4 Morality and empathy *vs* empathy and morality

A quest for the source of goodness in phylogenetic and ontogenetic contexts

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> Evolution has not left the important events of birthing and the ensuing nurturance and bonding either to chance or to the vagaries of individual learning.
>
> (Jaak Panksepp, *Affective Neuroscience*: 248)

Morality across cultures and as a universal human trait

Morality is a cross-cultural feature of humanity and a strong pillar of prosocial behaviour. Another major force keeping society together is empathy. Across borders and cultures, human communities have organized and supported social life on structures that bear astounding similarities among themselves. First and foremost, they all have myths of creation and share a belief in supernatural beings. Therein follows the organization of religious beliefs into a sensible religion, another universal trait of societies, which provides hope, consolation for grief, moral values and guidelines for proper conduct. Although morality is by no means identical across cultures and religions, moral values have common denominators – they all place a high price in the respect for gods, leaders and ancestors, in the care for one's family, or in not taking the life of a community member. This cross-cultural and all-time tendency to create a moral building to support civilization has been coined a Human Universal (Brown, 1991).

The origin of morality has been addressed by many theories. Albeit their close association, moral values do not necessarily stem from religion nor does religion stem from them. And although all humans share – far back in time – a common cultural evolution, cultures have diverged towards conflicting values, such as the place of women or homosexuals in society, not to mention towards different gods and myths of creation. What perhaps has not changed so much, binding all humans, are our most basic emotional responses which are at the very basis of widely accepted morality theories. Assuming that morality stems from emotional reactions that are common to the human brain across the entire geographical distribution of humans means that one has to accept that human morals cannot be arbitrary caprices of cultures. That moral behaviour originates in emotion, and thus in biology, is a view shared by many authors, from legendary ethologists such as Frans de Waal and Mark Bekoff,

to renowned psychologists such as Daniel Batson and Jonathan Haidt. Solid and compiled cultural studies within anthropology have documented that moral rules revolve around a limited number of themes, such as sexual behaviour, division of resources, or loyalty and respect towards authority figures (Brown, 1991; Shweder *et al.*, 1997). This could certainly suggest that they might have evolved throughout the cultural evolution of populations, as a cognitive strategy to regulate behaviour within communities and thus maintain social order and the *status quo*. Populations share common ancestry along the many features of cultural evolution, such as language, just as they share genetic ancestry, whereby, their values must have homologous structures.

Richard Shweder and his collaborators (1997) posited three common denominators of morality across cultures: 1) *autonomy* (which emphasizes free will, and principles that allow people to tell right from wrong), 2) *community* (stressing interdependence, commitment and duty to one's community), and 3) *divinity* (establishing that the universe is ruled by the divine). For example, the latter proposes that cultures have established that humans have souls that belong to a divine being, whereby morality is the guardian of the immaterial soul from the constant threat of contamination from bodily things, which derives from the fact that it is contained in a body that has impure *drives* and commits disgusting, wrongful acts.

Jonathan Haidt has attempted to reconcile Shweder's three-domain model with the view that emotion drives moral choices, envisaging a way out of the biological/cultural dichotomy. He unfolded two of Shweder's domains into four, and equated divinity with purity/sanctity, later expanding into a model with five major foundations of morality, namely: in-group loyalty, authority/respect, fairness/reciprocity, harm/care and purity/sanctity (Haidt and Joseph, 2004). He also proposed that within these realms, people quickly decide what is right and wrong based on a 'gut-feeling', and afterwards pick a moral norm to support the moral option. This feeling is automatic but people take some time organizing their thoughts and articulating why that given action is immoral (Haidt *et al.*, 2000). This conclusion is based on the presentation of specific problems to people during interviews whereby people make quick judgements of right and wrong but are unable to provide reasons to support them (or otherwise provide delayed reasons). Examples of such problems include harmless violations of taboos – for example, whether it would be acceptable to eat a family pet that has been killed in a car accident or if it would be acceptable for a brother and sister to have voluntary protected sex. People were quick at providing judgements that the action was wrong, and only afterwards began searching for plausible reasons, often, as Haidt eloquently describes, introducing elements of harm, such as stating that eating dog meat would make a person sick (Haidt *et al.*, 1993). Shweder and Haidt (1993) formulated a theory of 'cognitive intuitionism' to explain these findings, where they posited that the human mind is set to respond to certain moral goods, not drawing them from principles but by a process of organizing and detecting patterns. Haidt *et al.* (2000) coined this intuitive, emotional judgement 'moral dumbfounding'.

