

Bacon against Descartes. Emotions, Rationality, Defenses

Mario De Caro

Università di Roma Tre

Dipartimento di Filosofia

Tufts University, Department of Philosophy

mario.decaro@uniroma3.it

Massimo Marraffa

Università di Roma Tre

Dipartimento di Filosofia

massimo.marraffa@uniroma3.it

ABSTRACT

Far from being a natural kind, ‘emotion’ turns out to be a conventional label that captures quite diverse phenomena; and such phenomena can no longer be relegated, as the ideology of passions suggested, to a ‘lower’ and ‘primitive’ psychic sphere, which threatens the nobility of ‘the thinking thing’. They belong to the unlevelled universe to which all psychological events belong. In general, cognitive sciences have brought to light the heterogeneity not only of emotions, but also of what is traditionally meant by ‘reason’. The experimental investigation of rationality and reasoning by the cognitive sciences has shown that there is no unitary cognitive sphere. There is instead a toolbox of imperfect analytic and operative tools that is heterogeneous and scattered, and consequently lacks the hierarchical structure that, according to the Cartesian model, culminated in self-conscious rationality. Thus, a paradigm shift is underway. Some research areas in cognitive sciences adopt a Baconian logic, in which errors and self-deceptions are seen as intrinsic to the ordinary cognitive-affective processes. Therefore, whereas in Freud the naive subject normally deceives herself because she is unable to accept the presence, deep down, of ‘inadmissible’ sexual and aggressive drives, in a dynamic psychology informed by the renewal of the traditional psychological categories outlined above, intrinsically defensive cognitive-affective mechanisms become the principles that rule over the construction of everyday reality.

KEYWORDS

Defence mechanisms, dual-system approach, emotions, prejudice, rationality, the Unconscious

Introduction

According to the ‘pyramidal’ conception – which is historically associated with the hierarchical conception of cerebral functions dating back to the 19th Century – the architecture of the mind consists in a gradual ascent from ‘lower’ psychological levels (instinctive drives, tensions, animal automatisms and, more recently, ‘reptilian’ anatomical structures) through increasingly ‘higher’ psychological levels, up to a vertex that is able to impart order to this hierarchy of functions, and above all that is able coherently direct the ‘noblest’ functions that define rational self-consciousness (cf. Oatley, 1978). This ‘Victorian’¹ picture of the neurocognitive architecture is still very popular – for instance, it underlies the “dual-system view”, which has guided much research on human emotion over the past decades (cf. De Oliveira-Souza, Moll, & Grafman, 2011).

It will be argued here, however, that this picture should be rejected.

The main problem with the pyramidal conception of the mind is that it misleads us in positing the existence of increasingly ‘higher’ psychological levels that reach a hypothetical *vertex* on which everything depends. Today, we have sufficient evidence that this vertex does not exist. A large amount of neurocognitive data offer robust evidence against the hypothesis that, in some area of the mind-brain, there is a place where “it all comes together” – some sort of central executive system coordinating all the cognitive operations (Dennett & Kinsbourne, 1992). Actually, a ‘modularist’ conception of the mind-brain has loomed large in psychology and neuroscience since the 1980s. In contrast with the pyramidal view, which sees the mind as a homogeneous and hierarchically-ordered field ruled by consciousness and rationality, Chomsky and Marr famously envisioned a much less unitary, homogeneous, and hierarchical mind with a largely modular architecture, comprising a swarm of neurocomputational subsystems that perform highly specific functions independently of each other (cf. Carruthers, 2006). Along the same lines, the Global Neuronal Workspace Theory (see, e.g., Dehaene and Changeux, 2004) sees the neurocognitive architecture underlying the unity of consciousness as a distributed computational system with no central controller.

¹ “Victorian Brain” is a phrase coined by Reynolds (1981).

