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The Likelihood of Actions and the Neurobiology of Virtues: Veto and Consent Power

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Abstract

An increasing number of studies indicate that virtues affect brain structure. These studies might shed new light on some neuroethical perspectives suggesting that our brain network activity determines the acquisition and permanence of virtues. According to these perspectives, virtuous behavior could be interpreted as the product of a brain mechanism supervised by genes and environment and not as the result of free choice. In this respect, the neural correlates of virtues would confirm the deterministic theory. In contrast, I maintain that these findings do not undermine the role of willpower and freedom while reinforcing an interactionist view of free will. If virtues affect our neural system, then the predictability of the virtuous behavior follows. The likelihood of our future (moral) actions is primarily virtue-dependent; therefore, the acquired naturality of virtuous behavior is a source of predictable behavioral patterns outlining expected actions, which I propose to call Hypotheses of Action (HAs). However, the predictability of an action indicates its likeliness and not its certainty or necessity. The neural traces of virtues can be interpreted as major indicators of HAs. It is always possible for the agents to depart from their more likely, virtue-induced actions, but their deviations from the virtuous behavioral pattern are rare, as it is rare for the vicious/non-virtuous person to behave well systematically. This implies a reaffirmation of the notions of *veto* and *consent* as they provide a universal practical power affecting the subject's use of moral virtues.

Keywords Neurobiology of virtues · Willpower · Free will · Emotion regulation · Virtue ethics

1 Introduction

Facts and events occurring continuously in daily experience make us react through actions, many of which are *moral* acts in a broad sense, since they involve pursuing personal goods, displaying ethical values, or applying moral principles. If a 100 euros banknote falls from a

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man's pocket right in front of me and the man does not realize it, supposing I am in short of money and have a present to buy, what am I likely to do? My subsequent action will vary according to my moral structure. Will I take the money or give it back to the owner? Or will I do nothing and keep walking? In this paper, I aim at suggesting that the likelihood of our future (moral) actions is primarily virtue-dependent, and therefore the acquired naturalness of virtuous behavior is a source of predictable behavioral patterns outlining expected actions, which I call Hypotheses of Action (HAs).

To explore this thesis, I will consider the sources of action likelihood, especially the neurobiological ones (see sections 1.1–1.3). Then I will examine how virtues determine the likelihood of actions, generating HAs (see section 2). Finally, I will explain why HAs are submitted to one's consent and veto power (CVP).

2 The Sources of Action Likelihood

A human action can be expected for many reasons. It could be likely because, for example, it follows from purely instinctive reactions, like moving back one's hand after touching something hot; or it could be expected because it is very reasonable in a situation to act in a certain way, like showing disappointment if a present box is empty; or it could be simply consistent with non-moral habits, like a person who is used to putting her keys in her right pocket. The notion of HAs I am introducing does not refer to those situations but specifically to moral acts. HAs can be defined as the expected moral action(s) that a person is likely to perform in different contexts. However, the likelihood of moral actions can be given different explanations; therefore, an account based on virtues might encounter some alternative explanations and some preliminary objections.

A first set of alternative explanations and objections might come from accounts that justify the likelihood of (moral) acts on different cognitive grounds such as reason (1.1) or emotions (1.2).¹

A full discussion of such perspectives would be beyond the limits of the present work; therefore, I can only briefly illustrate why, in my view, none of them invalidate an account of the HAs based on virtues and might be complementary to it.

I will then dedicate some attention to some neuroethical studies (1.3), apparently challenging the power of our will in everyday choices due to the endorsement of a substantial ethical neuro-determinism, which is not shared by all neuroethical theories but undoubtedly characterizes a number of them (Soon et al. 2008). In my account, the neurobiological aspects of virtues, far from weakening their role, interact with—and confirm—the idea of a virtue-based explanation of the likelihood of moral acts (1.3).

2.1 Reason

The idea of grounding action likelihood in abstract thought or reasoning stems from the assumption that more rational means more likely. This fundamentally Kantian premise² might

¹ The idea of a discrepancy between rationality and emotivity has been widely criticized in contemporary moral philosophy and psychology, while the idea that emotions can be labelled as cognitive has been gaining strength within the world of emotion theories, thus widening the concept of knowledge (Solomon 2007¹). Rationality and emotivity, from this perspective, cooperate toward global knowledge.