Haidt's social intuitionism was strongly influenced by Alan Fiske's relational models theory (Fiske, 1991, 1992). Fiske proposed that morality springs from four distinct types of social cognition that seem to be common to all human cultures: 1) *communal sharing*, which involves kindness, kinship, and empathic concern for close others; 2) *authority ranking*, which describes the processes by which power and rank regulate access to resources but also requires that superiors protect their subordinates; 3) *equality matching*, which involves tit-for-tat reciprocity and the sense of fairness associated with egalitarianism, and 4) *market pricing*, in which ratio values of goods and services must be computed and aggregated across transactions. Fiske went into great detail on how processes of group identification are established within group bonding, authority and dominance, suggesting some hardwired mechanisms in the brain selected throughout human evolution that direct us to generate these societal processes and prompt us for such similar moral yields across societies. He also identified three of these types of morality generating social cognition in non-human primates. I will return to this particular discussion in the third section. Steven Pinker (2011) pointed out that in human history moral convictions have caused more harm than good – by driving people to religious wars, genocides and all sorts of horrible punishments. In the light of western contemporary views, all that suffering was inflicted because of what now seems to be very insubstantial moral justifications, or at least moral misdemeanours even within the cultures that deemed them important (e.g. homosexuality, chastity issues, disobedience and heretic talk). This volatility of moral values inspired Pinker to propose a refinement of the concept of morality. By distinguishing morality from a 'moral sense' we can sort out human universal predispositions to create overarching principles applicable to behaviour (moral sense), from strictly cultural codes (morality). The former refrain all societies from chaotic, amoral conduct; the latter meet more specific needs within each society.

Prevailing views today are based on accumulated empirical evidence favouring a dynamic interplay between biological, cultural and interpersonal factors in the development of human morality. One path taken explores where emotions may lead us regarding moral sense. As Dina Mendonça proposed in the previous chapter, meta-emotions may play a crucial role in morality via a sense that one is mirroring what others' feel, and someone else is mirroring what one has felt before. Neuroscience provided a substrate for this mirroring ability by revealing the existence of a mirror neuron system that enables motor and emotional simulation in the brain (e.g. Gallese, 2001, 2004), a strong vicarious experience. Mendonça also argues that different emotions provide content and meaning to morality eliciting situations and moral options. Furthermore, as the second section will show, our first-hand experiences (either emotional or not) play a major role in the development of cognitive empathy – i.e. the ability to 'see' through somebody else's eyes, understand their thoughts, feelings and actions. The emotional experience fuels cognitive empathy, which in turn, drives individuals to act in prosocial ways that are considered moral. It is important to distinguish that empathy comprises two major dimensions: emotional empathy

and cognitive empathy. The former includes primal emotional phenomena such as emotional contagion and empathic distress, which involve little or no conscious cognitive activity.

By definition, prosocial behaviour entails positive, friendly voluntary actions that benefit another individual or group of individuals (Eisenberg and Mussen, 1989). It includes offering assistance, helping, comforting, and ultimately, altruism, a special form of prosocial conduct that can result in extremely high costs for the individual who acts, and in extreme gains for the receiver of the act.

In the following pages, I set to address two key questions: 1) the interchangeable use of empathy and morality as synonyms of goodness, which is confusing and does not allow us to advance explanations of altruism, and 2) the underpinnings of prosocial acts that are likely to be convergent end products of different mental processes and distinct remote evolutionary causes. Both ontogenetic and phylogenetic perspectives provide important input to these questions, helping us to disentangle what is driven primarily by emotion from what is not.

Moral development in humans has been scientifically studied since early in the twentieth century. First approaches were highly influenced by behaviourism and later by social learning theory, and saw morality as the acquisition of moral norms by virtue of punishment and reward or through social observation and imitation, respectively. Morals were also thought to be context-dependent. On the contrary, biologically framed perspectives view morality as a default towards which children move throughout their ontogeny, whereby some basic predispositions are revealed as the child matures and is exposed to varied situations and developing opportunities.

Views on the ontogenetic development of morality

Making a case for culture

Different as they may be, many psychological approaches to the development of morality (*sensus* moral sense), voice a common denominator: the great emphasis put on environmental influences. Early twentieth-century views within psychology emphasized the 'acquisition' of morality by children. In this view, departing from a state of amorality, the child acquired notions of *right* and *wrong, good* and *bad* from supervising adults (parents, teachers) by means of punishment, value teaching, or moral metaphors such as those found in fables and other traditional tales for children. In the absence of these active 'injections' of morality, children were thought to fall into the kind of savagery portrayed in *Lord of the Flies* (Golding, 1954) and postulated by Durkheim (1925), who argued that children only distinguish between right and wrong if they are taught by an external authority – a parent, or a teacher – and provided they are taught discipline, sense of duty and sense of justice.

Hartshorne and his colleagues (Hartshorne and May, 1928; Hartshorne *et al.*, 1930; cit. by Liebert, 1979) studied large samples of children and adolescents (about 11,000) in the 1920s and 1930s in various experimental situations where

there was a temptation to commit a misdemeanour. They found that where children thought that adults were not observing them or could not have known what they did, children leaned towards cheating and lying, as they assumed that their acts would not be revealed. This occurred especially in the younger ones, and suggested that children's acts were largely dependent on context and not on universal rules of conduct. They concluded that knowing the moral rules *per se* (for example, the Ten Commandments or the Scout law) did not ensure moral conduct.

Playing the devil's advocate, one could argue that perhaps moral values are never 'poured in' enough, given that most adults never seem to reach the highest stages of morality predicted by child moral reasoning theories (e.g. Kohlberg, 1969, 1981; Gibbs *et al.*, 2007) – which is puzzling, *at least from an evolutionary stand point*. I will discuss this in the fourth section. Overall, much evidence has been amassed in support of the role of culture and situational variables in the emergence of antisocial behaviour.

