

NEUROLAW AND INTENT: DECISIONS TO ACT

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The model of decision-making and action that guides most thinking in cognitive neuroscience is what we could call an inner impetus model of the will. On this model an act of the will or intention to act is an inner cause that sets in motion the motor events that constitute the action. The intention, for a neuroscientist, is therefore often identified with "the readiness potential", measurable in the brain milliseconds before a subject reports the intention to act. This has led to the view that our actions are caused unconsciously by brain events not under our control. I will argue that the entire model is flawed and that an intention to act is a reading off from the stream of brain-world interactions the cognitive significance (or Sinn) that locates my act in the world of thought. Actions are intentional in the sense that they enact an intelligent connection or orientation that controls or structures my bodily movements. In that sense my intentional actions are internally related to my character as a moral agent in the way that other bodily movements are not.

Le modèle de la prise de décision et de l'action qui guide la pensée en neurologie cognitive est ce que nous pourrions appeler un modèle interne d'impulsion de la volonté. Selon ce modèle, un acte de la volonté ou d'intention d'agir est une cause intérieure qui met en marche les événements moteurs qui constituent l'action. L'intention, pour un neuroscientifique, est souvent identifiée avec "le potentiel de promptitude", mesurable dans le cerveau des millisecondes avant que le sujet n'en ait conscience. Ceci amène à penser que nos actions sont provoquées inconsciemment par des événements du cerveau qui ne sont pas sous notre contrôle. J'arguerai du fait que le modèle entier est défectueux. Les actions sont intentionnelles dans le sens qu'elles décrètent une connexion ou une orientation intelligente qui contrôle ou structure mes mouvements corporels. En ce sens mes actions intentionnelles sont intérieurement liées à mon caractère comme agent moral.

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I INTRODUCTION

The relevance of neuroscience to the law of intent is evident when we spell out a common intuition about action intention and responsibility. The law enshrines the popular belief that reasoning is a process that goes on within a person and, in relation to intentional action, culminates in a decision. The decision produces an intention to act and the act done with that intent is the proper subject of forensic deliberation.

We can therefore construct the following syllogism.

The acts and intentions syllogism

- (1) An agent is responsible for any act done with the relevant intent.
- (2) The relevant intent must cause the act.
- (3) Human actions are caused by brain processes that precede conscious acts.
- (4) The relevant brain processes precede the agent's conscious awareness of them.
- (5) An agent does not consciously cause his or her own acts.
- (6) Agents are not responsible for their acts.

The model implicit in the syllogism is one that is widely accepted in the literature on neuroscience and voluntary action (Libet et al, 1983; Haggard 2008; Zhu 2004) and implies that the intent is a mental (read: brain) state that causally produces the bodily movement that is the act. The crucial premises here are 2 and 3 and when they are combined with 4 they seem to undermine the common sense or folk idea of a person's voluntarily or freely willing that s/he shall act in this or that way. The syllogism provokes metaphysical questions about causation, action and the will as those questions figure into our literature and general thinking about moral responsibility and jurisprudence.

II REASON CAUSES A DECISION TO ACT

The first question we need to ask is whether the act is caused by a mental event – the intention, which, in the light of the implicit assumption that the mind is a way of referring to the workings of the brain, is to be equated with a brain event. Is this model, with causal production at its heart, a good way to understand action?

When we explore the metaphysics of causation two main possibilities arise:

- (i) there is a single causal transaction between two events such that the preceding event brings about the later event according to some plausible mechanism (ie there are two independently existing events).
- (ii) the state of a system of law-like or mechanistic events at time 1 gives rise to a second state of that system at time 2 which is what we call the effect (ie there is a closed causal nexus).

The two possibilities can be illustrated by some examples:

A singular causal relation: That smoke was caused by that fire.

