies of subjectification in Foucault’s sense”. If these subjectification strategies are based on seeking control of the mind to “conquer the soul”, in this text we intend to escape the neoliberal trap according to which “there is no alternative”. We believe that there is, and that it is in nature.

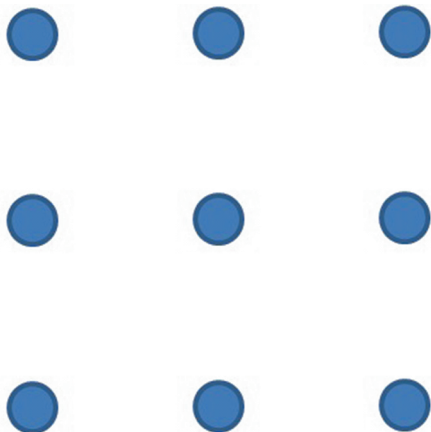
## 1. Framing the mind

Action Research aims to carry out research through action, through experience. For this reason, although it is frustrating and even too heterodox for many, I propose to illustrate the following lines with a simple visual exercise.

The statement that accompanies figure 1 confronts us with the limits of our omnipotence. If we did not already know the answer, something as simple as joining 9 dots with 4 straight lines could be a headache. For this reason, and because of its counter-intuitive nature, the simplicity of the explanation for our difficulties is insulting; we “see” something that does not exist. As Thatcher intended, the approach has been defined for us without our realising it.

What does this enigma (any reader who does not know it will have to wait to see the solution) have to do with Action Research (AR)? More to the point, what relationship does it

Figure 1: the 9-dot puzzle (join the dots with 4 straight lines without lifting the pencil)



have with its democratic aspirations, its commitment to justice and social change, its search for integration between theory and practice, and its pedagogical aim to turn objects into subjects? In the following pages, I intend to show how our cognition and capacity for action can be conditioned by illusions; in the image, the illusion is that of a square that only exists in our mind and guides the lines we draw, always leaving some dot unlinked while in the argument of this text and in Thatcher's confession, the illusion is of a false, self-serving construction of human nature, based on biased approaches to biology. The difficulty of finding a solution to the exercise shows how cognitive frameworks (Lakoff, 2014; Bateson, 1978) determine the way in which we observe (and act within) reality, as I will argue, from the naturalisation of behaviour patterns adjusted to neoliberal rationality. I believe that neoliberalism has made us see the interpretive framework ("a square") made up of an image of what is human based on competition, aggressiveness and natural selfishness as the foundation of life (and what it means to be human). I believe that acknowledging this reality can help explain the difficulties AR faces (Glenzer & Divecha, 2020; Fricke, 2018). Thus, I argue that the illusion on which the neoliberal framework is based, although false, has practical repercussions that make it difficult for those of us in AR who look to co-operation as a starting point in the search for knowledge, seen from the point of view of emancipation or liberation through action, participation and solidarity (Moretti & Streck, 2015. p. 369).

Realising that we "see" something that does not exist (whether it is a square or a skewed image of our nature) explains why we cannot find a solution to a problem (whether it is that of figure 1 or the difficulty of changing society). However, this is not enough. Consequently, in the second part of this text, I will broaden this view and start to find answers; the explanation of the exercise (see figure 2) will serve as a guide, to propose that the way out is to look "beyond" the apparent margins of the problem; in our case, to analyse AR using current knowledge in the natural sciences, considering this type of intervention as a strategy that, in addition to democracy, contributes 'nature' to science. Therefore, I will present the social traits that govern biology and the empathic principles that shape our brain. We will see how these new advances in science, in addition to invalidating the neoliberal approach, reinforce the epistemological logic on which AR is based: in biology, neurology and genetics as well as in AR, the key is co-operation, empathy and interaction with the environment (Tomasello,

2009; Iacobonni, 2009; Dupré, 2012; Barnes & Dupré, 2009). Ultimately, the solution to the puzzle in figure 1 is not very different from one of the keys to AR and living things: that which establishes that the whole can be more than the sum of the parts (Krimmerman, 2001). In short, our intention in these pages is to shed some light on the question recently posed by Glenzer & Divecha (2020, p. 407) “So why, if we understand such processes so well, has AR’s focus on equity and power rarely sustainably and at scale disrupted well-understood relations of inequity and oppression?”. Therefore, aware of the democratising, participatory impulses that underlie human action (Fricke, 2018), we intend to explain and refute the framework defined by neoliberalism, and the way it is supported by a concept of science and human nature that seeks to generate utilitarian, individualistic subjectification that can assume pathological dimensions (Beattie, 2019).