Albert Bandura (Bandura *et al.*, 1961) revealed the powerful effect of imitation in the genesis of aggressive behaviour, whereby children copied the violent *vs* nonviolent behaviour of research assistants. The mimicked behaviour itself played a role in the construction of *schemas* (cognitive structures that enable further processing of information), suggesting that social modelling influenced both thoughts and behaviours related to what is right and wrong.

In the 1970s, researchers such as Grusec, Moore, Eisenberg, Hoffman and Mussen, began carrying out experiments with children that also highlighted the role of modelling in social conduct, particularly in prosocial behaviour (for a review see Eisenberg and Mussen, 1989). These researchers have shown that emotional experiences play a major role in prosocial behaviour and that the effect of models decreases with age, suggesting that the child internalizes norms on appropriate models quite early on and mostly before school age.

But important as modelling is, it is not the only factor operating. Several experiments have highlighted that young children are much more likely to imitate prosocial conduct when their parents or teacher (or otherwise experimental model) are warm, nurturing, attentive adults, and even more if they are the same sex as the child in question, than when they are neutral and more distant, or of the opposite sex (Eisenberg and Mussen, 1989). The effects seem to be long lasting. Eisenberg and Mussen also reviewed studies showing that older children and adolescents are sensitive to modelling by adults and peers who are perceived as powerful (e.g. prize winners), and that [illegible] ct of real conduct is more effective than manifesting concern and intention to act (altruistically for example).

In line with this, and after a series of studies with children, Staub (2003) concluded that in order to engage in prosocial behaviour, children need adult guidance and information. For example, he found a connection between orientation towards specific helpful actions and proneness to become helpful later in life; being debriefed about the specific consequences of one's acts yielded a similar outcome.

Despite their importance, social models could not be held accountable for all the antisocial conduct performed by children and adults. Not only does the child actively choose whom to imitate and what to act upon, but he or she also carries predispositions and develops schemas that will have enormous weight throughout his or her moral development.

Jean Piaget's (1932) perspective on the moral development of the child was closely linked to his view on cognitive development, entailing a gradual shift from complete moral *heteronomy* towards moral *autonomy.* The first and departing extreme – *heteronomy* – is characterized by a morality that resides outside the child's conscience, based on parents' morals and on the desire to be accepted by adults who are unilaterally and ultimately respected. It is also driven by the fear of punishment – the child has a sense that rules are sacred and immutable. This stage extends until the child is about 8 or 9 years old. In Piaget's theory, moral *autonomy* begins at about 9 to 11 years old and becomes the adult mode of moral reasoning, characterized by thinking moral values independently of whether others agree. Concurrent with formal operations and the ability to abstract concepts, from this point on, adolescents are thinking in terms of ethical principles and moral values, and confronting the application of these to real problems. Although cultural values give content to this moral sense, the child and the adolescent are active seekers and choosers in this process. This general view is still quite pervasive in western culture and in folk psychology.

Lawrence Kohlberg (1969, 1981) expanded Piaget's theory by formulating a six-stage model of moral development. Both agreed that children became increasingly autonomous and less self-centred in their moral judgements, moving towards an increasingly sophisticated social perspective, and that they did so very actively. Kohlberg's theory has been criticized as paradoxical because the growing ability to understand conventions, values and moral principles does not render a full development of morality, with only a meagre 2 per cent of the adult population estimated to reach the highest moral stages, known as post-conventional (Fowler, 1981; Gilligan, 1982). Kohlberg posited that throughout development, children navigate from an egocentric perspective towards a social perspective-taking, and from shallow values that reflect obedience and conformity to rules, towards an individual adoption and deep understanding of values and their worth in relation to norms and arbitrary conventions. Placement in a particular stage depended not on the specific solution to a moral dilemma but on the arguments and moral reasons provided by the individual in support of the chosen way out of the dilemma. Whilst this universally claimed path reflected maturity and cognitive development, it also showed distinct qualities that made it a separate construct from intelligence and reasoning. In his view, the process of moral development entailed specificities provided by culture, which could either spur moral reflection and social perspective-taking, or moderate them.

Other researchers have found support for the role of interactions in enhancing morality. For example, discussing moral topics with adolescents seems to be a particularly effective way of enhancing their moral reasoning, as adolescents are

able to find flaws in their own and others' moral arguments (e.g. Berkowitz and Gibbs, 1985; Walker *et al.*, 2000; cited by Vail 2011). Adolescents' moral reasoning and moral conduct is also influenced by their involvement in religion and community, particularly by engaging in solidarity activities within networks of shared values with adults and older peers (King and Furrow, 2004; see Vail, 2011 for a review). William Damon (1988) emphasizes the opportunities social play and interaction with peers offer to bolster morality, starting at the age of 3, by providing the contexts for sharing, perspective-taking, empathic concern and learning from other's behaviour. Although Kohlberg did not dwell on empathy issues, the increment in moral judgement that results from experience, either direct or indirect, finds a parallel in empathy development. Several studies today support the notion that empathy development can be assisted by exposure and participation and even by indirect experience.

