

The Biological Basis of Ethical Behavior

David Mays
dvmays@wisc.edu

What can the study of
biology, genetics, and
social psychology tell us
about ethical behavior in
human beings?

Outline

- Do we live by a coherent ethic, derived from principles that are taught to us by religion (or by our parents or culture)?
- Fairness, empathy, logic, reciprocity, moral emotions, and genes
- Do the genders differ in moral capacity?
 - Do the genders differ at all?
- What does social science research tell us about making ethical decisions?

Can morality be grounded in biology rather than religion?

- “Secular schools can never be tolerated because such schools have no religious instruction, and a general moral instruction without a religious foundation is built on air; consequently, all character training and religion must be derived from faith”

Does true morality come only from religion? Assumptions:

- People without religious faith lack an understanding of moral rights and wrongs.
- People of religious faith are more virtuous than atheists and agnostics.

Does true morality come only from religion? Observations:

- Most religions rely on simple deontological rules. (Every morally relevant act is right or wrong, regardless of the consequences vs. utilitarianism)
- These rules do not explain the patterns of moral judgments that people make in test cases.

The Train Problem #1

- An out-of-control train is racing toward five hikers, who are unaware that it is coming. Adam is standing by a switch and can send the train down a side track, where one hiker is hiking.
- Is it morally permissible for Adam to switch the train?

The Train Problem #2

- An out-of-control train is racing toward five hikers, who are unaware that it is coming. Hitting a large object will cause the train to stop automatically. Beth is standing on a bridge over the track, beside a large man.
- Is it morally permissible to push the man onto the track, stopping the train?

The Train Problem #3

- An out-of-control train is racing toward five hikers, who are unaware that it is coming. Hitting a large object will cause the train to stop. Conrad is standing by a switch and can send the train down a side track where it will hit a heavy object before re-entering the main track. The object is a person.
- Is it morally permissible for Conrad to switch the train?

The Train Problem #4

- An out-of-control train is racing toward five hikers, who are unaware that it is coming. Hitting a large object will cause the train to automatically stop. Doris is standing by a switch and can send the train down a side track where it will hit a large rock and stop before re-entering the main track. There is a person standing in front of the rock.
- Is it morally permissible for Doris to switch the train?

Moral Dilemmas: Other Examples

- You are a surgeon in an ER. Five people arrive in critical condition, needing - 2 needing kidneys, one a heart, one a liver, one a lung. A healthy young person is waiting to give blood. Should you take the organs from him?
- You are driving a car in the fog. Suddenly there are 5 people standing in your lane. There is one person standing in the other lane. Should you swerve and hit the one person?

Moral Dilemmas: Final Case

- The Federal Government can either spend \$2,000,000 a year on continues life support for a patient in a vegetative state, or spend \$2,000,000 on famine relief, saving the lives of 50,000 people.
- (In general, legal policy seldom enforces a moral obligation to help, but is constantly looking for ways to forbid actions that will cause harm.)

Moral Dilemmas - Research

- There is no evidence that gender, age, or national affiliation influences the pattern of permissible judgments.
- There is no evidence that straightforward deontological, utilitarian, or other rules account for differences.
- People are confident in their judgments but are largely clueless and incoherent in trying to explain why they decide the way they do.

The Dictator Game

- Player 1 is given \$10.
- Player 1 offers some amount of money to Player 2.

The Dictator Game - Results

- Many players offer nothing, but some offer \$5.
- People who play repeated games with identified people develop a reputation and generally give around \$5.

The Ultimatum Game

- Player 1 is given \$10.
- Player 1 then offers some amount to Player 2.
- If Player 2 rejects the offer, nobody gets anything.

The Ultimatum Game - Results

- Players punish unfair offers even at personal cost.
- Responders universally reject offers at \$2 or less.

Brain Studies of Fairness

- When reciprocity fails, or the offer is unfair, imaging studies reveal significant activation of the anterior insula, which plays a role in negative emotions such as pain, distress, anger, and disgust.
- When players engage in punishment, the caudate nucleus is activated, a key center for pleasurable experiences.

Fairness

- Notions of fairness permeate almost all aspects of life. We have the innate capacity to monitor fairness:
 - Some ability to keep tabs
 - To place values on different things
 - To judge when an inequity has occurred
 - To distinguish accidental from intentional giving and renegeing
 - To determine if an unfair act is worthy of retribution

Empathy

- A newborn baby, barely able to see, can imitate the facial expressions of adults within 1 hour of birth.
- Empathy is a kind of contagious emotional expression. As adults we speak and gesture in the same way as the person speaking to us.