## 2. The battle for control of the mind

Just as recent discoveries are transforming approaches to nature and forcing a rethink of sociology and political science (Meloni, 2014; 2016), action research (AR) also represents a methodological revolution (Denzin & Lincoln, 2001; Reason & Bradbury, 2001/2008) that aspires to “epistemic justice” (de Castro et al., 2018). In contrast with the traditional method of approaching social issues, among its elements is a political commitment for change based on the combination of theory with practice, the link between action and learning, and a transformative pedagogical aspiration at collective and individual level. It is, consequently, a social, pedagogical, theoretical and applied political practice aimed at transforming reality (Greenwood, 2008), based on a concept in which the construction of knowledge is carried out in contexts of power disputes, open to transformation with human practices (Streck et al., 2011). It meant (and means) a turn (Burns, 2005) of the analysis of social reality towards participatory research indebted to humanistic psychology, education for liberation, social constructivism, critical theory, Foucauldian thought and cultural studies. These are theories shot through with the knowledge brought by neighbourhood movements (Villasante et al., 2018), feminism (Khandekar et al., 2020; Frisby et al., 2009), minority and oppressed groups (Fals Borda, 2001; Sobottka, 2018), educational communities (Noffke & Somekh, 2009; Greenwood, 2017), communities of workers (Hürtgen & Voswinkel, 2017) or networks of governance (Larrea, Estensoro & Sisti, 2018).

Seen as a methodological setting for a “world of heretics” (Brydon Miller et al, 2003: 20), or even as a “disobedient epistemology” (Moretti & Streck, 2015), AR moves away from the supposedly rational behaviorist paradigm, which promotes a supposedly objective and distant approach to reality (Burawoy, 2013) that separates theory and practice, reason and emotion, subject and object (Coghlan, 2016). On the contrary, AR stands at the opposite pole to the hegemonic perspective (de Castro et al., 2018), which has promoted an approach to science that has been instrumental for the neoliberal revolution (Jordan & Kapoor, 2015) and defined the interpretive frameworks of human behaviour thanks to the colonisation of various disciplines: from the biology that looks at life in terms of supposedly selfish genes (Dawkins, 2016) to political science that denies the social (Dowse & Hughes, 1972) or reduces behaviour to a mere calculation of interest (Buchanan & Tullock, 1962).

In comparison with this approach, AR aligns itself with an epistemology that assumes that “being” is “taking sides” (Billies et al., 2010; Fals Borda, 2001), in which reality cannot be understood without its context (Ozanne & Anderson, 2010; Ollila & Yström, 2020; Reason & Bradbury, 2008), without the subjective (Cahill, 2007; Swantz, 2008), without the emotional (Wijnendaele, 2014; Sanfuentes & Garreton, 2018; Bradbury, 2003; Bradbury et al., 2008; Streck, 2015) and without the relational (Bradbury & Divecha, 2020; Bradbury & Lichtenstein, 2000). Compared with the mainstream model, AR undertakes research practice that understands more about research subjects than objects (Reason & Bradbury, 2001/2008). As we will see in the last part, these elements allow their transformative activist tendency (Brinton & Mallona, 2008; de Castro et al., 2011) to adjust to the natural sciences, in which context, empathy and co-operation are the foundation of genetics, behaviour and evolution. (Meloni, 2013; 2014a; 2014b; 2016). Therefore, the epistemology of AR conforms to the scientific parameters that study the logic of life, although its promoters have been accused of confusing science with ideology (Krimerman, 2001).

On the contrary, this criticism of AR is made from hegemonic approaches which, taking the natural sciences as a reference (Ritzer & Stepnisky, 2017; Sztompka, 1999), have been amenable towards, if not complicit in, approaches to the social sciences using biased logic. Moreover, they have done so by giving legitimacy to a conception of the social which hides an ideological programme behind a “scientific” aura (Lewotin et al., 1984). We argue that this programme of promoted or accepted “sociobiological Calvinism” (De Waal, 1996) served the framework of the neoliberal revolution of the 70 s and 80 s (Harvey, 2007), and serves the current climate of authoritarian neoliberalism (Brown, 2019), to naturalise aggressiveness, competition, violence and chauvinism; in short, to see injustice as the basis of human behaviour. This is all based on a false conception of reason as “calculation of interests” and nature as “struggle for the survival of the fittest” that anchors its roots in the theories of the Austrian school of economics championed by Mises and Hayek. These approaches, widely available in the media, try to define the metaphors of everyday life (Lakoff & Johnson, 2008) by which citizens “read” reality thanks to processes of cognitive framing with clear effects on political behaviour (Lakoff, 2014). Therefore, according to Castells (2013), in these times of post-truth and the rise of the radical right and mutant neoliberalism (Callison & Mandrefi, 2019), “the fundamental battle” is taking place in people’s minds.

Consequently, the objective of this text is twofold; on the one hand, to turn around the discursive framework which has naturalised behaviour that serves to legitimise the hypotheses of the neoliberal revolution of the 80 s and the current authoritarian counter-revolution. In other words, to make the square that conditions our gaze and the way we approach the problem that concerns us visible; to establish bases for reinforcing the principles of AR supported by neurological and biological evidence. In other words, to show that, in AR as in living things, the whole is greater than the sum of the parts, and that if we move beyond the apparent margins of the problem in our analysis of society, we can find answers in nature that inspire public action, as well as the supports that legitimise the vital meaning of AR.



### 3. Science at the service of the conquest of the soul

In March 2020, the British Prime Minister Boris Johnson, after coming close to death, surprised everyone with statements in which he recognised that “society exists”. This statement has been interpreted as a challenge to the phrase with which Margaret Thatcher inaugurated her mandate. However, few remember another key to the Iron Lady’s speech that, although it went unnoticed, defined the true scope of her programme: “the economy is the means: our goal is to conquer souls and hearts.”