Elisabeth Paul (2000) assessed empathy using a human-oriented and an animal-oriented questionnaire, and found that whilst both forms of empathy were moderately correlated, animal-oriented empathy was mostly related to having a pet at home or having had one during childhood, while human-oriented empathy was related to currently having a child or children at home. Gaspar and colleagues found an identical correlation (Emauz *et al.*, 2016) and confirmed that animal-oriented empathy is predicted by having a household pet during childhood (Emauz *et al.* in revision; Gaspar *et al.*, in press 2016).

The complexity of children's social interactions and the opportunities to develop their Theory of Mind (ToM) abilities along the intense maturation of relevant brain structures (e.g. prefrontal cortex), especially through 5 to 6 to 10 years old, plays a major role in empathy development (Decety and Michalska, 2010; Decety and Svetlova, 2012). So do aspects of family interaction early in childhood, including the quality of parental care and the family environment (e.g. Zahn-Waxler and Radke-Yarrow, 1990), the quality of the attachment the child establishes with her parents (e.g. Schore 2001; Decety and Svetlova 2012), the parents' actions (modelling of prosocial behaviour) to which the child is especially sensitive before 6 years old (Bandura *et al.*, 1961; Hoffman, 1975), and positive affect parenting styles, which have been connected to the prevention of antisocial conduct (Webster-Stratton, 1998).

Furthermore, influences over empathy predispositions also include the simulation of experiences in the mind of an observer while watching someone else's experience, which is enabled by the mirror neuron system (Iacoboni *et al.*, 2005), as noted in the first section of this chapter. Exposure to movies and other forms of vivid display of another's emotion seems promising as an enhancer of empathy. There are recent reports of increasing empathy towards specific targets as a result of experiments using movies (e.g. Blasco and Moreto, 2012; De Vied *et al*., 2009) or literary texts as stimuli (Kidd and Castano, 2013), when comparing the effects of the literary texts with more popular literature. The authors of the literary study, suggested that exposure to literary fiction might have engaged participants in processes of understanding the behaviour of characters based on their personalities and contexts, whereas popular fiction (and even day-to-

day life) exposes individuals only to outcomes that are interpreted based on stereotypes and common predictions. Hence, whereas the former promotes empathy, the latter does not.

Available comparisons across the life span have generally indicated a decrease in empathy from early adulthood onwards (Grühn *et al.,* 2008), and to my knowledge, no study has yet attempted to compare the effects of similar proximal factors on different age groups' empathic responses or on self-reported empathy. Over the last decade, we have witnessed a burgeoning trend of industrious school-based programmes designed for 'emotion-education' (which include empathy-teaching in most cases), but only a few programmes have been objectively evaluated in how they have contributed towards prosocial behaviour, emotion recognition ability and empathy, and fewer reported the theoretical and empirical grounds upon which their interventions were built. Therefore, we are still at the brink of exploring some of the influences and strategies mentioned above.

Making a case for the common biological roots of empathy and morality

A number of cross-cultural anthropological and psychological studies have been conducted since the 1980s to examine differences and similarities in the moral sense of children from completely distinct cultures. Studies departing from Kohlberg's six-stage evaluation (e.g. Gibbs *et al.*, 2007) show that western cultures vary somewhat in the prevalent stage demonstrated by adults, but most have in common that in general, adults do not reach the highest moral stages (post-conventional). Thus, high morality does not seem to be a human universal. To darken the scenario, extensive studies conducted by Daniel Batson (e.g. 1981, 1991, 1997, 2002) indicate that human adults only marginally (less than 80 to 90 per cent) act according to the moral principles they uphold. Instead, actions seem to be driven by self-interest, for example by assigning a positive consequence task to themselves and a negative or neutral to other participants in an experiment, or by attempting to deceive the experimenter by stating that they had flipped a coin to sort tasks, when in reality they had not. This pervasive phenomenon of attempting to display moral integrity, but maximally avoiding the actual cost of behaving morally was coined *Moral Hypocrisy* (Batson *et al.*, 1997, 2002). This led Batson and colleagues to seek alternative explanations for what lies beneath the, albeit marginal, real moral conduct. For example, Batson *et al.* (2002) found a moderate and positive correlation between acting morally and the scores in the widely used empathic concern scale (Davis, 1983), which seems to capture aspects of empathy related to emotional connectedness to the suffering and emotions of others. Overall, the origins of prosocial behaviour, and particularly altruism, seem to converge to the source of moral integrity/empathy. And, I would add, emotional empathy, because it is the dimension of empathy that automatically stems from dispositional traits (Gaspar, 2014a).

Other studies have departed from different paradigms and highlighted a much brighter view of the biological roots of morality, proposing that children

spot injustice rather similarly across cultures, and act as if they are driven by an inner sense of right and wrong. In some of the earliest studies, Judith Smetana (1981) asked 3 to 4 year-old children to judge moral norm violations such as hitting another child or stealing a toy, and the breaking of conventions such as putting toys away in the wrong place or going to school without pants. Children were asked to say how bad each violation would be, and whether the violation would still be bad or acceptable at a school without rules about hitting or putting things away. Children made a clear distinction between moral norms and conventions, suggesting they already grasped the notion that conventions are arbitrary whereas moral norms are not. This finding is in line with Elliot Turiel's (2000, 2002) long line of research (starting in the 1970s) on the formulation of an innate based convention/moral distinction. Challenging Piaget's heteronomy, these results show that preschool children already evince signs of autonomy in their moral sense.

