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## From morality to moral emotions

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Morals (defined in terms of justice, well-being, and rights) can be distinguished from social conventionalities, which are standards for particular behaviours that are determined consensually by a certain social group. In all cultures, the notions of psychological damage, injustice, and violation of rights have been determinants for the concept of morals. The study of moral behaviour has been dominated for decades by theories that emphasize the role of reasoning in the moral judgment of adults. Debates about morality have occupied the centre of discussion among theoreticians. Morality-driven behaviours have traditionally been attributed to logically and verbally mediated processes, commonly referred to as moral reasoning and judgment. However, certain aptitudes, such as social sensitivity and cognition, have been considered to lie at the heart of the evolution of humankind. The assimilation of rules based on punishment or reward, and the attribution of intentions, beliefs, feelings, and desires to other people are some examples of these aptitudes, which are now considered or interpreted as forerunners of human morality. The study of emotions—moral emotions in particular—has increased significantly in the last few decades. Recent proposals have emphasized the role of emotional and intuitive processes in human decision making and that *emotions* are central to the solution of basic problems and to interpersonal relationships. This change in perspective is the result of recent work in the fields of philosophy, cognitive psychology, affective neurosciences, and neurobiology. The field of affective neurosciences has begun to explore different types of moral emotions with different techniques, in particular neuroimaging techniques. In the field of neurobiology, investigators have started to study neural correlates of moral emotions, and have encountered interesting findings, which indicate that the human brain shows a network specialized in moral processing.

La moralité (définie en termes de justice, de bien-être et de droits) peut se distinguer des conventions sociales qui, quant à elles, sont standard pour des comportements particuliers déterminés de manière consensuelle par un certain group social. Dans toutes les cultures, les notions de dommage psychologiques, d'injustice et de violation des droits ont été des déterminants pour le concept de la moralité. L'étude du comportement moral a été dominée pendant décennies par les théories qui mettent l'emphase sur le rôle du raisonnement dans le jugement moral des adultes. Les débats autour de la moralité sont au centre de la discussion des théoriciens. Les comportements dictés par la moralité ont été traditionnellement attribués à des processus conduits par la logique et le verbal, communément appelés raisonnement moral et jugement. Cependant, certaines aptitudes comme la sensibilité sociale et la cognition ont été considérées au cœur de l'évolution humaine. L'assimilation des règles sur la base de la punition ou de la récompense ainsi que l'attribution des intentions, des croyances, des sentiments et des désirs à d'autres personnes sont quelques exemples de ces aptitudes. Ces aptitudes sont maintenant considérées ou interprétées comme étant les précurseurs de la moralité humaine. L'étude des émotions, particulièrement les émotions morales, dans les dernières décennies a augmenté significativement. Les projets récents mettent l'emphase sur le rôle des processus émotionnels et intuitifs dans la prise de décision humaine et ont souligné que *les émotions* sont centrales à la solution des problèmes de base et aux relations interpersonnelles. Ce changement de perspective est le résultat des travaux récents dans le domaine de la philosophie, de la psychologie cognitive, des neurosciences affectives et de la neurobiologie. Le domaine des neurosciences affectives a commencé à explorer différents types d'émotions morales avec différentes techniques, plus particulièrement les techniques de neuroimagerie. Dans le domaine de la neurobiologie, les chercheurs ont commencé à étudier les corrélats neuraux des émotions morales et ont rencontré des résultats intéressants qui indiquent que le cerveau humain montre un réseau spécialisé dans le traitement de l'information morale.