² The reference here is to the Kantian claim that the universalizability test is adequate to motivate moral acts, to be found especially in his *Foundations of the Metaphysics of Morals* (trans Beck 1959, pp. 63–64). On this topic see also O'Neill (2004) and McCarty (2009).

work for moral discourse and moral language, whereas in ethical practice it is common to experience a contrast between moral knowledge and actual behavior, especially when facing ethical dilemmas (Greene 2016). Admittedly, our moral judgements usually follow a criterion of reasonability (Sibley 1953; Rasmussen 2004); we develop a moral certainty that our longtime neighbor is not a murderer, that the food at the restaurant has not been poisoned, or that our new colleague has not given us a fake name. The reason for these certainties is clear—we know that, generally speaking, people do not kill, hurt, or lie without some motivation. In other words, if we do not have specific evidence for doubting, we tend to attribute people the most reasonable behavior in a given situation due to the overall reasonability of human behavior. However, this general statement does not imply that for each person the most probable action is always the most rational or reasonable one. On one hand, the reasonable choice could be made out of intuition or even out of some instinct, and on the other hand, rationally knowing what is reasonable does not necessarily imply we will act accordingly. Rational knowledge is not enough to predict moral acts, for we also need will and ethical practice, as in the development of moral virtues.³ Acquired reasonability, displayed without efforts, is typical of virtuous behavior. As a result, while it is questionable that the likelihood of a moral action can be determined by reason only, the overall rationality or reasonability of the HAs might also belong to a virtue-oriented approach.

2.2 Emotions

Emotional reactions might be invoked to explain the likelihood of moral actions because it is apparent that the intensity of our inclinations and passions can often predict our behavior (Schroeder 2007). Consequently, we might identify emotionally induced actions as fundamental occurrences of HAs. Like any other subjective experiences, emotions contribute to generating moral actions, but the likelihood of these actions can have different interpretations. We may consider emotions as overwhelming forces, arising physically and bringing along necessary re-actions, as in the perceptual theory of emotions (James 1884, 1890; Prinz 2004)⁴; or we might see emotions as integrated cognitive functions, entering into the process of knowledge and morality (Kenny 1963; Solomon 2003; Neu 2000; Nussbaum 2001) and giving the expected action a special strength.⁵ This view is already implicit in Aristotle's connection between virtues and emotions (Kristjánsson 2018), as 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

³ The kind of rationalism here addressed is related to internalism (Williams 1979), which typically maintains – in one of its basic forms – that the subject's knowledge of the good, therefore her rational motivation, is necessary and sufficient to act morally, since normative reasons are dependent of one's psychology (Schroeder 2007). By contrast, externalism assumes that moral judgment and motivation are just contingently connected, for moral motivation would require the combination of a moral judgment with a desire (Shafer-Landau 2000). Moral rationalism can be actually claimed both by internalists and externalists (Lord & Plunkett 2017).

⁴ This basically physical interpretation of the role of emotions is countered by some experiential evidence, for example by our (at least partial and/or theoretical) capability of voluntarily containing our emotional impulses in our behavior, thanks to adequate motivations (De Sousa 1987).

⁵ According to the evaluative theory of emotions based on appraisal, however, emotions would not necessarily induce likely moral actions, since a stimulus would be able to generate very different emotions in different people, or also in the same person at different times. For this reason, this theory suggests that it is not stimuli that elicit emotions, but stimuli as appraised (Arnold 1960; Frijda 1986).

people, with the right motive, and in the right way, is what is both intermediate and best, and this is characteristic of virtue” (Aristotle 1925: NE 1106b14). In this Aristotelian light, it can be argued, after Susan Stark, that “we can choose over time to properly cultivate the emotion anger, so that in any given moral moment, we feel anger appropriately” (Stark 2001, p. 440). According to this perspective, virtue could be precisely a privileged instrument to cultivate emotions (Carron 2014). Along these lines, Robert Roberts and William Wood claim that at least some “virtues [...] involve proper orderings of emotions” (Roberts & Wood 2004).⁶ In summary, it can be maintained that emotions are important in action probability, but this does not exclude (and might in fact involve) virtues, which some studies have interpreted as self-regulators (Gross 2002; John & Gross 2004).⁷

