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# The Problem with Guilt

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Every human society has a system of laws and moral codes which order the way people can live together, work together, collaborate with each other or do business together. When people “intentionally” break these laws and codes, we call them “guilty” and punish them accordingly. It has always been settled that we have the capacity to decide whether to commit a crime or break a moral code and therefore the concept of guilt made sense. However, modern researchers in a number of fields, including the author’s fields of behavioral neurogenetics and clinical psychology, have cast doubt on this most fundamental of all human concepts. Perhaps we do not have the control over our actions that we thought. Maybe all of our decisions are based on genetics, habit and experience-drivers largely beyond both our control and our understanding. The paper looks in detail at some of these drivers and how we might look at the idea of guilt and innocence in a new and perhaps more productive light.

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**N**ot long ago, possibly the last of the perpetrators of the Nazi holocaust was put on trial and found “guilty.” I believe that he richly deserved his fate—or at least that society had the right to seek his incarceration. We need to be able to separate those who would harm others and render them harmless by banishing them, locking them away or even, in extremis, by depriving them of their lives.

However, it is one thing to say that these individuals are dangerous (although an ex-Nazi guard in his 90s may not be actually that much of a threat), and quite another to say that they are “guilty” of a crime. “Therein,” as Shakespeare said, “lies the rub.” Guilt in

the normal sense of the word assumes that the action the person was guilty of was a conscious choice to do whatever it was that they were accused of.

As a scientist specializing in both clinical psychology and behavioral neurogenetics, as well as a consultant for both governments and businesses, I have a problem with the concept of guilt and innocence. I believe that this should also be a problem for every person engaged in law, human relations, risk, compliance or government.

The problem is that we may not have the choice which the guilty verdict assumes and if we do not, the ideas of guilt and innocence lose their meanings.

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## The Science

If I say that someone is “guilty” I am making an assumption regarding that person’s conscious decision making—that they committed an illegal or unethical act knowing full well that it was illegal or unethical.

For a behavioral neurogeneticist like myself, the problem lies in the idea that we have a choice to initiate an unethical action, that we make decisions on the basis of conscious reasoning. It assumes that if I rob a bank, sexually molest a woman or rip off a client I have thought through the consequences of my action, realized it was wrong and decided to do it anyway.

I may have consciously had these cognitions, but as a ton of research shows I do the reasoning *after* I have “decided” to perpetrate the deed. I am, literally, rationalizing my action. This is true of any decision.

The truth is that we humans do not make decisions on the basis of fact or reason (Naqvi *et al.*, 2006). A decision is the result of the interaction of a number of subconscious processes and happens with great speed (usually less than two seconds).

The decision is “determined” by a mixture of biological and psychic determinants. These include (but are not limited to):

- Our genetics—we are genetically programmed to favor some actions over others (e.g., suicide see Jollant *et al.*, 2007).

There are many examples of this but the most famous is voting patterns. We are pre-programmed to vote for a radical candidate or party or a conservative one.

Again, genetics plays a large part in children’s behavior, and the decisions they make, from birth (Saudino, 2005). When we say that a child has a certain “personality”

we are usually speaking about his or her actions. Many studies have shown that these are mostly genetically based. A naughty child is naughty because he or she is programmed by their DNA to do “naughty” things or they are “acting up” because that is the only way they can get the attention that they are genetically primed to need.

More importantly our highest-level business decisions have been shown to be genetically based (Cesarini *et al.*, 2010). Some of us are genetically programmed to be risk-takers and others to avoid risk and this is seen in such things as our willingness to choose one investment or portfolio over another, choose a higher or lower mortgage, or, if we are a CEO, to go for the risky takeover of another company or give it a pass.

In fact, there are very few decisions which we make that do not have a genetic component and the more we know about the workings of our DNA the more apparent this becomes. But if you are predisposed by your genes for certain actions, how can you be called “guilty” when you actually do them?

- The state of our gut microbiota (Montiel-Castro *et al.*, 2013).

Until recently we did not pay much attention to our gut micro biota when we looked at decision making, nor for that matter to the cluster of neurons (brain cells) in our digestive system which we call the “gut brain”—even though we have known of its existence for over 20 years.

What scientists have noticed is that there is a constant two-way communication between this “gut brain” and the one we

have in our skull. Recent neurobiological insights into this crosstalk have revealed a complex, bidirectional communication system that not only ensures the proper maintenance of gastrointestinal homeostasis and digestion but has multiple effects on mood, motivation and higher cognitive functions, including intuitive decision making (Mayer, 2011).

Since some 60% of our decisions are classed as “intuitive” this is obviously a significant part of our decision-making process.

But even apart from the action of the “gut brain” our decisions are influenced by the state of our micro biota itself. In other words, the bacteria in our gut determine many of our decisions, largely due to the influence they have on our mood. What is emerging is a recognition that what is called the micro biota-gut brain axis plays a large part in all of the decisions we make—and indeed on many of the diseases we are prone to. Stress, for example, interrupts the homeostasis of the micro biota and this can lead to many inflammatory illnesses and a general weakening of our immune system (Cryan and Dinan, 2012). And it has been known for some time that many of our decisions are influenced by our immune response.

We also know that the stress that our macrobiotic system is under can make us behave in unethical ways (Meier *et al.*, 2012).

- Our neurobiology—particularly the capacity of our brain to process certain emotions and external and internal stimuli.

