

Ethical lapses: the role of neural competition and microemotions

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Abstract

Like other socio-affective decisions, ethical decisions depend on competitive decision episodes which accumulate evidence favoring alternative actions. In these episodes competition between alternatives is generally influenced by microemotions, discrete signals which express the large array of expected outcomes, intuitions, desires, needs, appraisals, conditioned reactions, social norms, priorities and values which can be brought to bear on the unconscious and conscious portions of decisions. Judgment and emotional intelligence are based on the quality of these episodes. Clinical disorders associated with judgment lapses can be used as models of ethical lapses which can shed light on mechanisms as well as prevention strategies.

Keywords: Affective processing; biased competition; decision; emotions; ethical behavior; ethical lapses; goal-related cognitive processing; neuroscience and ethics

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Introduction

The development of neuroscience over the last decades has dramatically changed the way we understand human behavior. However, recent neuroscientific findings and the models they have spawned remain largely unknown in most disciplines devoted to predicting human behavior which still rely on old psychology models. In addition, the basic building blocks of social science theories are often inconsistent with neuroscientific evidence. Camerer, Loewenstein and Prelec (2005) give some typical examples of such inconsistencies in economic science. Intertemporal choice, for example, is conceptualized by economics as a trade-off of utility at different points in time. Unfortunately, such modeling hardly describes most decision processes involving long term consequences which are primarily driven by emotions and automatic responses to a situation (2005, p. 39). The economic utility model conceptualises decision making as an evaluation of different scenarios. However, people never evaluate scenarios objectively but react emotionally and automatically to risk when making decisions (2005, p. 43-46). It is also the case of game theory whose central assumptions are questioned by higher-order cognition and affective influences on social preferences (p. 46-51). What must be kept in mind in those examples is not only the fact that neuroscience findings contradict economic theory, but that the latter relies on a simplistic psychological model of human behavior with outdated assumptions. It is also the case of many social science theories, in particular when related to decision-making.

The neuroanatomical circuits involved in emotional and rational aspects of decision-making and moral behavior are starting to be mapped (Fumagalli & Priori, 2012). More importantly, neuroscience models have now sufficiently developed to shed light on the mechanisms of value-based decisions which include ethical decisions. From these models has emerged a new conceptualization of the relation between mind and action in decision making, its process and motivations. Even if morality and ethics have been thought of and developed almost

exclusively within a conceptualization of human decision-making as rational and conscious, neuroscience data point to the fact that they are processed mainly at the automatic, emotional and unconscious levels. Human decisions result from a constant interaction between controlled and automatic processes, and between cognitive and affective systems. It has become increasingly clear that our decisions are to a large extent beyond our conscious control but that it is highly influenced by relatively organized unconscious debates. The fact that free will may not be so free after all does not invalidate the natural propensity to judge human behavior and decisions from a moral point of view.

In this paper, we wish to illustrate the role of basic cognitive-emotional mechanisms in ethical decisions. After presenting the shift in the modelling of ethical decisions from the conscious rationalist perspectives to the unconscious emotional perspectives, we will discuss two key components of brain networks which have a huge influence on ethical decisions: competitive decision episodes and the microemotions that influence their outcome. In this conceptualization, unethical behavior is modeled as ethical lapses which share many of the features of judgment lapses observed in clinical populations when decision episodes are poorly regulated.

1. Understanding decision making and behavior: from conscious to unconscious processes

In the social sciences, the ethical decision-making process has often been conceptualized as a deliberative, conscious and reasoned exercise. This conceptualisation is captured by Rest's four-stage process model (1979; 1986) including awareness of an ethical issue, ethical judgment, intention to act ethically, and ethical behavior. This model can be seen as a direct transposition of judicial judgment to ethical questions, where after being aware of facts, the judge finds which rule applies and decides whether or not the behavior is lawful. Other models add social or cultural variables to the model, but the process remains exclusively at the conscious and rational level.