Mirror Neurons

- Neurons in the pre-motor cortex show the same level of activity when an individual reaches for an object as when he watches someone else do the same.
- This also occurs when subjects imagine an action.
- Recent research indicates that this system activates when we see others experiencing a disgusting event, or pain. It may underlie the experience of empathy.

The Wason Selection Task

- T or F: If there is a D on one side, there is a 3 on the other



Wason Selection Task: Social Specialization

- If a person is drinking, they must be 21.



Logic and Social Specialization

- Most people find the first problem is harder than the second.
- Social contracts tap a specialization that is present in all human beings. Our minds have evolved a unique specialization to understand social contracts and to detect violations.
- This kind of thought operates unconsciously and automatically. The ability to detect cheaters is found even in young children.

Biological Support for Reciprocity

- Innate sense of fairness
- Strong sensitivity to and memory for “cheating”
- Intuitions about trustworthy people
- Commitment to revenge
- Moral emotions:
 - Warmth toward kindness, giving
 - Guilt

Observations on Biological Reciprocity

- Animals don't reciprocate, or when it happens, every case involves a single commodity, in a single context, over a very short time period.
- Animals don't punish.
- Unlike animals, humans can wait for days or weeks for a larger reward versus a smaller immediate reward.

Conclusions

- What humans have that other animals don't have is:
 - A theory of mind
 - Moral emotions
 - Inhibitory control
 - Punishment of cheating

The Moral Emotions

- Pleasant emotions:
 - Awe
 - Gratitude
 - Love
 - Compassion
 - Acceptance
- Uncomfortable emotions:
 - Guilt
 - Shame
 - Regret
 - Remorse

Moral Emotions

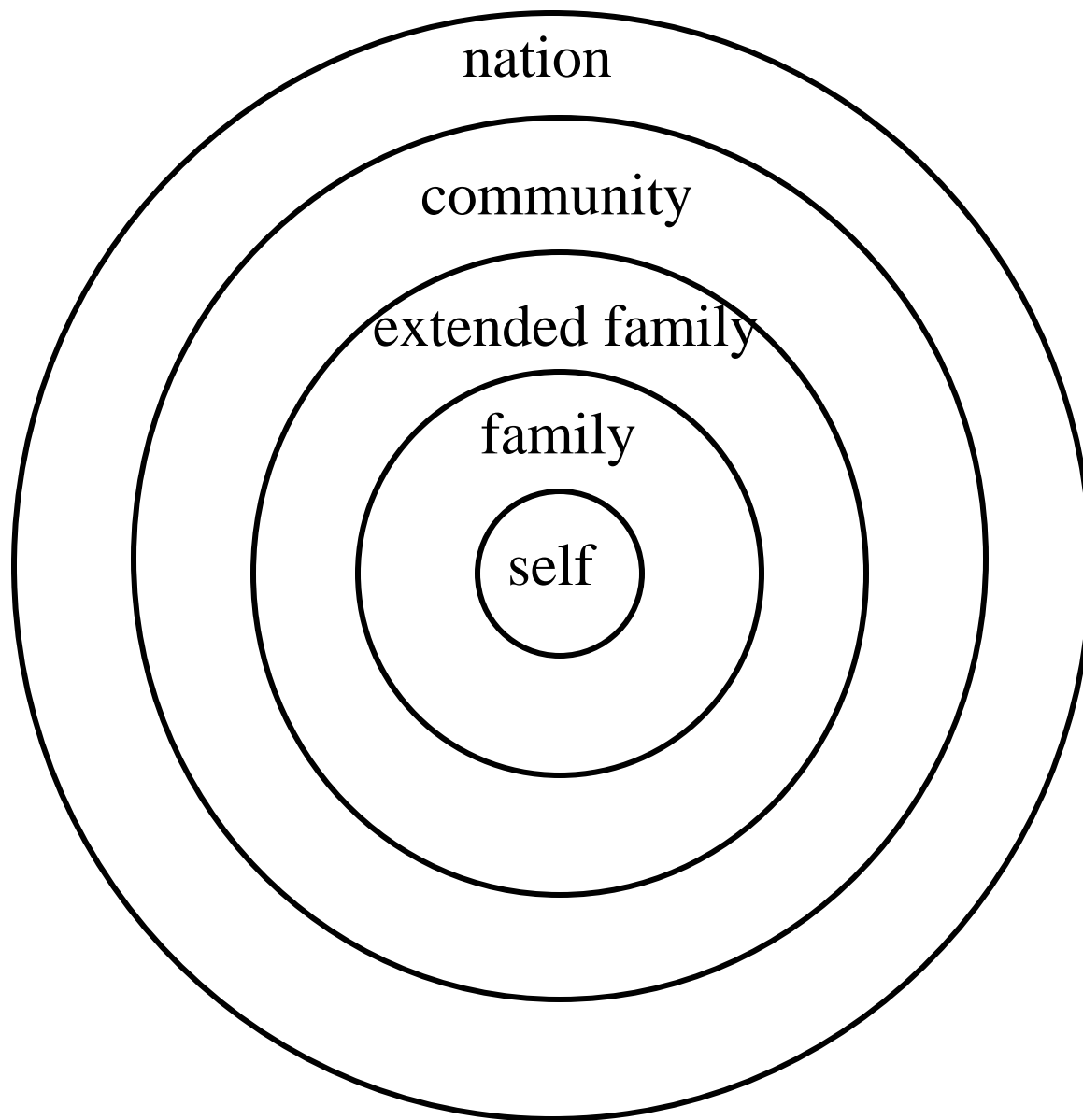
- Moral emotions make it very difficult for us to separate out logic from our feelings in discussing moral dilemmas with other people.

