

Comments and Considerations on the Way Forward

A precis for the presentation of Oliver R. Goodenough, Vermont Law School and the Gruter Institute for Law and Behavioral Research

Excerpted from “Why do Good People Steal Intellectual Property?” by Oliver R. Goodenough and Gregory Decker, in preparation for publication in LAW, MIND, AND BRAIN, Fall, 2007. References omitted.

Introduction

Why do good people steal intellectual property? You know who we mean. The person (perhaps even yourself) who feels deep remorse if she mistakenly walks off with your pencil, who takes a wallet she found on the street, full of money but with no identification, to the police, and who without a qualm or any thought of payment, downloads copyrighted music off the internet to put onto her iPod. What is going on here? Some suggest ignorance of the law, but that is generally not the case. She knows about copyright. Some suggest a lack of enforcement, but that doesn't stop her from turning in the wallet. No, something else is going on – some failure of a normally law-abiding, “good” person to feel any compulsion to obey this set of laws.

....

Relating the Cognitive Revolution to the Law

The advances of the cognitive revolution are reshaping many fields of study; it has a particular potential to foster a better understanding of questions of concern to law. Indeed, traditional legal scholarship can be viewed as a capable, if somewhat naive, science of thought and behavior. This idea draws on an insight of the noted neurologist of vision Semir Zeki about the nature of art. In his book *Inner Vision*, Zeki argues that art is only effective if it interacts with our visual processing capacities in ways that we can perceive and ascribe meaning to. An artist, therefore, is a kind of untutored cognitive scientist, seeking effective avenues of interacting with human physiology to produce her effect.

In a similar way, the study of law is, at its heart, a cognitive inquiry. The law is keenly focused on analyzing and categorizing our deeds and mental processes in particular contexts of social interaction, and in matching that categorization to consequences of punishment and enforcement. Over the years, jurisprudence has borrowed the best available tools for undertaking this job, whether from religion, philosophy, social science, or psychiatry. The jurisprudence of the 21st Century will incorporate the cognitive revolution in its turn. Just as in Moliere's “*Le Bourgeois Gentilhomme*” Monsieur Jourdain is astonished to discover that he's been speaking prose all his life, so too will legal scholars, as they become more and more familiar with the

new findings about the brain, discover that they have been brain scientists all along. An understanding of neuroscience will just make them much better at it.

....

The Strategic Role of Thought

Understanding the formal strategic situation is an important step in studying a social judgment such as whether taking the creative product of another is blameworthy. Most law-relevant thought will be about behavior with a social dimension. If an action doesn't effect other people in some way, either by its impact or through some evaluative judgment, it is probably of little interest to the law. Therefore, the underlying rationale for a cognitive process drawing the attention of the law is probably rooted in the dynamics of social interplay. The strategic dimension of a decision will be reflected in its functional instantiation in the brain, and vice versa.

Although many kinds of social science provide insight into the dynamics of motivation, game theory strips away a lot of the clutter and noise and provides a particularly helpful means of analysis, both formal and descriptive, for evaluating strategic decision-making. Game theory suggests that our social judgments are often rooted in dilemmas around cooperative opportunities or the allocation of scarce resources among potentially competitive actors. These opportunities and challenges present themselves in many different forms. In some cases plus-sum cooperative solutions will fall naturally from the pursuit of each actor's self interest. In such a case the positive solution is said to be "dominant." In others, such as the broadly recognized "prisoner's dilemma," self interest will lead to less optimal results, and the positive solution is "dominated" by the negative. While people are not perfect Nash calculators (thank goodness), the strategic options available to actors in multi-player social interactions shape much of our thought.

Although it is not always recognized in the game theory literature, humans are not necessarily prisoners of the prisoner's dilemma itself. Maynard Smith and Szathmáry have charted how each of the major transitions in evolutionary biology have coincided with some restructuring of the physical nature of life that has given access to dominant cooperative solutions within and between living actors. They argued that human societies are extensions of this same principle.

By further extension, we can recognize the human capacity to avoid prisoner dilemma-style games, with their likelihood of poor outcomes. In a process sometimes called "mechanism design" people both choose and change the strategic properties of their social interaction. Some of this is done at the level of our evolved psychology, with ready access to the reinforcement of emotion and compulsion; choices can also be created anew and embedded in our cultural inheritance. Law can be seen as a further step in this chain, creating institutionalized game structures with which attractive, plus-sum outcomes become dominant. In this way humans can be seen as "outwitting" Nash.