2.3 Neurobiological Processes

Let us now consider the impact of neuroscientific studies on this subject as a background for developing a virtue-ethical account of HAs. A significant amount of recent research concentrates on the neuroscientific explanation of moral acts.⁸ Although the topic of HAs has never been addressed as such, some neuroethicists seem to believe that the probability of performing certain (moral) actions as opposed to others has its definite source in our brains; we would be basically *acted* by our neural system, which displays our imminent choices several seconds (or minutes) before we become aware of them (Libet 1999).⁹ Although Libet-like experiments consider oversimplified actions and do not pretend to rule out free will entirely, some scholars have interpreted his work as doing precisely that, jumping from a neural explanation to the refusal of free will (Haynes & Rees 2005; Soon et al. 2008). If that is so, then the implications for ethics are clear: if humans do not have free will, then how can they be considered responsible for their actions? While ethical decision-making is only a subset of the decision-making Soon and colleagues want to challenge, it is certainly one of the most relevant ones for our daily life.¹⁰ From this perspective, it might seem that moral virtues would barely add anything to already neuro-determined acts and that our brain network

⁶ This is through the crucial role of self-control, which is also a virtue in their account (Roberts & Wood 2004; see also Mele 1985).

⁷ The idea that virtues are emotion regulators is fascinating and deserves more attention in both virtue ethics and emotion studies (Algoe & Haidt 2009; Wilburn 2015; Navarini & De Monte 2019; Baima 2019).

⁸ The idea that experience and behavior affect brain development is not new, although such a sensitivity of our synaptic connections to behavioral changes has been interpreted differently. Flanagan (1991, 1996) elaborated a deterministic view of the mind and the will that leaves no room for moral progress, all changes being driven by social and biological factors, whereas MacIntyre (2007^{III}) believes that—after the Enlightenment—humankind had a sort of moral regress due to the loss of the traditional doctrine about virtues. Therefore, moral theories and practices must regain that perspective, which is stuck in the past. Others consider some recent neuroscientific research on morality and education (from Libet 1999 onwards), while trying to overcome them through a creative and flexible interpretation of the role of virtues in human moral behavior (Johnson 2003).

⁹ Libet asked experimental subjects to perform simple movements, mostly the flexion of the fingers or wrist, and to estimate the time of their conscious awareness of the “urge to move” by reporting the position of a spot moving in a circle in an oscilloscope screen. He also recorded data with EEG. He discovered that our brain activates corresponding neural areas at least half a second before movement, and 250 milliseconds before we feel the urge to move. These data have been reinforced by subsequent studies (Soon et al. 2008). The fact that the change in brain potential occurred before the conscious decision has been interpreted sometimes as proof that our conscious decision to act is not the cause of the movement. Libet-like experiments suggest that conscious will is too slow to make things happen, and that volitional acts must result from unconscious processes in the brain, not from conscious will. Notably, Libet has always admitted that there is a power of veto allowing the subject to depart from the neurologically expected action.

¹⁰ Thank you to an anonymous reviewer for suggesting me these observations on Soon et al. (2008).

activity would also determine the acquisition and permanence of the virtues. This seems to match with the innatist models of morality (Churchland 1998; Haidt & Joseph 2004).

Paul Churchland (1998) argues that 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.¹¹ Churchland addresses the cultural and individual differences among virtues in terms of differences in individual minds:

“...being skills, [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.” (Churchland 1998, p. 89).

In Churchland’s view, the inputs from experience, genes, education, and social values generate an ordered and hierarchical structure of outputs that are called “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)¹² because the process leading to virtue is slow, gradual, and emotional in principle. More to the point, he argues that virtues have innate bases and are further shaped by emotional processes derived by multiple inputs. The entire moral activity is assimilated to the emotional level with a neurological process similar to scientific activity.¹³ From Churchland’s perspective, the theoretical knowledge of virtues is fundamentally independent of its process of acquisition and functioning, which is mostly intuitive.¹⁴ Of course, intuition, as opposed to rational deduction, might be a characteristic of virtuous behavior according to several moral accounts. However, the interesting focus here is the innate neurological dimension of such an intuition which seems to ground both the existence and the shaping of one’s subsequent virtues.¹⁵ This explanation tries to illustrate the “brain settings

¹¹ I am aware that this assimilation of brain innatism with (a sort of) determinism may sound too extreme, since in Churchland’s account there is an unquestionable contribution of experience to one’s progressive moral setting. Still, in his perspective brain schemes seem to prevail over personal will and conscious choices. Therefore, the interaction between brain and mind seems more in the brain-to-mind direction than in the mind-to-brain one, which is more consistent with the experientialist view I am suggesting.