In this example a chemical process of combustion, distributed within a certain region of space and time gives rise to something else – a column of hot gas and carbon containing particles that results from it. Even though these are closely related and not quite as closely parcelled up as many other circumscribed events they are distinct and identifiable as phenomena and can be related by a plausible mechanism that we understand quite well. This has a certain appeal for action explanation because both involve extended processes in time and a somewhat difficult to localise microstructure in space and time (the one event in the air, the other in the brain and body). That is what we require.

A law-like domain where WT_2 (the Whole state at Time 2) is mathematically determined by WT_1 : *The Goldberg Variations by George Rhoads*.

In this example we consider a kinetic ball sculpture where variations of timing of arrival of the various balls in various positions entail that a constant stream of randomly varying events are produced but each is retrospectively explicable by what goes on before it. The system is far less complex than the approximately 100 billion neurons in the human brain with their 100 trillion interconnections whose precise firings in time and space present infinitely varying patterns of activity each of which may be (partially) explicable in neural terms in relation to what has gone before. The thought is that although there is no predictability there is a closed law-like domain of quasi-mechanistic interactions that serve to explain the output of the system – bodily action. This is the closed causal nexus condition on a coherent causal account.

In fact a further example makes a similar point.

III THE BUTTERFLY EFFECT

Edward Lorenz (1963) described the sensitivity of the state of a complex system when discussing the problems of meteorology and posed the possibility that the flapping of a butterfly's wings in Kansas could cause a monsoon in India. If we

tease out the example in terms of the complexity of the human nervous system we can posit that a minute change, such as the shift in thought required to spontaneously envisage a possibility – perhaps of acting selflessly – might cause a person to act quite differently from what s/he otherwise would, because of the butterfly effect in the unthinkable complexity of the human neurocognitive system. Now this outcome might be traceable, given a supercomputer, through the cascade of distributed neural events to the moment when the altruistic thought made a subtle shift in the internal state of the brain but nevertheless the thought (or at least its cerebral realisation) could be said to cause the reasoning that led to the act.

These are possible analogies to what we are interested in but we need to ask whether they sustain the kind of attack on intent and responsibility as the basis of moral (and potentially mortal) judgments about actions that they are said to occasion.

The alienation of the act from the agent rests on the thought that there is a mechanistic chain of events which traces the action – a pattern of bodily movement – into the unconscious recesses of the brain and its subterranean workings so that the conscious decision to act is not the effective cause of what the agent did. But this picture requires certain conditions to be fulfilled, notably the independently existing events condition and/or the closed causal nexus condition. We can begin with the latter as there is a fairly straightforward reason to reject it.

The idea of a closed causal nexus of the mechanistic type is problematic in relation to the brain for two reasons:

- (i) "because of the explanatory gap between the non-linear, nonequilibrium, non-mechanistic dynamics of self-organizing living organismic thermodynamic systems on the one hand, and the classical linear, equilibrium, mechanistic dynamics of inertial non-living systems on the other" (Hanna, 2009);
- (ii) the openness of the human mind/brain to the world of meaning and what constitutes explanation in meaningful terms.

We can take these in turn to undermine the neurodeterminism of some of those who theorise in forensically sceptical ways about neurolaw.

- (i) The explanatory gap is an interesting feature whereby we concede that something like the reflection explored above – the person who spontaneously thinks of acting selflessly – might, through a shift thereby induced in the firing patterns of the brain, bring about a totally different action from that we would have thought most probable given the

personality of the agent concerned. In fact we can see the phenomenon at work when we notice that a human being might, under instruction of an appropriate sort, be able to shift the processing pattern in their brain so as to see a perceptual presentation differently (as, for example, with Necker's cube or other ambiguous perceptual figures)¹. Our awareness of being able to voluntarily switch gestalts in this way or undergo a process of perceptual learning whereby we can do so is our own awareness of this organismic and voluntary ability. Thus the neurodeterminist thesis looks to be on shaky ground both theoretically and evidentially.