Drawing from his own experiments on children's willingness to share chocolates, Damon (1988, 1999) also stresses that the underpinnings of moral sense are present from very early on in childhood. In one experiment repeated with children of various ages (4 to 10 years old), children were assigned a sharing task as a prize for winning another task (the pretext of the experiment was a team task and the prize would be shared among members of the winning team). One (control) group had colourful cards to share whereas another had chocolates. The study showed that children divided cards with fairness but when chocolates were at stake they were much less frequently inclined towards a fair share within the team. Yet, Damon reported that moral beliefs still held somewhat, as children never abandoned concepts of fairness, justifying inequalities, for example as a function of participation in the task (those who received more chocolates had worked harder on the task). However, they were more consistent with their beliefs when they were the beneficiaries of the belief (i.e. when they for example considered themselves the one who worked the hardest). Older children behaved more congruently with their previously stated beliefs of fair distribution.

Studies comparing rural and urban Chinese children and adolescents with same age Canadians in relation to their sense of fair punishment found extraordinary cross-cultural similarities, despite relevant cultural differences, for example, on the emphasis put on obedience, deference to authority figures or on the seriousness of actions that might embarrass the family, and on the prevalence of these forms of punishment in each culture (Bowe[illegible]2009). Children and adolescents were interviewed and asked to consider three types of punishment: 1) being discouraged from the wrongful behaviour with a conversation aimed at helping with reasoning about the wrongness of the behaviour, 2) appealing to family shame and making unfavourable comparisons with other children or 3) threatening to deny love. Afterwards, they were asked to rate them according to their fairness. All children and adolescents viewed denying love as unfair and as a cause of much suffering, and favoured the reasoning conversation not only as the fairest but also as the one they thought worked the best to prevent

future misbehaviour. This result was particularly revealing of a cross-cultural predisposition because both city and village Chinese children said that their parents' most frequent form of punishment was making negative comparisons with someone whereas in Canada parents used the reasoning talk preferentially.

So where does the shared sense of justice come from? It may, on the one hand, be generated by hardwired systems in the brain, shaped through biological evolution. On the other hand, it may be related to shared basic emotional experiences which must be situated in the parent-infant bond and in the rewarding/frustrating, comforting/causing discomfort, regulating/dysregulating axes. I will present some of the evidence supporting the notion that we may be closing in on the shared cross-cultural source of the autonomous sense of morality. The outcomes of morality are prosocial acts and the inhibition of antisocial acts. These are also the outcomes of the very powerful emotional phenomenon that is empathy.

Much like the roots of moral sense, several components of emotional empathy (e.g. emotional contagion and empathic distress) pop out gradually from quite early in life: babies cry when other babies cry; children aged approximately 1 year begin showing discomfort at the explicit pain of others, and at 18 months they try to comfort others in distress (for a review see Eisenberg and Mussen, 1989). Additionally, by 4 to 6 years old one may already be seeing the defining traits of an empathic or otherwise callous psychopathic adult (Frick *et al.*, 2003). Evidence has been mounting that there are dispositional genetic traits that affect empathy/callousness (e.g. Jabbia *et al.* 2012; Larsson *et al.*, 2006).

So, do genetic programs speak louder than culture? And if so, should we settle for the verdict that morality is imported from the outside and empathy from the inside? How do they relate? The early components of empathy do not warrant that a child will grow to become an adult with moral conduct, but they may provide underpinnings without which there will never be a truly moral conduct, only a form of prosocial behaviour that is driven by self-interest.

Several studies have shown that the affective components of empathy, namely, emotional empathy and sympathy (Blair, 2005; Eisenberg and Mussen, 1989), are higher predictors of prosocial behaviour than affective knowledge (Knafo *et al.*, 2009), attitudes or beliefs (Correia and Dalbert, 2008). Furthermore, the absence of emotional empathy is a hallmark of psychopathy (Patrick *et al.*, 2009), with sociopaths often presenting high levels of cognitive empathy (Smith, 2006).

Cognitive empathy alone fails to predict prosocial behaviour when not combined with emotional empathy (Eisenberg and Strayer, 1987). There is an interesting parallel between these distinct consequences of cognitive empathy alone with the distinction Kohlberg establishes between a highly moral person and a person with a highly developed moral judgement (Kohlberg and Candee, 1984). This implies that one could provide answers that evince a deep understanding of the other's perspective, a commitment to universal ethical values, and a reasoning bound to justice – that are rated at the highest moral stage. However, in real life, the same person would not practise them and act only motivated by self-interest. It also fits in nicely with Batson's

work on moral hypocrisy. Kohlberg's social perspective-taking is a construct much similar to Premack and Woodruff's (1978) Theory of Mind, overlapping considerably with the construct of cognitive empathy, so it is not surprising that in regard to their role in moral conduct they perform similarly.