Furthermore, a Cartesian epistemology is part and parcel of the pyramidal conception of the mind. According to Descartes, rational consciousness can fail only because of the influence of emotional and affective motions that originate from the opacity of the bodily machine. However, today some research programs in cognitive sciences adopt a ‘Baconian’ logic instead. In the *Novum Organum* Bacon sees the errors of judgment and conduct as *naturally* produced by the conscious and rational mind. The famous *idola*, constant factors of deception, are, in this philosopher, human knowledge’s habitual way of operating: ”Human understanding is like a false mirror, which, receiving rays irregularly, distorts and discolours the nature of things by mingling its own nature with it”, Bacon famously writes (1620, Bk I, 41). In current terms, he sees the mind’s errors, illusions, and self-deceptions as inherent to the very mechanisms of ‘high’ cognition.

We think that Bacon’s criticism of rational consciousness should be a fixed point for the sciences of mind and brain. In the following pages we examine some of its ramifications in three research areas – the study of emotions, psychology of thought and the literature on the interpersonal and social dynamics – to finally draw a moral for the psychodynamics of defences.

1. *The Heterogeneity of the Emotions*

If we give up Descartes’ theory of error, and thus cease to divide the mind into lower and upper floors, the folk concept of emotion breaks apart, being replaced by a diversified, articulated, disparate and even heterogeneous field, which, contrary to the traditional ideology, is part and parcel of the wider universe of all psychological events. In other words, the folk concept of emotion turns out to be not a *natural kind*, i.e., a real category in nature tied together by a causal homeostatic mechanism that underlies projectibility and inductive reasoning (cf. Boyd, 1991).

The claim that emotions do not form a natural kind has been made by Griffiths (1997, 2004, 2013), based on a large amount of evidence from ethology, psychology, neuroscience and anthropology. According to Griffiths, the folk concept of emotion is a cluster of at least three

different classes of psychological phenomena: basic emotions, complex emotions, and disclaimed action emotions. Let us examine them in turn.

Paul Ekman's psychoevolutionary theory of emotions aims to offer a unitary account of a number of 'basic' emotions by positing an underlying causal mechanism. That is, these emotions are characterized by specific physiological, neurobiological, expressive, behavioural, cognitive, and phenomenological responses to events in the environment; and these responses are assumed to be automatically elicited and coordinated by a computational mechanism called the 'affect program' (Ekman & Cordaro, 2011, p. 365). According to Griffiths (1990), the computational psychology of these affect programs is modular in a sense very close to that popularized by Fodor. Basic emotions are fast and mandatory responses, which are controlled by subsystems that draw on a limited database, are triggered by information coming from an extremely limited range of perceptual inputs, and work independently of more conceptual processes, such those underlying action planning. In Fodor's words, they are 'informationally encapsulated' and have 'limited central access'. In emergency conditions, facing serious danger, the modular features permit the affect program to work as a fail-safe system, which seizes behaviour when, having little time, it is crucial for the agent immediately to do the right thing, even at the price of trusting quick and dirty knowledge.

It is important to make clear that, in a research program that aspires to be scientific, basic emotions should not be designated by such folk terms as 'anger', 'fear', 'disgust', 'happiness', and 'sadness'. These folk categories do not designate basic emotions in the sense of the psychoevolutionary theory: indeed, some of these categories lack those physiological, neurobiological, expressive, behavioural, cognitive, and phenomenological features that Ekman regards as the markers of a basic emotion. And yet some members of the 'anger', 'fear', 'disgust', 'happiness', and 'sadness' categories *do* meet Ekman's criteria – one example is the kind of fear produced by sudden loss of support (cf. Öhman and Mineka, 2001). Consequently, as an alternative to the use of folk terms, we could coin neologisms (e.g., 'threat-coping system'), or use modified versions of the folk categories, making it clear that what is referred to is not the whole folk category, but only a part of it (e.g., fear_b, or fear_{basic}) (cf. Scarantino & Griffiths, 2011, p. 449).