Multiple Inputs

Until recently, reasonably intelligent scholars and authors were arguing over whether our behavioral motivations and responses are a product of nature or of nurture. A much better picture of our composite human nature arises from the understanding that the answer is both, and even more. Information to action pathways get established in many ways. Some of our perceptions, capacities and responses can be thought of as relatively hardwired, or at least predisposed, traits, present in our genetic heritage and shaped over evolutionary time. Of course, few if any of these are independent of environmental influence; almost all are shaped to a greater or lesser degree during development by interaction with the non-genetic world. Others are the product of our non-genetic, social inheritance, received through cultural learning. Rules of behavior ranging from customs and social mores through to tradition-based law can be transmitted this way. Conscious and unconscious conclusions drawn from our individual history and experience add to the mixture, as do the workings of our special human capacity for rationality and hypothetical thinking. Finally, we create physical and social institutions such as codes, protocols and even architecture that use externalized information and structures to help guide us.

....

That does not mean, however, that the actual mechanisms and their location in the composite are unimportant – far from it. Nor does it mean that the different components will always work in concert. Embodying these insights, Owen Jones has propounded what he calls the “law of law’s leverage.” This approach recognizes that law, as an institutionalized, cultural force, will seek to move behavior that may be rooted in relatively unreflective, internalized motivational pathways. Understanding the strengths, strategic contours, and mental attributes of both the law and its target will help us to create effective legal intervention.

Decision Making: Multiple Steps and Paths from Sensory Input to Behavior

Most of us have a folk image of decision making in the mind that looks a bit like a the captain of a ship, standing on the bridge, weighing the reports from the various members of the crew, choosing a course of action, and then barking out orders which the somewhat befuddled and emotional crew, in turn, sometimes follows and sometimes doesn’t hear or disregards. There appears to be a simple line from sensory input to decision processing to action. While this notion may have some subjective appeal, it is a poor model for what is in fact happening in our brains. If the informational sources of human decision making and action are not unitary, neither is the brain which does the processing. First of all, there are a number of steps along the road. Sensory input is first subject to primary processing, which sorts out basic elements like shape, color, motion, etc., then secondary processing applies meaning, identifying the input in some way. With recognition can come a step like desire formation, where a generalized wish is created.

Then may come an inhibition moment. The brain works as much by inhibition as by affirmative processes; if the desire is judged inappropriate it can be stopped in its tracks. If the decision process goes forward, then, in this model, a more specific strategy would be created, and an action plan to put it in place. Once again, however, there can be a chance for inhibition – the plan could work, but it would create trouble in some other way.

Consider, for instance, the decision on whether or not to eat some hors d'oeuvres. If they were in front of you on a plate, you would need to identify them as having certain look and smell, and then ascribe meaning to that combination. Food, you would conclude. That conclusion could lead to a desire to eat, a desire that might be blocked, either unconsciously if you were intent on some absorbing task, or consciously if you were on a diet. If no inhibition came at that point, you might think about moving over and taking it off the plate to put in your mouth. Then, another consideration could intrude: someone is holding the plate in a proprietary fashion. It is tasty and desirable, but it belongs to someone else – inhibition intrudes once again.

Even here the model is too simple, however. Often, several tracks are running simultaneously, influencing each other, and being influenced, in turn, by the neurochemical state of the brain, attention grabbing alternatives, stress, and a host of other factors. The model set out in Fig. 3 is still at best an approximation of the actual chain of processes, but it serves to suggest the complexity and multiplicity of the real thing.

....

Importance of Emotion for Thought, Judgment, and Action

Cognitive science is recasting how we think about emotion. The classic emotion/reason divide appears to be crumbling; rather, emotion, paired with other mental capacities, appears an important component in many domains of thought. Furthermore, the more we study emotion, the more we recognize different aspects of the cluster of phenomena which have been grouped under that label. Writing in the context of moral judgment, Goodenough and Prehn have written:

[P]rogress will be made by separating “emotion,” the sensation of arousal that we monitor in ourselves and others, from “emotion,” the functional component in mental processes. Its meaning as a sensation state strikes us as being less important to normative judgment than are the functions which the-thing-we-call-emotion-when-we-experience-it is contributing to the processing of normative tasks.