- (ii) Neurodeterminism can be definitively rejected when we consider the fact that human beings obey the conception of laws and not just laws². Laws of nature cause us to have inclinations and react and respond in ways dictated by our animal nature (*arbitrium brutum*) but our conception of there being a law that we ought to obey creates an imperative that we may choose not to obey. The imperative cannot cause us to obey it, that depends on the mind-set I adopt towards it (cf a gestalt switch) and that is dependent on my mode of functioning as a rule-follower capable of framing and thinking certain thoughts³. This reasoned or deliberative production of an action is not of the same type as something I find that I am doing no matter what I think because of what is going on in me. The following of the rule or doing what it demands of me is, for instance, susceptible to logic or rhetoric and not mere causal conditions that I do not direct in any way. This intuition is variously captured but perhaps most famously by Davidson in his argument for the autonomy of the mental⁴. I prefer Kant's formulation as he scrupulously observes the distinction between obeying the imperatives of human prescription and thought and obeying the inclinations of inner nature⁵. For this reason he concludes that when an act is intentional we may be able to trace it back to the agent's decision to do it for some reason or combination of reasons but no further. The crux of the act is the verdict

1 See G Gillett and S Liu "Freewill and Necker's cube" *Philosophy* forthcoming.

2 I Kant *The moral law* (Tr HJ Paton, Hutchinson, London, 1948) 76.

3 G Gillett "Freedom of the will and mental content" (1993) *Ratio* VI 89-107.

4 D Davidson *Essays on Actions and Events* (Clarendon, Oxford, 1980).

5 G Gillett "Actions, causes and mental ascriptions" in H Robinson (ed) *Objections to physicalism*, (Oxford University Press, Oxford, 1992) 81-100.

on the reasons that the agent him or herself delivered and it is, in effect delivered by acting thus or so⁶.

The first possibility for a typical mechanistic causal story – the idea of singular causation operating between a cause and an effect does not fare much better than the second (mechanistic system or closed causal nexus) approach.

The singular causal relation plausibly requires that we satisfy two metaphysical requirements as already hinted above: the independent existence requirement (IE) and the non-a priori requirement (NAP)⁷.

IV IE (INDEPENDENT EXISTENCE)

This condition requires that there be two separate identifiable events or entities that enter into the causal relationship. Thus the smoke had a separate existence from the fire and the relation between them could be limned.

In general form this condition is: There are two existents A and B such that A could exist without B but in conditions C', C'', ... causally produces/results in B.

Further examples are easy to find: The butterfly flapping its wings in Kansas causes the monsoon in India; striking the match causes it to light; genetic behavioural programmes cause birds to migrate at certain times of the year; a flashing light in a person's visual field produced a K-complex in his brain, and so on.

Certain other examples are not of this kind: oxidation of cellulose causes the flame; the pattern of bird movements causes seasonal migrations; the pattern of neuromuscular movements caused his action.

In fact these examples often violate the non-a-priori condition. If we allow that metaphysics sometimes delivers truths about identifies that may be discovered *a posteriori* but once discovered are *a-priori* (they enter into an understanding of the concepts concerned) we can understand why the burning of the match just is the (very same metaphysical event as) the oxidation of phosphorous and cellulose and other substances at this time and place. I will argue that the thought/action/brain activity complex that is at the heart of human agency is a little like the relation between fire and other ways of representing what is going on. It then becomes problematic to say which bits of the activity going on in a brain and neuromuscular

6 S Hampshire "Some difficulties in Knowing" in S Morgenbesser, P Suppes and M White (eds) *Philosophy Science and method* (St Martin's Press, New York, 1969).

7 M Morris "Causes of behaviour" *Philosophical Quarterly* (1986) 36, 143, 123-144.

system comprise the action of, say, disappointing your partner by telling him that you do not love him. You could, after all, do it with a shrug of your shoulders in response to a question and so not do anything that, on any plausible mapping of your brain function, has that particular or related representational or cognitive content.

