Introduction

Rationality and emotions

The relationship between emotions and rationality is one that has preoccupied man for thousands of years. As the ancient Stoics said, the emotions typically involve the judgement that harm or benefit is at hand (Sorabji 2006). Already, then, there was thought to be a relationship between emotions and ‘judgement’, the latter implying a degree of rationality. But Sorabji, a philosopher, also points out that the mere intellectual appreciation of benefit or harm does not constitute emotion, but there must be some physiological disturbance: disembodied emotion is not meaningful. Yet the physiological reactions involved in emotions are typically thought of, since the development of evolutionary theory, as something of more primitive origins than reasoning. One reaction to this would be to argue that emotions govern actions that are urgent and essential to survival, whereas reasoning is dispassionate and calculating. Such a separation would be too simplistic, though one might be led to believe that the social science that has perhaps focused most on rationality, economics, has developed along these lines. Indeed when discussing the relation between emotions and rationality, Elster (1996) observed

Economists have totally neglected the most important aspect of their subject matter

(p. 1386)

This is no longer, fortunately, the case, and the purpose of this special issue is to disentangle, in the context of economics, the complex relation between emotions and rationality, using insights gleaned from philosophy, psychology, the neurosciences and the other social sciences. Many philosophers have taken a position in which there are direct causal relations between emotions and rationality and, for them, some of the positions taken by the contributors on this issue will be familiar territory. To cite another philosopher, Patricia Greenspan,

The category of emotions covers a disputed territory, but clear examples include fear, anger, joy, pride, sadness, disgust, shame, contempt and the like. Such states are commonly thought of as antithetical to reason, disorienting and distorting practical thought. However, there is also a sense in which emotions are factors in practical reasoning, understood broadly as reasoning that issues in action. At the very least emotions can function as ‘enabling’ causes of rational decision-making (despite the many cases in which they are disabling) insofar as they direct attention toward certain objects of thought and away from others.

They serve to heighten memory and to limit the set of salient practical options to a manageable set, suitable for ‘quick-and-dirty’ decision-making.

(Greenspan 2002, p. 206)

This suggests that emotions are somehow ‘useful’ in making decisions, and a natural conclusion would be that they have evolved to be so. With this in mind, let us first examine the evolutionary view of the emergence of emotions. The simplest idea is that they are the result of natural selection and Darwin (1872) himself devoted considerable attention to their evolution. In particular, he was concerned with the expression of emotions. For example, his view was that not only emotions themselves, but also our capacity to express them are the result of an evolutionary process, and he said in introducing his work on emotions in humans and animals,

It seemed probable that the habit of expressing our feelings by certain movements, though now rendered innate, had been in some manner gradually acquired. But to discover how such habits had been acquired was perplexing in no small degree. The whole subject had to be viewed under a new aspect, and each expression demanded a rational explanation. This belief led me to attempt the present work, however imperfectly it may have been executed.

(Darwin 1872, p. 19)

It is worth observing from the outset that Darwin’s preoccupation with emotional expression suggests recognition of the importance of the social context, for the expression of emotions can only be useful if someone else perceives it, and this aspect will figure explicitly in the contributions in this issue.

The modern version of the original Darwinian view is clearly expressed by the evolutionary psychologist Nesse, who says

Understanding emotional disorders requires understanding the evolutionary origins and functions of normal emotions. They are special states, shaped by natural selection to adjust various aspects of the organism in ways that have tended to give a selective advantage in the face of the adaptive challenges characteristic of a particular kind of situation. They are designed to maximize reproductive success, not happiness.

(Nesse 1998, p. 397)

However, to justify this assertion, what is needed is to show how emotions permit humans to respond better to the challenges of their existence. Certain ‘basic’ emotions, such as fear, have obvious evolutionary advantages, but when, for example, fear interferes...
with the capacity to reason, it becomes clear that we have to conduct a deeper analysis to understand the current role of the emotional faculties that have evolved over a very long period. Recent work in the neurosciences, which will be used in some of the contributions to this issue, sheds light on this question. A good example is provided by Ledoux (1996) who shows that the fearful reaction to seeing a snake can be resolved into two neurological components. He argues that fear can take two routes in the brain. He claims that there is a direct route, or a much less direct route. From an evolutionary point of view, the less direct route is the newer one. The activation here is first in the neocortex and subsequently in the amygdala. Such a process could obviously only develop after the formation of the prefrontal cortex. The older and faster response (thalamus to amygdala) may make the difference between surviving and perish- ing, and therefore permit the passing on of genes. Thus, an evolutionary mechanism with a fairly primitive explanation may become overlaid with more complex patterns.