The structure of our brain determines many of our decisions. For example, the

size and activity of the amygdala—a key memory and emotional regulatory center of the brain (some call it the brain’s gatekeeper, or the fear center)—is a key component in decisions which involve emotion (virtually all decisions). When faced with danger the amygdala—together with other parts of the brain—restrict all but a very few actions (e.g. flight, fight or freeze). This is what Daniel Goleman called the “amygdala hijack” (Goleman, 2011). The more active (small) the amygdala the more a person’s decisions will be restricted (Di Marino *et al.*, 2016).

The physiology of many other parts of the brain subconsciously influence how we come to a decision affecting such things as trust, relationship-making and reward. It is impossible to come to any decision without the decision-making process going through one or (usually) more of these areas and getting influenced by them.

The human system has no one decision-making channel; rather it is a complex process involving processes involved in reward value, fear, pleasure, relational support, risk, assumptions and beliefs as well as memory. All of this works subconsciously in the seconds it takes to make a decision. If “guilty” decisions exist they must be in those first two or so seconds—plainly an absurd contention.

- Our beliefs and assumptions—50% of which we have no conscious awareness of (Browder, 2002).

One of the main drivers of our decision-making is our collection of beliefs and assumptions. Some of these are relatively trivial—such as our belief that one kind of icecream is better than the rest—and

others are core to our personality. An example of these kinds of beliefs are some devout Christians' belief in creationism and the accompanying belief that the theory of evolution is wrong. No amount of facts can change such a belief because they are part of who we are, the core of our personality (Dweck, 2008). A person holding this belief may well indulge in unethical or even criminal acts to preserve it or convert people to it.

This is because we see an attack on any of our beliefs—especially those that are strongly held—as an attack on ourselves. In effect we cease to listen, we dig in and look for reasons why the other person is wrong. We also tend to view anyone who disagrees with a belief of ours as our enemy.

The same is true of our assumptions. The trouble here is that many of these are subconscious—perhaps over 50%. We go into each interaction with a set of assumptions, conscious and unconscious about the people and context of the situation which guide our decision making without our being aware of it. Even with those that we are aware of, we rarely check them.

An interesting Harvard study a few years ago concluded that over 70% of our assumptions generally are wrong. Another by Case Western scientists and others found that some 90% of all the assumptions that we make about other people are wrong in some way.

So, we are guided in our actions and our decision making by assumptions and beliefs that we either do not know or do not check and which are most likely wrong

in any case (Sadler-Smith and Sparrow, 2008).

Our most dangerous assumption is that our assumptions are correct, and that assumption is programmed into our DNA.

- Our habitual reactions—our automatic responses (Dezfouli and Balleine, 2013).

Our habitual responses to any situation are formed in childhood and by later conditioning (Wood and Neal, 2009). We think of habitual, unthinking responses are all like driving a car, but in fact they cover a vast array of “thoughtful” decisions. We often develop a habitual response as a result of trauma—it becomes our way of coping with a difficult situation which has occurred many times. We develop responses to protect ourselves. Then when we are in situations, even ones which are not in the least threatening, which are vaguely similar to the more traumatic ones, we adopt the habitualized defensive reactions and quite unconsciously make decisions which would be appropriate to the earlier circumstance, but which may well be entirely unhelpful in this one.

We may think we are carefully weighing the pros and cons of the situation, but no matter how much conscious thought we put into it the result will be in accordance with the earlier, conditioned, response.

This process of following the dictates of learned habitual responses is often called psychic determinism (Waelder, 2017).

Other determiners of behavior and decision-making include our:

- Context: The genes that drive behavior and emotion are highly contextual in their expression (See, e.g., Pelaccia *et al.*, 2017).

- Emotions: Particularly those relating to fear, reward and relationships.
- Neurochemistry: The level of testosterone, dopamine, oxytocin, glutamate and cortisol being “up-taken” by our neurons (brain cells) (Rahman *et al.*, 2001).
- Drive for status: Status equals safety (Rilling *et al.*, 2011).
- Need for supportive relationships: Relational support is one of our primary needs (along with food, shelter and the drive to procreate (Bluistein, 2011).
- Need for certainty (Freeman *et al.*, 2006).
- Level of stress: We are more unethical under stress (Dias-Ferreira *et al.*, 2009).
- Personality: Which is fluid and highly contextual (e.g., see Saka *et al.*, 2008).
- Mental health: Especially any personality disorders we may suffer from such as psychopathy, narcissism, etc. but also depression and other mood disorders (Chamberlain and Sahakian, 2006).

### So What?

You’ll notice that conscious thought is nowhere in there. And the moment that we realize that every mental event—every thought—and every action has a long chain of causality in which conscious “will” is not a part we lose any real meaning to the term “guilt.” All our legal, judicial, religious and political systems—which all depend very largely on the concept of guilt, innocence and conscious motivation—need to be reimaged.

A comparatively long time ago (in terms of the rapid development of this field of science) we discovered what we then called “behavioral economics.” We found that we do

not make rational decisions in financial matters. What we are now finding is that this concept applies to everything else we “decide.”

All this has led to a heated debate in both the scientific and philosophical communities. It begins with a basic question: Do we have free will? The majority of the scientific students of human behavior—neuroscientists and neurogeneticists (of which I am one) and neuropsychologists—come down on the no-free will side, often with a number of versions of determinism being argued.<sup>1</sup> Many philosophers are trying to fight back—as are the religious denominations. To my mind theirs is a losing battle.

The battle over evolution has been won and every serious scholar now accepts this as a fact; free will and guilt is the next big battle ground. But evolution does not affect our day-to-day lives; the concept of free will does, since so much of our society and our institutions are based on it.

What is certain is that we will have to rethink our ideas of legal causality including guilt, innocence and blame.☹

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<sup>1</sup> See for example the excellent talk by Sam Harris at <https://www.youtube.com/watch?v=pCofnZlC72g>

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