

Facets of Human Nature

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Contents

Introduction.....	2
Humans as Primates	2
Lessons from Evolutionary Psychology	8
Basic Concepts of Evolution.....	8
Concepts of Evolutionary Psychology	10
Cognition.....	12
Emotion.....	14
Intelligence.....	17
Scope	18
Theory of Mind.....	20
Emotional Discharge: The Overlooked Adaptation	22
Traits of Undistressed Humans	26
Humans are Good	28
Sense of Morality	29
Moral Intuition	29
Five Moral Domains	32
How the Mind Works Morally.....	36
Philosophical Implications.....	37
Religion.....	40
When Intelligence Fails.....	44
Self-Deception	44
Maladaptation.....	48
Afflictive Emotion	50
When Volition Fails	51
To Know The Good	53
Reclaiming Our Best Nature.....	55
Working with Habit	55
Overcoming Afflictive Emotion	57
Overcoming Distress Patterns.....	58
Working with Instinct.....	59
Conclusion: What Is It About Humans?	60
References.....	63
Humans as Primates.....	63
Evolutionary Psychology.....	64
Other	69
Revision History	69

Introduction

The goal is to find out what human nature consists of in order to determine what is good for humans and hence what would constitute a fulfilling life. This chapter looks at human nature from an objective, scientific, third-person point of view, a point of view that any competent observer could adopt in order to confirm or disconfirm its assertions. First I compare humans to our closest genetic cousins, the great apes. Then I examine what we have learned from evolutionary psychology. There are certainly other quite useful perspectives one could take – anthropology comes to mind – but for now this what I have been able to produce.

Humans as Primates

Humans are members of the biological order *Primates*, family *Hominidae*, subfamily *Homininae*, which includes humans, chimpanzees, bonobos and gorillas. Members of this subfamily have 97% of their DNA in common. DNA research indicates that humans diverged from the line of primates to become a separate species about 5.5 million years ago. More recently, about 2.5 million years ago, chimps and bonobos diverged from each other; they are our closest genetic relatives.¹

Chimps are found in Central and West Africa, north of the Congo River, where the habitat is relatively dry and open. Bonobos are found only south of the Congo River, in dense, humid forests. Bonobo territory is much richer in food – large, fruiting trees and high-quality herbs – than that of the chimps. Since neither can swim, the river seems to have served as a barrier that enabled the bonobo to evolve into a separate species. Or perhaps it is chimps and humans that evolved away from the ancient species from which all three are descended, and bonobos, having stayed in the ancestral habitat, are closest to that ancient precursor.

Chimps, bonobos and humans exhibit many similarities. All are social and inquisitive; all use tools; all exhibit cooperation within the group, empathy and altruism (helping others at some cost to oneself). There are many significant differences as well. The most obvious is that humans are far more intelligent and exhibit a much broader range of behavior than the others. The most notorious difference between chimps and bonobos is that chimps are patriarchal, violent and aggressive, and bonobos are matriarchal, peaceful and sexual.

Chimps have the reputation of being “killer apes.” Their society is extremely hierarchical, with constant jockeying among males for the top position, and frequent fights, some quite bloody, among them. Political machinations are constant. Conflicts among males are solved through violence and aggression. The hair of a male chimp stands on end at the slightest provocation. He will pick up a stick and challenge anyone perceived as weaker. Chimp males patrol their territorial borders and murder intruders from other bands. Bands of chimps engage in lethal aggression against their neighbors. Brutal violence is part of the chimp’s natural makeup.

¹ The information in this section comes primarily from the writings of Frans de Waal, in particular his *Our Inner Ape*.

By contrast, among bonobos there is no deadly warfare, little hunting, no male dominance, and enormous amounts of sex. This may well have to do with their richer supply of food sources; there is far less need for competition for food. Bonobos have frequent sexual contact with each other, males with females, females with females and males with males. There is more of it in captivity, but frequent sexual activity has been observed in the wild as well. When different bands meet, there is no fighting; instead, individuals have sex with each other. Sex seems to be a way to defuse tension in advance of conflict, particularly over food. But anything, not just food, that arouses the interest of more than one bonobo at a time tends to result in sexual contact. After a flurry of sex, the apes settle down to eat or investigate whatever has piqued their interest. Bonobos are not “sex-crazed apes” as the popular press would have it. For bonobos, sex is just a natural and common part of life, rather like sneezing or scratching an itch. Dominance hierarchy is matrilineal; males derive status from their mothers.

Because of their genetic similarity, it is useful to compare salient characteristics of chimps, bonobos and humans. From this comparison we can find out in what ways humans are like our animal kin and in what ways we are unique. The following table summarizes the comparison.

Trait or behavior	Chimpanzees	Bonobos	Humans
Dominance hierarchy	<ul style="list-style-type: none"> ▪ Very hierarchical ▪ Male-dominated ▪ Enforced by aggression and alliances ▪ Highly political ▪ High rank provides sexual mates and food for males; females trade sex for food. 	<ul style="list-style-type: none"> ▪ Very hierarchical ▪ Female-dominated ▪ Enforced by cultivated alliances ▪ High rank provides food for females and their families. 	<ul style="list-style-type: none"> ▪ Humans are highly attuned to power and social hierarchy. ▪ Form varies by culture and historical epoch. In historical times, mostly male-dominated. ▪ Highly political.

Trait or behavior	Chimpanzees	Bonobos	Humans
Relations toward out-group	<ul style="list-style-type: none"> ▪ Highly aggressive ▪ Highly territorial ▪ Gentle to members of in-group; hostile to out-group ▪ Cooperation within in-group 	<ul style="list-style-type: none"> ▪ Low aggression ▪ Has capacity for violence, but generally avoids it. ▪ Territorial, but no territorial competition. Gentle to members of in-group and out-group. ▪ Cooperation within in-group and with out-group. 	<ul style="list-style-type: none"> ▪ Territorial ▪ Gentle to members of in-group; hostile to out-group ▪ Conflict resolution through wars and feuds among clans, but also sophisticated negotiation and diplomacy ▪ Conflict avoidance through diplomacy and proactive peacemaking ▪ Both competitive and community-building; each society reaches its own balance. ▪ Able to cooperate within in-group and with out-group.
Handling of in-group conflict	<ul style="list-style-type: none"> ▪ Resolve conflict through domination ▪ Physical force ▪ Politics, alliances ▪ Resolve sexual issues with power ▪ Able to cope with crowding if there is enough food. 	<ul style="list-style-type: none"> ▪ Avoid conflict through sexuality ▪ Resolve power issues with sex. ▪ Able to cope with crowding if there is enough food. 	<ul style="list-style-type: none"> ▪ Resolve conflict through feuds and fights, but also sophisticated negotiation and diplomacy ▪ Avoid conflict through pro-active peacemaking and compassionate communication ▪ Able to cope with crowding if there is enough food.
Peacemaking and reconciliation	<ul style="list-style-type: none"> ▪ Reconciliation common after fights ▪ Males reconcile more easily than females ▪ Females have fewer fights, but grudges last longer ▪ Mutual dependency fosters harmony 	<ul style="list-style-type: none"> ▪ Reconciliation common after disputes ▪ Females reconcile more easily than males ▪ Mutual dependency fosters harmony 	<ul style="list-style-type: none"> ▪ Pragmatic solutions to conflict ▪ Males reconcile more easily than females ▪ Male discord obvious; female discord more subtle ▪ Females hold grudges longer than males ▪ Mutual dependency fosters harmony

Trait or behavior	Chimpanzees	Bonobos	Humans
Sexuality	<ul style="list-style-type: none"> ▪ Sporadic ▪ Only dominant males get to mate with females ▪ Females periodically in heat; visible signal when fertile. 	<ul style="list-style-type: none"> ▪ Frequent ▪ All males mate with females ▪ Females periodically in heat; visible signal through longer portions of the estrus cycle, not just when fertile. 	<ul style="list-style-type: none"> ▪ Variable frequency ▪ Mostly a private affair ▪ Variety of cultural prohibitions ▪ Females sexually receptive all or most of the time; no visible signal.
Reproductive strategy	<ul style="list-style-type: none"> ▪ Only dominant males get to reproduce ▪ Male enforces his own lineage ▪ Infanticide; male kills infants which are not his offspring ▪ Low male parental investment (amount of time and energy the male spends nurturing children) 	<ul style="list-style-type: none"> ▪ All or most males reproduce ▪ No way to tell who is the father ▪ No infanticide; all infants allowed to live ▪ Low male parental investment 	<ul style="list-style-type: none"> ▪ Pair-bonding and nuclear family ensures resources for children ▪ Every male has the potential to reproduce ▪ Sex limited to nuclear family means every male knows whose children are his. High male parental investment. ▪ This allows males to cooperate in groups away from the females. ▪ Historically, many human cultures have practiced infanticide; rare in technologically advanced cultures
Kindness, altruism, empathy and theory of mind (1, 2, 3)	<ul style="list-style-type: none"> ▪ Console others in distress ▪ Know what others know, can take another's viewpoint ▪ Recognize self in mirror ▪ Exhibit targeted helping 	<ul style="list-style-type: none"> ▪ Console others in distress ▪ Know what others know, can take another's viewpoint ▪ Recognize self in mirror ▪ Exhibit targeted helping 	<ul style="list-style-type: none"> ▪ Highly empathic ▪ Empathy develops before language ▪ Highly-developed theory of mind ▪ Highly-developed capacity for self-knowledge ▪ Can be highly altruistic; wide variety of targeted helping
Tool use	<ul style="list-style-type: none"> ▪ Wide variety of tools such as sticks and stones 	<ul style="list-style-type: none"> ▪ Tool use not common in the wild, but has been seen in captivity 	<ul style="list-style-type: none"> ▪ Highly advanced

Trait or behavior	Chimpanzees	Bonobos	Humans
Language	<ul style="list-style-type: none"> ▪ Emotive sounds ▪ Little conceptual language ▪ Signal emotions and intentions through facial expressions and hand gestures 	<ul style="list-style-type: none"> ▪ Emotive sounds ▪ Little conceptual language ▪ Signal emotions and intentions through facial expressions and hand gestures 	<ul style="list-style-type: none"> ▪ Language highly complex, both emotive and conceptual ▪ Nonverbal emotional communication widespread
Vocal Imitation	<ul style="list-style-type: none"> ▪ None 	<ul style="list-style-type: none"> ▪ None 	<ul style="list-style-type: none"> ▪ Universal
Physical contact	<ul style="list-style-type: none"> ▪ Hugging and grooming common ▪ Isolation is painful 	<ul style="list-style-type: none"> ▪ Hugging, grooming and sexual contact common ▪ Isolation is painful 	<ul style="list-style-type: none"> ▪ Hugging and touching common ▪ Isolation is painful ▪ Varies among cultures
Food	<ul style="list-style-type: none"> ▪ Omnivorous, fruit preferred ▪ Have sophisticated hunting strategies requiring cooperation, influence and rank 	<ul style="list-style-type: none"> ▪ Eat mainly fruits, but supplement their diet with leaves and sometimes the meat of small vertebrates ▪ Have rudimentary hunting strategies 	<ul style="list-style-type: none"> ▪ Omnivorous ▪ Have sophisticated hunting strategies ▪ Have sophisticated agricultural strategies
Time orientation	<ul style="list-style-type: none"> ▪ Focused on present ▪ Remember past grievances and favors; avenge the former and reward the latter ▪ Rudimentary ability to anticipate the future 	<ul style="list-style-type: none"> ▪ Focused on present ▪ Remember past grievances and favors; avenge the former and reward the latter ▪ Rudimentary ability to anticipate the future 	<ul style="list-style-type: none"> ▪ Can focus on past, present and future ▪ Greatly enhanced ability remember and document the past ▪ Greatly enhanced ability to anticipate and plan for the future
Brain size and EQ (4)	<ul style="list-style-type: none"> ▪ 275-752 cm³ ▪ EQ = 2.38 	<ul style="list-style-type: none"> ▪ 275-752 cm³ ▪ EQ = 2.38 	<ul style="list-style-type: none"> ▪ 1100-1700 cm³ ▪ EQ = 6.28
Art	<ul style="list-style-type: none"> ▪ Pseudo-artistic play; no interest in the creation afterwards 	<ul style="list-style-type: none"> ▪ Pseudo-artistic play; no interest in the creation afterwards 	<ul style="list-style-type: none"> ▪ Full creation of art; calculation of artistic effects; intent to preserve, discuss and appreciate the work after it has been created

Notes

(1) Empathy is the ability to be affected by the state of another individual or creature. This is seen in bodily mimicry as well as emotional contagion. Emotional empathy has its roots in bodily mimicry, as one individual unconsciously mimics the facial expression of another.

(2) Theory of mind is the ability to recognize the mental states of others. It means that one individual has an idea, a theory, about what another individual believes, perceives or intends to accomplish. See "Theory of Mind," p. 20.

(3) Targeted helping is giving aid tailored to another's needs; it requires a distinction between self and other, recognition of the other's need and sympathy for the other's distress.

(4) EQ, or Encephalization Quotient is the ratio of the actual brain mass to the expected brain mass of a typical animal of a certain size. The expected brain mass is that required for basic survival tasks. If the actual brain mass is larger than expected, then the extra mass is available for higher-level cognition. Human EQ is much greater than chimp or bonobo EQ.