The conquest of the soul is precisely the utopian ideal (Vergara, 2015; Ahedo and Telleria, 2020) that prompted Hayek to organise a meeting in Mont Pelerin in 1947. Compared with previous utopias (Saint-Simon, Fourier), Hayek assumed an economic logic to break with the social approaches in which liberal thought was articulated: the moral postulates of Adam Smith; the ethical approach of Clarence Ayres; Karl Bücher’s commitment to the barter economy; or Polanyi’s critical examination of the mercantilist mentality in the analysis of the human in *Trade and Markets in the Early Empires*. All these alternative, social and critical approaches were buried by the neoliberal project

In fact, among the inspirers of the Austrian school from whose sources Hayek draws, in addition to Mises we find the approaches of Lionel Robins, who in his *Essay on the Nature and Significance of Economic Science* makes a nuanced approach to methodological individualism and the postulates that establish rationality in selfishness. Fascinated by the seductive capacity of socialism (Guillen, 2018), Hayek aspired to establish a programme that placed the logic of the market at the center of human behaviour, breaking with the previous humanist tradition of liberal thinking. Since then, people whose careers have defined the frameworks (Mirowski, 2009) and approaches used to interpret science, economics, public policies, markets, and even literature and political outreach in accordance with Hayek’s aspiration (1976) have participated in the annual gathering: among the members of the Mont Pelerin Society, in addition to Michael Polanyi and Karl Popper are Nobel Prize winners Friedman, Allais, Stigler, Hayek, Becker, Buchanan, Coase, Smith and Vargas Llosa. Although dozens of analysts in the field of economics reject its postulates (from Mary Furner in *From Advocacy to Objectivity* to Miyazaki in *The Method of Hope*, as well as Sahlin in *Stone-age Economics*), the neoliberal programme would become hegemonic thanks to its ability to present its project as “natural” and “scientific”; i. e., as a project with no alternative.

If science is systematic doubt, investigation, analysis, conclusion and further investigation, neoliberalism makes use of the word science to cover up an essentialist, determinist ideology. As a result, the certification of the “scientificity” of certain approaches to social or economic issues is one of the aspects that the founders of the neoliberal project emphasise the most (Mises, 1956; Hayek, 2007; Friedman, 1986). The underlying principle of this project arises from the fact that after the collapse of the religious narrative, the social sciences would need a legitimising language in a context of the great changes deriving from industrialisation and urbanisation (Ritzer & Stepnisky, 2017). Thus, biology contributed to the interpretation of social questions, heuristic analogies or metaphorical models from an area recognised for its ability to satisfy the verification principle established by Popper. A social conception was born, based on nature and drawing on the metaphor of the organism and organic growth (Sztompka, 1999). Faced with the threat of events (the emergence of the working class, venereal diseases, urbanisation) social questions were observed in a gradual, functional, micro

way, legitimising a social order in which competition is naturalised as the teleological engine of the advancement of societies.

All of this, together with the positivist method, served as a starting point for the empirical-analytic approaches that have dominated political science from its beginnings until recently. The approaches described explain the social order as a kind of “invisible hand” that self-regulates conflicts (Lindblom, 1965) and they identify the bases of moderately active citizenship (Almon & Verba, 1963) in multiple membership of various groups (Dowse & Hughes, 1990). However, the social, political and cultural crisis of the end of the 1960 s exploded the functionalist and behaviourist assumptions on which the behaviourist approach was based, so that critical-dialectical thinking, supported by poststructuralism or the Frankfurt school, destroyed the bases of legitimation of the status quo. On the streets, and in people’s minds, the promise of a different world in the context of a falling capital gains rate took form (Harvey, 2007). This forced a double movement that put an end to the implementation of the neoliberal project: on the one hand, the restructuring of the relationship between the state and the economy, through violent means in Chile and democratic ones in Great Britain and the United States; on the other, the reformulation of the bases of the hegemonic analysis of science and behavior. The result of both movements was seen in the victory of neoliberalism, which generated bridled capitalism (Harvey, 2007) which not only ties up the state, but, above all, the mind.

Thus, in the 1980 s, in the midst of the neoliberal counteroffensive, nature and a biased, self-interested view of evolution came to the rescue of hegemonic thought. However, nature was no longer presented in terms of a comparative reference, but as a normative reference. Nature (or rather, a biased view of nature) ceased to be a metaphor, and became a requirement to determine social matters; something that framed and focused social issues. This restructuring did not only aim to legitimise the capitalist order on supposedly natural bases as in the past, but it also aimed to set in motion a far-reaching utopia: that living things should surrender to the principles of the economy, whose logic is naturalised. What is natural, therefore, defines the context. Consequently, the only “law of life” is that which is governed by “the law of the market”, because living is based on competition, selfishness, individualism and aggressiveness that is defined as “natural”. Focused on the picture from which to interpret the social sphere, there is no margin because “what there is” in society is “the only thing that exists and can be in nature”. Thus, although the social and the human is always open, neoliberal discourse convinced the population of one of its key ideas: that there is no alternative.