The largest study on emotional empathy to be carried out with very young children was longitudinal and involved 409 monozygotic and dizygotic pairs of twins. Children were submitted to an empathy test (reactions to someone simulating distress), and their responses showed that prosocial behaviour was weakly predicted by both genetic and environmental factors, but more strongly predicted from empathy (Knafo *et al.*, 2008). The same study, measuring children at 14, 20, 24 and 36 months also showed that empathy is a stable dispositional trait, to which the contribution of genetic effects tends to increase with age, stabilizing between 24 and 36 months, whereas the environmental effects tend to decrease within this age range (Knafo *et al.* 2008).

Emotional empathy is largely hardwired and nested on evolutionary processes (Castro *et al.*, 2010). For example, a link was established between certain neural networks and the proneness to sympathetic prosocial behaviour and moral judgement (Decety and Michalska, 2010). Notwithstanding, the role of genetic variation in children's temperament has been downplayed. In fact, the existence of an underlying genetically coded empathy trait, consistently expressed by children, has been well supported with data (Knafo *et al*, 2008, 2009) and its heritability shown to reach h=.53 at 3 years of age. Relevant criticism to heritability studies point out the effects different individuals produce on their environments, thereby reinforcing heritable traits. Parents need to understand emotional development, especially the fact that children are not all born alike so as to adjust their own actions accordingly. Often, they are unprepared to respond to children born with irritable, hyperactive temperaments, who are at higher risk of insecure attachment and callousness (Patrick *et al.*, 2009), and they may end up inadvertently contributing to reinforcing aggressive or callous traits.

These biological predispositions to empathy/callousness develop in dynamic and flexible interaction with environmental and contextual factors (Decety and Svetlova, 2012). From birth to age 3, there is an accelerated maturation of brain structures that are crucial to empathy, reactiveness, emotion regulation and prosocial behaviour (Schore, 2001; Smith, 2006), demanding special attention from caregivers, and after which response modes tend to fixate (Essex *et al.*, 2002; Heim *et al.*, 2002). Luby and colleagues (2012) provide evidence of the effect of mother's early (ages 3 to 5 years old) nurturing behaviour on the development of the hippocampus (measured at 7 to 13 years old), a brain structure crucial to emotion processing, mood and memory. Deprived of basic contact and comfort from their mothers or caregivers, especially during the first three years of life, children tend to incur into severe brain damage and disturbed behaviour that may be irreversible in many cases (Chugani *et al.*, 2001).

Early education intervention is highly predictive of academic success and socialization years ahead (Mervis, 2011; Clemens and Sarama, 2011) while secure attachment to parents predicts positive emotional and cognitive

outcomes in the long run (Schore, 2001). Parents' personal traits and parenting styles also leave a strong trace on a child's emotional and moral development. Their responsiveness to the child's needs predicts not only the establishment of secure attachment, but also contributes to cognitive development, academic achievement and social adjustment (Baumrind, 1991; Maccoby, 1992). Even in children and adolescents who present early psychopathic traits associated with a genetic polymorphism in an oxytocin receptor gene (Beitchman *et al.*, 2012), the development of callousness and pervasive aggression is contingent with an environmental facilitator – exposure to violence; the absence of violent models inhibits the expression of the aggressive behaviour in boys with this tendency.

Hence, we can make a case of nature *via* nurture whereby the contribution of the environment to the development of empathy and prosocial behaviour is constrained by maturation windows of opportunity that require timely types of interaction. Predispositions do not dictate what a child will become. The child creates opportunities and challenges to serve his or her dispositional traits, but personality unfolds with possible interactions, in braided and inextricable processes. What seems certain is that empathy and moral models strongly participate in personality development.

Carl Rogers (1959, 1969) presented three pillars of personality development: 1) 'unconditional positive regard' (i.e. mother love and unconditional positive attention), 2) openness (i.e. being able to express one's own views and true self), and 3) empathy. Temperament, the component of personality that includes emotional reactivity and control, has been associated with empathy in developing children, particularly through a bias to experience fear (Van der Mark *et al.* 2002). At about 18 months, children who show signs of empathy also display strong signs of fearfulness whereas the most fearless children show much lower empathy. Whilst empathy can trigger prosocial behaviour, it can also generate empathic distress and aggression towards the victims' aggressor. For every child, emotion regulation is a challenge, and achieving it is a crucial developmental task. It departs from the primary mother-infant relationship with full regulation by the mother to a gradual self-regulation influenced by the growing environment. Comparative studies of cultures have provided insights on prosocial behaviour and regulatory differences in emotional empathy, as a function of culture (Cassels *et al.* 2010; Greck *et al.*, 2012). Additionally, brain studies show that areas involved in emotion regulation overlap consistently with those crucial to empathy (Schore, 2001).

To sum up, evidence seems to confirm that empathy, more than moral codes, predicts the development of prosocial behaviour, and that parental behaviour plays a major role in shaping prosociality. Morality itself seems to stem from empathy. Frans de Waal, a paladin of the intrinsic goodness of the human (and non-human) primate, stresses the need to overcome the good-evil dualism and relativize the goodness: an approach that is neither supportive of the 'good savage' nor of the 'selfish child', whereby developing children are not struggling against genetic predisposition of any kind but being 'nice enough' to accommodate genetic tendencies to become prosocial beings (de Waal, 2001).