However, when faced with ethical dilemmas, people hardly narrate their decision process in rational terms, and more explain their choices as gut-feelings or intuition (Toffler, 1986; Reynolds, 2006). This was envisioned by Hume as early as in 1777 when he stated that moral judgment derives from sentiment as an "immediate feeling and internal sense", not reason and a "chain of argument and induction" (Hume, 1777/1960). This non rationalist perspective on ethics is the basis of alternative modeling of moral judgment such as the intuitionist models. For example, Haidt's intuitionist model states that moral judgment is generally the result of quick, automatic evaluations (intuitions) in a social context (Haidt, 2001).

Moral reasoning is usually an ex post facto process used to influence the intuitions (and hence judgments) of other people. In the social intuitionist model, one feels a quick flash of revulsion (...) and one knows intuitively that something is wrong. Then, when faced with a social demand for a verbal justification, one becomes a lawyer trying to build a case rather than a judge searching for the truth. (...) In the social intuitionist model it becomes plausible to say, "I don't know, I can't explain it, I just know it's wrong." (Haidt, 2001, p. 814).

This model disqualifies the rationalist perspective on moral judgment to propose an alternative understanding more in line with empirical evidence. For instance, it builds on Zajonc's demonstration that affectively valenced evaluations are made instantly without any conscious processing (1980). Research on attitudes also reveals that they are the result of automatic processes rather than deliberation and reflection (Albright, Kenny, & Malloy, 1988 ; Ambady & Rosenthal, 1992). In addition, Haidt's model incorporates findings about post hoc reasoning for causal explanations in social context (Nisbett and Wilson, 1977; Perkins, Farady and Bushey, 1991) which favors attitude alignment (Davis and Rusbult, 2001). Therefore, instead of being the cause of judgment, reason is an post hoc construction in this model, generated after a judgment has been reached (Haidt, 2001). This is why for Haidt, moral reasoning is more like a lawyer building a case than a judge reaching a conclusion. Moreover, the model depicts moral judgment as an interpersonal process, i.e. it is defended as such in front of others. If morality and ethical judgment have long been thought of as rational and conscious processes, such a model points to the fact that they are entrenched in automatic and affective systems as main parameters of social life.

Neuroscience data force us to rethink the way we conceptualize decision-making, and more specifically the weight of deliberation and rationality versus automatism and emotions in the process. Partly captured by Plato's metaphor of people as drivers of a chariot drawn by two horses, reason and passions. Neuroscience teaches us that passions are not so easily mastered by reason, and that indeed rational processes are often carried by emotional reactions. Human behavior involves a constant interaction between controlled and automatic processes, and between cognitive and affective systems (Camerer, 2005).

While not denying that deliberation is part of human decision making, neuroscience points out two generic inadequacies of this approach – its inability to handle the crucial roles of automatic and emotional processing.

First, much of the brain implements “automatic” processes, which are faster than conscious deliberations and which occur with little or no awareness or feeling of effort (...). Second, our behavior is strongly influenced by finely tuned affective (emotion) systems whose basic design is common to humans and animals (Ibidem, p. 11)¹.

Moreover, as automatic and emotional processes remain mostly unconscious, we tend to exaggerate the importance of deliberative processes in decision making.

(...) many behaviors that emerge from this interplay are routinely and falsely interpreted as being the product of cognitive deliberation alone. These results (...) suggest that introspective accounts of the basis for choice should be taken with a grain of salt. Because automatic processes are designed to keep behavior “off-line” and below consciousness, we have far more introspective access to controlled than to automatic processes. Since we see only the top of the automatic iceberg, we naturally tend to exaggerate the importance of control (Camerer, 2005, p. 11).

This is why in light of neuroscience, the entire conceptualisation of decision making thus far must be rethought, as well as the judgement we have about the quality of a decision. If our decisions are to a large extent beyond our control, resulting mostly from an unconscious, automatic and affective process, where does ethics stand, and is it possible to judge human behavior and decisions from a moral point of view?

