



# Facing the Neurobiology of Virtues: Is Veto and Consent Power Universal?

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# ***Facing the Neurobiology of Virtues: Is Veto and Consent Power Universal?***

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## ***Introduction***

An increasing number of studies show that (a) virtues function as an emotion regulator (Carron, 2014; Algoe & Haidt, 2009; Stark, 2001), and that (b) virtue learning affects brain structure (; Mullins, 2012; Weng, 2013; Younis, 2015). These studies shed new light on some neuroethical perspectives suggesting that our brain network activity determines the acquisition and permanence of the virtues (Churchland 1998; Haidt & Joseph, 2004). In contrast, I maintain that discovering the neural correlates of virtues does not undermine the crucial role of free will in virtuous actions; rather, it produces a major indicator of the likeliness of an action, which I call the Hypothesis of Action (HA). This implies a reaffirmation the notions of *veto* and *consent* (Navarini 2014) as they provide a universal practical power deriving from the subject's exposure to – and development of – moral virtues.

To explore this thesis, I would like to focus on four points:

- (1) Virtues can modify the perception of basic emotions
- (2) Virtues cause (non-permanent) changes in the mind
- (3) Virtues determine the likeliness of actions, generating Hypothesis of Actions (HAs)
- (4) HAs are submitted to one's Consent and Veto Power (CVP), which is situation-related

### ***(1) Virtues can modify the perception of basic emotions***

Some authors maintain that self-control – defined as a form of emotion regulation – is necessary to display virtues<sup>1</sup> (Gross, 2002; Oliver & Gross, 2004; Kristjánsson, 2017<sup>2</sup>). Apparently, a virtuous skill like self-control would precede virtue acquisition, which seems contradictory. As a matter of fact, other authors contend that virtues play an important role in emotion regulation (Carron, 2014, Stark, 2001), therefore the process of strengthening one's character through virtue acquisition is also a way of

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<sup>1</sup> According to this view, as Carron (2014) says, “emotion regulation is a basic form of self-control, and is a necessary pre-condition of both self-controlled and virtuous action” (Carron, 2014: 1360).

<sup>2</sup> Kristjánsson actually maintains that “there are good ‘Aristotelian’ reasons for understanding those emotions [a number of neglected emotions] either as virtuous or as indirectly conducive to virtue” (Kristjánsson, 2017: kindle version). In his view emotion regulation is not necessary to obtain virtues but may lead to them.

working on human basic emotions<sup>3</sup>. This view is already implicit in Aristotle's connection between virtues and emotions, when he holds that

*both fear and confidence and appetite and anger and pity and in general pleasure and pain may be felt both too much and too little, and in both cases not well; but to feel them at the right times, with reference to the right objects, towards the right people, with the right motive, and in the right way, is what is both intermediate and best, and this is characteristic of virtue (NE 1106b14).*

Carron shows on empirical bases that virtue may not only exert a control function over emotions but it may also induce a change in the perception of emotions themselves: they end up being perceived differently depending on one's virtues. To ground this assertion, Carron considers some practical situations, showing simple activities associated to habituation, and assimilates them to virtue acquisition and functioning. Let me offer three examples.

In one of his examples, he considers the case of "wine tasting".

- a. Let us assume that C. does not drink wine. She can't tell flavor, acidity, intensity and all the other characteristics distinguishing the many types of wine
- b. When her friend T. introduces her to wine through very slow steps she becomes able to recognize one wine from another.
- c. Over time, C. becomes autonomous in this skill, and quite sophisticated in her knowledge of the wine world. She can detect the characteristics of a wine just by smelling the glass.

This example resembles virtue acquisition, admittedly only by comparison with a merely mechanical ability.

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<sup>3</sup> "Aristotle has famously argued that virtue is a state of character that not only involves doing the right actions but also involves feeling the right emotions. So, for instance, regarding anger, Aristotle tells us that everyone gets angry; some situations just are such that they cause anger to arise in us. But this, Aristotle says, is neither virtuous nor vicious because virtue involves choice, and the fact that a situation is anger inducing is not of our choosing. 'The man who feels fear or anger is not praised, nor is the man who simply feels anger blamed'. But, Aristotle continues, we are praised and blamed for feeling anger in a certain way—praised if we feel it appropriately and blamed if we feel it inappropriately. And although we cannot choose, in a given moment, to feel anger or not feel it, we can choose over time to properly cultivate the emotion anger, so that in any given moral moment, we feel anger appropriately" (Stark, 2001: 440).