Evolutionary perspectives on empathy and moral sense

Non-human primates have been the major targets of research looking for the 'good savage' in human origins due to their phylogenetic proximity to humans. However, basic emotional responses are shared among vertebrates, and social affective responses are seen in all mammals, who share the brain emotional networks involved in these responses (Panksepp, 1998, 2011), which suggests that we should be looking for the ancient roots of empathy much further back in our common ancestry with mammals. Researchers have focused their research efforts in seeking clues of consolation, cooperation and altruism, since these are the key manifestations of prosocial behaviour.

Consolation has been defined as reassuring behaviour by an uninvolved bystander to one of the combatants in a preceding aggressive incident (de Waal, 2006). An example, quite often observed in chimpanzees is when a third individual goes over to the loser of a fight and gently puts an arm around his or her shoulders; sometimes several chimpanzees do it in sequence or almost at once (Gaspar, 2001). Recently, both emotional contagion of distress and consolation were reported in Asian elephants (Plotnick and de Waal, 2014).

Cooperation is probably the easiest to document among non-human animals. It takes place in social animals whose lives depend on each other for major survival tasks such as hunting, nest and territory vigilance or raising offspring. 'Tit-for-tat' reciprocity, also known as 'reciprocal altruism' (a term coined by Trivers, 1971), one of the social cognition modes of morality described by Fiske in human societies (1991, 1992), is a common feature of non-human primate interactions even when it involves participating in fights and 'warfare'. Individual chimpanzees or baboons remember who aided them and repay, sometimes with great delay, which could suggest the moral emotion gratitude (de Waal, 2006). Likewise, they also seek revenge. As de Waal (2006) reports, zoos and animal exploiters are an abundant source of revenge stories, common with elephants, 'who never forget', chimpanzees and otherwise quite affectionate species, such as camels or cetaceans. Fiske's communal sharing model of morality corresponds very much to the sharing behaviour de Waal describes in chimpanzees and bonobos (de Waal, 1997; de Waal and Lanting, 1997).

Regarding altruism, Mark Bekoff and Jessica Pierce (2009) compiled an impressive account of altruistic behaviour in a variety of mammals. Some accounts are anecdotal whereas others come from lab experiments. Reports with rodents are abundant and impressive. For example, one with baby mice accidentally trapped in a sink, exhausted, frightened and unable to climb up the slick sides sees one risking falling into the water to reach the other, even more exhausted and paralysed with fear, and extending him food. Another is an account of Church's (1959) paper 'Emotional Reactions of Rats to the Pain of Others' in which rats were trained to press a lever in order to get a food reward. In a neighbouring cage where the floor consisted of an electric grid that could be turned on when a rat in the first cage pressed the food lever, the pain caused by the electric shock to the second rat seemed to be evident to its neighbour,

as rats would not push the food lever if they could see that a fellow rat would receive a shock. Bekoff considers empathy the most parsimonious explanation for the rat's behaviour of withdrawing from pressing the lever to eat. These experiments are identical in apparatus and results to Milgram's experiments with rhesus monkeys (Gaspar, 2007). They stress that the altruistic behaviour in these extreme conditions is less exceptional than once thought, because high-cost true altruistic acts (different from cooperative/helping acts) have generally been deemed within the scientific community as unique to humans. Helping behaviour that does not involve the high cost of altruism is commonly seen in social animals. Bekoff compiles moving examples in rats, and de Waal (2006, 2008, 2010) in elephants, dolphins and of course, countless reports on primates.

The above examples with animals from such different taxa are by no means coincidental. Preston and de Waal (2002) proposed the perception-action model (PAM), which is currently largely supported by the neurosciences, whereby empathy is compared to a Russian doll, comprising bottom-up processes where cognitive empathy stems from emotional components of empathy, such as emotional contagion, mirror emotions and empathic distress, which are common to humans and other mammals alike (for details see for example Castro *et al.*, 2010).

A sense of fairness has been shown not only in apes but also in monkeys. When confronted with the fact that their reward for successful completion of a task is less valuable than that received by an experiment mate who does not succeed, they become aggressive, and often throw the reward to the experimenter (de Waal, 2006).

Outside empathy and in the strict realm of morality, Fiske's authority ranking is paralleled by the unambiguous deference and mutual obligations that both wild and captive chimpanzees display within their communities, big or small (de Waal, 1982; Goodall, 1986). Indeed, chimpanzee cultures include codes of conduct that make quite clear what the postures and behaviours that an individual must display when meeting another of his/her own community are. Breaking the rules leads to harsh punishments, from severe beating to complete banishment (Goodall, 1986; Nishida and Hosaka, 1996).

Among bonobos, hierarchy is not so emphasized (Kano, 1992). Coincidentally, behaviour is much more flexible and not displaying deference in encounters with higher ranking conspecifics does not bear grave consequences (Gaspar, 2001; Preuschoft and Van Hooff, 1995). Preuschoft and Van Hoof formulated the 'power asymmetry hypothesis' to explain this contrast between the stereotype of chimpanzee social behaviour and the flexibility of signals within bonobo communities. It consists on the theoretical claim that ambiguity is down-selected in societies with strong power asymmetries whereas in egalitarian societies (such as those of bonobos) many signals are under neutral selection and may overlap across contexts. In the latter, social innovation may take place much more smoothly.