They continue:

These disparate results suggest that emotion acts as a great emphasize and highlighter in the brain, an indicator of importance and urgency. Damasio, for

instance, has suggested that emotion plays a key role in creating a “somatic marker” which helps guide and prioritize decision making processes (Damasio 1994). In the realm of memory, events that are associated with emotional states are much more likely to be transferred from working memory to long term recollection (Morris & Dolan 2004). In the current brain, emotion drives attention towards its associated objects (Anderson & Phelps 2001). Emotion gets us up and doing. As even Hume recognized, emotion is a great translator of thought to action (Hume 1739; Rolls 1999; Schwartz 2000).

The emotional components of thought also have some degree of physical localization, including major portions of the limbic system. This brain system includes a number of sub-parts often associated with quick, emotion-linked responses and with unconscious processes such as memory formation, hunger, and sexual attraction. A key element in emotion is the amygdale, a portion of the limbic brain that sits physically below the outer cortex, but which communicates extensively with cortical areas, particularly those in the adjacent pre-frontal region, behind the forehead. Patients with amygdale injury often show emotional deficits, and imaging studies show amygdale activation in emotion-linked thought.

Limbic involvement and the cognitive intensification we recognize in ourselves as emotion can push a desire or action plan to which it is linked past several inhibition points; we all have done something when we were mad that we would not have done in a moment of cool reflection.

Emotion and Law

Given its importance in thought and action generally, emotion is a key component to be recruited in an effective regime of law. The dry, orderly, normative worlds of a Kant, a Rawls, or a Posner, may be intellectually attractive, but they seldom lead to human action. It takes someone like Martin Luther King, harnessing emotion and reason together in a united appeal, to move us through our brains to act against injustice.

Like any strong ingredient, however, emotion must be contained by law as well as put to use. Rapid, emotionally charged responses are not always the wisest courses of action. The law’s delay, when not excessive, gives time for passions to cool, at least a bit. But excessive control is a problem as well. The law faces a Goldilocks dilemma – it needs cognition that is not too hot, and not too cold, but just right for the task at hand.

Furthermore, it is not just in judging others that emotion is important. It is also a key element in our own moral choices, often empowering our inhibitory functions. Inhibitory checks perform a key role in the chain of processing from sensory impression to resulting action. A hot upwelling of distaste, reluctance or guilt as we contemplate our own actions is a strong element in successfully choosing a rule-abiding path, as is the pleasant feeling accompanying a choice for good. The hypothetical “good person” postulated at the beginning of this essay will be no stranger to these sensations and to the

choices of restraint associated with them. Anatomically, inhibition is to some degree localized in the frontal cortex, and damage to this area leads to impulsivity and a lack of control that, when coupled with environmental factors, can lead to increased likelihood of criminal behavior.

Law can help redirect our emotion linked desires and to strengthen our inhibitions. Alexander Hamilton emphasized this need for our institutions to control emotion: “Governments are instituted because the passions of men will not conform to the dictates of reason without restraint.” But emotion is also a critical part of control as well, and a personal emotional response is put to use in most legal systems. Because there can never be a police officer on every corner, systems of law must engage the natural self-policing of basically good people. This is particularly true for matters where the breach of the rule is easy to effectuate and not so easy to detect. In such cases, rules must be designed so that people obey out of a strongly felt duty, and not out of fear. It is emotion that drives such duty. The Latin poet Horace put it: “Leges sine moribus vanae,” or, as I loosely translate it, “Laws without a moral basis are pointless.” Neuroscience suggests we could equally well substitute “emotional” for “moral.”

Methodology of Cognitive Jurisprudence

Informed by these principles of neurological study of thought and behavior, we suggest a five part methodology for applying a cognitive jurisprudence approach to the study of law and of matters of interest to the law:

- (i) Identify questions of interest to the law relating to thought and behavior that are amenable to cognitive study;
- (ii) Examine the strategic context within which the thought and behavior takes place;
- (iii) Consider the possible cognitive structures and processes that could be involved in the targeted thought and behavior and form testable hypotheses concerning these processes;
- (iv) Undertake empirical research to test the hypotheses; and
- (v) Bring the results back to inform the formulation of legal doctrine and the factual investigations of courts and other bodies.

The selection of questions is an important first step. Some of the questions of interest to the law will be amenable to cognitive study; others will not. Additionally, some have already been solved adequately as a matter of the naive psychology of law itself or of traditional academic psychology based in behavioral research. Of course, there is always value in a better understanding of our successes. Nonetheless, we suggest that cognitive jurisprudence should particularly aim at problems where there are failures

in accepted doctrine to achieve results and where existing legal science is unable to provide good answers for these failures.