We must now address the question about causes of the type required by the acts and intentions syllogism and especially premises 2, 3, and 4 which imply that the cause of any voluntary action is an unconscious event in the brain.

V ACTION EXPLANATION AND THE BRAIN

A large number of experiments in cognitive neuroscience are based on a conception of what is going on in the mind and brain that focuses on timed events either at the mental level or the neural level. When that is how we look at it we tend to identify-

- (a) the mental event or intention that causes the action (perhaps comprising a decision to act and then an initiation of the action - or a "trying") and
- (b) the act that is caused by that intention.

On this basis you could expect that a person might know the moment they decided to act and also when they had done the action even if they did not know the mechanism by which the thought or intent translated itself into the act.

This schema forms what we might call *The Libet model (Lm)* of intention and action:

Lm1. You decide/intend to A at T_1 and are simultaneously conscious of doing so (I_A);

Lm2. You initiate action at T_2 by sending a message/motor pattern (BE_2) to your muscles arising from your brain (perhaps unconsciously);

Lm3. You act at T_3 by making a bodily movement according to a motor pattern (A).

However there are certain objections to this model whereby an intention (I_A) as a brain event (BE_1) in the agent, perhaps through an/other event/s (BE_2) causes an action, A, itself a bodily movement⁸.

8 B Libet "Unconscious cerebral initiative and the role of conscious will in voluntary action" (1985) 8 *The Behavioural and Brain Sciences* 529-566.

A *Objection to Lm1*

The model requires that I_A is an Independent Event with respect to the pattern of brain activity that actually produces the bodily movement (the act A) and is prior to it. Thus I_A is not part of, caused by, or dependent on the pattern actually producing the action. But in fact most of our actions are not punctuate but interactive and dynamic effecting an outcome in the world by aiming at and making the adjustments required to perform the operant (or effective change that is produced eg a button press or a shot)⁹. If that is so then the action itself is an unfolding tract of brain and neuromuscular activity in which ongoing monitoring of the effect in the world is part of what the agent does¹⁰. That does not look at all like the singular causal model we have outlined and it does not have the form of a relation between two independently existing events (like the fire and the smoke) but looks a bit more like descriptions of the one complex event.

What is more there is a problem with the second clause in the premise (simultaneous consciousness of willing or intending) as the evidence seems to show that a human being does not accurately and simultaneously monitor basic neural events as they happen but reconstructs an account of what s/he is doing by reading the stream of brain world activity that is going on and fitting it to recognisable patterns of events (that are like what tends to happen around here). This is evident from Libet's own experiments using his timing method to try and fix the time of the intention¹¹ and work by other authors¹² but also from the Colour Phi phenomenon as analysed by Dennett¹³. The colour phi phenomenon is a particularly striking example of the brain "filling in" a conscious perception where there is no stimulus object corresponding to it in order to reconstruct a more ecologically plausible (for pleistocene human beings) tract of experience. The conclusion that emerges from the evidence is therefore that we do not "read off" from our own brain activity the brain event corresponding to the conscious mental

9 A R Luria *The Working Brain* (Penguin, Harmondsworth, 1973).

10 J Zhu "Locating volition" (2004) 13 *Consciousness and cognition* 302-22; P Haggard "Conscious intention and motor control" (2005) 9.6 *Trends in cognitive science* 290-295.

11 B Libet "The timing of mental events: Libet's experimental findings and their implications" (2002) 11 *Consciousness and cognition* 291-299; W Banks and E Isham "We infer rather than perceive the moment when we decided to act" (2009) 20.1 *Psychological Science* 17-21.

12 A Danquah, M Farrell and D O'Boyle "Biases in the subjective timing of perceptual events: Libet et al 91983) revisited *Consciousness and cognition*" (2008) 17, 616-627.

13 D Dennett *Consciousness explained* (Penguin, London, 1991).

events but rather reconstruct the meaning of tracts of brain activity from patterns of action that we use to deal with the challenges of our life-world.