Paul Bloom (2010) disagrees with a vision of morality driven by our evolutionary past and by hardwired gut reactions, arguing instead that morality

undergoes social evolution and changes throughout one's life. He illustrates this view with poignant examples such as our current loathing of slavery, child labour or animal abuse, which would not be so 200 years ago. It is so, indeed, but should we forget that power asymmetries have also diminished in the recent cultural evolution of western populations? This shift is probably what has allowed the questioning of traditional norms and the updating of values (Gaspar, 2014b), down-selecting those that are probably the least universal and the least fair, as also suggested by the contrasting examples of chimpanzee and bonobo societies.

Concluding remarks: putting it all together – where phylogeny, ontogeny and culture meet

We have seen in examples above, compiled by Bekoff and de Waal, that there is ample support for a 'wild justice' that regulates mammal societies' boundaries of good and evil. We have also seen that emotional contagion, empathic distress, and prosocial behaviour, and within it, manifestations of empathic concern, sympathy, cooperation and altruism, unfold during ontogenetic development, initially before the child develops the cognitive ability to understand the feelings of others, their behaviour and their particular perspective on events. As the child grows, values and models intertwine with this constantly unzipping maturation programme, becoming part of the core basic empathic triggers and responses.

When Haidt and colleagues set out to test Hume's theory that emotion (passions) prevails over reason (Hume (1739/1740; 1969)), they found that the cognitive perspective follows an emotional reaction and not otherwise, as we have seen in the first section (Haidt *et al*, 2000). Haidt's social intuitionist model fits a perspective where biological triggers for certain emotional experiences anticipate a 'post hoc' reasoning link to moral values (Haidt, 2001). But it is not just the hardwired biological programming that is playing a role. Moral norms and social influences also affect the appraisal of the situation and, consequently, the emotional moral response. Likewise, we can retrieve from Haidt and colleagues' work support for the view that these moral pattern recognition systems are largely hardwired in the brain, corresponding to mechanisms of basic information processing that evolved prior to language, because they serve human needs in an adaptive fashion.

Cross-cultural folktales are an amazing account of how moral norms have changed throughout the centuries, and of what has been preserved. They provide important clues to whatever hardwired mechanisms we humans use to deal with moral issues, including values such as fair punishment, obedience, generosity and sense of a 'just world'. An example of what has changed concerns the cruelty involved in punishing serious offenders, which has clearly diminished over time in contemporary western countries. 'De-humanizing' those labelled evil, by stripping them of qualities that define 'human' and by devaluing their lives in order to administer a death penalty or a cruel punishment is a feature of moral sense that has not faded out. Tales like *Little Red Riding Hood*, *Hansel*

and Gretel, *Cinderella* and *Snow White* teach that the evil characters have terrible endings – the wolf in *Little Red Riding Hood* is killed and cut open, the witch in *Hansel and Gretel* is shoved into the oven; in *Cinderella*, the two evil sisters are punished by having their eyes picked by doves, leaving them blind for the rest of their lives; and, in *Snow White* the witch queen is invited to Snow White's wedding where she is forced to step into a pair of burning-hot iron shoes and to dance in excruciating pain until she dies. In all, evilness is punished with cruelty and we get a sense that the lives of evil ones are less valuable. In *Hansel and Gretel*, for example, the witch is referred to as 'ungodly', reinforcing this idea. *Little Red Riding Hood* emphasizes obedience and the heroine suffers the harsh consequences of her wits and decision to overlook her mother's advice. In *Hansel and Gretel*, Gretel grabs the opportunity to save herself and her brother (who was about to be cooked first) and it is she who shoves the witch into the fire, which seems to convey the message that it is acceptable to kill to save one's life.

Like de Waal and Pinker, I take an optimistic view. We have enough information, as of now, to clearly establish that despite surface appearance, moral codes and the processes that generate them are not arbitrary. Wrapped up in cultural norms, they reveal strong foundation on human biology and humanity's shared history of cultural evolution and are strong promoters of care for one's family and community and of those in need, as well as of prevention of harm and defence of life. Empathy goes beyond this in that the prosocial conduct that springs from it is not bound to any specific norms. Its triggers are so strong that anybody can be the target of cooperation or altruism, even members of a different species. Regarding the origins of moral values, empathy seems to be, by far, the primal source, a motivational experience that nature provided to ensure maternal care, and in ever larger circles of empathy, care for one's relatives, peers, conspecifics and beyond. We have seen that moral judgement and moral conduct entail both cognitive and emotional paths, but as researchers like Haidt and Hoffman uphold and document, morality stems most strongly and coherently from emotional experiences, that are, indeed, empathic ones. While growing up, children can be exposed to empathy boosting interactions, resulting in the kinds of prosocial conduct advocated by cross-cultural moral norms. Strategies to ferment prosociality are currently under scrutiny in psychological and educational sciences, revealing an unprecedented concern with the morality of future societies.

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