Reynolds has proposed a model of the ethical decision-making process which distinguishes between unconscious (automatic

¹ And this influence is judged to be « primary » : « In contrast to the intuitive view of human behavior as driven by deliberations about costs and benefits (...) affect is primary in the sense that it is “first on the scene’ and plays a dominant role in behavior » (2005, p. 26).

processing, implicit learning or intuition) and conscious levels, and suggests that: “A great deal of ethical decision making is a process of prototype matching that generates reflexive judgments, and therefore active judgment may actually be quite uncommon” (Reynolds, 2006, p. 741). Three theoretical contributions are emphasized by the author (Ibidem, 2006, p. 742). Firstly, it replaces the usual linear process by the simultaneity of description, judgment and prescription in reflexive decisions (i.e. the fact that prototypes are multidimensional). Second, it insists on the fact that intuition is the most common form of ethical decision making. Lastly, the model explains the functioning of the ethical decision making process by pointing at two specific structures: prototypes (unconscious reflexive pattern matching) and moral rules (higher order conscious reasoning).

Building on these insights, we suggest an alternative understanding of ethical decision-making that goes beyond the traditional dichotomy between between conscious and unconscious levels. Informed by evidence from both neurophysiology and clinical neuropsychology, we emphasize the process of competitive decision episodes and the role of microemotions in ethical decision making.

2. Competitive decision episodes

The brain mechanisms of decision-making have become one of the key questions of cognitive neuroscience and one the main domains in which a transfer of knowledge to social behavior and ethics shows great potential. There is now a great deal of evidence from neurophysiological recordings that the brain networks produce decisions through competitive cognitive episodes. These episodes are involved in action selection but they are also involved in perceptual decisions, attentional selection and retrieval of information from memory (e.g. Corbetta & Schulman, 2002; Richer & Chouinard, 2003; Beck & Kastner, 2009; Miller & Buschman, 2013; Shadlen & Kiani, 2013). Competitive decision episodes have a few critical features. They involve competing unconscious representations (alternative hypotheses) which grow in activation at a differential rate until one of them dominates in activity and others are inhibited. The competition between unconscious alternatives is oriented by accumulating relevant sensory or stored information favoring one alternative or the other (e.g. Is this shape more like a bird or a plane?), by motivational or emotional information (e.g. attractive faces get priority, so does hearing one's name or hearing a scream) and also by top down influences such as goals and rules (e.g. I was looking for peanut butter wasn't I?; I'm not supposed to say this, am I?). For example, attention to specific features of a display depends on the accumulation of evidence over fractions of a second favoring one of a few competing hypotheses about what is in the display. This competition is generally oriented or biased by top-down information such as expectations or the goals of the visual search (e.g. finding items on sale) and by bottom-up influences such as learned categories (features often found together) or emotional triggers (e.g. attractiveness, frightfulness). The competitive nature of attention episodes can be seen in attention lapses as when focusing heavily on one aspect of a situation makes us miss other aspects which are right in front of our eyes, or when we miss important verbal information because our mind has been distracted by something else. Competitive cognitive episodes are often both

conscious and unconscious. They generally involve interactions between conscious representations such as goals and unconscious representations (e.g. preconscious perceptions, emotions).

When retrieving information from memory, competitive decision episodes work in a way that is analogous to search engines. Information competes on the basis of its relevance to search signals such as keywords (e.g. A fruit whose name starts with an A) or patterns (e.g. sharp tool, foot-long, cuts bread). Retrieval is an accumulative process which is often controlled by conscious search cues. In memory search, cognitive competition can be seen in retrieval errors like verbal slips (e.g. ‘...mothers who struggle to put food on their family’) or action slips (e.g. picking up the hair brush to brush one’s teeth). Competitive cognitive episodes are also involved in delimiting the variables we take into account when solving a problem or reasoning. They are also involved in just-in-time thinking in which the next idea or goal is evoked when preceding steps are completed in a task.