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**L**a moralidad (definida en términos de justicia, bienestar y derechos) puede distinguirse de otras convenciones sociales, las cuales son estándares de conductas particulares determinadas en consenso por ciertos grupos sociales. En todas las culturas, las nociones de daño psicológico, injusticia y violación de los derechos han sido determinantes para el concepto de moral. El estudio de la conducta moral durante décadas ha estado dominado por teorías que enfatizan el rol del razonamiento en el juicio moral en adultos. El debate alrededor de la moralidad a ocupado el centro de discusiones entre los teóricos. Las conductas dirigidas moralmente han sido atribuidas tradicionalmente a procesos mediados lógicamente y verbalmente, comúnmente referidos como razonamiento y juicio moral. Sin embargo ciertas aptitudes tales como la sensibilidad social y la cognición se han considerado parte muy importante de la evolución de la humanidad. La asimilación de reglas basadas en el castigo y la recompensa, y la atribución de intenciones, creencias, sentimientos y deseos hacia otras personas, son algunos ejemplos de esas aptitudes. Actualmente estas habilidades son consideradas o interpretadas como precursores de la moralidad humana. El estudio de las emociones, particularmente de las emociones morales, ha incrementado significativamente en la última década. Recientes propuestas enfatizan el rol de los procesos intuitivos y emocionales en la toma de decisión en los seres humanos y han enfatizado que las emociones son centrales para la solución de problemas básicos y de relaciones interpersonales. Este cambio de perspectiva es el resultado de trabajos recientes en el campo de la filosofía, psicología cognitiva, neurociencia afectiva y neurobiología. El campo de la neurociencia afectiva ha comenzado a explorar diferentes tipos de emociones morales con diferentes técnicas, en particular con técnicas de neuroimagen. En el campo de la neurobiología se ha iniciado el estudio de los correlatos neurales de las emociones morales, se ha postulado que existe una red especializada en el procesamiento moral.

In the theoretical sense, moral psychology has been dominated for decades by theories that emphasize the role of reasoning in the moral judgment of adults (Eisenberg, 2000; Haidt, 2003; Kohlberg, 1982). Nevertheless, recent proposals emphasize the role of emotional and intuitive processes in human decision making. This change in perspective is the result of recent work in the fields of philosophy, cognitive psychology, and neurobiology (Damasio, 1994; Haidt, 2001; Rozin, Loewry, Imada, & Haidt, 1999).

Every day humans judge other people's behaviours. These judgments are based on moral beliefs, and can only be the interpretation of the actor and the possible results of these intentions.

In daily discourse, morality simply refers to standards: right and wrong behaviours. The controversy, however, is about what are considered "correct or incorrect morals," and which criteria should be used to judge the adequacy of some actions.

Debates about morality have occupied the centre of discussion among theoreticians. Morality-driven behaviours have traditionally been attributed to logically and verbally mediated processes, commonly referred to as moral reasoning and judgment. However, certain aptitudes, such as social sensitivity and cognition, have been considered to lie at the heart of the evolution of humankind. The assimilation of rules based on punishment or reward, and the attribution of intentions, beliefs, feelings, and desires to other people are some examples of these aptitudes,

which are now considered or interpreted as forerunners of human morality (Baron-Cohen, 1995; Schulkin, 2000).

On an individual basis, concepts of correct or incorrect social behaviour are organized within conceptual and developmental frameworks. Recent research in the fields of social psychology and cognitive psychology has stated that when determining social standards, some forms of social behaviour are based on universal morals; other forms remain matters of personal subjective choice. More specifically, these conceptual differences come up when formal criteria regarding morality are used. Within this concept, moral standards, such as interpersonal behaviour that is considered correct or incorrect, are defined regardless of rules governing society that are considered to be universal. The conditions included in these criteria are those regarding the impact of the behaviour on others, as in beating, hurting, stealing, or slandering. Thus, morals can be defined as concepts, reasoning, and actions related to well-being, rights, and the fair treatment of other people. Morals (defined in terms of justice, well-being, and rights) can be distinguished from social conventionalities, which are standards for particular behaviours that are determined consensually by a certain social group (Nucci, 1997).