We believe that we have such a question in the failures of intellectual property law, particularly copyright, to engage the voluntary compliance of much of humanity, including those in societies that generally respect legal institutions. The remaining portions of the methodology will be explored in the context of how cognitive jurisprudence might help us approach this problem.

Challenge of Intellectual Property

Intellectual property law, by contrast, faces more serious challenges in promoting voluntary compliance. The problem is not doctrinal. The fields of copyright, patent and trademark have well developed bodies of law, with clearly established rules, both at the national level and in such international conventions as TRIPS and Berne. Nonetheless, the rules of intellectual property, and of copyright in particular, are widely disregarded whenever technologically feasible. Moreover, the rules are disregarded by “good” people, and even by people with a deep stake in the effective workings of an IP system.

....

What Makes IP Harder? A Further Hypothesis

The approaches of cognitive science suggest a further hypothesis about intellectual property. Starting with a review of its strategic attributes, we see that IP does not map fully onto the full list of advantages of traditional property. While some are strongly present, others are missing. For instance, as is widely recognized, most intellectual property is not subject to rivalrous use disputes. The singing of a song or the use of an invention by one person does not prevent someone else from doing the same thing, although the utility of the song or invention may diminish if it is too widely used. Similarly, overexploitation to depletion is not really a problem. Technological advances may permit the overexploitation of previously abundant physical resources (e.g. ocean fishing stocks in the 20th Century), but with IP the knowledge itself does not go away because many use it.

On the other hand, a property approach to the work of the intellect does create pay-offs for both the effort of creation and for the investment involved in development and dissemination. Providing such an incentive for the creator is the rationale set out in the U.S. Constitution for giving Congress the power:

To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

Beyond creation, the incentives of copyright and patent also extend to the developers and marketers of inventions and artistic works, a critical factor for such intellectual property industries and music, television, computing, and pharmaceuticals. IP rights also provide a capital basis that can be used for further research and creativity.

So here we have a category of activity where a property convention can create productive opportunities for creative work and investment, but where it also undercuts the advantages of non-rivalrous sharing. At a strategic level, this partial fit is somewhat ameliorated by such factors as fair use and the idea/expression dichotomy in U.S. copyright law and the disclosure requirements and limited timescale for patent protection. At a cognitive level, however, the limited overlap fits with our historical knowledge that assigning property rights to creative expression and invention is a relative latecomer to human experience. If, as Maynard Smith's "Bourgeois Strategy" suggests, preventing rivalrous use contests is the initial impulse for the evolution of property, then works of the intellect may not have been part of any historical evolution of property in interaction with the human brain.

We believe that whatever neurological primitives or particularized networks may exist to help us make property-based, emotionally grounded, self-restraining decisions about the control and use assets, they do not easily recognize creative works as being part of their remit. Viewed from this standpoint, intellectual property could be economically sensible yet cognitively weak. Without a ready connection into the limbic system and highly motivated structures of inhibition, IP can make all the sense in the world as a social policy and still be behaviorally invisible, unable to motivate self-generated observance in hyper-honest cadets and self-interested IP creators alike.

So what, if any, is the emotion linked processing of IP related rights in the brain? Evolutionary biology suggests a different set of pathways that may have evolved to reward creativity: pathways related to respect and prestige on the one hand and to secret keeping on the other.

....

Conclusion

The revolution of cognitive neuroscience is sparking remarkable advances in understanding human thought and behavior. This new understanding has the potential to help solve a number of classic conundrums of the law, allowing us to create more effective legal regimes. By identifying the functional working of the brain as it tackles particular mental jobs, we can form and test hypotheses about the processing of decision making on issues of respect for property and the person, moral judgment, and punishment. We can call this kind of approach cognitive jurisprudence.

We suggest that law works best when it is able to recruit brain functions strongly linked to attention, motivation and action. Although we often think of the law as cooling emotion, the process is a two-way street; emotion gives law cognitive salience and

effectiveness. We examine possible cognitive models for both traditional and intellectual property, particularly copyright, both by way of an example and as a proposed target for further research. We advance three hypotheses that can explain why our systems of intellectual property are less successful in recruiting self-enforcement and restraint than are our rules for more traditional forms of ownership.

Finally, we explore methods that could be employed to test these hypotheses and the implications which confirmation of the approach would have for reexamining the doctrinal approach to . While the full potential of cognitive jurisprudence awaits the results of empirical programs such as these, we believe that we are at the early stages of what will be a remarkably productive interaction between law and science.