Bonobos were recognized as a separate species less than 100 years ago and began to be fully documented less than 50 years ago. Before that time, many ethologists and anthropologists believed that humans are innately violent and aggressive. Morality, it was thought, is a veneer of cooperative sociality on an underlying bestial nature. Now that we know about bonobos, the range of human behavioral potential seems to have expanded. We recognize that humans have the capacity to live in peace and to defuse conflict proactively with pleasure. In addition, male dominance seemed a natural part of things until the discovery of bonobos; now we see that dominance by females may be equally natural.

Two things stand out from the comparison of species above. First, our difference from chimps and bonobos is a matter of degree, not kind. There are few, if any, uniquely human traits that chimps or bonobos do not have to a lesser degree. We are embedded in nature and are not a species unique and special. The one trait that seems most unique is the cultural, not biological, innovation of nuclear family pair bonding.

Second, humans have the capacity to amplify the characteristics found in our sibling species. Humans have greater brain size and intelligence, so we can do more effectively all the things our siblings can. For instance, our use of tools and technologies enables us to produce food in more variety and abundance. Our use of language enables us to communicate more effectively and to perpetuate what we learn through culture. Chimps and bonobos seem to be able to conceptualize that something not happening in the present will happen later, but humans have a greatly enhanced ability to visualize and anticipate the future.

Hence, humans can be more aggressive but also more peaceful, more competitive but also more cooperative. We are more flexible and have more options than our fellow creatures. We have a great variety of possible behaviors, possible ways of being. And, through our ability to anticipate the future, we have a choice as to which of these we will actualize.

Lessons from Evolutionary Psychology

Evolutionary Psychology is the attempt to understand human nature by investigating how various mental and psychological traits and capacities evolved, and under what circumstances they became evolutionarily adaptive.² It attempts to explain traits such as memory, perception and language as adaptations, functional products of natural or sexual selection. Adaptationist thinking about physiological mechanisms, such as the heart, lungs, and immune system, is common in evolutionary biology. Evolutionary psychology applies the same thinking to psychology. It attempts to explain how we came to be the way we are. Evolutionary psychology is not the whole answer, of course, but if there is an evolutionary explanation for how some human trait came to be, that adds to the evidence in favor of it being a universal trait, part of human nature, essentially human. And if there is no cogent evolutionary explanation for how a proposed human trait came to be, that is evidence that the trait may not really be an essential human trait after all.

Basic Concepts of Evolution

Evolutionary psychology is based on the concepts of evolution and selection.³ The term “evolution” in a general sense means a process of change or growth, often taken as a process of continual change from a simpler to a more complex state. In biology, the term refers to two things:

- The observed fact that the distribution of inherited traits in a population of organisms can change from generation to generation.
- The theory that the various types of animals and plants we find around us, including humans, have their origin in historically earlier types and that their differences are due to modifications in successive generations.⁴

The basic concept of biological evolution as we understand it today is surprisingly simple. Charles Darwin, its originator, called it “descent with modification.” The concept is this:

- An organism’s offspring may vary slightly from the organism itself. Offspring may have slightly different traits from the parents or the same traits in different degrees.
- Organisms typically produce more offspring than can survive and reproduce, given the resources available such as food, shelter, sexual mates, etc. Hence, there is competition for such resources.

² Wikipedia, “Evolutionary Psychology.”

³ Wikipedia, “Artificial Selection,” Evolution as theory and fact,” “Evolution,” “Gene.”

⁴ By “theory” I do not mean conjecture, speculation or mere opinion. I use the term in its scientific sense: a well-supported body of interconnected statements that explains observations and can be used to make testable predictions.

- In the competition for resources, some variations have an advantage over others. For example, one child's beak may be slightly better at picking up small seeds than another's, or one may have slightly better eyesight than the other and hence be better able to find food and avoid predators.
- The individuals with variations that have such an advantage have more offspring than those who don't.
- Since traits are heritable (are inherited from parent to child), this causes the population, over time, to contain more of the favorable variations and fewer of the unfavorable variations.

Darwin called this process "natural selection," as opposed to artificial selection, the intentional breeding for certain traits that produces such differences in the same species as the Great Dane and the Chihuahua. Both are dogs, but they are very different in size. The underlying mechanism is the same in both natural and artificial selection: certain individuals have more offspring than others, so their traits become more widespread in the population of that type of organism. A subset of natural selection, called "sexual selection" is a result of competition for mates. In order to have offspring, an individual must not only survive but reproduce. Competition for mates, most often among males for females, selects for traits that enable males to dominate other males, such as horns and antlers, and for traits that attract females, such as plumage and other adornments.

This process happens slowly but inexorably. The variation between parent and offspring is most often miniscule, but over enough generations large changes result. A series of small, incremental changes can, given enough time, produce the extraordinary variety of speciation we find around us.⁵

This process is not purposive.⁶ No organism intends to produce a better beak or a better eye. It is merely a fact of life that those with favorable variations tend to have more offspring than those without, each of which in turn have the favorable variation. Among that generation's offspring, those that further amplify the favorable variation have more offspring, and so on for generations. Conversely, unfavorable variations

⁵ There are three sources of variation: mutation, gene flow and genetic shuffling through sexual reproduction. Mutation happens when environmental influences cause tiny changes in the chemical structure of genes, altering their functioning, or when cells divide and imperfectly replicate their DNA. By far the majority of mutations are destructive, degrading the gene's ability to do its job of directing the growth of organs and characteristics, but some enhance that ability, or change it so that the result is advantageous. Gene flow refers to the transfer of genes between populations of an organism. Individuals from one population mate with individuals of another and transfer genes between them. Genetic shuffling through sexual reproduction causes the combination of genes in each child to differ from that of its parents. In species that reproduce sexually, each individual has two copies of every gene (specifically, each has two strands of DNA, each of which contains chromosomes, which contain genes). In sexual reproduction, the child gets some genes from the mother and some from the father, and the combinations vary with each child.

⁶ Some religious or mystical thinkers may postulate a divine purpose that guides the process of evolution, but the science of biological evolution does not need that hypothesis to explain the process.

tend to die out over time. We should not take phrases such as “designed by natural selection,”⁷ as implying a conscious, deliberate designer.

The thing that is inherited is a trait, a feature of an organism such as eye color. Traits are passed from generation to generation as discrete units. Gregor Mendel conducted a famous study in which he mated pea plants, some of which had purple blossoms and some of which had white. The offspring did not have pale purple blossoms, but rather some had purple and some white, in distinct proportions. What passes these discrete traits from generation to generation is the gene, the fundamental physical and functional unit of heredity, now understood as a segment of nucleic acid that, taken as a whole, specifies a trait. Genes are contained in chromosomes, which are composed of DNA (deoxyribonucleic acid), a polymeric molecule found in cells of the body. DNA governs the production, growth and reproduction of the cells of the body. The current understanding of biological evolution, developed since Darwin’s time, recognizes the gene as a fundamental, if not the fundamental, unit of natural selection.

Functionally, genes pass traits from generation to generation. They do this by replicating themselves from parent to child. Physiologically, the same chemical structure appears in the child as was found in the parent. In combination with other genes and triggered by environmental influences, the genes cause the parent’s traits to appear in the child. The term “trait” includes physical forms, such as bone density or eye color, behaviors such as sounding mating calls in certain seasons, and mental abilities or talents such as stereoscopic vision, empathy or language.

The foregoing is a very abbreviated account of evolution. Further study would reveal much more detail, but this should be enough for now. With this understanding of inherited traits being the result of natural selection, we can turn to evolutionary psychology.

Concepts of Evolutionary Psychology

Each age has a metaphor for how humans work. In the 17th century it was mechanical: the heart was a pump, the lungs were bellows, the muscles and bones were like pulleys and levers. In the 21st century the metaphor is electronic computing: the brain is a computer, and our minds are composed of mental modules, much like software modules, each of which does a job and interacts with others to get things done. There is some truth to these metaphors. The heart really does pump liquid, and the lungs really do draw in and expel air. Similarly, brain research has discovered which portions of the brain are active when we undertake perceptual tasks such as discriminating colors and shapes or think about a mathematical problem or respond to moral problems and evaluate them emotionally. The convergence of brain research, information theory, cognitive science and behavioral psychology is providing insights into how our minds work. In particular, cognitive science explains how thought and emotion work in terms of information and computation, and evolutionary biology explains the complex design of living things as the product of evolutionary selection. Evolutionary psychology combines the two. It takes the mind to be an organ and provides a theory of how our minds evolved to have the functions that they do.⁸ It does

⁷ Cosmides and Tooby, “Evolutionary Psychology: A Primer”.

⁸ Pinker, *How the Mind Works*, p. 23.

not so much discover facts about human nature as provide a framework within which to understand facts found experimentally by other branches of psychology. It also suggests experimentally-verifiable hypotheses about how the mind works. Many such hypotheses have been corroborated, thus lending credence to the concepts.⁹

Evolutionary psychology speculates on how the various mental modules evolved in response to challenges humans encountered in the environment of evolutionary adaptedness (EEA), the environment in which our ancestors lived for hundreds of thousands of years.¹⁰ Between the invention of writing, agriculture and cities to the present (early twenty-first century A.D.) humans lived about 500 generations. The time before that, the Pleistocene epoch, when proto-humans evolved into the humans we know today, was about 80,000 generations. Although human culture has advanced significantly in the past 500 generations, it is built on mental capacities that are evolutionarily designed for a much different environment.

This ancestral environment varied physically, but much of it was probably open savannah, with rolling hills and occasional forest. People all over the world are drawn to images of that type of landscape regardless of the environment they actually live in.¹¹ More important was the social environment: small bands of humans numbering from 20 up to a maximum of about 150 in which each person had to cooperate with the others to provide sustenance and survival, but also had to compete with others to acquire food, status and sexual mates. It is thought that these early bands of humans were like the hunter-gatherers found today in the remote forests of the Amazon or the jungles of Africa or Indonesia. Today such bands have been pushed to the margins of habitable lands by the advance of industrial society; in the past our ancestors lived, no doubt, in much richer and more lush surroundings. Their lifestyle has been called "a camping trip that lasts a lifetime."¹² The mental abilities we find today in humans all over the world evolved to solve adaptive problems faced by our hunter-gatherer ancestors.

⁹ There are numerous examples of experimental verification. See, for example, Griskevicius et. al., "Blatant Benevolence and Conspicuous Consumption: When Romantic Motives Elicit Costly Signals." Trivers, in "The Evolution of Reciprocal Altruism," cites many instances of experimental evidence for hypotheses arising from evolutionary psychological theory. See Pinker, *How the Mind Works*, p. 505, for elegant anthropological verification of hypotheses regarding reciprocal altruism.

¹⁰ The EEA is not a single place but a statistical composite of the properties of the ancestral environment that exerted selective effects on human ancestors. Tooby and Cosmides, "The Past Explains the Present", p. 386.

¹¹ Dutton, *The Art Instinct*, pp. 14, 19 – 22,

¹² Orians and Heerwagen, "Evolved Responses to Landscapes," p 556.

Cognition

The central premise of evolutionary psychology is that the mind is a system of mental modules – “organs of computation”¹³ – that enabled our ancestors to survive and reproduce in the EEA. Leda Cosmides and John Tooby, pioneers in the field, point out that the single resource most limiting to reproduction is not food or safety or access to mates, but information, the information required for making behavioral choices that lead to survival and reproduction.¹⁴ The mind as we know it today is the result of a long series of successes in processing information.

The mind, embodied in the circuitry of the brain and nervous system, is not a single organ but is composed of many faculties that solve different adaptive problems. An adaptive problem is a cluster of conditions that recurred over evolutionary time and that constituted either an opportunity for or an obstacle to reproduction.¹⁵ For example, the arrival of a potential mate – which happened countless times over the 80,000 generations of evolutionary time – is an opportunity for reproduction. How the mind recognizes and responds to a person of the opposite sex is a function of algorithms embedded in the mind as a result of how successfully our ancestors responded to similar situations. In order to recognize a person of the opposite sex, of course, one must first perceive that person. On a level closer to physical as opposed to social reality, how human visual perception works is in part a function of mental algorithms evolved to respond to the properties of reflected light. (Another part is the structure of the eye itself.) Examples of obstacles to reproduction are such things as the speed of a prey animal, the actions of a sexual rival, etc. In all these cases and many others, the way the human mind processes information is a result of how our ancestors solved such adaptive problems and survived to pass on their abilities to their offspring.

We can view the current state of the mind as the result of a very long process of testing randomly-generated alternative designs for coping with the physical and social environment – each of which embodied different assumptions about the nature of the world – and retaining those that succeeded most effectively; that is, those that reflected most closely the actual structure of the ancestral world.¹⁶

Cognition in this sense is not necessarily or even primarily a conscious process, one available to introspective attention. Conscious, voluntary and deliberative thinking – called “cold cognition” by Cosmides and Tooby, the kind of thinking one does when working out a math problem, for instance – is only one kind. Much more prevalent is the information processing that takes place unreflectively in everyday life, in perceptual judgments, in forming immediate responses to situations, and guiding one’s activities. When a child gauges the intensity of his or her parents’ annoyance or

¹³ Pinker, *How the Mind Works*, p. 21. See also Cosmides and Tooby, “Evolutionary Psychology and the Emotions”, p. 98.