Another example is taken from Feinberg (2012), who studies the reactions of subjects after watching a sad movie clip. The training group had to cognitively reappraise to lessen the emotional impact during the screening of the clip, whereas the control group did not have to reappraise.

*Those same subjects then moved to a different room where they read and responded to moral dilemmas. The subjects who reappraised were more measured in their responses to the dilemma with less intense emotional reactions. The researchers concluded that agents who engage in reappraisal strategies tend to make more deliberative judgments in unrelated scenarios, which suggests that cognitive strategies such as reappraisal can have lasting effects on the agent's deliberative process and their emotional reactions (Feinberg, 2012).*

Here, an intentional act of self-control – which may resemble virtue though it is not stabilized – already produces lasting effects both on cognitive and emotional reactions. Accordingly, a stable skill like virtue could induce long lasting cognitive and emotional reactions.

Now, let us merge the findings of these two examples in the following third example, taken from a real clinical psychological case and directly related to the acquisition of the virtue of courage:

- a. C. can't stand her job environment anymore. The very idea of entering that office, sitting at her desk, and facing her frustrating everyday routine seems intolerable to her. She feels stuck in there every day.
- b. During a psychotherapy session she is invited to imagine a boxing match and realize that the boxers fight not only by attacking but also – and especially – by resisting the attacks of their opponent. C. is brought to consider that a significant part of boxing training consists in strengthening their abdominal muscles and in becoming resistant to punches to the stomach.
- c. The therapist tells C. to use this as a metaphor of her work situation and she develops a will to be resilient and stronger, to manage the pain generated by her workplace. Whenever she felt discouraged and wishing to run away, she would think about the boxers and would exercise her endurance.
- d. Progressively, she gains enough courage to sustain that hard situation autonomously<sup>4</sup>. She finally becomes courageous, and her perception of that pain, as well as of other forms of pain and fear, isn't the same anymore. Eventually she feels confident in the face of adversity, thanks to the newly acquired virtue of courage (Baima, 2018; Wilburn, 2015), and she perceives her capability to face sudden and unexpected difficulties.

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<sup>4</sup> Of course, there could have been completely different solutions other than resilience: she could have changed her job, complained about unjust treatment or mobbing, etc.

These examples suggest that virtues (i) appeal to universal human emotions, and (ii) provide reactions and behavioral patterns that indirectly affect the perception of emotions. It is extremely difficult for subjects to change their emotions directly. One can voluntarily react to the pressure of emotions in different ways, but they can't avoid or change them when they occur, unless they find a means to address them indirectly, namely virtues. Such psychological "power" of the virtues over emotions introduces us to their neurobiological "power".

## ***(2) All virtues cause non-permanent changes in the mind***

There is strong evidence that the virtues have important neural correlates. Paul Churchland (1998) argues that the virtues are the results of a complex neurological network, allowing the acquisition of such skills as "social perception, social reflection, imagination and reasoning, and manipulation" (p. 88). Although Churchland attributes the task of fostering and enhancing these networks to education, he believes that the "prototypical space", within which moral virtues develop, exists in the mind as an innate endowment. If so, this neural structure would also determine – or pre-determine – virtue, although its specific configuration depends on individual variables. Churchland addresses the cultural and individual differences among the virtues in terms of differences in the individual minds:

*being skills, they [the virtues] are also differently acquired by distinct individuals, and they are differently acquired within a single individual. Each brain is slightly different from every other in its initial physical structure, and each brain's learning history is unique in its myriad details. No two of us are identical in the profile of skills we acquire (p. 89).*

Basically, in Churchland's view, the inputs from experience, genes, education, and social values generate an ordered and hierarchical structure of outputs that we name *virtues*, as long as they become stable. He affirms that there is no such virtue acquisition as the "sudden conversion" or "moral re-birth" (p. 89)<sup>5</sup>, because the process leading to virtue is slow, gradual, and emotional in principle. The rational knowledge of the virtues, in Churchland's perspective, is fundamentally independent of its process of acquisition and functioning, which is mostly intuitive. The entire moral activity is therefore assimilated to the emotional level, and it functions neurologically as the scientific activity<sup>6</sup>. This explanation,

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<sup>5</sup> "This view of the assembled moral virtues as slowly acquired network of skills also contains an implicit critique of a popular piece of romantic nonsense, namely, the ideal of the "sudden convert" to morality, [...]. Moral character is not something – is not *remotely* something – that can be acquired in a day by an Act of Will or by a single Major Insight" (*ibid.*, p. 89).