A further explanation of the emergence of emotions is that they permit humans to engage in social activity. Turner (1996), for example, suggests that the evolution of emotional capacities in humans, and the neuroanatomical bases for these capacities, can be viewed as representing one of the many compensatory mechanisms for overcoming the low sociality contained in humans’ ape ancestry. He examines the selection forces involved in hominids’ growing capacity to use whole ranges of emotions to mobilize energy, to empathize, to punish, to develop and transmit common understanding of moral codes, and more simply to aid in exchanging and making decisions. The whole thrust of this argument is that the development of emotions in humans is unique and underlies their capacity for social activity and organization.

It is a major step, and probably an unjustifiable one, from arguing that our capacity to use the energy derived from emotions to make decisions has evolved over time, to the idea that it is rational to use our emotions to make decisions. However, it is reasonable to examine how we make our actual decisions and how this decision-making is shaped by our emotions. In so doing, we discover that emotions have their reasons, and are not limited to instinctive traits selected by evolution that trigger basic and urgent reactions. They can also guide deliberations based on the relation between past learning and anticipations. These emotional dispositions are too often considered as ‘biases’, but it is perhaps more reasonable to try to understand their significance and to analyse the coherence of the methods of evaluation that they induce.

Viewed in this light, emotions appear as means for evaluating situations and focusing on features of situations that are relevant for our purposes. This evaluation is also done intertemporally (hope is from present to future, regret from present to past). As we have already suggested, it can be shown that emotions make very rich and essential contributions to social interactions: our sensitivity to expressions of faces makes us able to anticipate others’ intentions; our interactions are shaped by different forms of empathy or sympathy—emotional contagion, projecting ourselves with our own dispositions into another’s situation, having representations of other’s dispositions as different from our own, etc. Indeed there is now extensive research that has shown that emotions have an impact on individual decision-making in the context of social interactions and cooperation (e.g. Hirshleifer 1987; Frank 1988, Rilling et al. 2002 etc.). In particular, human beings have emotional capacities that make the emergence and enforcement of social norms possible, contrary to other animals.

Emotions also allow intertemporal exchanges—past anxiety can be transmuted into relief. As soon as we take account of the complexity of emotions and their varied roles in determining behaviour—instead of just looking at the so-called ‘basic emotions’—we discover that not only do they provide us with the simple heuristics needed to find rapid solutions to decision-making problems, but they also contribute to the complex structures of trade-offs between the different features of a situation that need to be weighed against and related to each other. Almost paradoxically, we will see in the contributions to this issue that neuroimagery, the examination of the activity within one’s brain, helps us to understand this complexity. It is then possible to speak not only of emotional heuristics, but also of a real emotional rationality, the rationality not of the isolated agent but of the socially embedded one.

To understand the usefulness of neuroscience in examining the rationality of decision-making, it is worth looking at an example. Current neurological research shows that people with orbitofrontal cortical lesions have difficulties in anticipating the negative emotional consequences of their choices. People with healthy brains, however, seem to take account of these emotions, which are mediated through and are consistent with counterfactual thinking in the assessment of choice alternatives (Bechara et al. 1994). More generally, results from psychological and neurological research show that emotions and affective states are not just sources of biased judgements, but may also serve as essential functions leading to more appropriate choices.

In this issue, we wished to go beyond these neurological findings and to invite economists and philosophers to evaluate these results from the perspective of their own discipline. Indeed, what researchers in social and human sciences, such as economics and philosophy, can contribute to complement the neurological, psychological and biological research on emotions is the presentation of a theory of emotions articulated in the context of rationality.

Neuroscientists have themselves turned to economic theory and economic experiments (e.g. expected utility theory; the ultimatum game) in order to be able to interpret and to understand their findings. It has become clear, in the light of new experimental and neuroscientific findings, that economic theory had to be modified and, in particular, the standard axioms of rationality and theories of choice derived from them, rethought. We propose to take advantage, in this special issue, of this unique interchange between several disciplines to show how
neurological, cognitive and psychological findings on emotions can be articulated in the context of a theory of rationality and decision-making.