¹⁴ Cosmides and Tooby, “Evolutionary Psychology and the Emotions”, p. 99.

¹⁵ Cosmides and Tooby, “Evolutionary Psychology and the Emotions”, p. 96.

¹⁶ Obviously this view entails a realist ontology, the assumption that there is a real world other than one’s private experience to which human mentality adapts. More interesting is the implied connection between adaptive success and truth. What we depend on, what we assume to be true, is what has worked to help humans survive, thrive and reproduce.

approval, the child is not going through a conscious thought process. Instead the child is using an algorithm or computer-like program that is built in to the mind, a capability or faculty that is already available for use. The mind is not a blank slate, written upon by experience. It is a collection of modules capable of solving specific problems. When a problem for which it is suited arises, the relevant modules are activated and guide one's responses.

On this model, the mind is a set of capabilities for problem-solving and for guiding behavior. The capabilities are a result of the evolution of the human race, but the specific content of how the problems are solved or how the behavior is manifested depends on the circumstances of one's life. For instance, all humans have the capacity for language, but which language or languages one speaks depends on the culture and community in which one is raised. Similarly, all humans have the capacity for moral intuition regarding how one should behave in a social context, but the specific set of moral rules one finds compelling depends on the society in which one lives.

Here is a summary from Cosmides and Tooby:

[T]he human cognitive architecture is *multimodular* ... composed of a large number of information-processing programs, many of which are functionally specialized for solving a different adaptive problem. These adaptations appear to be domain-specific expert systems, equipped with "crib sheets": inference procedures, regulatory rules, motivational priorities, goal-definitions, and assumptions that embody knowledge, regulatory structure, and value weightings specific to an evolved problem domain. These generate correct (or, at least, adaptive) outputs In the last two decades, many cognitive researchers have found evidence for the existence a diverse collection of inference systems, including specializations for reasoning about objects, physical causality, number, language, the biological world, the beliefs and motivations of other individuals, and social interactions¹⁷

¹⁷ Cosmides and Tooby, "Evolutionary Psychology and the Emotions", p. 99.

Emotion

How does this diverse collection of inference systems get coordinated? Domain-specific expert systems such as that for regulation of sleep or that for detection of predators need a context in which to operate. If it is dark and one is tired, one should sleep; but if a predator is nearby one should stay alert in case one needs to flee or fight. (By "should" I mean merely that these are the typical activating conditions for the expert systems.) What causes an individual organism to activate alertness when a predator might be nearby at night? The answer is emotion, in this example the emotion of fear. Cosmides and Tooby assert that emotions are cognitions writ large, superordinate programs that orchestrate the activation of many subordinate programs:

Each emotion entrains various other adaptive programs – deactivating some, activating others, and adjusting the modifiable parameters of still others – so that the whole system operates in a particularly harmonious and efficacious way when the individual is confronting certain kinds of triggering conditions or situations.¹⁸

Pinker says it more succinctly:

The emotions are mechanisms that set the brain's highest-level goals. Once triggered by a propitious moment, an emotion triggers the cascade of subgoals and sub-subgoals that we call thinking and acting.¹⁹

That's not what we usually think of when we think of emotion. We usually think of a felt quality such as fear or anger or elation. Evolutionary psychology says these are indeed aspects of emotion, but not their defining characteristic. What defines an emotion – in fact, what defines any evolved capacity – is its function. And the function of emotion is to coordinate multiple subsystems such that an organism reacts appropriately to a stimulus, where "appropriately" means in a way that caused its ancestors to survive in the presence of similar stimuli.

It is instructive to look at Cosmides and Tooby's specific examples of emotion:

cooperation, sexual attraction, jealousy, aggression, parental love, friendship, romantic love, the aesthetics of landscape preferences, coalitional aggression, incest avoidance, disgust, predator avoidance, kinship and family relations, grief, playfulness, fascination, guilt, depression, feeling triumphant, disgust, sexual jealousy, fear of predators, rage, grief, happiness, joy, sadness, excitement, anxiety, playfulness, homesickness, anger, hunger, being worried, loneliness, predatoriness (an emotion pertaining to hunting), gratitude, fear, boredom, approval, disapproval, shame²⁰

Not all of these are what common usage calls emotion. Some of them – fear, anger, joy, guilt and others – certainly are, in the sense of being felt qualities or states. Others, such as coalitional aggression and predator avoidance, seem like strategies rather than

¹⁸ *Ibid.*, p. 92.

¹⁹ Pinker, *How the Mind Works*, p. 373.

²⁰ Cosmides and Tooby, "Evolutionary Psychology and the Emotions", throughout.

emotions. Many, such as fear of predators, being worried about something, and sexual attraction, are primarily ways of being oriented to an external object, to something or someone other than oneself. Others, such as guilt, shame and pride, are oriented to ourselves as we imagine others feel about us. All of them have in common that they coordinate quite a number of separate subsystems, including

perception; attention; inference; learning; memory; goal choice; motivational priorities; categorization and conceptual frameworks; physiological reactions (such as heart rate, endocrine function, immune function, gamete release); reflexes; behavioral decision rules; motor systems; communication processes; energy level and effort allocation; affective coloration of events and stimuli; recalibration of probability estimates, situation assessments, values, and regulatory variables (e.g., self-esteem, estimations of relative formidability, relative value of alternative goal states, efficacy discount rate); and so on.²¹

That is quite a list. Fortunately for those who like to group things broadly we can classify these subsystems in four general categories, having to do with physiology, behavioral inclinations, cognitive appraisals, and feeling states.²² An emotion is not reducible to any one of them; it includes them all.

Several things are interesting philosophically about this view of emotions:

- One can feel or be under the influence of an emotion without being conscious of it.
- Emotions (in the sense of feeling state) have a cognitive component. All emotion has some element of judgment or interpretation. Emotions are ways we know ourselves and our world.
- All emotions have an intentional structure, in that they are oriented toward something; they have an object. (See the chapter on [Consciousness and Experience](#) for an explanation of this use of the term “intentional”.) The broader emotions, which we call moods, are oriented toward the world in general; specific emotions such as fear are focused on specific real or imagined things or events. Some of the specific emotions – fear and disgust, for example – are about the physical world. Others, such as trust, sympathy, gratitude, guilt, anger and humor, pertain to the social and moral worlds.²³
- All emotion has implications for action and has an effect on our readiness for or actual undertaking of activity or a course of action.

These assertions about emotion can be verified by careful phenomenological observation of one’s own experience. For instance, Pinker says “[N]o sharp line divides thinking from feeling, nor does thinking inevitably precede feeling or vice versa”²⁴ I

²¹ Ibid., p. 93.

²² Idem.

²³ Pinker, “So How Does the Mind Work?”, p. 4.

²⁴ Pinker, *How the Mind Works*, p. 373.

(the author) have corroborated this by examination of my own experience and invite you to do the same. See the chapter on [The Phenomenology of the Self](#).

What is interesting for a consideration of how to live a fulfilling life is that we can be under the influence of an emotion without knowing it. I return to this theme in the section titled "When Intelligence Fails" on page 44.

Intelligence

Human intelligence – and, I assume, the intelligence of other species such as dolphins and whales – consists in the ability to entertain in thought something that is not happening at the moment and consequently to tailor one's behavior to the specific features and nuances of a particular situation. Less intelligent animals have far less flexibility.

If you contrast, for example, the food acquisition practices of a Thompson's gazelle with that of a !Kung San hunter, you will immediately note a marked difference. To the gazelle, what looks to you like relatively undifferentiated grasslands is undoubtedly a rich tapestry of differentiated food patches and cues; nevertheless, the gazelle's decisions are made for it by evolved, neural specializations designed for grass and forage identification and evaluation – adaptations that are universal to the species, and that operate with relative uniformity across the species range. In contrast, the !Kung hunter uses, among many other non-species-typical means and methods, arrows that are tipped with a poison found on only one local species of chrysomelid beetle, toxic only during the larval stage Whatever the neural adaptations that underlie this behavior, they were not designed specifically for beetles and arrows, but exploit these local, contingent facts as part of a computational structure that treats them as instances of a more general class.²⁵

Humans have the ability to improvise their behavior in response to local, contingent facts – facts that might not be true for all humans and in all the environments in which humans find themselves (the “species range”). The capacity of other animals to process information is limited:

To evolve, species-typical behavioral rules must correspond to features of the species' ancestral world that were both globally true (i.e., that held statistically across a preponderance of the species' range) and stably true (i.e. that remained in effect over enough generations that they selected for adaptations in the species). These constraints narrowly limit the kinds of information that such adaptations can be designed to use: the set of properties that had a predictable relationship to features of the species' world that held widely in space and time is a very restricted one.²⁶

Humans, however, can recognize and respond to a far greater set of environmental cues.

In contrast, for situation-specific, appropriately tailored improvisation, the organism only needs information to be applicable or “true” temporarily, locally, or contingently. ... [A] vastly enlarged universe of context-dependent information becomes potentially available to be employed in the successful regulation of behavior. This tremendously enlarged universe of information can be used to fuel the identification of an immensely more varied set of

²⁵ Cosmides and Tooby, “Consider the source,” pp. 53-54.

²⁶ *Ibid.*, p. 54.

advantageous behaviors than other species employ, giving human life its distinctive complexity, variety and relative success.²⁷

In short, humans can plan. Humans, say Tooby and Cosmides, are “intelligent, cultural, conscious, planning animals.”²⁸

By planning, we mean creating cognitive representations of past, present and future states of the world, evaluating alternative courses of action by representing consequences and matching these against goals²⁹

More succinctly, Pinker gives this definition of intelligence:

... the ability to attain goals in the face of obstacles by means of decisions based on rational (truth-obeying) rules.³⁰

Intelligence requires three things:

- A goal or goals to be obtained.
- Knowledge, or true beliefs, about how the world works, beliefs that turn out to be workable in practice. These provide rules of inference that guide thinking.
- The ability to apply the knowledge in flexible ways, depending on circumstances, to reach the goals.

Planning – the application of intelligence – is an evolved adaptation for improvising novel sequences of behavior to reach targeted goals. Human intelligence widens the range of environments in which we can survive and reproduce.

Scope

Planning involves imagining different scenarios and, importantly, the ability to distinguish imagined, remembered and anticipated scenarios from what is actually happening in the present situation. Cosmides and Tooby call this the “scope problem,” how to distinguish facts and valid inferences that are true within a certain imagined scenario from those that are true in other scenarios or in the physical world in the present.³¹ In the language of computation, this means

the capacity to carry out inferential operations on ... suppositions or propositions of conditionally unevaluated truth value, while keeping their computational products isolated from other knowledge stores until the truth or utility of the suppositions is decided, and the outputs are either integrated or discarded. This capacity is essential to planning, interpreting communication, employing the information communication brings, evaluating others' claims,

²⁷ Idem.

²⁸ Tooby and Cosmides, “The Past Explains the Present”, p. 420.

²⁹ Ibid., p. 406.

³⁰ Pinker, *How the Mind Works*, p. 62.

³¹ Cosmides and Tooby, “Consider the source,” pp. 57-58.

mind-reading [the ability to understand others' beliefs, intentions and desires – see "Theory of Mind", below, page 20], pretence, detecting or perpetrating deception, using inference to triangulate information about past or hidden causal relations, and much else that makes the human mind so distinctive.³²

Cosmides and Tooby postulate a capacity they call "scope representation," the ability to identify under what conditions information can be treated as accurate and inferences valid.³³ Because we can represent their scope independently, we do not confuse our considerations of possible strategies, memories of past situations, anticipations of the future, imaginings of possible scenarios and the actual conditions we find ourselves in. Those who do confuse these things we readily identify as aberrant. Schizophrenia can be interpreted as a failure of mental boundaries in which, for example, one experiences one's desire to do something as a command to do it.³⁴

The capacity to represent the scope of one's plans, perceptions and imaginations separately is at the foundation of literature, and story-telling generally. Humans in all cultures love stories. In stories one can mentally rehearse or represent various social situations without having to actually encounter them. One can find out how others – the characters in the stories – handle these situations and hence learn successful and unsuccessful strategies for oneself. As Cosmides and Tooby put it, "individuals are no longer limited by slow and erratic flow of actual experience compared to rapid rate of vicarious, contrived, or imagined experience."³⁵

This ability to decouple various scope representations enables quite a number of human faculties, including the following:

- Theory of mind and prediction of behavior, the ability to guess with some accuracy what another person is thinking or feeling and to anticipate correctly what they will do. Motives, feelings, beliefs and perceptions imputed to the other are decoupled from one's own.³⁶
- Representation of goals. The goal state is decoupled from the present state of affairs.³⁷
- Making plans to accomplish goals. Plans are decoupled from the present.³⁸
- Simulating the physical world. Simulations are decoupled from the actual world.³⁹
- Creating and enjoying fiction. The fictional world is decoupled from the real world.⁴⁰

³² Ibid., pp. 59-60.

³³ Ibid., p. 64.

³⁴ Ibid., p. 80.

³⁵ Ibid., p. 74.

³⁶ Ibid., pp. 74 ff.

³⁷ Ibid., pp. 79 ff.

³⁸ Ibid., pp. 82 ff.

³⁹ Ibid., pp. 85 ff.

⁴⁰ Ibid., pp. 89 ff.