<sup>6</sup> The coexistence of a neurobiological hard base of virtue functioning and the emotional imaginative structure of morality, makes him criticize Flanagan's and McIntyre's virtue ethics theories, because of their alleged pessimistic or skeptical stance to moral progress because of modern fragmentation. Churchland states that the contemporary

although leaving little room for free will and motivation, tries to give an account of the “brain settings and modifications” associated with the virtues, which has been given empirical strength in the subsequent years.

Narvaez (2008) also shares the idea of a neurobiologically-grounded and imaginative joint process in her Triune Ethical Theory<sup>7</sup>. All three kinds of ethics included in her model (the security ethics, the engagement ethics, and the imagination ethics) have to do with mostly unconscious, automatic behaviors, inspired and structured by multiple factors: early experience, education, social environment etc. Like Churchland, Narvaez grounds the virtues in biology, but while the former places them especially within human neural architecture – developed by experience – the latter refers to basic human experiences, e.g. proximity, intimacy, embodiment, sociality<sup>8</sup>.

Triune Ethics Theory identifies three basic attractors for moral information processing within the brain (Narvaez, 2007a), inspired by theories of brain evolution (MacLean, 1990). [...] These three distinctive moral systems, rooted in the basic emotional systems, propel human moral action on an individual and group level (Narvaez, 2008: 313).

Virtue training, in this respect, consists in gaining (or re-gaining) a socially “open” behavior as opposed to individualistic survival and exclusivist tendencies, and it also changes brain structure. If virtue can be neurobiologically detected, virtue-induced neurological changes can be detected as well. In sum, the modifications in the perception of emotions originated by virtues together with the flexible structure of our minds, suggest that virtue acquisition induces stable, although non-permanent, new synaptic connections. In other words, the changes in behavior induced by virtues, change the mind too. According to several studies both the amygdala and limbic system (responsible for the emotions) and the prefrontal cortex (responsible for cognitive processes) are activated under the impulse of virtuous behavior (Immordino-Yang, M. H., et al., 2009).

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loss of unity in social and moral values is the price to pay for humanity to grow up, thus rejecting the traditional “golden age” narrative with its nice but unproductive naïve imagery of good and evil. However, he considers himself a virtue ethicist, sharing Mark Johnson’s view of moral imagination in particular, on which I will focus further on.

<sup>7</sup> She also underlines that deliberative rational ethics and intuitive ethics have to cooperate to illustrate moral phenomena. Nevertheless, when she comes to describing how morality works, she puts less emphasis than Churchland on the formal structure while stressing the intuitive component more. See also Narvaez, D. & Vaydich, J.L., 2008.

<sup>8</sup> Narvaez also shares Churchland’s view that moral rationalization does not necessarily promote good behavior, in tune with the larger virtue ethics tradition.

Younis (2015) refers to some studies on brain sensitivity to compassion. Weng and colleagues (2013) evaluated the experimental subjects before and after learning the virtues of compassion. The results showed, as Younis points out, that

the brains of those who had been taught compassion techniques (that is, techniques that instantiate compassion as a virtue, that is, as a disposition to fellow-feel, to distinguish between self and other, to relate with pity or sorrow to others who are being treated unjustly, and intervene to help them on this very basis) showed marked changes in neural activity (for example, ‘increased engagement of neural systems implicated in understanding the suffering of other people, executive and emotional control, and reward processing’); these changes were apparent in neural responses for example when these subjects were shown images of suffering; the levels of neural activation were observably greater in subjects who had been taught compassion techniques; further, training related changes in neural patterns of response to suffering could help to predict increased levels of activity geared towards helping others.