The concept of competitive decision episodes explains a great deal of data in cognitive neuroscience and it has major implications for ethical decisions. To the extent that ethical decisions are similar to other cognitive-emotional decisions, the mechanism of competitive decision episodes claims that largely unconscious debates are cornerstones of ethical decisions. Ethical decisions are complex multi-level processes which often incorporate fact finding, retrieval of relevant information, checking alternatives, selecting relevant goals and values, identifying conflicts and reviewing possible outcomes. The presence of accumulative competitive decision episodes at most of these levels implies that decisions are highly dependent on the relative strengths of different influences and on the data that are considered or neglected at the time the decision is made. This process of unconscious debate argues for an increase in the variety of points of view in ethical decisions. Indeed, input from multiple stakeholders and from a variety of social and cultural backgrounds helps insure that important priorities and important

information are not neglected. A model of decisions based on largely unconscious competitive episodes also implies a high degree of relativism and determinism in choice. It also argues for a case by case approach to ethical decisions. The relative merits of cooperation versus individualism depend on the context. Choosing between outcomes such as enriching oneself, shareholders, employees or society is highly dependent on the strengths of different influences in a specific situation. A direction is often selected among alternative behavioral tendencies which may have varying degrees of strengths or relevance. Group norms such as those conveyed by organizational culture or social circles are potent influences on expectations, priorities or values taken into account in a given decision.

3. Emotions

It is well accepted that emotions can influence thoughts and actions. Emotions can guide actions in a number of ways. In impulsive actions, they drive motor systems directly without foresight or deliberation to change the relationship to a situation which evokes aversion, irritation or irresistible desire (Frijda et al., 2014). In decisions and value judgments their role is often more subtle and they can simply bias the information taken into account or the appraised value of different alternatives. However, recent data point to the fact that emotional signals often have a more fundamental role as engines of decisions (e.g. Bechara et al., 2000). The question is no longer whether emotions have a role in decisions but how their pervasive role is implemented in decisions. Emotions are multifaceted reactions with physiological, motor and cognitive dimensions which are based on phylogenetically old motivational systems aimed toward protecting and sustaining individuals or species. These reactions are relatively fixed and linked to preprogrammed or conditioned triggers but there is a constant interplay between emotional and cognitive processing involved in appraisal and regulation mechanisms which orient affective interpretations from multiple competing emotional signals (Pessoa et al., 2002).

It is now increasingly clear that emotions are the main drivers of attention, thought and action. Most often, the primary drivers of decisions are discrete emotional signals or microemotions. Microemotions are small, short, almost unnoticeable signals (e.g. visceral sensations, breathing changes, facial expressions, voice changes and other muscular contractions) to significant events or thoughts which bias both conscious and unconscious cognitive processing. These discrete motivational signals make thoughts and behavior lean more or less toward approach or avoidance, irritation or liking and a wide range of other behavioral tendencies (Pessoa et al., 2002; Bradley et al., 2012; Frijda et al., 2014).

Some microemotions (sometimes called somatic markers) are linked to outcome anticipation and evaluation (Bechara et al., 2000; Bechara & Van der Linden, 2005). For example, the

anticipation of rewards, punishments, risks, incentives, approval, cost or effort help orient many decisions. In social decisions, these outcome-related microemotions are the main drivers of decisions based on guilt, fear of failure or fear of disapproval, as well as cravings such as approval, social advancement and greed.