Their mandatory, fast and passive character makes affect programs candidates for reference of some folk emotion concepts. However, folk psychology also recognizes other types of emotion which are much more cognitively complex than basic emotions. These are the complex emotion episodes that figure in folk-psychological narratives about mental life, episodes involving guilt, resentment, envy, shame, jealousy, loyalty, embarrassment, etc. There are good reasons to hold that, contrary to what some evolutionary psychologists (e.g., Tooby & Cosmides, 1990; Pinker, 1997) have claimed, such complex emotions rest on psychological mechanisms that are different from the affect programs. For the latter have a number of salient features that the complex emotions lack, and vice versa. On the input side, complex emotions are sensitive to a much wider range of information than the encapsulated affect programs. Thus they cannot be triggered as one would predict by assimilating them to affect programs.² Moreover, on the output side, complex emotions are responses that fail to display stereotypical physiological effects, persist longer, and are much more integrated with cognitive activity such as long-term planning.³

However, the general category of emotion subsumes a third kind of psychological state: disclaimed actions modelled on emotion. James R. Averill's defines an emotion as "a transitory social role (a socially constituted syndrome) that includes an individual's appraisal of the situation, and is interpreted as a passion rather than as an action." (1980, p. 312) A *social role* is a characteristic pattern of behaviour found in a particular social context. One example is the social role that a person plays after being elected to Parliament: members of Parliament enter a network of social practices in which they play a particular role. The role that they play is relatively *enduring* and *overt*, in the sense that everyone agrees that being a member of Parliament means being treated in a

² "If Othello's sexual jealousy had been an affect program or a downstream cognitive effect of such a program, he would have had to catch Desdemona in bed with Cassio, or at least have seen the handkerchief, before his jealousy was initiated." (Griffiths, 1997, p. 117).

³ This is a central aspect in Frank's (1988) sociobiological theory of moral emotions: here complex emotions are short-term irrational responses designed to keep the agent rational in the long term. E.g., loyalty would often be conducive to long-term cooperation rather than short-term defection in social interactions that have the structure of an iterated prisoner's dilemma.

certain way. But in the case of the socially constructed emotional states the social roles become *transitory* and *covert*. These roles are *transitory* because people play them exclusively in short-lived and stressful situations. They allow a behaviour that would be unacceptable in other circumstances – i.e., in these cases the passive character that is ordinarily ascribed to strong emotions and to sudden passions (love or aggressive) is exploited to avoid responsibility for the action. The individual ‘disclaims’ his or her action and the emotional state – being experienced as an objective rather than a subjective event, i.e. something that is not produced by the mind but that simply ‘happens’ – is imputed to casual bodily accidents or is perceived as an effect of being ‘possessed’ by some force or entity that comes from the outside. Moreover, such roles are *covert* in the sense that they take shape only insofar as society does not recognize either their function or the social practices including these roles. A paradigm example of a socially constructed state is a state like *amok*, a violent frenzy found in southeast Asian cultures.

Thus, disclaimed action emotions differ from basic and complex emotions not only because they are culturally local, but also by virtue of their psychological mechanisms. They are unconscious attempts to take advantage of the special status usually accorded to emotions because of their passivity. This means that their etiology involves the mechanisms that subserve social cognition rather than the perceptual mechanisms underlying basic emotions or the conceptual mechanisms that subserve complex emotions.

To sum up, the folk concept of emotion is a cluster concept, which does not pick out a natural kind that can be used to ground inductions or projections across the range of emotions. The collection of features we think characterize emotions are explained by various causal mechanisms in different cases. Basic emotions are psychological states involving isolated modules; complex emotions are special adaptations of higher-level cognition. Building a theoretical category based on the similarities between these two classes of mental phenomena would not be justified by any promising explanatory project. As to the disclaimed action emotions, they are manifestations of a higher cognitive activity, viz. the understanding and manipulation of social relations. Consequently, they cannot be placed in a single category with the other emotions because they are essentially *pretenses*: “[i]t would be like putting ghost possession in the category of parasitic diseases.” (Griffiths, 1997, p. 245) What

follows is the conclusion anticipated at the beginning of this section: our concept of emotion gathers quite diverse phenomena under a single conventional label. Further, it is to be noticed that all these phenomena can no longer be relegated, as the ideology of passions suggested, to a ‘lower’ and ‘primitive’ psychic sphere, which threatens the nobility of ‘the thinking thing’; quite legitimately, they belong to the wider universe of *all* mental events.