Tachibana (2017) supports the idea of a moral change through a neurofeedback training:

a subject is required to control the size of a circle, flame, or whatever visually and metaphorically represents the difference between the current and target brain states. By trial and error, a participant gradually modulates the brain activity into the target figure. The better the subject control those visual representations, the more his or her current brain state approximate the target brain state. Since each of these states is the neural representation of target human faculties such as emotions, cognition, and/or behaviors (ECB), neurofeedback training enables a subject to self-regulate his or her ECB.

The non-permanent nature of these brain changes is obviously due to the possibility of losing or weakening, as well as of further strengthening our virtues. The contingency of similar “brain traits”, mapped on practical skills, does not mean they are rare. On the contrary, all have some virtuous habits that will emerge in the proper context.

### ***(3) All virtues impact on the likeliness of actions, generating Hypothesis of Actions (HAs)***

If the virtues regulate our emotions and affect our neural system, then the predictability of the virtuous behavior may follow. Indeed, the fact that virtuous actions are spontaneous and recurrent attests their likeliness. As I said above, it is always possible for the agent to depart from his more likely, virtue-induced action, but his deviations from the virtuous behavioral pattern are rare, as it is rare for the vicious or the non-virtuous to behave well systematically. This might be true either for an entire virtue, or for a component of it (Alfano 2015).

The fact that the well-established virtue generates spontaneous behavior is consistent with the traditional idea of virtues as providing a second-nature for the “owner”. Like Narvaez says, the first nature tends to egoism, whereas the second nature – necessarily acquired – is altruistic, by means of real-world interactions.

The acquired naturality of the virtues is therefore a reasonable source of predictable behavioral patterns which outlining expected actions, that I propose to call Hypotheses of Action (HA). To define it better, a

HA is the action (a) or the series of actions (a<sub>n</sub>) that a subject (x) with a number of virtues (V<sub>n</sub>) is expected to perform (E) in a given situation (S).

In formula:  $HA = \forall x(Exs \bullet Axa) \leftrightarrow \forall x \exists y (Vx \bullet Sy)$

This doesn't mean that we will necessarily perform our virtue-induced actions, but that we are very likely to do so. According to our virtues-and-vices ethical structure, we constantly face HAs. We can always depart from those HAs, denying our consent to them, or we can accept them, by consenting to them.

This account permits to discuss the way neuroethics challenges free will, implementing the assumption that our pre-moral level (Boella, 2008) has already been neurologically activated when we become aware of a – seemingly free – choice. Thus, our supposed free behavior, also our virtuous actions, would be visible in our brain: according to Libet (1999) this would happen up to 0,5 seconds, and according to Haynes & Rees (2005) up to 7 seconds before the awareness of the action. This perspective apparently challenges free will, ascribing to the reason of our moral acts to the environment and to the innate mental structure. Virtues would be a mechanism, barely involving our conscience and our consciousness, in some way also similar to Churchland's model.

I believe virtue ethics may represent the solution to the challenges to freedom posed by neuroscience (Navarini, 2012). I think that the spontaneously acquired and effortless practice of morally good behavior of the virtuous person, while resembling determinism, is indeed deeply different from it. As Aristotle said, the virtues need nurturance, therefore even if they were grounded in our neurological system, free will would not be excluded – at least - in order to preserve them. Indeed, I am pretty sure we need free will also to establish them, since virtues are not natural tendencies. Natural tendencies – such as eating, breathing, reproducing, as well as thinking or wishing – carry traits that are deeply different from those featured by virtues. Natural tendencies, for example, don't require time to become stable, they don't need the *right reason*, they are not always voluntary, and so on. To summarize this point, virtue ethics can explain neuroethical empirical findings about choices without dismissing free acts, by considering the HA as determined on by the brain under the pressure of genes and culture, but shaped and induced by either virtuous or vicious habits<sup>9</sup>.