#### 4. The neoliberal utopia in practice

The utopian meaning of the project outlined by Hayek and revealed by Thatcher forces us to consider neoliberalism beyond its ideological dimension or its programme of state limitation (Ahedo & Telleria, 2020). I argue that its success lies in its ability to impose a “new rationality” defined by the parameters of the economy that not only structure and organise governments, “but also the behaviour of the governed” (Laval & Dardot, 2014. p. 15) along the



lines of a new capitalist spirit (Boltanski & Chiapello, 2005) that defines a new ethic of (self) government.

The central element of this rationality of (self)governance (Foucault et al. 2008) is a notion of competition as a process of elimination of the weakest. In this way, the competitive, aggressive foundations that govern the actions of an individualised citizenry are structured, either through disciplinary strategies based on coercion and repression (Klein, 2006), or through the reproduction and satisfaction of individual desires previously oriented towards consumption (Illouz, 2019; Bauman, 2013). To this end, the vital principle of “stakeholder” or financial value of each person is activated, once community networks are broken. Once the individual is isolated, “everyone for themselves” becomes the neoliberal *telos*, so that business conduct is (especially in the global north) a *sine qua non* condition to survive in a logic of competition that feeds on each of our acts (this is competitive logic which not unknown in education or research, including publication in high-impact journals or academic visibility with indicators of research efficiency measured by citations. In this sense, as Greenwood points out, AR can be a useful tool for confronting a Taylorist, competitive model of education in academia (Greenwood, 2017). This disarticulation of what is commonplace (Bauman, 2013) leaves the subject adrift, or at least in a situation of vital uncertainty. In order to survive, one is forced to reproduce the order we are the product of with our actions. In the culture of accelerated speed (Friedrich, 2018), living in a state of permanent change in the short term, precariousness is normalised, and as the other side of the coin of competition, “responsibility” is deployed. Thus, public problems are now explained as individual failures, which has the perverse effect of framing vulnerabilities; what in modern times were interpreted as structural, now become “personal setbacks” (Ehrenreich, 2010). Within this framework, precariousness is not the exception, but the constitutive condition of the art of neoliberal government (Colmenero, 2019). Consequently, life is “an invitation to entrepreneurship” (2019, pp. 341–342) within the framework of a social reality that is seen as hostile. The “law of the jungle” of economics ends up colonising “the law of life” (Habermas, 1984) in a dystopian closure in which democratic deliberation ends up becoming a cacophony of individual monologues.

For this rationality to be accepted as inevitable, confusion and uncertainty are necessary, from which emerges a logic of suspicion regarding the positive and negative aspects of a myriad contradictory proposals (Mirowski, 2013). All this allows the slide towards a discourse that the best solution is for problems to be solved by a dispassionate technique: that is, the market (converted into the evolutionary essence of the social). Despite the alternative proposals (Gibson & Graham, 1996; Piketty, 2013), the logic of “there is no alternative” is reinforced (Mirowski, 2009), above all with no need to intervene, and if it happens, it is through techniques that are custodians of true, esoteric knowledge, beyond the reach of mortals. However, as in magic, the mysterious requires the mirror of normality. Humans need regularities that explain the inexplicable, that relax uncertainty. The opaque “there is no alternative” in economics and politics must be “understood” (“focused”, in Thatcher’s project) within a reality-directing framework so that it does not present itself to us in the terrifying form of chaos or meaninglessness. As in figure 1, in which our mind sees a square in order to make sense of the void left by the dots, in the interpretation of our behaviour, nature comes to the rescue to shine a light where it interests neoliberalism to have uncertainty: from the gene to the killer ape, society, like everything, is as it is because life is aggressive, selfish and individualistic; in society, as in nature, altruism only exists because it is self-serving; in life, as

in our world, everything is uncertainty and precariousness so that “we only have to survive”; and above all, in nature, as in real life, only the fittest survive (or the cleverest, and so on). However, despite presenting itself as natural, the neoliberal project is clearly political and will require an intense militant strategy on two levels: the legal level, weaving a normative legal mesh that uphold the principles of the deregulated market (Slobodian, 2018); the ideological level, framing the justification of its project based on “what is natural”.

## 5. Between the selfish gene and the killer ape

In short, the key to the success of the neoliberal project lies in the ability to seduce and convince through anti-scientific thinking disguised as “scientific” analysis which is complex in its form, but simple in its content (Mirowski, 2013). It is a sophisticated sleight of hand with a very old trick. What used to be explained by religion is now explained by the natural sciences, and it is done so thanks to the strength of their metaphors to develop simple explanatory narratives from complex premises (Mirowski, 1989). Thus, reality is explained through a narrative full of artifice: the importance of minimal unity and fragmentation as an element of analysis, rationality as a methodological foundation, or the visible as a principle of causal analysis (to which game theory, statistics and genetics will be added later). All this dazzles and hides something very simple which is hardly new in a long genealogical line of justifications of elite domination of society; to justify a historical order based on the naturalisation of the economy as the guiding principle of life.