2. Rationality and Reasoning

To consider the issue from the other side, cognitive sciences have brought to light the heterogeneity not only of emotions but of what is traditionally meant by ‘reason’ as well. That is, the human mind, even in its most rational aspects, is a heterogeneous repertoire of analytical and operative tools that, in some circumstances, spontaneously produce errors. A quick reference to some key positions in psychology of thought will allow us to give substance to this Baconian picture of human rationality.

Let us begin from the very well-known heuristics and biases program (see the classic Kahneman *et al.*, 1982). Human inferential performances are seen here as driven not so much by the normative principles of rationality established by deductive logic, mathematical statistics and expected utility theory, but rather by heuristics, viz. cheap and effective but not systematic problem-solving strategies. That a heuristic is not systematic means that its application can lead to the solution of a problem, but does not ensure the constant attainment of such a result; for sometimes the same heuristic can give rise to performances that deviate from those attainable by means of the application of normative principles. Thus the biases originating in the activation of one or more heuristics are the measure of the gap between the real performance and the normatively correct one. This has led a number of researchers to pessimism: the human mind is not equipped with “the correct programs for many important judgmental tasks”; human beings have not had “the opportunity to evolve an intellect capable of dealing conceptually with uncertainty.” (Slovic *et al.*, 1976, p. 174) The cognitive tools available to someone who has not been trained in formal disciplines are only normatively problematic heuristics – an interpretation of the errors made

in reasoning experiments called the “Bleak Implications hypothesis” by Samuels *et al.* (1999).

This pessimistic interpretation has been challenged by Gerd Gigerenzer, who points out that heuristics cannot be evaluated according to the standards of normative rationality. In this perspective, the heuristics and biases program incorporates both a strong and a weak element (cf., e.g., Gigerenzer *et al.*, 2011). The strength consists in incorporating Herbert Simon’s bounded rationality perspective, according to which the real agent, due to the limits of its computational capacity, is not an optimizer but rather a satisficer. By contrast, the weak element of the program is its unilateral focus on the negative aspects of heuristics. Conversely, Gigerenzer highlights their virtues: our ancestors left us “an adaptive toolbox”, which includes a collection of fast and frugal heuristics well adapted to some (physical and social) environments but not to others. In virtue of this adaptation, these heuristics need minimum time and little knowledge to make inferences and decisions according to an ecological rationality that allows us to reject the Bleak Implications hypothesis.

Gigerenzer’s theory of smart heuristics, however, has been criticized by advocates of the already cited ‘dual-system’ or ‘dual-processing’ accounts of reasoning (cf. Evans and Frankish, 2009). According to this family of theories, the human cognitive system is composed of at least two subsystems. System 1 (‘intuitive’) is fast, parallel, unconscious, isn’t easily altered, is universal, impervious to verbal instruction, (partly) heuristic-based, and (mostly) shared with other animals. By contrast, System 2 (‘reflective’) is slow, serial, conscious, malleable, variable (by culture and individual), responsive to verbal instruction, influenced by normative belief, and can involve application of valid rules. On this perspective, the main shortcoming of the fast and frugal heuristics theory lies in the unilateral focus on the automatic and unconscious processes of System 1, which leads to neglect the higher processes associated with System 2. A comprehensive account of the human mind’s workings and rationality, dual-system theorists argue, needs an in-depth analysis of both systems, as well as of their forms of interaction in terms of both competition and cooperation.

In light of what we have just said, one might form the impression that dual-system theories have ended up restoring the division between low and high levels of the psyche established by the Cartesian model of

the relationship between reason and passions. But this would be a mistake.