¹² “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” (Churchland 1998, p. 89).

¹³ This means that moral activity is mapped on scientific activity, displaying the same neurological processes. 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 on moral progress caused by modern fragmentation. Churchland states that the contemporary 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 (Johnson 1993).

¹⁴ As an anonymous reviewer of this article noticed, this statement addresses the difference between the *knowledge* of what a virtue is and the *fact* of being virtuous.

¹⁵ I am aware that my interpretation of Churchland’s account might be further discussed, since it could be argued that human neural architecture—developed by experience—is not necessarily linked to neural determinism. However, if I understood his though correctly, the pre-determined (neurological) component of virtues in his perspective is prevailing over experience and education, so limiting the role of willpower.

and modifications” associated with virtues, which has been given empirical strength in the following years.

In her Triune Ethical Theory, Narvaez (2008) also shares the idea of a neurobiologically-grounded and imaginative joint process.¹⁶ All three kinds of ethics included in her model (security ethics, engagement ethics, and 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 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, sociality¹⁷) as crucial determining factors.

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

Virtue training, in this respect, would consist of gaining (or re-gaining) a socially “open” behavior as opposed to individualistic survival and exclusivist tendencies, and this would also change brain structure. If virtue can be neurobiologically detected, virtue-induced neurological changes can be detected as well. In sum, the modifications 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 might change the brain as well.

3 Virtues Determine the Likelihood of Action, Generating Hypotheses of Action (HAs)

As seen before, from a strict neurodeterminist perspective, virtuous behavior could be interpreted as the product of a brain mechanism and not as the result of free choices; therefore, the neural correlates of virtues would simply confirm the deterministic theory in either a compatibilist or an incompatibilist framework.¹⁸ However, another option is consistent with the same data; possibly many neurologically determined actions had been prepared by already available virtuous dispositions, and therefore the growing empirical evidence that virtue learning affects the brain providing (non-permanent) neural traces would rather account for the acknowledgment of willpower. Admittedly, accepting the neural correlates of virtues not only does not undermine the role of willpower (and of freedom itself), but it might reinforce an interactionist view of free will (De Caro 2007, 2018).

¹⁶ 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. Also see Narvaez and Vaydich (2008).

¹⁷ Narvaez also shares Churchland’s view that moral rationalization does not necessarily promote good behavior, in tune with the larger virtue ethics tradition.

¹⁸ Among neuroethical theories, determinism has been considered either incompatible with free will, such as in scientific isolationism and philosophical isolationism (De Caro 2007), or compatible, basically by affirming the dualistic nature of knowledge, which would involve free will at a psychological level (the mind) and would exclude it at a biological one (ibid).

According to De Caro, interactionism,¹⁹ requiring both natural determinism and free will to explain human behavior, could be derived from a compatibilist view or from a libertarian (incompatibilist) one. In the first case, the cooperation of physical objectivity (brain mechanism) and mind subjectivity (free selves) would be mainly due to a dualistic view in which their working *in tandem* would proceed from a correspondence between them. In the second case, the fundamental indeterminacy that is required for an action to be called free could in turn influence or determine the brain. In both cases, an interaction between brain and will, specifically the influence of will on the brain, is admitted. Therefore, moral virtues, slowly acquired through the exposure to exemplars through experience and cognition (rational and emotional), might be suitable “influencers” of neural connections (Han 2016).

The idea that virtues affect the brain and not only the other way around is consistent with some studies maintaining that both the amygdala/limbic system (responsible for emotions) and the prefrontal cortex (responsible for cognitive processes) are activated under the impulse of virtuous behavior (Immordino-Yang 2009; Feinberg et al. 2012; Weng et al. 2013; Younis 2015). For example, Weng and colleagues (2013) evaluated experimental subjects before and after learning the virtue of compassion. As Younis recalls, the results showed 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.”²⁰ (Younis 2015, p. 8).