Given that plausible synthesis of the findings, it is no wonder that an intention or decision is hard to identify because it does not exist as a discrete event in time in the brain or anywhere else. The forced "awareness of the time of the conscious decision to act" is a "read-back" into or inference from what went on that helps me to articulate my activity in the world. The image that comes to mind is from "Loony Tunes" where Tweety's trademark "I tawt I saw a puddytat" is exactly the kind of ecological awareness in question ie something familiar has happened that I have caught a whiff or a glimpse of from what is happening in my brain and, going by what things happen around here that is my voluntarily acting thus and so. If there is (as seems to be the case from the totality of evidence) no timeable event corresponding to the decision or intention to act then the readiness potential for an action and the exact neural timing of events in the brain is irrelevant to questions about the conscious control of action and we must find another way to settle the neuro-issues.

The interim conclusion at this stage of the argument is that there is no independently existing Brain Event preceding a human action but rather something like a judgment that the agent passes on him/herself: "I (must have) intended to act." But surely that conclusion supports the claim that human action is unconsciously caused.

B Objection to Lm 2

When we take seriously the dynamic, unfolding, and interactive nature of most actions and the idea that holistic patterns of brain activity represent integrated informational complexes that are used in the control and direction of bodily activity¹⁴ it is evident that the Libet model, despite its widespread acceptance in the cognitive neuroscience literature, embeds a metaphysical mistake. The relation of the brain events intrinsic to voluntary action (BE_A comprising $I_A + BE_2$) is to A as combustion is to fire. The combustion of cellulose to form carbon-based residues is not the cause of fire it is the fire. In the same way, the total complex of distributed brain activity associated with an action¹⁵ is an alternate (neuroscientific) description of human volitional action not the cause of it. Voluntary activity is a complex world-directed pattern of cybernetic activity in the sense of an unfolding

14 J Hughlings Jackson "On affectations of speech from disease of the brain (2)" (1884) April 12 *British Medical Journal* 703-707; AR Luria, 1973 (note 9).

15 P Haggard 2005 (note 10).

perception-action cycle that results in the agent achieving an effect on the world¹⁶. That ongoing tract of activity can, for experimental purposes, sometimes be investigated as a series of punctuate Actions but we should not fool ourselves into thinking that experiments of that type reveal the causal chain that is action production because that is not what it is actually like to be a human agent. A further objection makes that plain.

C Objection to Lm 3

A crucial part of the neurodeterminist account is that there is a physically describable pattern of bodily movement that is the action. But this is unclear. We can envisage several situations in which the bodily movement is either irrelevant or not the action being considered so casting doubt on the model.

(i) The wineglass at the party.

In this case I am talking to an attractive person at a party and my flatmate is inhibiting my style. At a certain point a rapid jerk of my hand spills red wine over his shirt and he has to go and change. I say "Sorry mate. Damn that tic, I wish I could be rid of it!" Now the question is not whether the bodily movement was mine nor what it was but whether it was in fact intentional. To ask that question is to ask about the whole context of the movement in question and how it fits in to it. Is it a random neuromuscular event or is it a deliberate ploy? That is a question about the fit and the right way of fitting the bodily movement into the context of my story as an individual who is in certain actual and potential relationships with others, and that goes way beyond neuroscience. We can assume that the wider description which implies that is in a voluntary action and not just a tic involves all those brain areas to do with volition that neuroscientists tell us about (Zhu, 2004) but they are only important because what must be neuroscientifically pictured to get the right handle on the events is not just neural or muscular.

(ii) The brain damaged mobster case.

In this example Sean sets up a trap for his wife so that when she comes home and opens the door she will trigger a shotgun aimed at the doorway. That duly happens and we, having not been fooled by the argument that he left a note to warn her (inside the door), accuse him of killing his wife. Sean, however, is a neurodeterminist who believes the Libet model and says "I can't have killed her because I was asleep at the time and had no readiness potential or brain events that caused the event that killed her." His disclaimer is, of course, irrelevant because the

16 U Neisser *Cognition and Reality* (Freeman, San Francisco, 1976).

question of the intent that informed the act is not settled by events in the space and time of the mechanism of the fatal event.