Despite the large amount of research on the neuroscience of outcome-related emotional signals, these microemotions are only a small part of a large family. Microemotions underly a number of motivational signals including interests, preferences, desires, and priorities which can be brought to bear in the unconscious and conscious portions of decisions. Microemotions linked to interests orient attention, thought and action to attractive, novel or stimulating objects, a basic human tendency (Bradley et al., 2012). Microemotions are also involved in appraisals of the significance of events or objects as beneficial, attractive, aversive or harmful. By biasing thought content, microemotions also help maintain trains of thought. Because many thoughts elicit microemotions which in turn facilitate related thoughts, cognitive episodes can be self-sustaining as when trains of thoughts focus on a specific theme in cognitive deliberation or in the intrusive monothematic thoughts observed in obsessions and post-traumatic stress.

Microemotions have critical functions in ethical decisions. First, they drive intuitions including moral intuitions which affect moral judgments (Haidt, 2003; Kagan, 1984; Shweder & Haidt, 1993; J. Q. Wilson, 1993). Moral intuitions provide quick, effortless and unconscious input to moral judgments including an affective valence (Bastick, 1982; Simon, 1992). Microemotions are also the building blocks of personality traits, social norms, and values.

In ethical decisions, microemotions have the critical role of influencing the competition between alternatives courses of action. They can inhibit the retrieval or the priority of alternatives associated with expected disapproval, loss of status or distress in self or others. They can facilitate retrieval and amplify the urge for alternatives associated with gains including approval,

vengeance and increases in power. Of course multiple microemotions may influence a decision and many decisions require evaluations at different scales (e.g. immediate social recognition vs long-term common good). This complexity often transforms the evaluation of alternatives into a cognitive bargaining process where microemotions interact and draw attention and preference in a variety of directions. When different interests align (e.g. individual desires, close social impact and collective interests) in win-win-win alternatives, other alternatives are easily inhibited but in more conflicting cases, alternatives must be considered more sequentially and deliberately.

4. From cognitive-emotional lapses to ethical lapses

A loss of sensitivity to microemotions can produce cognitive-emotional lapses which are responsible for poor decisions. For example, if a person underestimates risks or devalues public disapproval, she can seriously affect the success or acceptability of her decisions. Cognitive-emotional lapses can be viewed as blind spots or impaired insight in affect-based choices. They affect functions often grouped under social and emotional intelligence. These lapses can lead to neglect of social norms which can produce socially-inappropriate behavior, excessive risk taking, or unsavvy political moves. These lapses also affect ethical decisions as expressed in cheating, stealing, bullying and other anti-social behaviors.

A good neuropsychological model of ethical decisions comes from people who show judgment lapses linked to fluctuations or damage in frontal brain systems (frontal syndromes). Cognitive-emotional lapses affecting judgment can be observed in people who suffer from frontal syndromes due to dementia (Alzheimer's disease, frontotemporal dementia, or some Parkinsonian syndromes), but also accidental brain injury, tumors or cerebrovascular disorders. These lapses are also often seen in mental health problems such as depression, personality disorders, ADHD, conduct disorder and other behavior disorders. Healthy young children are also known to show lapses in value-based judgments in social situations (e.g. when playing with their peers or when deciding whether to follow norms or instructions). If we also take into account normal variations in personality traits such as impulsiveness, narcissism, or callousness, these lapses are quite frequent in the general population.

The behaviors observed during these lapses is highly variable. It can range from lack of sensitivity to others (empathy, sympathy) to social or political gaffes, but also include impulsive, disinhibited or immature behavior and outright lack of social and emotional insight. Cognitive-emotional lapses can increase

neglect of critical information which can reduce the quality of decisions. These can also produce the forgetting of goals ranging from the benign (forgetting what we wanted from the fridge upon opening it) to significant lapses in strategic thinking (biting the hand that feeds us or forgetting the big picture such as the impact of our decisions on stakeholders or the community). These behaviors can have significant costs from damaged relationships to financial losses and physical injury.

Cognitive-emotional lapses linked to competitive decision episodes are clearly relevant to ethical decisions. Ethical lapses are poor choices relative to social norms. They can be modeled as decisions which have been biased by strong urges or decisions which have failed to take into account information on consequences or values which should have made a difference. Cheating or stealing for example could result from a strong bias emanating from needs such as self-assertion, face saving or financial difficulties which is not properly counterbalanced by social pressure and fear of consequences. They could also result from devaluation of signals linked to our engagement in relationships or in the collective welfare of the organization.