First of all, it is difficult to see the evolutionary plausibility of two cognitive systems implemented in distinct neural subsystems: Why on earth would evolution start anew with System 2 rather than modifying, expanding or integrating the architecture of the pre-existing System 1? This sort of objection led Frankish (2009) to put forward the hypothesis that System 2 is realized within System 1, i.e., there are not two separate systems, but two levels or layers of cognitive processes, one dependent on the other. On this perspective, it is not necessary to suppose that evolution generated System 2 by massively upgrading the architecture of System 1; it may suffice to imagine that the subsystems underlying System 1 have been orchestrated and used in new ways.

Moreover, we can definitely admit the reality of the distinction between intuitive and reflective processes of reasoning; and we can accept also Frankish's hypothesis that reflective reasoning is largely realized in cycles of operation of unconscious intuitive processes (including the subsystems that are typically associated with System 1). This is not, however, a vindication of the System 1/System 2 distinction, since the latter does not map onto the distinction between intuitive and reflective reasoning. Let us consider reflective reasoning: it is easy to show that in some contexts reflection does not improve but rather impairs performance; that there are some tasks where reliance on intuitive reasoning is best; and that reflective reasoning can also employ heuristics. As to intuitive systems, some can be slow, some can be controlled, and some can approach the highest normative standards. In brief, as Carruthers (forthcoming) argued, the System 1/System 2 distinction is not a natural border and should be abandoned.⁴

In conclusion, the psychological investigation of rationality and reasoning tells us that in the case of rationality, as in that of emotions, there is no unitary cognitive sphere; there is instead a repertoire (a toolbox) of imperfect analytic and operative tools, which is heterogeneous

⁴ "If one of the goals of science is to discover what natural kinds there are in the world – in the sense of homeostatic property clusters with unifying causal etiologies [...] – then cognitive scientists would be well-advised to abandon the System 1 / System 2 conceptual framework. The human mind is messier and more fine-grained than that." (Carruthers, forthcoming, p. 21 of the web version: <<http://faculty.philosophy.umd.edu/pcarruthers/>>).

and scattered, and thus lacking the hierarchical structure, culminating in self-conscious rationality, that was assumed by the Cartesian model.

3. *Psychological Defences*

We have thus seen that the cognitive science research work on emotion and thought provides us with the tools to deconstruct the ideology of the conflict between reason and the passions. The phenomena that folk psychology labels as ‘emotional’ can no longer be relegated, as the ideology of the passions suggested, to a ‘low’ and ‘primitive’ psychic sphere, which threatens the nobility of ‘the thinking thing’; rather, quite legitimately, all those phenomena belong to the wider universe of *all* mental events. The factors of error are inherent in rationality, or rather immanent in that hodge-podge of procedures and abilities into which our bounded rationality can be decomposed.

This leads us to a radically new interpretation of the psychoanalytic idea that self-consciousness is a construction packed with self-deceptions and bad faith. In the Baconian perspective, Jervis (1993) notices, the aspects of ambiguity, self-deception, and suffering of human life can no longer be conceived in the way that much of the philosophical tradition has viewed them, namely, as the crisis of a fundamentally rational agent, temporarily overwhelmed by the perturbing influence of affects and sentiments. These aspects can now be conceived as *globally constitutive* dimensions of the mind and conduct. This reinforces an overturning of the psychoanalytic questioning about defences: what we now have to ask ourselves is not how and why some defensive mechanisms exist, but rather if it is not the case that *all* the structures of knowledge and action around which everyday life is structured serve defensive functions.⁵

Here, then, we grasp something that is already in Freud but which the Cartesian framework of instinctual drives prevented him from

⁵ Jervis argues that just as nowadays we start by asking how consciousness, rather than the unconscious, is possible, or we ask not how behaviors that contradict our intention can exist but, on the contrary, if ever deliberate and voluntary behavior exists, so, in the same way, “in examining the construction of the everyday life we need to explain not how and why some ‘defensive’ mechanisms exist, but rather how all the structures of knowledge and action are by themselves, integrally, a matter of defenses.” (1993, p. 301, transl. in Marraffa, 2011).

articulating fully: the defensive processes are much more than bulwarks against anxieties and insecurities that perturb the order of our inner life; they are the primary instruments for establishing order in the mind; they are the very structure of the mind – the Freudian ego itself is a defence.