There is an existing literature that discusses the general problem of the impact of emotions on rationality (e.g. Elster 1996, 1998; Camerer et al. 2005; Gutnik et al. 2006 etc.); there are therefore no general surveys of the problem in this issue. Rather, each paper discusses a very specific aspect of how emotions affect decisions. Here, we give a brief outline of each contribution and how it fits into the general framework.

We start with Jon Elster’s paper on the ‘self-poisoning of the mind’ (Elster 2010). Elster played an important role in raising the issue of emotions in economics in the past; the current paper may well be the starting point of another round of emotion research in which emotion can not only explain particular biases, but also biases of biases with the possible effect of reducing personal well-being. At the root of these processes are threats to ‘amour-propre’, which in itself is not an emotional experience, but it can cause strong emotional reactions. For example, the experience of envy following the observation of another person’s greater success or fortune may cause a person to try to downgrade the esteem others may have for this person. However, the ‘self-poisoning’ aspect is that this attempt to alleviate the negative impact of envy is so obvious and transparent to others that its aim will never be achieved. Rather, the person in making this effort will suffer even further.

A particular ‘biased’ belief formation is discussed in Danica Mijovic-Prelec and Drazen Prelec’s paper, namely self-deception (Mijovic-Prelec & Prelec 2010). Self-deception is a particularly interesting situation insofar as it is usually defined as the coexistence of mutually incompatible beliefs in one and the same person. Mijovic-Prelec and Prelec explain self-deception in terms of a self-signalling model: people have an interest in engaging in certain actions that convey information about themselves. These actions have, therefore, not only outcome value, but also diagnostic value. However, individuals may not always be aware of this, and self-deception occurs if individuals choose actions that do not maximize the utility received from a particular outcome. After a conceptual discussion of self-deception and its emotional basis, the paper is completed by the presentation of an experiment that induces self-deception through financial incentives.

Envy is the subject matter in the paper by Giorgio Coricelli and Aldo Rustichini (Coricelli & Rustichini 2010), who call envy a social emotion that fulfils the same role as regret in the context of social interactions. Regret is the experience of having chosen one option and then realizing that if one would have chosen the other available option, the reward would have been greater. Envy refers to the fact that a person could have chosen the alternative option chosen by another person and would have ended up with a better outcome. Integrating these emotional experiences into counterfactual analysis prior to choosing any of the available actions plays a functional role in adaptive learning. Indeed, Coricelli and Rustichini present a model in which emotions do not necessarily interfere with rational decision-making, on the contrary they may implement it: they are a way of evaluating past outcomes to adjust choices in the future. This is particularly so in the case of social learning, the observation of the outcomes of the options chosen by others.

Sacha Bourgeois-Gironde further explores regret and rational decision-making and introduces some elements of caution (Bourgeois-Gironde 2010). He refers to clinical studies that show that the experience of regret, seen here as a predictive error signal, can be dissociated from subsequent behaviour. Hence, regret does not necessarily lead to learning. Moreover, the experience of regret may differ depending on how responsible a person feels himself/herself to be for a particular decision. This means that one can dissociate the outcome from the decision-making procedure. Poor decision procedures may themselves cause regret, independently of the outcome.

Counterfactual analysis that causes emotional experiences is at the core of Pierre Livet’s paper (Livet 2010). After giving a detailed survey of experimental evidence concerning emotions, Livet presents his own theory of what he calls ‘mixed emotions’ with which he can explain the Allais’ Paradox and several other cognitive biases presented in particular by Kahneman and Tversky. They are mixed emotions because Livet not only considers differences in outcomes that cause different affective experiences, but also differences in the probabilities of achieving those outcomes. These two aspects considered together cause emotional states such as ‘elating relief’ or ‘prudential pride’: elation when a person gets a bigger but riskier gain; pride when one preferred a less risky but smaller gain.

Building on Livet’s (2002) account of emotions as affective resonances of the differences between situations, Pierre-Yves Geoffard and Stéphane Luchini incorporate emotions into intertemporal decision-making (Geoffard & Luchini 2010). After reviewing evidence in psychophysiology and neurobiology on time perception and emotions which suggests that the perception of time depends on emotions, they present a theory in which time is not absolute, but can expand or contract, depending on the kind of emotions the person experiences. This explains why in certain sequences of actions people would prefer to perform unpleasant actions in the near future rather than in the remote future, contrary to what the standard time discount theory in economics would predict.