Now, artifice is not causal, but serves to pre-define the result. Thus, the Austrian school of economics together with Ludwig von Mises inaugurated the central dogma of the neoliberal technique: methodological individualism and the primacy of the micro as the central point of analysis (Mises, 1956 and 2016). This perspective, recurrent in Hayek and Friedman, presents the approach to minimal, isolated units as a way of achieving “value-free” knowledge (praxeology). From there, reducing reality to its simplest expression, one aspires to capture the structure of things, including behaviour. As a result, human interactions are explained as mechanical exchanges. Thus, faced with the analytical assumption (which will be defined as ideological) which claims that human action generates a conflict of interest, Mises placed the harmony of society through the market at the center of the doctrine. From an evolutionary perspective, everything that was not harmonic mechanics was interference: that is, subjectivity in the analysis of behavior. From his perspective, “economics does not aim to make value judgments. Its objective is to know the consequences of certain ways of acting”. In this way, the foundations of the neoliberal motto *par excellence* were established: “there is no alternative” because it is a “technical” question (or, as we shall see, a genetic one), over which one cannot and should not intervene; This is the issue on which the rejection of action-oriented research pivots, as it is classified ideological by those who absolve or sponsor an ideological action disguised as “science”.

From these bases, in the definitive assault on the soul of the 80 s, political action easily deployed an interpretative framework of what is human, and this was achieved through a double movement. On the one hand, with the irruption of socio-biology (Wilson, 1999) that transfers (what he defines as) evolutionary principles to behaviour, to the point of considering

that politics must be understood as what is functional in terms of selection, and in a second parallel movement, with the definition of biological questions in unrepentant premises that were guided by evolution (and in line with the previous movement, the social and the political aspects of society): aggressiveness, competition, territoriality and sexual dominance as selective vectors. Thus, in biology we observe the same manipulative turn as in economics. We have already seen how Hayek and the neoliberal project hide other forms of approach to economics, among them those of Lionel Robbins, an economist who was a contemporary of Mises, who in *The Nature and Significance of Economic Science* shows a much less hostile, manipulative, and distrustful view, coupled with disqualifications of the short circuit in neoliberalism that gloms together economic rationality, efficiency, and adaptation as if they were the same thing. In the same way, in the neoliberal approach to biology, majority approaches are hidden or underestimated, such as those that give force to selection by kinship or group, compared to radical positions that conform to the neoliberal framework.

From these postulates, altruism, if it exists, was restricted to the minimum group, so that the selection was only by kinship, as proposed by Hamilton (1964), in line with Hayek's premises, for whom the space of the social is reduced to the only level of survival in evolutionary terms, the family. Everything that is outside this, as Thatcher would recall, must be understood in terms of the impersonal consideration of human relationships in which "society does not exist". Moreover, the only way to understand impersonality in relationships that go beyond kinship is through selfishness (Trivers, 1971). Therefore, in the social sphere, altruism only exists when advantage is expected, according to the postulates of Mises, Hayek or Friedman, for whom the basis of economic behaviour was the maximisation of private interest.

To deploy this programme, the evolutionary framework was reduced following the micro premises of praxeology: now it came down to a selfish gene, in Dawkins' (2016) approach in which bodies are nothing more than "programmed survival machines" at the service of the interests of genes to reproduce "at any cost". With this micro, individualistic methodological monism, the foundations were laid for an impersonal gaze that added a naturalised exoneration of individual asocial acts to "there is no alternative". Thus, success in pursuing an interest derives from the variability provided by genetics and the subject's ability to take advantage of the opportunities that chance offers. There is a clear parallel with the postulates of Hayek, for whom people are naturally unequal (in a clear conversion of diversity into inequality) and the particular consequences of this inequality (for example, poverty) do not respond to a structural or social dimension, but rather lie in chance and the ability of each individual to take advantage of opportunities in a context of competition. The neoliberal utopia in which there is no social responsibility (nor even social justice) since morality and commitment are only individual (Hayek, 1976: 253) is legitimised in a nature in which there is no group responsibility, only maximisation of individualistic chances based on chance.

Decontextualised from structure, the subject also loses moral footholds. In this maximisation, aggressiveness and selfishness, such as lying or rape, exist because they are rewarded in natural selection: they allow a greater reproductive and survival capacity of the genes of the most insightful (Trivers, 2013) or most aggressive subjects (Thornhill & Palmer, 2001; for a critical analysis, see Zeedyk, 2007). Everything, consequently, is measured by a calculation of cost and benefit, whose counterparts in political science are theories of rational choice and public choice. What is beyond calculation, for example an epistemology like that

of AR that focuses on solidarity, is nothing more than disguised egoism. Ghiselin's phrase (1974, p. 247) "Scratch an altruist and watch a hypocrite bleed" leaves no room for doubt.