Although more research is needed to bolster this perspective, so far the empirical data about “moral brain traces” provide the interactive compatibility between neuroethical research and virtue ethics based on HAs. If there is a stable correlation between the presence of certain traces in the brain and virtue possession, then these brain traces associated with virtues might be interpreted as major indicators of the likelihood of an action, indeed of the HA. As we will see toward the end of this paper, this entails a reaffirmation of the notions of *veto* and *consent* (Navarini 2014), as they provide a universal practical power affecting the subject’s use and development of moral virtues.

Following this perspective, it would be consistent with neurobiology that the subject’s virtuous choices and actions, as acquired dispositions to recognize and do what is good, can be

¹⁹ The interactionist model, when applied to neuroethics, can ascribe to the way of classifying the possible relationships between scientific determinism and human freedom (De Caro 2007, 2018).

²⁰ Tachibana (2017) apparently supports the idea of a moral change through 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 controls those visual representations, the more his or her current brain state approximates 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” (p. 26). Although this article has a different general end, namely the discussion of the admirability of moral exemplars, it seems that the possibility of virtue acquisition through this neural training is realistic and acceptable.

observed in the brain with imaging technologies—which means they can activate cerebral areas—before the actual choice, precisely as intentional or intentioned acts (Navarini 2012; Mullins 2012), preserving willpower. On the contrary, virtue learning and training seem particularly successful in showing a) the connection and mutual influence between our emotional and our cognitive levels, b) the understanding of freedom as our own consent to action hypotheses that are given in our experience (Navarini 2014), and c) the fundamental value of everyone's unique path to personal flourishing (Kristjánsson 2019).

Consequently, we can assume that scientific findings about the neural correlates of moral virtues do not necessarily imply an “exact science of virtues,” which would match a specific virtue with a specific place and function in the brain. This could mean that the so-called pre-moral neurological level (Boella 2008) might be interpreted as a mirror of the spontaneous tendency to good actions that typically follows the acquisition of moral virtues. Laura Boella defines this pre-moral level as a spontaneous, quasi-automatized pattern of actions that are originally caused by the will but are normally performed with a lower or implicit contribution of actual will (Boella 2008). As we will see afterwards, I attribute these features to virtue induced HAs, arguing that they are not pre-moral but consequent to virtue acquisition and development. If this is true, we are encouraged to use this knowledge and promote virtues as a successful means to impact both moral decision-making and brain structure.

In other words, the empirical research that has been interpreted as challenging virtue development might provide us with new evidence of the central role of virtues in moral education and thinking (Younis 2015). More precisely, the activation of certain brain areas could follow, rather than cause, virtues themselves. If virtues affect our neural system, then the detectability of virtues and the predictability of virtuous behavior might follow. Indeed, the fact that virtuous actions are spontaneous and recurrent attests to their likeliness. As I said above, it is always possible for the agent to depart from her more likely, virtue-induced action, but her deviations from the virtuous behavioral pattern are rare, as it is rare for the vicious or non-virtuous person to behave well systematically. This might be true either for an entire virtue or for a component of it (Alfano 2015).

The fact that a well-established virtue generates spontaneous behavior is consistent with the traditional idea of virtues as providing the “owner” with a second nature. As Narvaez says, the first nature tends toward egoism, whereas the second nature—which is necessarily acquired—is altruistic by means of real-world interactions. The acquired naturalness and spontaneity of the virtues is therefore a reasonable source of predictable behavioral patterns that outline expected actions, which I have called Hypotheses of Action (HAs). Also in positive psychology, one's ethical structure is characterized by “values-in-action,” which are precisely virtues and character strengths (Peterson & Seligman 2004), generating actions that can be defined as virtuous when they are regularly consistent with one's perceived good and as vicious when they are in contrast to it on a regular basis. Such a regular consistency is thus a source of expected moral actions, namely the HAs. I call them *hypotheses* because they appear hypothetical in the possibilities of actions of the subject—that is, they are a sort of virtual starting point for moral acts. Their hypothetical nature makes them virtually given as probabilities—“what we are expected to do without efforts”—to be confirmed as real actions, and this usually follows from the subject's consent to the hypothesis unless she opposes her veto through a deliberative process. In summary, one will not necessarily perform her virtue-induced actions, but she is very likely to do so. According to our virtues-and-vices ethical structure, we constantly face HAs. We can depart from those HAs by denying our consent to them, or we can accept them, as we usually do, by consenting to them. Notably, this approach is well represented by the