The next set of papers moves away from seeing emotions mainly as the result of (counterfactual) differences in outcomes and probabilities. Michelle Baddeley’s paper presents an extensive overview of research showing that emotion and cognition may lead to herding behaviour (Baddeley 2010). Herding is far from always producing optimal outcomes, even though it can be seen as a rational response to uncertainty and informational asymmetries. A better understanding of the causes of herding may thus help governmental institutions implementing policies that avoid welfare-harming herding behaviour.

Frédéric Basso and Olivier Oullier make a case for what they call ‘embodied economics’ (Basso & Oullier 2010). This is in the spirit of Sorabji’s (2006) view that disembodied emotions are not a meaningful concept.
The idea of Basso and Olivier’s contribution is that the physical presence of other ‘bodies’ may influence the way people decide. This gives a whole new perspective on decision-making, subjective in nature and influenced by the fact that people experience this world and their interactions from the particular perspective of their own bodies. For example, Basso and Oullier review and discuss evidence of how ‘mimicry’ affects decision-making. Imitation can be seen as a particular cause for herding behaviour. But Basso and Oullier go beyond this and present the view that imitation is essential to the understanding of interpersonal exchanges on the market.

Imitation is also linked to empathy, the view that people have the capacity to understand and feel what other people experience or believe. Economists have a long tradition of being interested, at least to some degree, in empathy. This interest has lessened with the axiomatization of the modern choice theory. However, recent developments in neuroscience have led to a resurgence of interest in the theme, in particular on the part of (neuro)economists. They have rightly scented a possibility to explore empathy in greater depth, not only for a better understanding of individual decision-making, but also for an explanation of prosocial behaviour. Alan Kirman and Miriam Teschl critically review this literature (Kirman & Teschl 2010) and the claim by some economists that there may be a particular distribution of levels of empathy in society, each individual having his own fixed empathetic capacity, which together with their fixed preferences determine their choice. The authors use evidence from experiments which shows, on the contrary, that, rather than being intrinsic, empathy is dependent on context and the way people interact with each other.

The last set of papers considers vicarious and affective states in a particular context. Luke Clark analyses gambling behaviour (Clark 2010), which is interesting for rationality insofar as it may become a harmful, potentially addictive activity. Clark’s contribution considers two approaches to gambling, which are often considered separately, and makes a strong case for considering them together for a better understanding of this problem. One is the cognitive approach that has identified a number of erroneous beliefs held by gamblers; the other is the psychobiological approach that has identified, for example, some dysfunctions of brain areas that are linked to reward and emotion. Clark then considers in particular the near-miss effect and the effect of personal control, which can be associated with the anomalous recruitment of certain components of the brain reward system.

Finally, John Coates, Mark Gurnell and Zoltan Sarnyaini discuss a particularly topical issue (Coates et al. 2010). They analyse the causes and effects of emotional changes in traders. They survey research on steroid hormones and their cognitive effects and examine potential links to performance in financial markets. For example, they state that there are grounds for believing that emotions such as euphoria and fear, commonly displayed in markets, may be more accurately described as shifts in confidence and risk preferences caused by elevated levels of steroid hormones. Of course, these findings have quite important consequences for the understanding of financial markets and, in particular, of the functioning of those who work in financial markets. Given the current financial crisis, this work has received a great deal of attention in the press.

In conclusion then, this issue adds to the considerable literature which has developed denying the simple dichotomy between emotions and rationality (e.g. Evans & Cruse 2004). To cite Greenspan again,

Contemporary philosophy of emotion attempts something stronger; however, in according emotions a role in practical reasoning. Making this an integral role—understanding emotions as functioning within practical reasoning rather than just as spurs to it—means interpreting emotions in normative terms, as providing or expressing potential reasons for action, and as themselves subject to rational assessment and control, contrary to the traditional view of emotions as ‘passive’ phenomena.

This issue should provide fuel for this debate on the relation between emotions and rationality, and all the views expressed by the contributors suggest that even the most resistant of the social sciences, economics, can no longer resist the trend in psychology, the neurosciences and philosophy to avoid treating these two phenomena as separate or alternating but rather to consider them as inextricably interlinked.

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REFERENCES