Prior to Narvaez's Imagination Ethic, Mark Johnson (1993) had also tried to overcome the neuroscientist impasse suggesting that moral thinking is quite a matter of imagination. He stated that the *morality is art* metaphor perfectly represents human moral thinking and acting. In our experience, we constantly

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<sup>9</sup> As Gimenez Ayala (2011) points out, "the detection of neural activity at any morphological point in these networks does not necessarily imply that they are controlled independently of what we normally understand as the will. In other words, although they are not part of our 'consciousness', it does not follow that the subject does not freely control them" (Ayala, 2011, p. 53). The burden of proof remains with the neurobiological model and not *vice versa*.



have to figure out the set of possibilities, of contexts, of relations involved, and in so doing we creatively find behavioral solutions that are influenced by thoughts, emotions, events, different points of view, exemplars, and so on, without necessarily determining us. Rather, the indeterminacy of our experience leaves room for responsibility and freedom. In other words, the conditioning factors may reduce personal liberty and perhaps lead us to assume that freedom is not absolute, but they don't threaten the very possibility of freedom, since we usually remain capable of telling conditioning factors from personal choices, according to our inner purposes and projects. As a matter of fact, what the experimental data about brain networks show is not the identity of spontaneous behavior and determinism, but the articulated connections between the spontaneous activation of cerebral areas and our choices and virtues.

#### **(4) HAs are submitted to one's veto and consent power (VCP), which is situational**

As I said in the previous point, we can always act according to the HAs, by giving our consent, or depart from them, by denying our consent. To be sure, the notions of *consent* and *veto* have never been excluded by cognitive and behavioral neuroscientists. There is no room here to discuss the notions of consent and veto in depth, but let me define them very generally as the deliberative moments, with a necessary rational component, which can creatively originate any single act of self-determination, according to departing from the moral pattern of virtues and vices shaping the HAs. In my view, the capability of giving or denying – but especially of giving – our consent to determined HAs<sup>10</sup> and affecting our brain, is necessary and sufficient to ensure freedom. It is consistent with virtue theories that the HA) requires free will. The answer we give constitutes our acts of self-determination. Education, then, may induce positive answers to the HA. The more consistent the practical answer to the HAs the more self-determined (read: free) we are.

Since the stability and recurrence of any virtuous attitude is one of the most intuitive sources of HA, then our *veto* and *consent power* will typically apply to our acquired dispositions towards good actions (namely our virtues). We are consequently inclined to persist in our virtues (or vices!) as long as we continue to give our consent to the specific actions induced by the virtues themselves.

There is a final problem emerging from this quite complex picture. This account assumes that the virtues are present in everyone's moral apparatus. It doesn't give proper consideration to the fact that, according to many scholars, being virtuous is difficult (even impossible in a strong situationist view). Zagzebsky (1996; 2017) also points out that the majority of agents are non-exemplars, as they are neither fully virtuous nor vicious. And Alfano (2015), as already mentioned, stresses the variability in the possession of the virtues to the point of wondering whether anybody is technically virtuous. How does this picture of virtue-induced emotions, brain connections, and actions hold in case virtue is very rare, or its acquisition is very difficult, or extremely instable? In my view, virtue can be instable or difficult to

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<sup>10</sup> Mostly provided by our virtue/vice moral articulation They could also be provided by other simpler sources such as daily experience.

acquire, but not rare. It is rare to possess one or more virtues perfectly and completely, but to some extent all people have virtues – and vices probably –. Therefore, all people have a system of HAs to deal with.

### **Conclusions**

In conclusion, I would like to highlight the main findings of the path I tried to draw.

- a. *Universality of the virtues.* If emotions are universal, the virtues that regulate them must be universal as well, at least with respect to their core aspects, or prototypes.
- b. *Gradualism of the virtues.* On the other hand, since all have emotions but not all (almost nobody, in fact) possess all the virtues, there must be a great deal of gradualism in virtue acquisition and preservation. As I said, it is difficult to possess all virtues perfectly, but it is equally hard to lack all of them completely. This is not incompatible with the unity of the virtues, provided this unity is intended as a direction.
- c. *Spontaneity of the virtues and free will.* Because of its spontaneity in linking emotions like joy and pleasure with the good, the virtues seem to challenge human freedom, replacing it with automatic reactions. However, sharing a non-hyperbolic view of freedom, CVP is sufficient to safeguard freedom.
- d. *Flexibility of the virtues: particularism of the HAs and universality of the CVP.* If the neurobiology of the virtues as emotion regulators is universal, the virtue-induced HAs are local and situational. And even though the CVP is universal, the specific consent or veto acts are individual, causing the virtues to be weakened or strengthened by actual specific choices, namely self-determination acts.

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