virtue-as-a-skill model (Stichter 2018a) as opposed to the virtue-as-trait one (Miller 2014). Although both the trait and the skill visions are compatible with the idea that virtue possession is responsible for likely actions, the analogy between the expert and the virtuous seems to suit the flexibility of HAs better since it concentrates more on the operative level of knowing how to act well in particular situations and on the automaticity that enables effortless expert performance (Stichter 2018b).

It is now becoming apparent why this virtue ethical account might represent a solution to the challenges to free will posed by neurodeterminism. As Aristotle said, virtues need nurturance (Aristotle 1925: NE, X, 9, 1179b 25–30); therefore, even if they were deeply grounded in our neurological system, free will would not be excluded to preserve them. We also need free will to establish them since virtues are not natural tendencies. Natural tendencies such as eating, breathing, reproducing, thinking, and wishing carry traits that are deeply different from those featured by virtues. Natural tendencies, for example, do not require time to become stable, do not need the *right reason*, are not voluntary, and so on. On the contrary, virtues appear only gradually over time, voluntarily, after the exposure to virtuous exemplars (Zagzebski, 2017), and after proper training. Thus, an interesting coincidence occurs here—the result of virtue acquisition is an acquired behavioral spontaneity supported by neural correlates, which seems analogous to neurally-predicted movements (like moving a finger on purpose) used by some neuroscientists to question free will. However, despite the fact that even moving a finger could be submitted to our veto and consent power,²¹ virtuous acts for the virtuous person are very likely but not necessary. The likeliness of virtuous behavior is indeed a direct consequence of the stability of the virtues in the agent's moral structure, and that is the reason why I maintain that virtues constantly generate HAs. Admittedly, this implies the affirmation of a somehow limited freedom—that is, of freedom as one's positive (sometimes negative) answers to HAs and not as the subject's absolute indeterminacy (Navarini 2012). Virtues make the answers to HAs more likely but never certain, therefore preserving a partial indeterminacy. To summarize this point: virtue ethics can explain neuroethical empirical findings about choices without dismissing free acts by considering the HA as determined not primarily by the brain under the pressure of genes and culture but as shaped and induced by either virtuous or vicious habits (Gimenez Ayala 2011).²² Genes and culture might play a role in virtue acquisition, but what matters here is the idea that virtues do not originate abstractly in the brain and are subsequently displayed in behavior; rather, they are caught and grow within experience, although they might be neurologically traced.

Prior to Narvaez's Imagination Ethic, Mark Johnson (1993) had also tried to overcome the neuroscientific impasse by suggesting that moral thinking is a matter of imagination. He stated that the *morality is art* metaphor perfectly represents human moral thinking and acting. In our experience, he holds, we constantly have to figure out the set of possibilities, contexts, and relations involved, and in doing so we creatively find behavioral solutions that are influenced by thoughts, emotions, events, different points of view, exemplars, and so on without

²¹ De Caro (2007) argues that moving a finger or pressing a button when the subject “feels the urge” to do so (as the instructions of the Libet-like experiments reported) implicitly exclude free acts, which by definition are not *urged*. Therefore, either these acts are not free from the very beginning, or they are modifiable by the subject's will until the very end of the deliberative process.

²² 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” (p. 53). The burden of proof remains with the neurobiological model and not vice versa.

necessarily determining us. Quite the opposite, the partial indeterminacy of our experience leaves room for responsibility and freedom (Navarini 2017). In other words, the conditioning factors might reduce personal liberty and possibly lead us to assume that freedom is not absolute, but they do not threaten the reality of free will since we remain capable of distinguishing conditioning factors from personal choices according to our inner purposes and projects.