Ethical lapses are affected by the state of emotional systems of the brain. Major systems which have independent contributions include those responsible for: self-confidence, worry-distress, guilt, impulsiveness, defensiveness, as well as attachment/affiliation. The interactions between these systems and fluctuations in their sensitivity or reactivity are essential ingredients affecting the final behavior. For example, in depression, lower self-confidence and higher worry-distress can dampen sensitivity to guilt and attachment/affiliation signals in some people, which can lead to increased anti-social behavior such as fraud or bullying. On the other hand, in periods of excitement or euphoria, heightened impulsiveness combined to cravings for attachment or distress relief can increase blind trust and impulsive behavior. Altruism can also be modulated by emotional states. For example, the death of a loved one or natural disasters can temporarily increase our sensitivity to

microemotions linked to suffering and attachment/affiliation and these signals can increase our bias toward the plight of others or toward collective goals. Finding the variables that influence the sensitivity or threshold of these systems is a critical research enterprise to increase our capacity to predict human behavior.

If microemotions guide ethical decisions, one should become interested in the sources of microemotions. Microemotions are mostly learned value signals acquired through associative (Pavlovian) conditioning. Genetic, epigenetic and early environmental influences modulate levels of sensitivity of various reactions forging a temperamental profile which can be variably developed depending on events. For the most part, microemotions are learned from direct or vicarious experiences especially in social interactions. The relative power of guilt and stimulation associated with slight exaggerations in verbal reports of events can be affected by the attention obtained from parents or peers during childhood.

Altruistic tendencies are also sensitive to social pressure. In two longitudinal studies conducted amongst business students, Venkat (2008) has shown that an MBA education could change students' values, reducing altruistic values such as loyalty, politeness and sense of belonging and increasing self-oriented values such as social recognition, pleasure and image.

Ethical lapses are highly sensitive to personal factors, group factors and education. Business organizations also have an important role in the prevention or encouragement of these lapses. Since the Enron affair, organizational culture is considered as a prominent risk factor in fraud and more generally unethical behaviour (Fisse and Braithwaite, 1983; Murphy, 1989; Reidenbach and Robin, 1991; Sims, 1992; Ford and Richardson, 1994 ; Chen et al.,1997). A critical portion of organizational culture is the shared set of norms and beliefs that guide individual and organizational behavior (Trevino, Weaver & Reynolds, 2006). These norms and beliefs are shaped by the leadership of the organization and are reinforced by various procedures throughout the organization (Brown, 1987). The

extreme emphasis on results or the idealization of boldness and fast reactions are known to affect the frequency of ethical lapses (Jackall, 1988). Also, organizational culture can inadvertently tolerate minor lapses for the sake of group cohesion or to establish a cool and relaxed environment. Training can have a great deal of influence in orienting intuitions and deliberations toward a wide variety of stakes. There is a growing consensus that organizations should monitor and actively try to prevent ethics risks. The revised Federal Sentencing Guidelines for Organizations (FSGO) now require companies to focus on how to prevent criminal conduct by effectively managing identified risks and uncertainties (US Sentencing Guidelines). Ethics risks can be monitored through measures such as employee surveys, interviews and ethics hotlines.

Conclusion

Models of ethical decisions are slowly incorporating unconscious and emotional processes. The bulk of neuroscience data points to mechanisms that go beyond the conscious-unconscious dichotomy and involves the modulation of competitive decisional episodes by microemotions. In this light, ethical lapses are seen as decision episodes that are poorly regulated by microemotions linked to social norms and collective values and are excessively influenced by other microemotions. This perspective helps integrate influences linked to individual temperament, situational factors, group values and organizational culture to help identify sources of ethical risk and target interventions.

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