In all cultures, the notions of psychological damage, injustice, and violation of rights have been determinants of the concept of morals. Investigators of the cognitive development tradition have argued that particular rules may vary

between cultures; however, moral problems in all cultures involve matters of damage, rights, or justice, for example stealing, cheating, etc. (Kohlberg, 1969; Piaget, 1932; Turiel, Killen, & Helwig, 1987). An opposite standpoint has been adopted by cultural psychologists, who argue that the concept of morality is variable and goes beyond damage, rights, and justice in many cultures, such as certain customs regarding clothes, food, religion, etc. (Miller, Bersoff, & Harwood, 1990; Shweder, Mahapatra, & Millar, 1987; Shweder & Sullivan, 1993).

In terms of how morals are developed, the theories of cognitive development or morality put forward initially by Piaget (1932) and Kohlberg (1969) have limited the concept of morality to the actions affecting the material and psychological welfare of other people. For Kohlberg, "the center of moral choice and feelings are based on the outcome of personal well being" (p.393). The theory put forward by Kohlberg has been considered to be the most successful and thorough attempt to understand moral development from a sociocognitive approach. Although it has been identified as a "*moral development theory*," its emphasis was on the description of the "moral judgment" development. Its main contribution was the application of moral development to the concept of development in the stages Piaget described for cognitive development; thus, for Kohlberg, moral judgment is a cognitive process, which is developed naturally (Kitwood, 1996).

Unlike Piaget and Kohlberg, who discuss logical and moral reasoning, Rest (1984) provides a framework within which to understand moral behaviour. He puts forth a model with four components: moral sensitivity, moral judgment, moral decision making, and moral action. Moral sensitivity is the acknowledgement of an existing situation in which morals are necessary and the action of which has consequences on others. Moral judgment is a judgment about what one has to do, while moral decision making entails considering alternatives and assessing the pros and cons of their possible consequences for the self and for others. Finally, moral action includes the will and the ability to implement such decision. It is indicated in this model that for a moral behaviour, the proper performance of each of the four components is necessary.

For theoreticians of cognitive development such as Turiel (1983) and Nucci (1981), morality is "prescriptive judgments of justice, rights and wellbeing relevant to the way people should relate among them" (Turiel, 1983, p. 3). Turiel points out that moral prescriptions do not depend on

the social context, nor are they defined by it. Correspondingly, the moral judgments of children do not stem directly from institutional social systems, but from traces inherent in social relationships, including experiences that entail damage to others, the violation of some rights, and conflicts between opposed claims. They point out that moral matters are intrinsically interpersonal matters, and that actions are judged by their material and psychological consequences, as these affect others. Moral prescriptions of the individual (i.e., regarding murder and value of life) are determined by factors inherent to social relationships, and not by a particular form of social organization. They put forward that moral development evolves as children distinguish social events based on three knowledge fields: personal, moral, and conventional. It is said that the consequences of actions that fall mainly on the actor are part of the *personal* scope. In contrast, acts that have "intrinsically harmful" consequences for others, such as violence and theft, are part of the *moral* field. Turiel (1983) points out that intrinsic damage is perceived directly, that is to say, it is inferred from direct perceptions. For example, children know that some actions such as beating or stealing contain features that are intrinsically harmful or that have psychological consequences for others. Since the damage is intrinsic to the act, children reason that these acts are universally wrong, even in other countries.

Finally, events that have interpersonal consequences that are not intrinsically harmful are part of the *conventional knowledge* field. For example, it is not intrinsically harmful, according to a child, to wear denim pants; nevertheless, within the school scope, where the children are required to wear a uniform, the child is violating a social convention. Children might say that the action of this child is wrong, but not universally wrong; that is to say, the situation can be correct in a different school, with a different set of rules.

Turiel et al. (1987; Turiel, Hildebrandt, & Wainryb, 1991) have shown that Americans distinguish "prototypical" examples among these three domains, based on how harmful these consequences are perceived to be. However, recent studies have suggested that the distinctions made by their American subjects are not universal, and point out that the domain of morality varies among cultures. Miller et al. (1990) found out that, for Americans, the decision to help friends and strangers is perceived as a personal choice, while in India all subjects consider helping or offering help to others to be a moral duty.