Deep down, beneath instincts, what prevails is a "killer ape" theory (Dart, 1959; Lorenz, 1963) which defines human nature in terms of aggressiveness. For this reason, the political culture par excellence must be civic, which is a bit participative, but also sees people as subjects (Almond and Verba, 1963). In fact, the final point of Hayek's utopia, demarchy, is the government of those who have been shown to deserve it. In this way, the Leviathan (in a soft neoliberal version or in an authoritarian neoliberal hard version) emerges as the only way out, so that power must be "outside the community", although in the liberal version it emerges from it and in the authoritarian version it is above it. In the relationship with the demos, what prevails is distrust and an elitist conception that arises from the consideration that aggressive nature must be domesticated: It is precisely the distrust of the demos that is at the heart of the objection to AR for having protagonists, who are assumed to be interested (Krimmerman, 2001), unlike external scientists. As Dennett (1996, p. 481) summarises, "much of the evidence about chimpanzees – some of it self-censored by researchers for years – is that they are true denizens of Hobbes' state of nature, much more nasty and brutish than any would like to believe". In this programme, following in the wake of innate animal aggressiveness (Lorenz, 1963), paleontologists such as Arsuaga & Martin-Loeches (2013), anthropologists such as Chagnon (1968 and 2013) and popularisers such as Pinker (2012) have tried to show that among the Cro-Magnons or the hunter gatherers aggressiveness was a central aspect of their daily life. Moreover, despite the fact that their studies have been strongly criticised (Ray, 2013; Tierney, 2001), they continue to define the interpretive frameworks of the social sphere, even if they use deliberately biased data, and above all, partial data, because they persistently hide discoveries such as the ones listed below, which seriously call these assumptions into question. In fact, one of the founders of sociobiology, Wilson, has clearly distanced himself from Dawkins' individualistic postulates to affirm the importance of kinship and group selection. In this way, based on the heart of sociobiological thought, he breaks the backbone of ideological reductionism on which neoliberal naturalisation is sustained. This is reinforced by the new discoveries we detail below, which simply relocate the logic identified by Darwin and cynically manipulated in the service of power, first by Spencer and then by certain caricatures of biological analysis, in a minority at scientific level, but used to manipulate public opinion.

## 6. Nature to the rescue of society

Advances in some disciplines such as the hypothesis of the somatic marker for decision-making (Damasio, 1994), that of altruist punishment to explain pro-social behaviours (de Quervain et al., 2004), or the theory of development systems (Oyama et al, 2003) within the evolution of ecosystems, confirm that epistemological assumptions of AR defined as heretical, rejected for being at the service of ideology and not science, find parallels in genetics, biology and neurology. These discoveries show not only that the approach to reality is far from being based on the monistic, distant and supposedly omnipotent logics that the hegemonic approach to scientific objectivity postulates, but also that the assumptions on which the neoliberal framework is based are completely false. The cognitive framework that legit-

imises an immutable status quo based on a selfish, aggressive, competitive nature is not supported by the natural sciences (Nowak, 2006). Furthermore, this should be understood in the social sciences, whose study of behaviour has been obstructed so often by false approaches to nature.

The scientific gaze has settled a) on a supposed distant subject, b) a rationality separate from emotions and c) an infallibility of thought on the two previous premises. a) The distant subject has been built on the basis of an architecture in which the basic element of life, the gene, could be separated from its context to the extent that it was configured as an impregnable, unalterable reality. This approach has been proved wrong with the discovery of epigenetics (Moore, 2017), which explains how the environment can modify the memory of genes, and that these changes are transmissible. Therefore, there is nothing in nature that takes on an inviolable distance. Everything is relative. There is no separation between life and context (Griffiths & Stotz, 2013; Moretti & Streck, 2015), just as there is none between the subject and object of research in AR (Fricke, 2018).

b) The protected rationality of emotions has marked the paradigm of a science that was said to be shielded from ideology, but rationality without emotion has been an aporia from the moment that neuroscience showed that thinking had an emotional and bodily basis (Damasio, 2019). Moreover, these emotions are defined by somatic markers (Damasio, 1994) that help us understand our world and make decisions. There is no separation between mind and body, between reason and emotion, and if the actions are bodily and emotional, they transform consciousness, as AR predicts. As Moretti & Streck (2015: 370) recall, all knowledge is embodied in the logic of “sentipensar” (Fals Borda & Moncayo, 2009). The transformative power of AR lies in generating emotions based on well-being that provoke empowerment and politicisation (Bradbury et al, 2008; Streck, 2015): AR “helps focus and articulate the latent existential concerns and meanings to the people and groups it engages to help make changes” (Lambert, 2005, p. 304).

c) The objective, omnipotent subject has created a fiction of a neutral observer, but the human being is endowed with a deceptive mind (Ramachandran, 2003), based on two systems of thought: on the one hand, a fast one, capable of giving immediate answers, but filled with biases that distort reality (which prevent one from solving the problem of figure 1); and on the other hand, a slow, lazy system that validates or rejects only if it is activated, which the previous system assumes to be correct. Kahneman (2011) has shown that economic decisions, the bastion from which neoliberalism articulates its rationality, are based on delusions of the mind. Therefore, the collective knowledge that AR proposes will always be broader and more effective than a possible single, potentially biased expert approach. In the same way, its multidisciplinary viewpoint fits in with a complex world that looks beyond appearances (Greenwood, 2007). Beyond the standard practices of traditional science, AR can and should be open to a multidisciplinary logic that allows it to address existential complexity (Lambert, 2005).