In this theoretical framework, dynamic psychology joins forces with interpersonal and social psychology. The defence of self-image (closely linked to the self-defensive use of causal attribution), the social attitudes in general and the stereotypes and prejudices in particular, and the rationalizing handling of cognitive dissonance are the building blocks of an interpersonal and social reality packed with systematic errors or, as Freud would have put it, interested self-deceptions. And all these structures of self-deception are defensive constructions that spring from mental operations in which the cognitive aspect cannot be separated from the affective. To illustrate, we will briefly focus on the construct of prejudice.

‘Knowing’ – as well as ‘making sense’ – is primarily a pragmatic matter, a ‘knowing how to do things’. In the context of everyday life an object makes sense for me, and it is known by me, because I place it in a pragmatic context, insofar as I consider it within a repertoire of competences: I have done something with this object in the past and I can do something with it in the future. Nevertheless there is inherent in the very idea of ‘knowing how to do’ an organization of the world according to differentiations and hierarchies. All of us, in forming more or less complex behavioural patterns, act according to gradients of involvement and interest. Basically, we assign different ‘values’ to single objects and to different aspects of our behaviour itself.⁶ The panorama of reality takes shape then in accordance with our interests for objects, viz. according to the value that we assign to the surroundings:

⁶ ‘Values’ are to be understood here as simple differences of importance, i.e. of priority, in the context of the general theme of adaptation. There is an objectivity in the gradients of value in specific contexts. In the cycle of everyday activities animals organize their behavior as a function of a limited series of general interests (‘evolutionary values’) such as predator defense, foraging, defense of rank in group hierarchy, reproduction: each of these general needs dominates over specific behavioral patterns which from time to time are a higher priority than others, i.e. literally ‘they come before’ insofar as they ‘have more value’, alternating with each other at the top of the agenda of ‘the things to do’. In ethology behavioral priorities can be quantified by means of game theory – cf. Maynard-Smith (1982).

Clusters, hierarchies of values arise; the various areas of reality are on different grades of importance. The ‘nearer’ scenarios are those that we are more interested in, and are easily the object of our ‘positive’ planning; the more ‘distant’ scenarios are those we are less interested in; they are less differentiated in their internal details, and can more easily appear to be extraneous or even hostile. These variables come to be organized in the first place according to the phenomenological category of ‘domesticity’, or ‘familiarity’. All of us tend to make a spontaneous separation between, on the one hand, what is ‘internal’ to a limited, ‘domestic’ social world, and hence ‘good’ and ‘reassuring’, and where we find, as it were, a proximal panorama of guaranteed values; and, on the other end, what is ‘external’, ‘alien’, which we are less interested in, whose guaranteed value is lower, and where objects and events can take on negative tones. (Jervis, 1993, p. 331).

This way of organizing reality, and of situating ourselves at its centre, is a primary way of ‘establishing order’, which has clear affinities with some basic structuring categories such as ‘before-after’, ‘high-low’, and above all, in our case, ‘inner-outer’ and ‘near-distant’. The phenomenological category of domesticity refers to the experience of the world-environment as structured according to criteria of distance and controllability. This is a primarily cognitive operation, but one which is nevertheless linked to the attribution of emotional-evaluative connotations in conformity with the so-called ‘primary affects’, i.e. according to a basic alternative of our dispositional orientation toward reality that sharply distinguishes pleasantness and unpleasantness, friend and foe, and thereby coming closer and going away, accepting and rejecting, encompassing and expelling (see the circumplex model of affect in Russell, 1980, 1983).

In animals the world tends to get organized in accordance with the category of territoriality; we find, in ways that are different depending on the species, the den as the most protected shelter, and more outwardly a ‘possession zone’, an ‘exploratory zone’, and so on. In children the ‘domestic space’ is linked to the presence of the primary attachment figure: the possibility of exploring, leaving the ‘protection zone’, appears to be proportional to the level of reassurance provided by the caregiver

(cf. Ainsworth *et al.*, 1978). In adults the difficulty of leaving the 'domestic zone' has been called 'territorial anguish' by De Martino (1951-52), and viewed by the philosopher-ethnologist as one of the two main parameters of the feeling of being in crisis: the spatial or geographic parameter as opposed to the temporal one.