- Remembering episodes of one's own past and maintaining a sense of one's identity through time. Memories are decoupled from one's present experience of the actual world, and personal memories are decoupled from general knowledge gained through other means.⁴¹

Theory of Mind

Of these, Theory of Mind is one of the most interesting, because it entails much that is strikingly human. Humans have been called "ultrasocial"⁴² and "obligatorily gregarious."⁴³ We live in large cooperative societies in which hundreds or thousands of people enjoy the benefits of division of labor. We must have ongoing and extensive contact with our fellows in order to survive and thrive. To succeed at this we must understand our fellow humans as having subjectivity like our own. The term "Theory of Mind" refers to the ability to attribute mental states – beliefs, intentions, desires, pretense, knowledge, etc. – to oneself and others and to understand that others have beliefs, desires and intentions that are different from one's own.⁴⁴

We do this all the time. We see someone striding purposefully and assume they are going somewhere to do something they consider important. We see a smile and assume the person is pleased, or a scowl and assume they are displeased. We see someone cross the street to avoid a barking dog, and we understand that they do so precisely in order to avoid the dog. We assume that the salesperson in the store will sell us the goods we want, and that other people walking on the sidewalk with us will generally stay on the sidewalk. Depending on context, we view the offer of candy as friendly or a threat.

Philosophers may ponder how we can have knowledge of other people's mental states, to which we have no direct access, but in fact we assume such knowledge all the time and life together would be impossible without it. Of course we can be mistaken or deceived, but mistakes and deception would not be possible without familiar assumptions that most often turn out to be correct.

Researchers have found several stages in the development of theory of mind in infants and young children as well as animals.⁴⁵

- If something appears to move on its own, our minds interpret it as an agent.
- If it appears to move toward something, we take that thing to be its goal.
- If it changes direction flexibly in response to what is happening in its environment, we take it to have some degree of rationality or intention (in the sense of intending to accomplish something).

⁴¹ Ibid., pp. 93 ff.

⁴² Haidt, *The Happiness Hypothesis*, pp. 47 ff.

⁴³ de Waal, *Primates and Philosophers*, p. 4.

⁴⁴ Wikipedia, "Theory of Mind."

⁴⁵ Hauser, *Moral Minds*, pp. 313-322. Also Steen, "Theory of Mind".

- If its action is followed closely in time by another object's action, we take the second action to be a socially-contingent response to the first.
- And if something is a goal-directed agent that shows some degree of flexible response, then we know that it can cause harm or comfort to other agents and possibly to ourselves.

These judgments are automatic, a form of hot cognition, not something we stop to think about. They form the basis of our well-developed ability to get along in groups of others like us. We, like all social animals, have the skills to detect who cooperates and who cheats, who is kind and who is dangerous, who is dominant and who is submissive. Humans have these skills to a greater degree and have the ability to fine-tune them with greater precision than other animals. Where chimps and bonobos can understand that individual A knows where some food is hidden and individual B doesn't and consequently expect different behavior from the two,⁴⁶ humans can easily grasp much more complicated scenarios. We quite understand that when Hermia loves Lysander but has been commanded to wed Demetrius; and Demetrius wants Hermia; and Helena, Hermia's friend, wants Demetrius; but a magic potion causes Lysander to fall in love with Helena rather than Hermia, then much hilarious confusion can ensue. No ape could possibly keep up.

Theory of mind forms one of the bases for our sense of morality, a topic to which I return below. See "Sense of Morality", page 29.

⁴⁶ Hauser, *Moral Minds*, pp. 337-341.

Emotional Discharge: The Overlooked Adaptation

Human beings have greater intelligence than other animals and have a self-corrective mechanism that enables us to recover that intelligence when it is interfered with.⁴⁷ What interferes with intelligence is the activation of certain painful emotions, emotions that put into place (or are the felt component of) strategies for coping with situations that threaten the survival or well-being of the individual. Chief among these emotions are the following:

- Grief or sadness, typically activated by separation from others of our kind or the loss of or injury to someone close to us.
- Fear, typically activated by the presence, real or imagined, of a threat.
- Embarrassment, typically activated by the possibility of disapproval by other people because one has violated a social norm. Embarrassment is a kind of fear, fear of social condemnation.
- Anger, typically activated by interference with one's attempt to accomplish a goal.
- Boredom, activated by lack of sufficient environmental stimulus to fruitfully occupy one's intelligence.

We can speculate about the evolutionary origins of these emotional strategies. Fear can inhibit movement or induce an urge to flee; and no doubt our ancestors who became immobile when a predator was nearby or who ran away, and thereby avoided being detected and eaten, lived to have offspring with a similar strategy. Anger usually entails forceful exertion and vigorous movement; and no doubt such exertion overcame obstacles or fought off predators and rivals, enabling our ancestors to acquire food and sexual mates in adverse conditions. Embarrassment, a form of fear, entails inhibition of talking and further embarrassing behavior. Those who avoided group disapproval garnered the benefits of living in a group – it is easier to acquire food, shelter and a mate in a group than to do so alone – and lived to pass that kind of behavior on to their offspring.

These strategies all have a similar effect on one's intelligence. When they arise they produce mental "noise" that prevents or at least diminishes one's ability to plan, to consider alternatives to what is currently happening and envision and choose a workable course of action to bring about envisioned goals. It is as if the organism is too preoccupied with instinctive responses to the triggering situation to be able to think clearly. Afterwards, if not healed, the diminishment of intelligence remains.

Evolution has provided us with ways to heal the painful emotion and recover our intelligence. (The proto-humans long ago who were able to heal in this way and recover and augment their intelligence had more offspring than those who did not.)

⁴⁷ Information in this section comes from the Re-evaluation Counseling Communities. You can find out about Re-evaluation Counseling by contacting its headquarters at 719 Second Avenue North, Seattle, WA 98109, USA, or visiting its website, <http://www.rc.org/>.

The healing mechanisms involve physical release or discharge of the tension provoked by the triggering situation and one's emotional response to it. Chief among these healing discharges are the following.⁴⁸

- Grief or sadness is healed by crying, by tears and sobbing.
- Fear is healed by shaking and trembling, chattering of teeth and cold perspiration. After sufficient shaking, the remainder of the fear is healed by intense laughter.
- Embarrassment, a less intense form of fear, is healed by laughter.
- Anger is healed by vigorous and abrupt movements and loud noises accompanied by warm perspiration. This is called "throwing a tantrum" or "blowing one's top."
- Boredom is healed by non-repetitive talking and laughter.

If not interfered with, these discharges take place during the triggering situation or as soon as is feasible after it is over. In many current cultures, however, some or all of these discharges are interfered with. Boys are told it is unmanly to cry. Girls are told it is unladylike to get angry. The more warlike or militant the culture, the more trembling and shaking are discouraged. People who interfere often mean well. They want to help the sad or fearful or angry person feel better, but mistakenly think the discharge is the hurt rather than the healing of the hurt.

In our culture [late twentieth-century USA], tears are usually taken to mean grief. Trembling is taken to mean terror. Angry shouting is taken to mean anger. Therefore, it is thought that to shut off these discharges is to free a person from the emotion. "If you can stop them from crying, they won't feel bad . . ." This is fundamentally backward.

The profound process of discharge of which tears are the outward indication is the getting over of grief. Tears indicate freeing oneself from grief. Crying never occurs unless a person needs to do it. In the same way, trembling and cold perspiration indicate the release of terror. Laughter accompanies becoming unafraid or un-irritated. Shouting and violent movement accompany becoming un-furious.⁴⁹

If not rectified by emotional discharge, the effects of the painful emotion last after the triggering situation is over, causing a long-term impairment of intelligence. When a situation arises that reminds one of the triggering situation, one responds as one did in the original situation, whether or not that is an appropriate or workable response to the current situation. This phenomenon is easy to observe once you know what to look for. Here are some examples:

⁴⁸ Re-evaluation Counseling Communities, *Fundamentals of Co-Counseling Manual*, pp. 3-7.

⁴⁹ *Ibid.*, p 3.

- A person who was once frightened by a dog and was not permitted to discharge the fear is uneasy around any dog, whether or not it is acting menacingly.
- A boy who was not permitted to cry when someone acted meanly to him grows up to be a man who is emotionally distant, unable to express his feelings and hence unable to enjoy deep intimacy with another person. (Compounding the inhibition of grief is the residue of fear brought on by having been forced not to show the tears and, most likely, not to show any outward manifestation of fear either.)
- A girl who was not permitted to be outwardly angry acts nice, accommodating and polite, but at times is cutting and brutal with words or unable to assert herself clearly and directly. She may undermine and undercut other women.
- Children who are bored in school because the instruction modality does not suit their learning style, and who are not permitted to heal the boredom by talking and laughing, grow up to be less inquisitive than they would otherwise be.

The phenomenon of reacting to a current situation as one did to an earlier, painful situation – reacting as if the current situation were the same as the earlier situation – is called “restimulation.” The current situation reminds one of the earlier situation, the painful effects of which were not discharged. In the present, one is unable to think clearly and reacts as one did in the earlier situation. One acts, as it were, mechanically instead of organically. In this case one is said to be restimulated, rather than merely being reminded. The technical term for such a repetitive and inflexible response to a situation in which one is restimulated is “distress pattern.” This term is derived from the general word “pattern,” which means repeated regularity, such as a decorative design or a model to be followed in making things, like a pattern for clothing or other artifacts. A distress pattern is a model that guides one’s responses to restimulating situations, but does so repetitively and inflexibly.

Discharge has a threefold effect: cognitive, behavioral and emotional. Cognitively, one is freed from rigid ways of thinking and interpreting the world. One re-evaluates one’s beliefs (hence the name of the organized movement that embraces this practice) and comes to a clearer understanding of oneself, the world and the past and current situations. Behaviorally, one acts with greater flexibility and effectiveness in the present and is freed from rigid, distressed patterns of behavior. More and more, one is able to decide to act differently from the old, suboptimal patterns and acts creatively instead of repetitively. Emotionally, one is freed from painful emotion and enjoys a happier, more zestful feeling tone.

We do not know what happens neurologically before, during and after the discharge process because the needed research has not been done. Nor do we know precisely what happens in the brain when discharge is inhibited and the person is left vulnerable to restimulation. It is as if information were stored in an unusable fashion, as a recording of the entire painful situation as a whole, rather than usefully, as discrete bits of data that can be rearranged and thought about separately. A synonym for “distress pattern” is “distress recording,” to reflect this theory about how

information is recorded during an emotionally painful situation.⁵⁰ What we do know is that emotional discharge can heal the emotional pain and relieve the person of distress patterns even long after the original painful incident took place. One can recover one's intelligence and become less vulnerable to restimulation through the process of emotional discharge.

It is beyond the scope of this paper to go into the techniques of encouraging emotional discharge, but the fundamental process is easy: take turns listening. Discharge tends to occur spontaneously when one is in the presence of a sympathetic listener who pays attention as one remembers and talks about distressing experiences. What makes it difficult for a person to listen well is that they get restimulated by the story they are listening to or are too caught up in their own distress to listen in the first place. To alleviate that restimulation and distress, they need to be listened to as well. By taking turns listening, any two people can assist each other to discharge distress and recover intelligence.

I call this the overlooked adaptation because it is not widely known and practiced in current technologically-advanced cultures. That is unfortunate, as we need all the intelligence we can muster to solve the pressing problems of the day. The cause seems to be a matter of human culture changing more rapidly than human physiology. Certainly the physiological responses are still intact; folklore and common sense know the value of, for instance, a good cry to make one feel better or a good laugh to relieve social tension. It is possible that the systematic inhibition of emotional discharge is a factor in the development of societies in which some classes of people gain advantage at the expense of others. Dominance hierarchies are a feature of quite a number of species, and humans are no exception. What is unique about human dominance hierarchies is the greater extent and sophistication of the mechanisms by which classes of individuals maintain and enhance their status and material advantage. Inhibition of discharge reduces the flexible intelligence that subordinates might use to criticize or even change the social structure and thereby enhance their material well-being. They become docile and resigned to their position. What is doubly unfortunate is that even those at the top of the hierarchy suffer from reduced intelligence, although their distress patterns differ from the distress patterns of those farther down. The rigidity of the class structure prevents those in dominant positions from, for instance, having close emotional contact with others, especially those of other classes, and instills quite a bit of fear. It may well be that for overall well-being they would be better off with more closeness and less dominance.

A byproduct of the relative ignorance of the function of emotional discharge is the lack of rigorous research on the topic. If this is the case, then how do we know that this account is correct? We know because thousands, perhaps millions, of people have used the techniques of mutual listening and encouragement of discharge to recover their intelligence and have found out what works and what doesn't in this effort. It is analogous to a scientific experiment writ large. The hypothesis is that emotional discharge enhances one's ability to think creatively and flexibly and that failure to discharge the tension arising from distressing situations inhibits that ability. The prediction is that in specific cases after people discharge they will tend to act more rationally. The test is to engage both as listener (counselor) and one listened to (client)

⁵⁰ Re-evaluation Counseling Communities, *The Basics of RC*.

and to elicit such discharge. So far the results have been overwhelmingly in support of the hypothesis. People do in fact regain intelligence, get restimulated less often and increasingly make their lives better. The knowledge gained is both observational and first-person. One sees changes in behavior in other people, sometime quite dramatic changes, after they discharge. And one finds oneself increasingly able to think more clearly and make better choices.