Research (an aside for therapists)

- Moral worry is distinct from other worries. It is not explained by religiosity or a tendency to worry in general.
- There is no gender difference in the extent of worrying about moral issues.
- Worry about moral concerns does not increase or decrease with age.

Moral Intuition: The Family

- Genetic relatives are more likely to:
 - Live together
 - Work in each other's gardens
 - Protect each other
 - Adopt each other's orphaned children
- Genetic relatives are less likely to:
 - Attack and kill each other
- Those outside the “family circle” are less likely to be incorporated in the culture's “moral thinking” - i.e. morality does not apply.



nation

community

extended family

family

self

“If a woman has to choose between catching a fly ball and saving an infant’s life, she will choose to save the infant’s life without even considering if there are men on base.”

Dave Barry

Gender

- Are there real differences in the way men and women think about the world?
- Probably. It's just that we don't know what they are.

Gender Differences: Cultural vs. Biological

- Intelligence
 - Men have bigger, more lateralized brains. Women have more interconnections among neurons.
 - Average IQ scores are equal but more males score at the very top and very bottom
 - Men and women use different parts of the brain when tested for IQ (white vs. grey matter)

Gender Differences: Cultural vs. Biological

- Performance
 - Verbal abilities mature earlier in girls, mechanical/spatial thinking in boys.
 - Boys don't see or hear as well as girls.
 - Girls outperform boys throughout the entire educational process. (133 girls graduate from college for every 100 men.)
 - Women are better at reading faces and body language

Gender Differences: Cultural vs. Biological

- Performance
 - Men have a stronger taste for unattached sex
 - Men are more likely to compete, especially violently
 - Men are better at mentally rotating maps, but women are better at remembering positions and landmarks
 - Men are better throwers, but women are more dextrous
 - Men are better at word problems, but women are better at calculation

Gender Differences: Cultural vs. Biological

- Performance
 - Women are more sensitive to sound and smell
 - Women have more intimate social relationships, are more concerned about them, and feel more empathy toward friends. They smile and laugh more.
 - Women are more attentive to infants' everyday cries and are more solicitous to children.
 - Men are more willing to risk their lives for status.

Gender Differences: Cultural vs. Biological

- Pathology
 - Boys are more likely to experience ADHD, language problems, other attentional skills, olfactory skills, motor skills, autism
 - Men have more serious schizophrenia, substance abuse, antisocial behavior, violence, and suicide
 - Women have more disorders involving emotional processing: depression, anxiety, PTSD, phobias

Gender Differences: Cultural vs. Biological

- Emotional Processing
 - The hippocampus is larger and the amygdala is smaller in women.
 - Women have stronger reactions to stressful images on brain scan.
 - Women utilize the left amygdala (detail?) more than the right (meaning). In men, the opposite occurs.

Gender Differences: Cultural vs. Biological

- Men and women do not differ in moral reasoning, level of intelligence, or basic emotional traits. They share virtually all the same genes.
- Men are not from Mars and Women are not from Venus.
- Men and women are from Africa.

Summary: The Moral Faculty

- Human beings are born with the parts of a universal moral “grammar” that constrains the range of possible moral behavior.
- Each principle generates an automatic and rapid opinion about whether an act is morally permissible or forbidden.
- These principles are inaccessible to conscious awareness.
- Acquiring the moral system is fast and effortless, requiring little or no instruction.

Morality

- What works - making the most people happy in a pragmatic way?
 - The Golden Rule
 - The Silver Rule
 - The Bronze Rule
 - The Iron Rule
 - The Tin Rule

The Prisoner's Dilemma: How to Win the Game

- Be friendly at first meeting
- Do not envy
- Be generous
- Forgive your enemy if he forgives you
- Don't be a tyrant or a patsy
- Retaliate proportionally to intentional injury
- Make your behavior fair and consistent
- Throw in a little extra forgiveness