But at this point we have the right to ask of the objector, how can you give me a story of reason causing a voluntary human action if you are going to disallow the normal patterns and principles of antecedent causation in the way that you have? What is the connection between *mens rea* and *actus reus*?

VI NON-MECHANISTIC NATURALISM

To solve the problem of *mens rea* and account for the role of intention and the will in voluntary action we need to provide a naturalistic analysis of human action that does not falter on the dodgy metaphysics already critiqued and that does not rest on some Cartesian or extensionless point of willing at the heart of the existential individual.

Aristotle the classical figure associated with naturalistic philosophy and Nietzsche, an implacable opponent of pretentious philosophy, here come to our aid.

Aristotle's account of the will focuses on the translation of reason into action. When an agent suffers from *akrasia* it is not that s/he lacks reason, giving more reasons is not going to do any good. Aristotle remarks "If a man is choking on water what do you give him to wash it down with?" The problem is that reason is lost in translation, he cannot act on it and therefore it is ineffective, the agent has lost control of himself.

Aristotle notes that the agent who has self-control is skilled or trained in putting his or her thoughts into practice. The outcome of reasoning or argument is not only to derive an "all things considered" best judgment but for the agent to act on it by exercising adequate strength of will to act as s/he should (all things considered). Think of a deadly goal scorer burying the ball in the top corner of the opponent's net and ask "How did that happen?" To answer in one way, we implicate a complex chain of neuromuscular events but a different take is that the player had the skill to enact the strike he had opted for. The chain of events terminates at the point where he decides to strike and it produces the result it does because he had the requisite skills. As a neuromuscular event we get to the brain, as a human event it is otherwise. Talking of agency, Kant remarks "in our judgments in regard to the causality of free actions, we can get as far as the intelligible cause but no further"¹⁷. In relation to arguments commonly used to support the idea that the neuromuscular

17 I Kant (1789 [1929]) *The Critique of pure reason* (tr N Kemp Smith) (Macmillan, London) (references will be given by pagination in this edition eg B562), B585.

chain and "unconscious brain events" are of forensic interest and undermine our agency, he also remarks "No action begins in this active being itself; but we may yet quite correctly say that the active being of itself begins its effects in the sensible world."¹⁸ His message is clear: acts are done by agents not by forces or events within them.

We can, for the moment gloss this account by noting that an Action is a pattern of events (including brain events) that connects the subject/agent to the world through the meaning of what is going on and maps, through its meaningful content, the agent onto a human life-world clothed with meaning. As such, action is our translation of the significance we see in the world, for reasons that we accept, into effects on the lives of others (with all their moral overtones).

The explanation of behaviour, in so far as it illuminates this connection, connects the action in two directions:

- (i) to the narrative of the agent,
- (ii) to the world as the agent interacts with it at the time of the action.

The relevant interaction comprises stimuli, structures of meaning, a scaffolding of relationships and life-skills, and target states of affairs that do not exist except in the imagination of the agent (they are what s/he is aiming at bringing about). That two-way connection reveals motive, mistakes, purpose, narrative fit, relevant relationships, it makes sense of what is happening in a way that captures the key features of interest to a moral or jurisprudential examination of what has occurred.

The will, seen as an ability to translate reason into action¹⁹ is a facet of human nature resting on at least two preconditions just as the striker's ability to score a goal depends on what has gone before, the creation of a potency out of a potentiality.