Traits of Undistressed Humans

The theory of how this works includes some remarkable assertions about human nature: that we are all connected, which is probably not controversial, but also that we are inherently capable of being far more intelligent, loving, powerful and enthusiastic about life than most of us imagine.

The evidence for these assertions is not from observing all humans and drawing inferences, or at least not entirely, because all humans are damaged, some more than others. By "damaged" I mean that our intelligence has been impaired as explained above. It is as if all the people we knew had broken ankles and were unable to run. We would then conclude that humans were bad at running, but in fact undamaged humans are good at running. To see these facets of human nature clearly we need to look at undamaged humans. Unfortunately, there aren't any undamaged adults, but we have some clues: (1) Babies are, by and large, undamaged, so we can get a glimpse of human nature by looking at them. (2) An increasing number of people are recovering from their damage through the process of discharge, reevaluation and decision. We can get an idea of human nature by looking at them, particularly at the ones who have carried out the process the farthest.

Let's look in detail about each of these claims about human nature.

Fundamental to all humans, damaged or not, is that we are all *connected* to each other and to the world in which we live. We are connected in the following ways:

- We are part of nature, the universe. Biologically we are embedded in the natural world and could not live or function without it.
- We are social animals. We are descended from a long line of highly social ancestors and have always been interdependent and bonded. Zoologists would classify the human species as obligatorily gregarious.⁵¹ Consider also the following:
 - We share language and can understand each other. Language in isolation is inconceivable; the essence of language is to communicate with others.
 - Without other people, human babies would not be able to survive.
 - Solitary confinement is the harshest penalty we can inflict short of death.

⁵¹ De Waal, *Primates and Philosophers*, p. 4.

- We have the capability or capacity to imagine another's point of view, to experience things as they do, and it is fulfilling to do so. (See "Theory of Mind," above, page 20.)

Beyond the fundamental connectedness of all humans are characteristics of undistressed humans, characteristics that any clear-thinking person would want to emulate.

First and foremost, we have the capacity to be *intelligent*. We are the most intelligent beings we know of. We have the ability to think rapidly and accurately and to come up with an appropriate response to every situation, a response that achieves our goals in the face of changing circumstances. At the lowest level such intelligence is instinctual. We blink our eyes without thinking when an insect flies near our face, and thereby preserve our ability to see. At higher levels it is learned and habitual. Adults can walk over uneven terrain and navigate around obstacles to get where they are going without giving much conscious thought to the process, having learned the skill as small children. At the highest level it is conscious and deliberate. Faced with a difficult ascent, a rock climber carefully considers different possible routes before trying them out. That is the aspect of intelligence that humans have to a greater degree than any other species, so far as we know. Part of our intelligence consists in our ability to know, to detect and understand, the universe surrounding us to whatever level of precision we need or desire.

Second, we have the capacity to be *loving and cooperative*. Humans are social beings; as babies we would die in isolation, and as children and adults we thrive in the company of others like us. We are inherently connected with other people. Our natural way of feeling about those close to us is love, and our natural way of interacting with those close to us is to cooperate to accomplish our chosen goals.

Third, we have, potentially, great *personal power* and the ability to decide at any moment how to approach life and what actions to take. By "power" I mean simply the ability to get things done, to accomplish what we have decided to do. We can say to life's challenges "I can" and "I will," and the more we discharge away our distress patterns the more we do exactly that.

Fourth, we can be *enthusiastic and zestful* about life. When we are free of distress we feel vibrantly alive and take great delight in enjoying and mastering our environment.

These things may not seem obviously true. Many of us do not act this way, and the reason we don't is that we suffer from distress patterns. Emotional hurts that have not been healed impair our ability to think clearly, love and cooperate with each other, act powerfully, and enjoy life.

I want to be intellectually precise here. Although Re-evaluation Counseling, from which the foregoing assertions are taken, says that people *are inherently or naturally* this way, that humans have a "basic loving, cooperative, intelligent, and zestful nature"⁵², I am claiming merely that humans undeniably *have the capacity* to be that way. Purely descriptively, the assertion that humans are inherently loving and

⁵² Re-evaluation Counseling Communities, "About Re-evaluation Counseling."

cooperative is only a partial truth. We certainly are that way, particularly with people in our family, clan, tribe or in-group; but we are also inherently aggressive, brutal and competitive, especially toward those not in our group. Both behaviors have been and are found throughout humanity, and to assert the former without the latter is to disguise a recommendation or prescription as a declarative fact. That said, it is certainly more useful to remind oneself of the possibility of the former than to dwell on the latter. And it is undeniable that we are far more capable of being loving, cooperative, zestful, powerful and intelligent than most of us have realized.

Humans are Good

On a related note, Re-evaluation Counseling claims that humans are inherently good. The claim as stated is meaningless, as nothing is inherently good; things are only good *for* something or someone or good *at* something. The only goodness is instrumental. But the claim is heuristically useful, and there are a number of ways in which humans are in fact fundamentally good instrumentally.

The heuristic value of the claim is obvious. Telling someone they are good is useful as a contradiction of emotionally distressing messages that they were bad as children – that they were naughty or did not live up to parental expectations or did not do what adult authorities wanted them to do – or are bad as adults, that they deserve disapproval. In this sense “good” means “worthy of approval by others” and “bad” means “deserving of disapproval by others.” It is very useful to tell someone they are good in this sense because it often facilitates emotional discharge and results in that person being released, wholly or partially, from harmful patterns of thought, feeling and behavior. And it is more useful for each of us to think of ourselves as good than as bad because doing so leads to better results, better functioning. Such good results do not in themselves prove that the claim is true, but strongly suggest that it may be true, in that true claims are more likely to be useful than falsehoods.

But the fundamental question is, what are humans good for? And is there a way that all humans are good for something such that it makes sense to say that they are good without qualification?

That, of course, is the question this whole work is attempting to answer. At this point we can say that it is clear that human beings are valuable to themselves and other human beings. We possess the most complicated intelligence and the greatest capacity for mastery of the environment of any organism we know of. The only thing sufficiently complex to engage the human intelligence for a long period of time is another human intelligence. It is good for us to engage each other in that it exercises our facilities for understanding and mutual delight. We are good in that we have the ability to be good for each other.

Sense of Morality

All humans have a sense of morality. The details of what conduct is prohibited, allowed and required by the moral code vary from culture to culture, but all cultures have sets of rules, whether stated explicitly or not, that specify how people in that culture are to act. And people in every culture – which is to say all people, as we never find humans in isolation – have internalized the moral code of their culture and have what is commonly called a conscience, a sense of right and wrong. We can approach understanding this sense in three ways:

- By comparison with our genetic siblings, the great apes, and with other animals. See the sections on “Humans as Primates,” above, page 2, and “Analogues in Other Species,” below, page 35.
- By research into how people actually make moral decisions.
- By speculation about how what we find by the first two methods must have evolved, and for what purpose or function (in a biological, not an intentional sense). This is the approach of evolutionary psychology.

Morality differs from social convention, and moral judgments differ from other kinds of evaluative judgments.⁵³ Consider the following:

- “Murder is wrong” – a moral judgment
- “Brussels sprouts taste terrible” – a personal aesthetic judgment
- “Bell-bottom pants are old-fashioned” – a social aesthetic judgment
- “You should not scratch a poison ivy rash” – advice, a judgment of prudence

The moral judgment has specific cognitive, behavioral and emotional characteristics. Cognitively, the rules it evokes are taken to apply without exception. Prohibitions against rape and murder are believed to be universal and objective, not matters of local custom; and people who violate the rules are deemed to deserve punishment. Behaviorally, we do in fact punish moral offenders and praise those who obey the law in ways that do not apply to, for instance, people who merely wear unstylish clothes. Emotionally, when our sense of morality is triggered we feel a glow of righteousness when we abide by the rules, guilt when we don’t, a sense of anger or resentment at those who violate the rules, and a desire to recruit others to allegiance to the rules.⁵⁴

Moral Intuition

Moral judgments in many, if not most, cases are not the result of conscious deliberation (cold cognition). Instead they are intuitions, snap judgments made instantly and automatically. People rely on gut reactions to tell right from wrong and

⁵³ Pinker, “The Moral Instinct.”

⁵⁴ Idem.

then employ reason afterwards to justify their intuitions. Intuitions are “the judgments, solutions, and ideas that pop into consciousness without our being aware of the mental processes that led to them.”⁵⁵ Moral intuitions are a subset: “feelings of approval or disapproval pop into awareness as we see or hear about something someone did, or as we consider choices for ourselves.”⁵⁶

[T]he adult mind is full of moral intuitions, which are like little bits of input-output programming connecting the perception of a pattern in the social world (often a virtue or vice) to an evaluation and in many cases a specific moral emotion (e.g., anger, contempt, admiration). When people think, gossip, and argue about moral issues, the playing field is not affectively flat and open to any kind of reason; it is more like a minefield or pinball machine where flash after flash of affectively-laden intuition bounces around one’s attention and pushes one toward specific conclusions.⁵⁷

This behavior is not unique to morality. Our minds do most of their work by automatic pattern matching. We do not pay attention, for instance, to how our visual systems translate excitation of receptor cells on the back of the eyes to recognition of objects and people; instead we just recognize things. Similarly, most of our social cognition occurs rapidly and automatically. We very rapidly appraise people we meet as attractive or not, friendly or threatening, male or female, higher or lower in status than we are, etc.⁵⁸ Moral intuitions are a form of social cognition. Human beings “come equipped with an intuitive ethics, an innate preparedness to feel flashes of approval or disapproval toward certain patterns of events involving other human beings.”⁵⁹

There are a number of widely-replicated experiments that demonstrate this. One is the so-called “trolley problem.”⁶⁰ Imagine that you are on a trolley traveling at high speed toward a switch in the track. On the main track are five people who cannot get off because the banks on each side are very steep. They will die if the trolley hits them. On the side track is one person who also cannot get off the track. The engineer has passed out and has no control of the trolley, but you do. By remote control, you can throw the switch. Should you throw it and shunt the trolley to the side track, thereby saving five at the expense of one?

Now imagine that you are standing on a bridge above the track. Again, five people will die if the trolley continues. This time the only way to stop the trolley would be to throw a massive object onto the track. But the only massive object available is a very large man standing next to you. Should you throw him onto the track, thereby saving five at the expense of one? (Ignore, for the moment, the small chance that the mass of the man would actually stop the trolley, or that you would have sufficient strength to throw him down.)

Stop for a moment and consider your responses. Why did you respond as you did?

⁵⁵ Haidt and Joseph, “Intuitive ethics,” p. 56. Note that “consciousness” here means a container. See my chapter on [Consciousness and Experience](#).

⁵⁶ Idem.

⁵⁷ Haidt and Joseph, “The Moral Mind,” p. 14.

⁵⁸ Haidt and Joseph, “Intuitive ethics,” p 57.

⁵⁹ Ibid, p 56.

⁶⁰ Hauser, *Moral Minds*, pp. 112 – 121. See also Pinker, “The Moral Instinct.”

Most people say Yes in the first case and No in the second even though the consequences are the same, sacrificing one life to save five. Evidently calculation of consequences is not the deciding factor. And most people have trouble coming up with a reason for their choice. This thought experiment has been administered to over 200,000 people from 100 countries. "A difference between the acceptability of switch-pulling and man-heaving, and an inability to justify the choice, was found in respondents from Europe, Asia and North and South America; among men and women, blacks and whites, teenagers and octogenarians, Hindus, Muslims, Buddhists, Christians, Jews and atheists; people with elementary-school educations and people with Ph.D.'s."⁶¹

The key point here is "inability to justify the choice." People make the choice first and think of reasons later, if at all. This suggests that people have a moral instinct that prompts us to make snap judgments regarding, in this case, prevention of harm to others.

Here is another example.⁶² (Bear with me for a moment until we get to the moral implications.) Imagine a set of cards, each with a letter on one side and a number on the other. You are asked to test whether the following rule is true: "If a card has a D on one side, it has a 3 on the other." You are shown four cards:

D	F	3	7
---	---	---	---

Which cards should you turn over to see whether the rule is true? Most people have trouble with this.⁶³

Now imagine you are a bouncer in a bar and you have to enforce the rule that a person must be eighteen or older to drink beer. You can check what people are drinking and you can check how old they are. Which of the following do you have to check: a beer drinker, a coke drinker, a twenty-five-year-old, a sixteen-year-old? Most people get this one right away. You have to check the age of the beer drinker and you have to check what the sixteen-year-old is drinking.

But logically these are the same problem! Beer-drinking implies being old enough, just as D implies 3. Being too young implies not drinking beer, just as 7 implies that the letter is not a D. Why is the first one hard and the second one easy?

What's different about the second one is that it is set in a social context in which cheating is a possibility, and you are asked to find the cheaters. The experiment has been replicated numerous times. When the rule to be tested is a contract, an exchange of benefits, then finding that the rule is false is equivalent to detecting a cheater, one

⁶¹ Pinker, "The Moral Instinct."

⁶² Pinker, *How The Mind Works*, pp. 336-337. See also Wikipedia, "Wason selection task."

⁶³ The correct answer is D and 7. Turn over the D to see if it has something other than 3 on the back, and turn over the 7 to see if it has a D. The 3 is irrelevant, because the rule does not say that only Ds have a 3 on the other side.

who takes a benefit without paying the cost. When the rule does not involve a contract – for instance when the rule is “If a person eats hot chili peppers, then he or she drinks cold beer” – it is just as hard to solve as the card puzzle.