In contrast, Shweder (1990) argues that there are three codes of thought and moral speech that each culture develops to different extents. In the *ethics of autonomy*, which prevails in Western secular societies, the self is conceptualized as a structure of individual choice, and the point of moral regulation is to increase choice, autonomy, and control. This code, set forth by Shweder, has a close correspondence to the moral domain proposed by Turiel, where moral discourse is centred on harm, rights, and justice, and is highly elaborated in legal systems and in the moral philosophy of Western societies. Nevertheless, Shweder outlines the fact that anthropologic literature suggests two additional ways in which people think and speak about morals. One of them is the *ethics of community*, where the ego is conceptualized as performing a duty or a role as part of an interdependent group. This code requires duty, respect, obedience to the authorities, and actions consistent with gender, caste, age, and other components of social networks. The family, the guide, the clan, the community, the corporation, or the nation—they have priority over individual interest, and moral values protect such entities. That is to say, duty, honour, chastity, respect, modesty, and self-control are valued. In this world, individual choices such as whom to marry, how to address others, and how to dress have a moral significance and acquire ethic significance. To pursue individual goals can be a cause of shame. In the third moral code, *ethics of divinity*, the ego is conceptualized as a spiritual entity, where subjects strive to avoid pollution and achieve purification and sanctity. Although they do not entail damage for others, acts that threaten this purity are condemned. In this code, people and animals are part of God, and central moral values are those which protect and dignify the divinity inherent in people. The body is thought of as a temple, so matters related to personal choice such as diet, sexual preference, or personal hygiene become moral and spiritual problems related to values such as purification, pollution, and sanctification. This moral code, which emphasizes corporal practices, is considered bizarre by members of Western societies. However, the ethics of divinity are highly elaborated in Hindu purity and pollution rules (Fuller, 1992). Shweder (1990) concludes that the domain of morality has been restricted to the ethics of autonomy (damage, rights, and justice) in the West, but that it is wider in other cultures.

Cognitivist theories have tried to identify the particular blend of intellectual styles and interpersonal experiences that enable people to learn or

deduce a moral truth (Kohlberg, 1969; Piaget, 1932, 1969; Turiel, 1983). However, other approaches have put forth the so-called intuitionist cognitivism (i.e., Kagan, 1984; Lazarus, 1991a). These theories postulate that moral appraisals are generated rapidly and automatically, without deliberate or deductive reflection or deductive reasoning. It is assumed that verbal judgments of actions and goals (whether they are correct or good), and emotional, morally relevant appraisals (pride, displeasure, empathy, shame, guilt, anger, fear) are generated based on a group of self-evident truths that are neither deducible nor inducible.

A model derived from this theory is the social intuitionist model. Intuitionism in philosophy means the vision of moral truths, and that when people reach those truths it is not through a rationalizing and reflection process, but through a process similar to perception (Harrison, 1967). Intuitionist approaches in moral psychology put forth the idea that moral intuitions (including moral emotions) arise first and directly cause a moral judgment (Haidt, 2003; Haidt, Koller, & Dias, 1993; Kagan, 1984; Shweder & Haidt, 1993; Wilson, 1993). Moral intuition is a type of cognition, but not a type of reasoning (Haidt, 2001).

As has been pointed out, theories on the development of morality disagree on whether moral knowledge and moral judgment are the result of emotional and nonrational processes (Haidt, 2001; Haidt et al., 1993; Shweder & Haidt, 1993), or of reasoning and complex cognitive processes (Kohlberg, 1969; Piaget, 1932; Turiel, 1983). However, recent approaches have emphasized that *emotions* are central to the solution of basic problems and to interpersonal relationships. Damasio (1994) reports patients who, after suffering frontal damage, despite maintaining a high intellectual coefficient, behave irrationally and do not measure the consequences of their actions. He concludes that emotion is a key element for learning, decision making, and moral behaviour.