In addition to a method, the conquest of the soul has been marked by a biased definition of human nature d) based on a selfish, calculating subject, e) governed by the logic of competition, f) supported by natural aggressiveness. d) The model of the subject whose action is based on cold calculation is shown to be a fantasy -or a danger, as Arendt (2013) showed in the case of Eichmann- from the moment of the discovery of mirror neurons, which explain the bases of empathy. These neurons connect us mentally, causing us to feel the emotions of others within us (Iacoboni, 2009; Rizzolatti & Craighero, 2004; Ramachandran, 2003). What

the skin separates is united by our mind. There is no individual and social dualism: we do not walk alone (Streck, 2013, p. 198). We are socially positioned beings, deeply subjective because the other or what is Other is not indifferent to us. In fact, as proposed by Maturana & Verden-Zöller (2012), love understood as the acceptance of the other or Other as legitimate could be the foundational emotion of humans.

e) The competitive subject supposedly established in a natural theory based on the survival of the fittest defines the naturalising framework of neoliberalism. Now, this is refuted by co-operative biology, with the origin of the eukaryotic cell based on symbiogenesis, (Margulis, 1981) and whose action logic is founded on an altruism that is not based on interest (Tomasello, 2009; De Waal, 2007 & 2008) but the defence of the group or the common goal (Sober & Wilson, 1998; Ferh & Gächter, 2002; Fehr & Fischbacher, 2003). As mammals, we are defined by curiosity, play and empathy (Lewis, Amini & Lannon, 2001). Curiosity is the essence of research, play is the basis of action, and both, in the child and in AR, are built on contact and interaction to achieve well-being. From these mammalian bases came the foundations on which the capacities of hominids that augured morality were built (de Waal, 2008); the pleasure of caring (Lozada et al 2011) and compassion (Rose & Abi-Rached, 2013) in our ancestors. Faced with the neoliberal chimera, the logic is not that of selfishness, but that of strong reciprocity (Fehr and Fischbacher, 2003). At the base of AR, ultimately, lies the intuition of activating the logic of super-co-operative organisms (Nowak & Highfield, 2011). For this reason, it is not surprising that, as Hürtgen and Voswinkel (2017) show, after appearances and analysis that reinforce supposedly selfish and competitive nature, expressions that show agency and capacity to react to neoliberalism emerge, if carefully observed.

f) Now, despite this capacity for response, the neoliberal framework has tried to bury these daily repeated practices of resistance in the “no alternative”, in the “culture of silence” (Streck, 2013), just as it has tried to bury the empathy that underlies humanising logic, overstating the naturalness of aggression and violence. However, ethology shows that this, as with everything in nature from our genes to our behaviour, is marked by the weight of the environment, especially in terms of abundance and scarcity of resources. Among our hominid ancestors, in addition to compassion and empathy, we also see aggressive patriarchal patterns in the common chimpanzee, whose evolution has been conditioned by the scarcity of resources. On the contrary, in the case of the pygmy chimpanzee, co-operative relationships exist, with strong alliances formed by sexual relations and female dominance, since after separation from the common chimpanzee, bonobo speciation occurred in an abundant medium (De Waal, 2006). The plasticity of the behaviour of our closest relatives shows that aggressiveness and competition is neither an origin nor a destination, and even less so in our species, whose level of technological development could guarantee a good life for all humanity. Ultimately, the transformation of reality “in the direction of social justice” (Moretti & Streck, 2018, p. 370) can be achieved. If in our hominid ancestors “there was an alternative”, there is more in the modern human.

Finally, the neoliberal framework is based on g) the fiction that the solution it proposes is the only possible one. The impossibility of modifying reality was based on natural determinism, whose cornerstone was genetics. This was an immutable, unalterable perspective (if not for chance and mutations) that no longer holds, from the moment epigenetics was discovered (Moore, 2017; Hyman, 2009). For a long time, part of the genome was considered “junk DNA”, but when science left the frame of the obvious, it entered a new dimension that interrupted the debate between nature and culture by discovering how this despised part of the



genome was linked to the environment, and modifies genetics. Therefore, there is no dualism between nature and nurture, nor between biological and social causes in development (Meloni, 2016). Action in the environment can not only change reality but also change us individually and genetically: in the same way as AR does not just aspire to change the environment, this change is inextricably linked to the change that every process causes in those who are part of it (Coghlan, 2016).

## 7. Beyond conventional frameworks: bringing nature to science

The biased, partial, fragmented vision of the natural sciences has tried to colonise the social sciences in an attempt to maintain the status quo. It has created a framework that tries to define not only that our nature is as neoliberalism dictates, but that life is too. The problem is that, as in the riddle, false frames prevent us from finding solutions, prevent people from believing in its transformative power, which is necessary in the context of an ecological, healthcare, economic and political crisis.

Faced with these challenges, it is more necessary than ever to find answers outside traditional frameworks. The first step is to identify the narrow margin that has defined the assault on the mind of neoliberalism. However, as Figure 2 shows, to solve the 9-point enigma you have to leave the apparent margins of the problem. In fact, as Hürtgen & Voswinkel point out, (2017) one of the victories of neoliberal thought is that we assume that its conquest of the soul is definitive. Precisely, to affirm uncritically that neoliberal rationality works in all social spaces means reinforcing the framework of neoliberalism and the echoes of “there is no alternative”. Therefore, one way to move beyond the margins is to show the experiences that are being implemented on a planetary scale under the AR umbrella. All of them are an example of the kaleidoscope of resistance to the individualistic, competitive, anomic logic promoted by neoliberalism. The relevance of AR is precisely in its political, social and pedagogical aims to find new answers to challenges, based on a position of commitment that anchors its roots in arguments based on pragmatic, political, epistemological and ecological logic. In this text, we have proposed a look at what is natural, which goes beyond the relationship between human beings and nature, to sharpen our gaze on the fundamentals of living things.