This suggests, if not demonstrates, that humans have an inbuilt cheater-detection mechanism which sometimes overlaps with logic, but is not the same. It is not extensible, as logic is, but is confined to the realm of social exchange. Using that mechanism we make snap judgments in the area of fairness and reciprocity.

There are many more experiments and empirical findings that indicate that humans make moral judgments rapidly without deliberative thought, that we have instincts for morals, a moral sense that seems to be built in. And it is not merely a matter of social convention. If it were we would expect that different societies might provide different answers to the trolley problem, but they don't. The sense of morals shows up at an early age. Four-year-olds say that it is not OK to wear pajamas to school (a convention) and also not OK to hit a little girl for no reason (a moral principle). But when asked whether these actions would be OK if the teacher allowed them, most of the children say that wearing pajamas would now be fine but that hitting a little girl still would not be.⁶⁴

Five Moral Domains

Caring and prevention of harm is one area of instinctive moral judgment. Fairness and reciprocity is another. Social psychologist Jonathan Haidt has found that there are at least three more: loyalty to one's in-group, respect for authority, and concern for purity and sanctity.⁶⁵ These five domains are areas in which people have moral intuitions. Each is found in human populations throughout the world, although to different degrees in different cultures, and each has a plausible evolutionary explanation of how it came to be. The following table lists them and their characteristics.⁶⁶

	Harm / Care	Fairness / Reciprocity	In-group / Loyalty	Authority / Respect	Purity / Sanctity
Description	The impulse to care for people who are needy, vulnerable or less fortunate.	The concern for justice and equality before the law. Concern for fairness in interactions of exchange.	The feeling of loyalty to one's group and hostility or indifference to other groups.	The impulse to show respect to persons of higher rank and to treat subordinates protectively.	The impulse to avoid contact with things or people one views as unclean or impure.

⁶⁴ Pinker, “The Moral Instinct.”

⁶⁵ Haidt and Joseph, “The Moral Mind.” See also Haidt and Joseph, “Intuitive ethics”; Haidt and Graham, “When Morality Opposes Justice”; and Haidt and Graham, “Planet of the Durkheimians.”

⁶⁶ Haidt and Joseph, “The Moral Mind,” p. 31.

	Harm / Care	Fairness / Reciprocity	In-group / Loyalty	Authority / Respect	Purity / Sanctity
Adaptive Challenge	Protect and care for young, vulnerable or injured kin.	Reap benefits of dyadic cooperation with non-kin.	Reap benefits of group cooperation.	Negotiate hierarchy, defer selectively.	Avoid illness from microbes and parasites.
Proper Domain (adaptive triggers)	Suffering, distress or threat to one's kin	Cheating, cooperation, deception	Threat or challenge to the group	Signs of dominance and submission	Waste products, diseased people
Examples of Actual Domain (the set of all triggers)	Baby seals, cartoon characters	Marital fidelity, broken vending machines	Sports teams one roots for	Bosses, respected professionals	Taboo ideas such as communism or racism
Characteristic Emotions	Compassion	Anger, gratitude, guilt	Group pride, belongingness, rage at traitors	Respect, fear	Disgust
Relevant virtues [and vices]	Caring, kindness [cruelty]	Fairness, justice, honesty, trustworthiness [dishonesty]	Loyalty, patriotism, self-sacrifice [treason, cowardice]	Obedience, deference [disobedience, disrespect]	Temperance, chastity, piety, cleanliness [lust, intemperance]

The way to read this is down the column for each domain.

Caring and the Prevention of Harm

Why do people have a sense of compassion? Because our ancestors, like all mammals, needed to care for vulnerable young or kin, and those who developed an instinct for doing so had more offspring than those who didn't. The proper domain – meaning the range of stimuli that the intuition evolved to detect – is suffering, present or foreseen, of one's kin. The actual domain – meaning the range of stimuli that in fact actuate the intuition in the present – includes lots of things that are not intrinsic to the proper domain. If we see suffering by or harm to any child-like entity, we are triggered; a good example is pictures of baby seals being clubbed by large men. The emotion triggered by the stimulus is compassion, and we instill compassion in our young people by exemplary stories of people who are caring and kind.⁶⁷

Fairness and Reciprocity

Fairness and reciprocity have to do with exchanges with others. We have evolved to reap the gains of reciprocal altruism with people who are not our kin or may be only distantly related. In order to be successful at this, our ancestors had to develop a finely-tuned intuitive sense of when someone was cheating, getting a benefit without giving something in return. Today that sense can be triggered by a vending machine

⁶⁷ Ibid. pp. 16-17.

that takes our money without dispensing the goods. We feel angry when we are cheated, grateful when we get a fair exchange, and guilty when we are caught cheating. We instill virtues such as fairness, honesty and trustworthiness and we condemn vices such as dishonesty.⁶⁸

Loyalty to the In-group

Humans aggregate into tribes, gangs and teams that compete. We evolved as members of such small groups, and are keenly attentive to threats or challenges to the group. Our ultra-sociality is a reason for our success as a species. "Mutual dependence is key. Human societies are support systems within which weakness does not automatically spell death."⁶⁹ Hence, "Evolution has equipped us with genuinely cooperative impulses and inhibitions against acts that might harm the group on which we depend."⁷⁰ Originally adapted for small groups of hunter-gatherers, the sense of in-group loyalty is now triggered by other things like sports teams. We feel proud to be a member of our group and are enraged by traitors. We admire and expound virtues such as loyalty and self-sacrifice and are morally offended by treason and cowardice, which undermine the group.⁷¹

Authority and Respect

Humans, like other primates and many other species, live within dominance hierarchies. The hierarchy may be based on brute force or something more rational, like demonstrated competence at a task. The art of politics is all about negotiation within such hierarchies, and we have evolved emotions of respect and fear – and, from the point of view of the superiors, something like parental benevolence – to guide us. In the environment of evolutionary adaptedness such emotional reactions were triggered by displays of dominance and submission. In the present, the signs of dominance are more subtle, and we pay deference to authorities and professionals – think of the doctor in his white coat – who have no real ability to compel our behavior. The relevant virtues of the subordinate are obedience and deference, but superiors are expected to exhibit virtues as well, virtues of impartiality, magnanimity and parent-like concern.⁷²

Purity and Sanctity

Unlike the others, whose adaptive challenge was social, the concern for purity arose because of our ancestors' omnivorous food strategy. We can eat just about anything, and we live in groups or tribes that are larger than those of other primates. That means we risk being exposed to disease-causing organisms that spread by physical contact. "Humans (but no other animals) therefore developed a suite of cognitive and emotional adaptations related to disgust that makes us wary but flexible about the kinds of things we eat, and about the contact histories of the things we eat."⁷³ Originally directed at putrid meat, waste products and diseased people, the emotion of disgust that we direct at what is perceived as unclean now gets attached to doctrines and social groups that

⁶⁸ Ibid. p. 17.

⁶⁹ de Waal, *Our Inner Ape*, p. 187.

⁷⁰ Ibid., p. 191

⁷¹ Haidt and Joseph, "The Moral Mind," pp. 17-18.

⁷² Ibid., p. 18.

⁷³ Idem.

seem to threaten our in-group. Some of the most maladapted behavior is seen in the confluence of In-group and Purity intuitions that lead to violence and oppression toward those not in the group, such as ethnic cleansing, segregation and apartheid. The drive toward purity has gotten attached to religious doctrine, and may explain ideas about “keeping religious objects set apart from pollutants and profane objects, and about overcoming carnal desires and treating the body as a temple.”⁷⁴ Purity-related virtues are chastity, self-restraint and cleanliness. Corresponding vices include lust and intemperance.

Analogues in Other Species

Precursors to these moral instincts are found in our primate relatives as well as in other animals. Frans de Waal puts it nicely:

[S]urvival often depends on how animals fare within their group, both in a cooperative sense (e.g., concerted action, information transfer) and in a competitive sense (e.g., dominance strategies, deception). It is in the *social* domain, therefore, that one expects the highest cognitive achievements. Selection must have favored mechanisms to evaluate the emotional states of others and quickly respond to them.⁷⁵

Concern for harm and care is evidenced in numerous examples of ape empathy and targeted helping. A mother chimp helps her whimpering youngster climb from one tree to another by draping herself between them.⁷⁶ A youngster puts his arms around an adult male chimp who has been bested in combat to console him.⁷⁷ An adult bonobo screams and pounds on a window to attract the attention of a human who is about to let water into a moat where juveniles are playing. Bonobos cannot swim, so this action is obviously a warning.⁷⁸

Alertness to fairness and reciprocity is found not only in apes but in less complex animals as well. When experimenters gave chimpanzees and capuchin monkeys differential rewards – a grape (valued highly) or a cucumber (valued less) – for the same effort, the one who got the cucumber was sometimes so angry that she threw it away. “Overall, both species were less likely to engage in an exchange or accept the reward when their partner got the better deal.”⁷⁹ Chimps have a sense of gratitude; they are more likely to share food with individuals who have groomed them earlier.⁸⁰ This sense of inequity is the evolutionary precursor to the full-blown human sense of fairness.

Authority and respect are hallmarks of the dominance hierarchies found in all but the simplest of animal societies. de Waal devotes a whole book, *Chimpanzee Politics*, to the strategies chimps employ to gain rank in their very hierarchical communities.

⁷⁴ Idem.

⁷⁵ de Waal, *Primates and Philosophers*, p. 27.

⁷⁶ Ibid. p. 25.

⁷⁷ Ibid. pp. 33-25.

⁷⁸ Ibid. p. 71.

⁷⁹ Hauser, *Moral Minds*, p. 395. de Waal, *Primates and Philosophers*, pp. 44-49.

⁸⁰ de Waal, *Primates and Philosophers*, p. 43.

In-group loyalty is found in numerous species; animals direct helping behavior toward members of the group and hostility to outsiders. de Waal calls this "community concern." It is shown when individuals encourage former combatants to reconcile after a fight, or a high-ranking male breaks up a fight.⁸¹ He notes that "the most potent force to bring out a sense of community is enmity toward outsiders."⁸² Chimpanzees are a notorious example. Within the group there is violence in the service of establishing dominance in the social hierarchy, but the degree of violence shown toward outsiders is far greater, more targeted and coordinated. Bands of males patrol the borders of the group's territory and attack and murder males of other groups.⁸³ One community in Gombe, Africa, grew large and split over the years into two groups, a southern and a northern community. "These chimpanzees had played and groomed together, reconciled after squabbles, shared meat and lived in harmony. But the factions began to fight nonetheless. Shocked researchers watched as former friends now drank each other's blood."⁸⁴ Says de Waal:

... the profound irony is that our noblest achievement – morality – has evolutionary ties to our basest behavior – warfare. The sense of community required by the former was provided by the latter. When we passed the tipping point between conflicting individual interests and shared interests, we ratcheted up the social pressure to make sure everyone contributed to the common good.⁸⁵

These examples indicate that the roots of human morality are found in the social instincts we share with other animals. Morality, says de Waal, is "neither unique to us nor a conscious decision taken at a specific point in time; it is the product of social evolution."⁸⁶

How the Mind Works Morally

These five domains of moral intuition are innate, meaning "organized in advance of experience."⁸⁷ Children do not have to learn from scratch all the rules of caring for others, being fair, being loyal, being respectful and being pure. They have in-built mental mechanisms that allow them to learn the ways their culture activates the pre-existing moral inclinations. There is some debate about whether the mind is composed of many little modules or a few big ones or something in between. By "module" evolutionary psychologists mean a computational mechanism that is "innate, fast, informationally encapsulated, [and] functionally specialized."⁸⁸ Is the mind a Swiss-army knife of many little mechanisms? Are there only a few such mechanisms, having to do with sense perception and language acquisition? Perhaps what is innate is the capacity to learn how to deal with things found in the ancestral environment, including the social world that engenders moral sentiments and judgments; and the

⁸¹ de Waal, *Primates and Philosophers*, p. 54.

⁸² *Idem.*

⁸³ de Waal, *Our Inner Ape*, pp. 132-135.

⁸⁴ *Ibid.* p. 135.

⁸⁵ de Waal, *Primates and Philosophers*, p. 55.

⁸⁶ de Waal, *Primates and Philosophers*, p. 6.

⁸⁷ Haidt and Joseph, "The Moral Mind," p. 1.

⁸⁸ *Ibid.*, p. 11.

specifics of what is learned vary from culture to culture. Haidt and Joseph think the latter hypothesis is most plausible. “[F]or example, if there is an innate learning module for fairness, it generates a host of culture-specific unfairness-detection modules, such as a ‘cutting-in-line detector’ in cultures where people queue up, but not in cultures where they don’t”⁸⁹ For the purposes of this chapter it does not matter. What does matter is that we now have an explanation for why people have a moral sense: because our ancestors faced specific adaptive problems in the social realm and, over thousands of generations, evolved mental mechanisms to handle them.

Philosophical Implications

That explanation is descriptive, not prescriptive. It tells us where the moral sense comes from, but not what to do in any given situation nor what kind of person to try to become. We certainly have moral intuitions, but we still have to figure whether or not it makes sense to act on them. In making that decision we need to look at more than where they come from. We need to look at the consequences of our proposed actions and whether we expect them to have a good effect.