In the study of emotions there are also several positions; for example, for the evolutionist theoreticians emotions are universal, affective programs that solve former and current traits of survival (Ekman, 1992; Haidt & Koller, 1999; Lazarus, 1991b; Plutchik, 1980; Tooby & Cosmides, 1990). But for social constructivists, emotions are socially learned answers, built on processes of social discourse according to specific cultures concerning identity, morality, and social structure (Lutz & White, 1986).

During the last decade, research on biologic and evolutionist bases of emotion has increased

significantly. As a matter of fact, a new term has been coined to refer to a new discipline: *affective neuroscience* (Davidson & Sutton, 1995), the objective of which is to investigate the biologic bases and the processes that lie behind the emotions and their changes. Based on the findings from the areas of affective neuroscience and evaluative neuroscience, it has been suggested that automatic emotional processes are determinant in moral behaviour, and the concept of moral emotions has been introduced (Greene & Haidt, 2002).

According to Haidt (2003), moral emotions differ from basic emotions (sadness, joy, anger, fear, surprise, disgust) in that they are intrinsically linked to the welfare interests of a society in terms of the welfare of individuals. In this way, moral emotions appear when individuals interact or when moral violations are perceived. It has been suggested that, unlike effortful deductive reasoning, they appear rapidly and automatically, and that there is cognitive assessment unconscious of interpersonal events. Haidt mentions that while basic emotions stem from ideas, imagination, recollection, or perception with immediate personal relevance, moral emotions are complex, and are linked to the interests or the welfare of societies as well as individuals. Additionally, moral emotions are evoked in circumstances that go beyond the sphere of the self. They are critical for promoting cohesion in groups. Guilt, gratitude, and compassion are examples of prosocial moral emotions. However, moral emotions like contempt, indignation, and xenophobia can also act to promote social dissolution and reorganization.

Haidt (2003) and Moll, Oliveira-Souza, and Eslinger (2003) propose that moral behaviour is instantiated by spontaneous implicit dispositions, and that moral emotions operate automatically and unconsciously. They point out that moral behaviour comes from a delicate balance between prosocial and altruistic behaviour on one hand, and antisocial behaviour on the other.

Moll et al. (2003) suggest that moral behaviour is the result of the evaluative pressure that makes up neurobehavioural processes related to the selective perception of social signals, the experience of moral emotions, and the adaptation of behavioural responses to the social environment. Thus, sensitivity, and social and moral cognition have been determinant in human evolution. Certain aptitudes, such as the assimilation of rules based on reward and punishment and the attribution of intentions, beliefs, feelings, and desires to other people, were developed in our primate and hominid ancestors (Kagan, 1984; Moll et al., 2003).

To date, moral emotions have not been clearly described; however, some authors (Eisenberg, 2000; Haidt, 2003) mention guilt, shame, empathy, compassion, and indignation as examples of this concept. Haidt (2003) mentions four subtypes of moral emotions:

1. *Emotions concerning others*: i.e., contempt, rage, displeasure.
2. *Self-conscious emotions*: i.e., shame, embarrassment, guilt.
3. *Emotions related to the suffering of others*: i.e., empathy.
4. *Emotions related to praising others*: i.e., gratitude, fear, elevation.