This brings us to prejudice, because its psychological dynamic belongs precisely to that way of organizing reality and placing ourselves at its centre that we have just been sketching. That is, the dynamics of prejudice are part and parcel of the ways in which we spontaneously systematize material or social reality according to categories of relevance and gradients of approval and disapproval. The peculiarity of prejudice consists in the fact that, whereas in most of our basic attitudes (of liking, curiosity, identification, wish, disposition to the affective bond, etc.) there is a ('positive') tendency to approach the object, in prejudice we find the opposite tendency to reject the object, which results in a refusal to know it. Now, according to the social identity theory, the dynamics of feeling as though one is a member of the ingroup is closely linked to stigmatizing the outgroup members as treacherous and different (see, e.g., Tajfel and Turner, 1986). As a result, the sentence expressing the prejudice (i.e. the stereotype) at the moment at which it brings discredit on 'the others', accomplishes the defensive (self-apologetic) function of enhancing our self-image, providing us with a collective identity (a sense of community), which is also a certificate of nobility that 'the others' do not possess. Feeling comfortably part of a 'valid' community causes us to believe in our inner validity.

Thus the biasing aspect of prejudice can be ascribed to the very ways in which ordinary knowledge constitutes itself.

Conclusions

In the last section it was argued that Freud's view of defence mechanisms must today be subjected to a radical revision. Freud's investigation was still wholly within a Cartesian logic, where rational consciousness fails only because of the influence of emotional and affective motions originating from the opacity of the bodily machine. However, if we give up Descartes' idea of a non-rational psychological domain, crowded by passions, instincts, emotions, which can be clearly

demarcated from the operations of rational consciousness, the folk concept of emotion melts away. Far from being a natural kind, ‘emotion’ turns out to be a conventional label that captures quite diverse phenomena; and such phenomena can no longer be relegated, as the ideology of passions suggested, to a ‘lower’ and ‘primitive’ psychic sphere, which threatens the nobility of ‘the thinking thing’. They belong to the unlevelled universe to which all psychological events belong.

In addition, we have also seen how cognitive sciences have brought to light the heterogeneity not only of emotions, but also of what is traditionally meant by ‘reason’. The experimental investigation of rationality and reasoning shows that in the case of rationality, as in the case of emotions, there is no unitary cognitive sphere. There is instead a toolbox of imperfect analytic and operative tools that is heterogeneous and scattered, and consequently lacks the hierarchical structure that, according to the Cartesian model, culminates in self-conscious rationality.

Thus, a paradigm shift is underway. It has been shown how some research areas in cognitive sciences adopt a Baconian logic, in which errors and self-deceptions are seen as intrinsic to the ordinary cognitive-affective processes. Therefore, whereas in Freud the naive subject normally deceives herself because she is unable to accept the presence, deep down, of ‘inadmissible’ sexual and aggressive drives, in a dynamic psychology informed by the renewal of the traditional psychological categories outlined above, intrinsically defensive cognitive-affective mechanisms become the principles that rule over the construction of everyday reality. Reason does not dominate emotions, nor vice versa. Rather, they work synergistically, to make us the complicated animals we are.⁷

⁷ We therefore agree with Oliveira-Souza, Moll and Grafman when they write: “Two paradigms have guided emotion research over the past decades. The dual-system view embraces the long-held Western belief, espoused most prominently by decision-making and social cognition researchers, that emotion and reason are often at odds. The integrative view, which asserts that *emotion and cognition work synergistically*, has been less explored experimentally. However, the integrative view (a) may help explain several findings that are not easily accounted for by the dual-system approach, and (b) is better supported by a growing body of evidence from human neuroanatomy that has often been overlooked by experimental neuroscience.” (2011, p. 310; italics added).

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