I address this question in the chapter on [Ethics: The Good and the Right](#), which discusses two paradigms of ethical decision making, one based on whether the consequences of one’s actions have good effects and the other on whether the actions are in accord with moral rules. In comparing the two approaches, we do not have to posit a divine source for the moral rules, nor an unseen world of values. The source for any given moral intuition is clear: cultural manifestation of an innate tendency or faculty of mind formed by evolution. In making the decision whether to live by a Goodness ethic or a Rightness ethic, we need not be swayed by claims that Rightness is divinely mandated or that there is an invisible moral realm that we are obliged to obey.

This may strike those who have an affinity for group loyalty and respect for authority as threatening. It may strike those who have an affinity for caring and avoidance of harm as hopeful. In either case, I ask you to think carefully and consider the question on its merits, not on the basis of your intuitions.

There are, however, some aspects of reality that make certain kinds of moral intuitions plausible as candidates for a universal morality. One of the hallmarks of moral judgments is that they are taken to be universal, applicable to everyone. If there are universal aspects of reality relevant to morality, then the claim that certain moral principles should always be observed and obeyed would make more sense. Three of these are empathy, nonzero-sum games and the nature of persuasive discourse.

Empathy

Humans have the capacity to feel what others feel, not telepathically but in the sense that one person’s emotions tend to arouse matching emotions in other people, much like sympathetic vibration of strings on a musical instrument. Physiologically, this effect is due to mirror neurons. “A mirror neuron is a neuron that fires both when an

⁸⁹ Ibid., p. 14.

animal acts and when the animal observes the same action performed by another. Thus, the neuron 'mirrors' the behavior of the other, as though the observer were itself acting. Such neurons have been directly observed in primates, and are believed to occur in humans, [where] brain activity consistent with that of mirror neurons has been found in the premotor cortex and the inferior parietal cortex."⁹⁰ Empathy is not a uniquely human capacity, although it is more highly developed in humans than in other species. Ape researcher Frans de Waal says "Empathy is widespread among animals. It runs from body mimicry – yawning when others yawn – to emotional contagion in which the self resonates with fear or joy when it picks up fear or joy in others. At the highest level we find sympathy and targeted helping."⁹¹ (Targeted helping is giving aid tailored to another's needs; it requires a distinction between self and other, recognition of the other's need and sympathy for the other's distress.)

Empathy is the foundation of compassion, but unfortunately the mere capacity for empathy does not ensure that virtue. Just as a saint is motivated by empathy to alleviate suffering, a fiend can use empathy as way of getting feedback on how effective his torture is. If we want to encourage compassion, we need to make a case for it.

The normative case for a morality based on compassion (as opposed to the descriptive assertion that humans do in fact feel moral impulses to care for and prevent harm to others) is that it makes sense for us to try to alleviate the suffering of others because to do so alleviates our own suffering. When someone is in distress, we feel it and are to some degree in distress ourselves. There two ways to alleviate that distress in ourselves. One is to ignore the other's suffering and our own discomfort. That may work for a time, but does not address the root cause; the discomfort, both theirs and ours, is likely to arise again. The other is to do something to alleviate the other person's distress. That is both more likely to fix the problem so it does not arise again and more fulfilling: in doing so we are exercising an innate capacity, we are functioning well. And when we function well, we experience happiness, fulfillment, eudaimonia.

Nonzero-sum games

There are many situations in which cooperation and fairness benefit all parties. These are called "nonzero-sum games," exchanges which produce wins for all parties rather than a win for some and a loss for others. As Steven Pinker observes,

In many arenas of life, two parties are objectively better off if they both act in a nonselfish way than if each of them acts selfishly. You and I are both better off if we share our surpluses, rescue each other's children in danger and refrain from shooting at each other.... Granted, I might be a bit better off if I acted selfishly at your expense and you played the sucker, but the same is true for you with me, so if each of us tried for these advantages, we'd both end up worse off. Any neutral observer, and you and I if we could talk it over rationally, would have to conclude that the state we should aim for is the one in which we both are unselfish.⁹²

⁹⁰ Wikipedia, "Mirror neuron."

⁹¹ de Waal, *Our Inner Ape*, p. 186.

⁹² Pinker, "The Moral Instinct."

This is a purely pragmatic, prudential assessment, and like all such assessments it has the advantage of being rooted in reality. Fairness, cooperation, caring and avoidance of harm are not only the results of evolutionary adaptation but are also good ideas for how to conduct ourselves in the present.

Rational persuasion

Pinker makes an interesting observation about the nature of attempts to convince or persuade someone to do something. In order to do so, we have to appeal to some sense of universality.

[Rationality] cannot depend on the egocentric vantage point of the reasoner. If I appeal to you to do anything that affects me – to get off my foot, or tell me the time or not run me over with your car – then I can't do it in a way that privileges my interests over yours (say, retaining my right to run you over with my car) if I want you to take me seriously. Unless I am Galactic Overlord, I have to state my case in a way that would force me to treat you in kind. I can't act as if my interests are special just because I'm me and you're not⁹³

Appeals to general rules are more apt to be successful than citing special privilege. No doubt this is why many of humanity's moral philosophies, from the Golden Rule to the Categorical Imperative and beyond, have at their core the interchangeability of perspectives. To be just and fair, a moral rule should apply to two people in the same way if they were to trade places.

Need for reason

The sense of morality is easily subverted by maladaptive triggers. What was useful to guard against disease from tainted food is not useful when it leads us to view persons of another race as unclean or another religion as impure and evil. If we are to live well – that is, harmoniously and in a way that exercises our abilities in good way – we need to examine our intuitions critically, not just blindly follow them. Once we have decided what kinds of moral intuitions we want to obey and in what circumstances – that is, what kind of person we want to be – we can certainly rely on those intuitions so we do not have to deliberate tediously about every situation we face. But we do have to do the careful thinking in order to make such decisions, or else live a life prone to emotional tripwires that subvert us. Socrates said the unexamined life is not worth living. I would not go that far, but do say that the examined life is far more likely to be satisfying.

⁹³ Idem.

Religion

Religion in one form or another seems to be a universal aspect of human culture. By "religion" I mean any form of socially-organized relationship to what we might call an unseen realm of disembodied agency, including ancestors who are no longer living in the flesh; totemic spirits associated with places or objects; genies, angels and demons; deities such as the gods of the Greek pantheon; the all-knowing, all-powerful and eternal God of monotheism; and the All or Universal Soul of advanced mysticism.⁹⁴ "[A]n intimate social relationship between living people and supernatural beings of some sort is characteristic of human societies everywhere."⁹⁵ The question for evolutionary psychology is twofold: how did religion come to be and what advantages did it provide to our ancestors?

The advantages seem straightforward. One aspect of religion is social cohesion; it "served as an extra cohesive force, besides the bonds of kinship, to hold societies together for such purposes as punishing freeloaders and miscreants or uniting in war."⁹⁶ This is not the controversial notion of group selection, that genes can become fixed or spread in a population because of the benefits they bestow on groups, regardless of their effect on the fitness of individuals within that group.⁹⁷ Instead this is the recognition that all humans benefit by being members of groups, and exhibit genetic or cultural traits that have evolved to enhance the ability to function well in a group, any group. Religion, like language and sensitivity to social norms, may well be one such adaptation.

Another is a sense of hope or confidence in the face of adverse circumstances. When confronted with danger or something fearsome, the believer does not succumb to despair and hopelessness. (Those who did, who gave up, did not survive to produce offspring.) Instead one calls on God – or the ancestors or the gods or guardian spirits, etc. – for help. As one feels that help, one carries on, survives and thrives. This is the case regardless of whether the entity one calls on actually exists or not. Here is an example: (The author has found out he needs open-heart surgery.)

My wife was raised Catholic, and though she's been a student of Buddhism for years, she still has an ability to pray aloud and unselfconsciously. The practice is alien to me, with my secular Jewish upbringing, as palm trees are to Kansas. But over the years, a tiny part of her ease in addressing the central mystery had rubbed off on me. That night, when she started praying, I joined her. As soon as I said the word *God* aloud, a fierce longing took hold of me, and I called out, in full voice, to something that had no face, no shape, no name. I called out for the faith I did not have. And, paradoxically, the act of calling out was its own answer. A trust in *something* – some strength that might get me through what

⁹⁴ Buddhism and Taoism, arguably non-theistic religions, nevertheless stress the importance of something nonphysical that influences human affairs, which can be understood as an attenuated form of more-than-human agency.

⁹⁵ King, *Evolving God*, p. 13.

⁹⁶ Wade, *Before the Dawn*, pp. 72-73.

⁹⁷ Wikipedia, "Group selection".

was coming – was kindled by the friction of my doubt rubbing up against my undeniable need. I had called out in the night, unashamed.⁹⁸

It is a survival characteristic to feel that God is with you.

But how did this characteristic evolve in the first place? We can only speculate, as there is little archeological evidence.

Noted atheist Daniel Dennett believes it had to do with an extension of our species' aptitude for theory of mind (see above, p. 20), the ability to attribute mental states like our own to others. Humans have such an advanced capacity for what he calls the "intentional stance,"⁹⁹ the propensity to attribute beliefs, desires and a certain amount of cunning to anything that moves and seems to do so with intention, that we cannot turn it off when someone dies. We instinctively continue to think of them as alive – we think of what they would do or say or want – but are confronted with the cognitively dissonant sight of their corpse, which is rotting and is a potent source of disease. Something must be done with it.

What seems to have evolved everywhere ... is an elaborate ceremony that removes the dangerous body from the daily environment either by burial or burning, combined with the interpretation of the persistent firing of the intentional-stance habits shared by all who knew the deceased person as the unseen presence of the agent as a spirit ... almost as vivid and robust as a live person.¹⁰⁰

The concept of disembodied spirits formed the basis for belief in ancestors or gods who know things that we don't, in particular strategic information necessary for getting along in groups.

The price our species has paid for the security of living in large groups of interacting communicators with different agendas is having to keep track of those complex agendas and shifting relationships. Whom can I trust? Who trusts me? Who are my rivals and my friends? To whom do I owe debts, and whose debts to me should I forgive or collect? The world is teeming with such strategic information¹⁰¹

But none of us knows all the strategic information. We do not have telepathic access to what others know. The idea that somebody – ancestors or gods – knows what to do in social situations in which we do not have complete insight into what others are up to must have been compelling. It helped people think about their social predicaments. "Now you can refine your puzzlement about what to do next: what would my ancestors want me to do ...?"¹⁰²

⁹⁸ Fisher, "Still Here," p. 41.

⁹⁹ Dennett, *Breaking the Spell*, pp. 108-112.

¹⁰⁰ *Ibid.*, pp. 112-113.

¹⁰¹ *Ibid.*, pp. 125-126.

¹⁰² *Ibid.*, p. 127.

We turned to ancestors because we have a genetic bias toward believing and obeying our parents. It is in their genetic interest that their offspring survive, so their advice is generally trustworthy. The ancestors are not necessarily omniscient, but they know the things that matter the most, the strategic information that helps us get along in our group. So the root of religion as we know it today, with its elaborate rituals and theologies, is the desire to communicate with the ancestors or gods, to find out what they know.¹⁰³

From there it is short step to divination – ceremonies and rituals to find out what the gods know – and then to appeasement and prayer, to try to influence the gods to be good to us. At this point humans are treating the gods not just as disembodied beings who know things, but as agents who do things, who cause things to happen to us, both calamities and good fortune. Philosopher and researcher Robert Wright observes that the notion of causality was probably originally rooted in agency:¹⁰⁴

People reared in modern scientific societies may consider it only natural to ponder some feature of the world – the weather, say – and try to come up with a mechanistic explanation couched in the abstract language of natural law. But evolutionary psychology suggests that a much more *natural* way to explain *anything* is to attribute it to a humanlike agent. This is the way we're "designed" by natural selection to explain things. Our brain's capacity to think about causality – to ask why something happened and come up with theories that help us predict what will happen in the future – evolved in a specific context: other brains. When our distant ancestors first asked "Why," they weren't asking about the behavior of water or weather or illness; they were asking about the behavior of their peers. ... To answer a "why" question – such as "Why did the thunderstorm come just as that baby was being born?" – with anything *other* than a humanlike creature would have been kind of strange.¹⁰⁵

With this observation, we are moving from away from genetics alone. We may be genetically endowed with a mental module for understanding other minds – an agency detection device¹⁰⁶ – but the way that plays out into beliefs about gods and supernatural spirits goes beyond genetics. Religion is a cultural phenomenon, not a genetic one. The evolutionary analysis continues to be relevant, however, because culture evolves much like biology does.

Geneticist Richard Dawkins has coined the term "meme" to mean a unit of cultural transmission, similar to the gene, which is a unit of biological evolution.¹⁰⁷ The principles of evolution apply the same: like a gene, a meme is a replicator, except memes replicate contemporaneously between minds rather than historically between bodies. Just as genes are subject to competition – the ones that replicate to the next generation are those that help their host bodies to survive and reproduce – so also are memes: only those that are catchy enough to secure attention in human minds

¹⁰³ Ibid., pp. 129-131.

¹⁰⁴ In philosophical terms, the belief in agent causality preceded the belief in physical causality. See the chapter titled [Do Humans Have Free Will?](#)

¹⁰⁵ Wright, *The Evolution of God*, pp. 468-470.