4 HAs Are Submitted to One's Consent and Veto Power

What the experimental data about brain networks have shown is not the identity of spontaneous behavior and determinism but the articulated interactions between the automatic activation of cerebral areas and our choices and virtues. In addition, virtue's impact on the brain is not to be intended as a permanent change, although it must be stable by definition. The non-permanent nature of these brain changes is due to the possibility of losing or weakening, as well as of further strengthening, our virtues. This possibility introduces us to the role of consent and veto with respect to our likely—virtuous or vicious—actions.

The capability of giving or denying (but especially of giving) our consent to HAs, mostly provided by our virtue-moral articulation and affecting our brain, is necessary and sufficient to ensure freedom since, consistently with virtue definition, these kinds of HAs require our willpower. The positive or negative answers we give to HAs constitute our acts of self-determination. Education might induce positive answers to HAs through self-regulation skills like virtues (Baumeister et al. 2006; Narvaez 2008). The more consistent the practical answers to the HAs, the more self-determined (free) we are.

Since the stability of any virtuous attitude is one of the most intuitive sources of HAs, our veto and consent power will typically apply to our acquired dispositions toward 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.

A problem seems to arise here, since one might challenge the idea that virtues are in fact present in anyone's moral apparatus, claiming they are simply possible and contingent. According to many scholars, indeed, being virtuous is difficult or – in a strong situationist view – even impossible. Zagzebski (1996, 2017), for example, points out that the majority of agents are non-exemplars, as they are neither fully virtuous nor vicious. And Alfano (2015), as mentioned previously, stresses the variability in the possession of the virtues to the point of wondering whether anybody is technically virtuous.

However, people generally seem to display some virtuous skills that eventually emerge in the proper context and after proper educational experiences. This does not mean that everyone is virtuous in a strict sense if we identify proper virtues as full blown virtues, and even more if we are to defend a perfect unity of virtues. However, it seems quite common to develop “smaller virtues” that work in specific contexts and have limited extent; they do not make you an exemplar but provide you with an average and relatively stable good behavior. We might therefore distinguish between stable skills that contribute to form a full-blown virtuous character, emerging quite independently of the context,²³ and stable skills that are performed according to the situations such that the same virtue could be strongly represented in one class

²³ For example, Peterson and Seligman's (2004) *dispositional* virtues can be interpreted in this way, while situational virtues are more similar to positive psychology's *state* virtues.

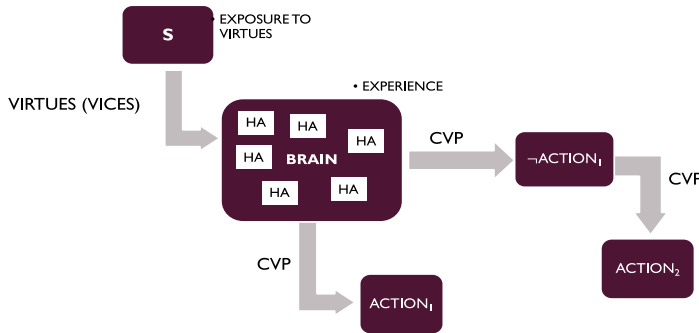


Fig. 1. S = Subject; HA = Hypothesis of Action; CVP = Consent and Veto Power

of situations and be lacking in others, or we might even display different virtues in different contexts.

Within the perspective I tried to depict, virtue can be unstable or difficult to acquire, but it is not rare in a broad sense. It is rare to possess one or more virtues perfectly and completely, but to some extent all people have virtues (and perhaps vices). Therefore, all people have a system of HAs to deal with, as summarized in Fig. 1.

Virtue functioning is explained here in a neuronally transparent, although not deterministic, way; the subject (S) is constantly exposed to virtues, mainly through exemplars (Zagzebski 2017). This premise means that the main source of virtues is not primarily one's thinking or learning about virtues but *seeing* them (mostly in exemplars). Once virtues are acquired (however this happens, although I suggest the exemplarist way), when evoked by daily experience, they depict a set of consistent and likely actions as possible behavioral answers to the experiences themselves (facts, events, or thoughts). The probable action/s that could be seen in the brain as a sort of preliminary brain activation (but in fact it is only a probability of action) might become real (Action₁) if our CVP generates an affirmative answer, namely our consent, which happens in most cases intuitively (Stichter, 2018). Otherwise, our CVP might refuse the most probable action (non-Action₁) and consequently activate another unlikely action (Action₂) to which the subject might give her consent instead. While Action₁ flows spontaneously from the subject's virtuous setting, non-Action₁ (therefore Action₂) involves a deliberative process (Sauer 2017), which might even represent a counterexample of Action₁.