In the psychobiological aspect, many studies (Aguado, 2002; Berridge, 2003; Damasio, 1998; Hagemann, Waldstein, & Thayer, 2003; LeDoux, 1998; Panksepp, 2003) have been focused on determining which brain structures are involved in processing basic emotions. However, the biologic bases of social cognition and moral emotion are complex, and although the debate on the nature of morality in humans has gone on for many years, it is only recently that the neural organization of moral behaviour has been explored. These findings are mainly the result of the analysis and study of patients with changes in their social and moral behaviour as a consequence of acquired brain injuries, as well as the study of normal and pathologic behaviours with structural and functional neuroimaging (Dolan, 1999). In the case of patients with acquired brain damage, they seem to develop a condition called acquired sociopathy, which results from injury to specific brain sites, particularly the orbitomedial and frontopolar cortex, the anterior temporal lobe, the superomedial frontal lobe, and certain subcortical nuclei, particularly related to the amygdala, the hypothalamus, dorsomedial thalamus, and head of the caudate nucleus. Sociopathic behaviour has also been related to the polar frontal and orbitofrontal cortex (Damasio, 1994; Eslinger & Damasio, 1985; Goldberg, 2001; Moll et al., 2003).

Moreover, a dysfunction in the frontal lobe has been observed in some patients with sociomoral deterioration in emotions and behaviour; these patients show dissociation between social cognition and moral knowledge, that is to say, there is a lack of coherence between the understanding or moral rules and the behaviours they show (Anderson, Bechara, Damasio, Tranel, & Damasio, 1999; Eslinger & Damasio, 1985).

Exploration of the role of the regions of the prefrontal cortex to connect limbic areas to the

frontal regions is difficult; nevertheless, studies in humans with focal brain damage, and experimental injuries in monkeys have shown the relationship between the prefrontal cortex (PFC) and planning, decision making, emotions, attentions, spatiotemporal memory and acknowledgement. Damage to the ventral and medial prefrontal cortex is linked to the deterioration of moral type decision making. Patients with focal ventromedial injuries show flat (abnormal) responses when they see emotional pictures and perform poorly in tasks where feelings are required to make complex self-directed choices (Casebeer, 2003).

The above studies stress that a great part of human behaviour is moral and is the result of multiple processes, both psychological and neurobiological. Currently, these investigations aim to describe specific brain areas that participate in moral processing, in particular moral emotions.

Investigations carried out recently are intended to describe the participation of neural structures involved in stimuli processing (pictures, auditive phrases, etc.) with emotional load (pleasant, unpleasant, with no moral content, unpleasant with moral content, personal moral and interpersonal moral as well as neutrals) through the Functional Magnetic Resonance technique. The outcomes of these investigations (Greene & Haidt, 2002; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Moll, Eslinger, & Oliveira-Souza, 2001; Moll, Oliveira-Souza, Bramati, & Grafman, 2002a; Moll, Oliveira-Souza, & Eslinger, 2002b) have shown that processing of stimuli with emotional load, in particular unpleasant and with or without moral content, triggers a common network of brain areas that include the amygdala, insula, thalamus, and midbrain. Nevertheless, the medial and posterior orbitofrontal cortex and the frontopolar and the posterior superior temporal sulcus (STS) are also involved in the processing of stimuli with moral-emotional load. These findings suggest the existence of a brain network specialized in the generation of moral emotions.

In conclusion, the study of emotions in the last decades has increased significantly—particularly the study of moral emotions, which had been previously dominated by rationalist or cognositive theories—and has now drawn the attention of investigators in the field of affective neurosciences, thus starting to explore different types of moral emotions with different techniques, in particular neuroimaging techniques. However, to date it is not clear how the causative processes of moral emotions appear, since each of the theories tackled by their study finds explanations limited to each

discipline; however, they agree that both moral behaviour and moral emotions are the result of the interaction of several factors. In the field of neurobiology, investigators have started to study neural correlates of moral emotions, and have encountered interesting findings indicating that the human brain shows a network specialized in moral processing. Nevertheless, there is still much left to explore. The use of techniques that allow the measurement and assessment at different processing levels (behavioural, psychophysiologic and cognositive processes) of how the appearance, processing and execution of moral emotions are carried out, will provide better conditions to explain them, both in normal and pathologic conditions, and will enable the development and implementation of rehabilitation programs adequate for patients who show problems in their moral behaviour as a consequence of brain damage.

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