- (i) The precondition of reason: Reason gives the agent the skills of discerning and incorporating meaning or significance into thought and action by using concepts that can inform and guide what s/he does in a given situation;
- (ii) The precondition of skill: Training gives the agent the ability to respond to reason and argument; it makes available the self-control and directed,

18 Ibid, B569.

19 Aristotle *Nicomachean Ethics* (tr D Ross) (Oxford University Press, Oxford, 1925) Davidson (see note 4).

fitting responses to a range of life situations where key considerations are noted and acted upon.

Sadly some young people never master such skills.

Nietzsche picks up this skill-based, potency, conception when he remarks, "Unfree will" is mythology; in real life it is only a question of strong and weak wills."²⁰

He rails against 'the prevailing mechanistic stupidity' whereby we see people as machines driven by biology and forces over which they have no control (perhaps arising within the depths of the brain). He argues that the only rule in nature is the will to power, that can be usefully interpreted as the ability to take cybernetic control over one's trajectory in an environment. The greater the breadth and depth of conditions of which one can take account and the greater one's skills in doing that which reason and argument (or personal creativity and aspiration) lead one to value the less one is at the mercy of contextual contingencies. The will to power implies that an agent discerns what is in the environment, selects a response from its repertoire, makes changes so that the environment more adequately fulfils the conditions required for favourable future activity, and, surmounts the challenge it faces. This is a biological organism as a dynamic system and the idea of its actions being determined by preceding events that fall upon it is just a misapplication of the metaphysics of stupid mechanistic systems to something that has transcended that type of specification.

Human beings have gone a step further. We not only develop skills to take control of the environment from trial and error but we have developed reason and argument to allow us to formulate projections about what is not yet the case. That ability means that we can pre-empt, take control of events, copy the strategies of others and benefit from the stories they tell to develop our repertoire and, to the extent that we master the trick of putting the results of all that into practice can exhibit strength of will.

That is why Nietzsche has nothing but scorn for the "Darwinists" and "labourers in physiology" with their lack of *telos* and their principle of "the smallest possible effort".²¹

20 F Nietzsche, (1886 [1975]), *Beyond good and evil* (Tr RJJHollingdale) (Penguin, London) (BGE, # 21).

21 *Ibid*, BGE, 14.

It is almost always a symptom of what is lacking in himself when a thinker detects in every 'causal connection' and 'psychological necessity' something of compulsion, exigency, constraint, pressure, unfreedom; such feelings are traitors, the person who has them gives himself away. (BGE #21)

We can now essay a model of intentional action for neuroscience and the law.

VII ACTION, NEUROSCIENCE AND THE LAW

Intentional action is a manifestation of the evolution of the nervous system to the point where, in the words of Hughlings Jackson, "the progress in evolution is from the most to the least automatic, and thus the highest centres are the least automatic".²² The skills to surmount environmental challenges so as to enact a life plan disrupt mechanistic stereotyped responses and inform the actions of human agents by deploying imagination, reason, and argument. The only question is whether the agent has the strength of will to enact his or her thought. The will to power is the ability not to be unfree in the face of environmental contingencies and that possibility shows that the whole determinist conception that undercuts agency is a mistake.

The agent becomes free through the development of skills that translate the results of conversation into intervention in the world. Being good at that – enacting one's story – is having a strong will and people suffer various impairments in developing one. The necessary skills are learned through experience and subject to various impairments so that understanding them and how they come about is far more important than gesturing at brain function to illuminate intent and moral responsibility.

As a matter of act, we are all used to coming to intuitive assessments of the extent to which a person does or does not have the life skills required to act well in this or that situation and we have all our lives been negotiating the world of excuses. Thus what we need is a plea for excuses to be married with an educated understanding of the "development theory of the will to power"²³ and the pitfalls in the way of the psychological subject who is on the journey to being somebody. But once again it is hard to see anything meaningful about that story unless our findings in neuroscience are married to a sophisticated philosophical and psychological understanding of the fact that human beings are beings-in-the-world-with-others and subject to all the influences that can arise in that complex situation.

22 Hughlings Jackson, 1884, 704-5.

23 Nietzsche, BGE, 23.

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