This perspective is highly consistent with the notion of virtue as a skill. As mentioned above, the skill model of virtue has many advantages to display in a HAs theory of moral acts. As Stichter points out, "skill acquisition is a process of making previously effortful tasks become effortless" (Stichter 2018a, p. 126). Following this line, we can compare skilled performers to virtuous people, realizing that both of them spontaneously adapt their actions to "the content and accessibility of their moral schemas" (ibid, p. 105). Thus, developing virtues out of experience and deliberate practice generates specific sensitivity to "different features of moral relevance" and problem-solving ability (ibid, p. 110). I maintain that the notion of HA might be implemented in this framework by resembling virtuous moral schemas in situated contexts.

5 Conclusions

Some consequences follow from this account of virtue functioning. First of all, it can be derived that, although it is difficult to possess all virtues perfectly, it is equally hard to lack them all completely. This entails that virtues can be possessed in a gradual and graduated way, such that a subject is virtuous if she displays a substantial level of virtue. Consequently, we might have different amounts of different virtues, eventually in different contexts. This seems to challenge the idea of a solidarity among the virtues, making it hard to listing these separate virtues and relating them to each other, whereas affirming the unity of the virtues would allow an integrated system of virtues and a better notion of an overall good life. In fact, we frequently extend our judgments about someone's acts from one virtue domain to other domains (De Caro et al. 2018). However, it is consistent with moral development that the solidarity and unity among the virtues in one's ethical life progress over time, being for most – virtuous – people a direction and not a full possession. Thus, a distinction should be made between being substantially virtuous and being fully virtuous.²⁴

Secondly, this account allows a consistent interpretation of the relationship between the spontaneity of virtues and free will. Because of its spontaneity in linking emotions like joy and pleasure with the good, virtues seem to challenge human freedom, replacing it with automatic reactions. From the standpoint of a non-hyperbolic view of freedom, I maintain that CVP is sufficient to safeguard freedom. Therefore, my proposal embraces an interactionist neuroethical perspective. Specifically, I suggest balancing the mechanics of virtues' neural traces (from experience, genes, education, emotions, social values, etc.) with free will²⁵ by restoring the notion of *consent* and *veto*, which were never excluded by cognitive and behavioral neuroscientists (Navarini 2014). The capability of denying our consent, and of course of giving it, to certain HAs, given by experience and affecting our brain, is all we need to practice freedom. In my account, it is consistent with virtue theory that HAs (however they are gathered in the mind) call our free will, and each answer we give—expectable or unexpected—constitutes our moral development day by day. Education might induce positive answers to the HA that our moral structure provides and that our brain signals with its neural correlates.

Finally, from this account I can derive the relative flexibility of the virtues, since they are able to merge the particularism of the HAs with the universality of human CVP. Although virtues might have universal aspects, virtue induced HAs are local and situational. This also applies to consent and veto; although the CVP is universal, the specific consent or veto acts are particular (or singular), causing the virtues to be weakened or strengthened by actual specific choices, namely our self-determination acts.²⁶

²⁴ I do not intend here that being substantially virtuous and being continent overlap, since the latter condition is characterized by an inner fight against contrary desires, while the first displays the typical effortless feature of virtuous behavior, although in limited contexts (Athanasoulis 2013).

²⁵ I refer here to the traditional notion of free will as *liberum arbitrium*, or the power to choose among alternatives and to choose the means toward the ends (Aquinas, S.Th. I, q. 83). As Hoffmann and Michon (2017) put it, “free will in the broad sense does not require alternative possibilities, while free will in the narrow sense, which is *liberum arbitrium*, is precisely the power to make choices between alternative possibilities” (p. 2). Contrary to other scholars, Hoffmann and Michon claim that the Thomistic idea of free will is not a compatibilist one.

²⁶ I am very thankful to the two anonymous reviewers who helped improving this paper with their helpful comments.

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