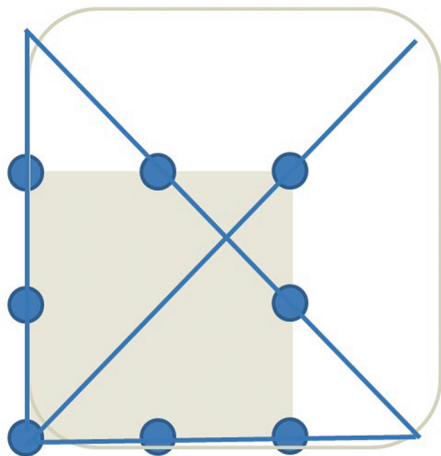
We propose that an answer to the questions of our society is to leave the margins of the instituted social order, to try to find clues in our instituting nature. Certainly, the colonising attack by a biased, partial, opportunist view of nature has caused understandable rejection by the social sciences to any type of relationship with the natural sciences (Meloni, 2014a). However, we believe that a realistic look at recent discoveries in the natural sciences will not only be able to help dismantle the false framework on which hegemonic thinking has been articulated, but can also strengthen AR as a way of approaching the social sphere that is not only rigorous in its scientific method, but also fits better than hegemonic science into the parameters of human thought, sociability and the very logic of the nature of which we are part.

Therefore, the defining elements of AR find support in logic based on human thought, on neurological discoveries that point to the need to consider 1) subjectivities and emotions; 2) the importance of context; 3) distrust of a distant approach to reality; 4) the importance of

learning from action. Furthermore, objectives that articulate the origin and development of AR anchor its roots in a social nature that is based on 5) the importance of cooperation, empathy, solidarity and compassion. Finally, the transformative aspiration of AR fits in 6) with a view of nature as something that is not given, but as something open to a logic in which what is alive (and consequently what is human) is agency.

A few decades ago, knowing that the whole can be more than its parts, and that to analyse reality it is necessary to move beyond the apparent margins of the problem, AR revolutionised the sciences against a monistic, micro method, based on observable regularities, individualised behaviours and rational explanations. This option has been discredited on many occasions by hegemonic thinking, and the intervention parameters which many of us have worked along in communities and universities have been treated as “heretical” or “disobedient”. Now, as history shows, being on inquisitorial trial is not synonymous with a lack of scientific insight, and time ends up showing that science does not know a lot about witch trials. Stepping outside the apparent margins of the problem allowed Galileo to discover the solar system.

Figure 2: The answer is to move outside the apparent margins



AR has always transcended apparent margins, and it has done so knowing that the whole can always be more than the parts. This transcendence is in its DNA and it is still present. Moving beyond the apparent margins of the problem of scientific work, AR allowed progress by adding “democracy to science” (Krimerman, 2001). Here, we have tried to show that if we break the false neoliberal framework and look at the way in which nature has evolved, we will see how AR assumptions conform to the evolutionary principle. Thus, the intuitions of AR not only bring democracy, but also bring “nature to science”, which is necessary in these times when what is at stake is our own continuity as a species.

Finally, it remains to be seen what can be done by AR in this framework. This key issue will need to be addressed in other papers, but we can advance a brief answer. The key here is to contextualise neoliberal thought within the framework of the process of post-modernisation, but make it clear that they are two different things. My opinion is that the structural changes brought about by globalisation and the transition from a Fordist economy to new post-Fordist

and individualised forms of work have changed the relationship between ourselves and the self. If, in modernity, “we” preceded and endowed the self with content, now in many contexts, especially Western ones, ‘I’ precedes ‘us’. This change in the position of the subject in individual and collective consciousness is independent of neoliberalism; it is the result of a historical process of development. Yet neoliberalism took advantage of this individuation for its project to achieve hegemony. When asked what to do in this neoliberal context, my tentative answer would be that those of us who work in AR attribute the “bad guys” having won to the fact that they have been smart in taking advantage of structural changes, and they have also been powerful. In this sense, my proposal to recover the spirit of teachers like Freire is for AR to work with the recognition of the vulnerability of ‘us’ and of the strength of ‘I’ in our times. That means that AR must be based on particular pain, but in order to politicise it. The MeToo movement is an example, like the Zapatista maxim of “covering the face to show all faces” (or “behind us, we are you”). My proposal could be summarised in three maxims that I apply to my intervention in the participatory processes I work with: firstly, starting diagnoses of pain, from “what’s in it for me?” to find a “what’s in it for us?”. The objective would be to ensure that the problems stop being seen as private and start being considered public and political; to create structures with “many people doing a little rather than a few people doing a lot”. Secondly, to organise individuals into horizontal groups. Thirdly, and above all, to carry out participatory processes to mobilise “absent” people (that is, not aware, not empowered) in order to attract them. I think we waste a lot of time in always mobilising the people who are convinced, when the change will only come from making the absent people “one of us”. In this task, the key is showing the falsity of the neoliberal framework that naturalises competition and selfishness. Finally, as Weick & Roberts (1993) masterfully point out, the formation of a collective project can allow the emergence of a collective mind that is based on a heedful performance that connects people, experiences and activities in a system logic in which the sum of the parts is more than the whole, compared to a neoliberal model in which the whole is based on the destruction of the parts.

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