¹⁰⁶ Dennett, *Breaking the Spell*, p. 109, and Wright, *The Evolution of God*, p. 477.

¹⁰⁷ Dawkins, *The Selfish Gene*, chapter 11, pp. 189-201.

replicate from mind to mind. What makes a meme catchy can be something as trivial as a memorable tune or limerick, or something that has continuing usefulness, such as ideas that hold cultures together.

Several things that make memes catchy contribute to the cultural transmission of religion:

[W]e would expect the following kinds of memes to be survivors in the dog-eat-dog world of cultural evolution: claims that (a) are somewhat strange, surprising, counterintuitive; (b) illuminate sources of fortune and misfortune; (c) give people a sense that they can influence these sources; (d) are by their nature hard to test decisively. In this light, the birth of religion doesn't seem so mysterious.¹⁰⁸

Once religion has been born, other mechanisms ensure its propagation. One is the natural tendency of people to believe what others in the group believe. "If you are surrounded by a small group of people on whom your survival depends, rejecting the beliefs that are most important to them will not help you live long enough to get your genes into the next generation."¹⁰⁹ Then, as belief systems become more complex and mysterious, self-serving motives of the priestly class contribute to their propagation. Memetic replication can paradoxically favor ideas that are hard to confirm. (Truth-value is not the only attribute that causes memes to jump from mind to mind.) Ideas that contribute to group cohesion, of course, tend to be reinforced within the group. And finally we get full-blown rationales such as that belief in God is the foundation of morality and in any case is important for its own sake.¹¹⁰

This account of the evolutionary origins of religion is, from a purely objective point of view, adequate to account for how it came to be. "Religion arose out of a hodgepodge of genetically-based mental mechanisms designed by natural selection for thoroughly mundane purposes."¹¹¹ We do not need to postulate the actual existence of God – or gods or deities or spirit beings – to explain it. But neither does it indisputably deny God's existence. Science can neither prove nor disprove the existence of a divine, supernatural reality, broadly conceived, so we must look to other kinds of evidence. It is possible that Allah really does provide.

¹⁰⁸ Wright, *The Evolution of God*, p. 468.

¹⁰⁹ *Ibid.*, p. 464.

¹¹⁰ Dennett, *Breaking the Spell*, chapters six through eight, pp. 153-246.

¹¹¹ Wright, *The Evolution of God*, p. 482.

When Intelligence Fails

Fine-tuned and highly-developed as it is, our intelligence – our ability to respond flexibly and adaptively to new situations – is not always accurate. We humans do not always perceive reality accurately, and not just because we make occasional mistakes. There are ways in which systematic susceptibility to illusion and error seems to be evolutionarily built in, and it is important to understand them in order to counteract them. This section explains several of these mechanisms of cognitive impairment.

Self-Deception

The basic evolutionary mechanism is propagation of replicators. The unit of biological replication is the gene, and what has shaped our cognitive capacities is what has enabled the survival and replication of the genes that govern their development and expression. In most cases this means we are finely tuned for discovery of truth, but not always. We are certainly adapted for accurate perception of physical reality, because physical reality doesn't change, but the same is not true for social reality. How we treat physical reality does not change its properties; it will behave toward us as it always does. But how we treat others is a different story. Other people treat us differently depending on what they think of us, and we are evolved to induce them to think of us well because doing so increased our ancestors' ability to survive and reproduce. That may mean deceiving them, and one of the best ways to deceive others is to deceive oneself.

This can be seen in three areas: sexual mating, reciprocal altruism and social hierarchy.

The Mating Game

Genetically it is in the interest of both parents that their offspring survive, but males and females – of all species – have different strategies to accomplish this end.¹¹² The male's strategy is to impregnate as many females as possible. His biological investment is small; he contributes a tiny bit of sperm and then his job is over. His "essential role may end with copulation, which involves a negligible expenditure of energy and materials on his part, and only a momentary lapse of attention from matters of direct concern to his safety and well-being."¹¹³ The female's strategy is to be choosy about which males she will mate with because her investment is much larger. She has to sit on the egg or carry the fetus much longer, and this limits her chances for passing her genes to the next generation. For her "copulation may mean a commitment to a prolonged burden, in both the mechanical and physiological sense."¹¹⁴ Females who picked the fittest males had more robust offspring, who in turn had a penchant for picking the fittest males, so females typically prefer males who exhibit signs of fitness, whether that be strength, speed, intelligence, big antlers, fancy feathers or some other quality.

¹¹² This section is drawn from Wright, *The Moral Animal*, pp. 33-92.

¹¹³ George Williams, quoted in Wright, *The Moral Animal*, p. 41.

¹¹⁴ *Idem*.

Over eons of evolutionary time many species developed courtship, the male's advertisement of how fit he is and the female's discrimination among advertisers. In such a situation it would be in the genetic interest of males to advertise being more fit than they actually are – to become showoffs –, and it would be in the interest of the females to become even more discriminating. Fast-forward to human society, with its elaborate culture born of language and big brains. With the development of parental care by the male (known technically as male parental investment), an aspect of the pair-bonding that is one of the things that distinguishes us from chimps, bonobos and other primates, the woman's choice of a mate is even more important. She wants (whether consciously or not; we are talking about genetic urges, not rational calculation) a man who will stick around and provide food and other resources for her offspring. Human females prefer men who have high social status, wealth, power, ambition and industry. More importantly (because those traits would also be desirable in species without high male parental investment), women look for men who are generous, trustworthy and who show enduring commitment, because those traits will ensure that he will nurture her offspring. Men in turn have no genetic interest in raising a child fathered by someone else, so when looking for a marriage partner (as opposed to a purely sexual liaison) they look for women who will be chaste and sexually faithful.

Hence, men learn to portray themselves as being emotionally committed and females, for their part, tend to portray themselves as committed and virtuous as well. In both cases – and here is where self-deception comes in – it is much easier to portray yourself in a certain light if you believe that light to be true of yourself. Hence, both men and women sometimes deceive themselves. As Robert Wright says, “[O]ne effective way to deceive someone is to believe what you’re saying. In this context that means being blinded by love”¹¹⁵ “Men and women may mislead each other – and even, in the process, themselves – about the likely endurance of their commitment or about their likely fidelity.”¹¹⁶

Reciprocal Altruism

The term “altruism” has a special meaning in evolutionary biology: “behavior that benefits another organism ... while being apparently detrimental to the organism performing the behavior, benefit and detriment being defined in terms of contribution to inclusive fitness.”¹¹⁷ (“Inclusive fitness” means the ability of an organism not only to produce and support its own offspring, but to support genetically-related offspring as well, such as children, siblings, cousins, etc.¹¹⁸) There are two types, kin altruism and reciprocal altruism. Kin altruism occurs when an organism helps another to which it is genetically related; and the genetic mechanism is straightforward: “If an individual dies in order to save ten close relatives, one copy of the kin-altruism gene may be lost, but a larger number of copies of the same gene is saved.”¹¹⁹ The gene for such altruism will be carried forward to the next generation, hence continuing the behavior.

¹¹⁵ Wright, *The Moral Animal*, p. 62.

¹¹⁶ *Ibid.*, p. 265.

¹¹⁷ Trivers, “The Evolution of Reciprocal Altruism,” p. 35.

¹¹⁸ Wikipedia, “Inclusive Fitness”.

¹¹⁹ Dawkins, *The Selfish Gene*, p. 90.

The other type is reciprocal altruism, which takes place when one individual expends energy to help another, genetically unrelated, individual; and either at that time or later the latter does something to help the former. For instance, a man jumps in a river to save someone else, not his kin, putting himself in danger. Another example: certain fish clean parasites from other fish, even swimming into the other fish's mouth to do so, and the other fish does not eat the fish that is cleaning. Robert Trivers, in a classic and much-cited paper, says "under certain conditions natural selection favors these altruistic behaviors because in the long run they benefit the organisms performing them."¹²⁰ In other words, reciprocal altruism is selected for because there are benefits to the altruist. In the case of the fish, the cleaning fish gets food and the cleaned fish gets rid of parasites. In the case of the rescuer, the benefit is that in a society where saving people is regarded as noble or heroic, someone would in turn save him if he were in a similar plight.

Trivers defines several conditions under which altruistic behavior evolves. The first is that the cost to the giver is less than the benefit to the recipient, where cost and benefit are defined as decrease or increase in the chances of the relevant genes propagating to the next generation. He uses the term "altruistic situation" to refer to such a circumstance and says that altruistic behavior would be selected for under three conditions: (1) that there are many such altruistic situations in the life of the altruist; (2) that a given altruist repeatedly interacts with the same small set of individuals; and (3) that pairs of altruists are put in symmetrical altruistic situations, such that one can help the other roughly as much as the other can help the one.¹²¹ All three of these conditions obtained in the environment of evolutionary adaptation, so it is not surprising that we have an urge to be altruistic. Imagine living in a Neolithic band of hunters. On any given day you might have a forty percent chance of catching some game. When you did, you would give some to others who were not so lucky; and when you didn't, they would give some to you. This assures you of a steady supply of food regardless of your own daily catch. Everybody would benefit; and, more to the point, the genes for such altruistic behavior would get passed to the next generation. Such behavior applies, by the way to foods whose supply is erratic, but not to foods whose supply is relatively fixed, like the products of gardening or agriculture. In the latter case giving away food would be pointless, because there would be no need to assure a future supply. Anthropologists studying foraging cultures have indeed found that "[H]igh-variance foods are shared, low-variance foods are hoarded."¹²²

Sometimes it pays an individual to cheat. "Cheating" means simply "failure to reciprocate; no conscious intent or moral connotation is implied."¹²³ If an individual receives a benefit but then fails to reciprocate, then it has come out ahead. So genes for that behavior will proliferate. But then other individuals will start to detect cheaters and refuse to provide benefits. Their genes will proliferate more than the genes of those who give to cheaters without return. Then some individuals will learn how to cheat more effectively. Then others will get more sophisticated about detecting cheaters; and we end up with a sort of arms race – over many generations – in which members of the species get very good both at cheating and at detecting cheaters.

¹²⁰ Trivers, "The Evolution of Reciprocal Altruism," p. 35.

¹²¹ Ibid. p. 37.

¹²² Pinker, *How the Mind Works*, p. 505.

¹²³ Trivers, "The Evolution of Reciprocal Altruism," p. 36.

Cheating may be gross – failure to reciprocate at all – or subtle, “always attempting to give less than one was given or ... to give less than the partner would give if the situation were reversed.”¹²⁴ In either case, there is selection pressure both to get better at cheating and to get better at detecting cheaters.

In humans this is taken to an extreme. Not only do people remember who has reciprocated and who hasn't, but they learn from others. One gets a reputation based on gossip in the community. Perhaps one of the things that drove humans to develop such large brains and cognitive capacities was the increasing need to keep track of all the relationships in the tribe and compute who owes what to whom, who can be trusted and who can't, and so forth.

Everybody wants to be known as a trustworthy reciprocal altruist, not a cheater. Whether or not the desire is conscious, everyone has an interest in having a good reputation, because that is the way to acquire resources to sustain life and have offspring. One of the ways we tell whether someone is trustworthy, particularly whether they might be a subtle cheater, is by assessing their motives and the depth and sincerity of their emotions.

Emotions play a key role. The emotion of gratitude probably arose to regulate response to altruistic acts, and the emotion of sympathy to motivate altruism as a function of the plight of the recipient.¹²⁵ The emotion of guilt probably arose “to motivate the cheater to compensate his misdeed and to behave reciprocally in the future, and thus to prevent the rupture of reciprocal relationships.”¹²⁶ Liking (the emotion of affection) is what initiates and maintains an altruistic partnership, and anger – in this context – protects someone who has been cheated from falling for it again.¹²⁷ (See the section on “Sense of Morality,” above p. 29.) We do not have much deliberate control over our emotions, so if someone shows these emotions genuinely, we trust them. But if they seem cold and calculating in doing something altruistic, it is likely that under different circumstances they might not be so helpful. We can't count on them.

Now we can understand the selection pressure for self-deception. It enables one to be more believable when showing deceitful emotion. Wright says “[W]e deceive ourselves in order to deceive others better.”¹²⁸ Trivers says if “deceit is fundamental to animal communication, then there must be strong selection to spot deception and this ought, in turn, to select for a degree of self-deception, rendering some facts and emotions unconscious so as not to betray – by the subtle signs of self-knowledge – the deception being practiced.”¹²⁹

We are not to blame for this strategy. It is not something anybody deliberately cooked up. Indeed, it would not work if it were deliberate, because it works only if it is unconscious. But it is part of our nature.

¹²⁴ Ibid. p. 46.

¹²⁵ Ibid. p. 49.

¹²⁶ Ibid. p. 50.

¹²⁷ Pinker, *How the Mind Works*, p. 404.

¹²⁸ Wright, *The Moral Animal*, p. 264.

¹²⁹ Trivers, quoted in Wright, *The Moral Animal*, p. 264.

Social Hierarchy

In human society, as in many others, the higher one's social status the greater the rewards, both for oneself and for the likelihood of passing one's genes on to the next generation. We humans are highly attuned to status and prone to inflate our own accomplishments and good character and denigrate those of others. Robert Wright sums it up nicely:

Status is a relative thing. Your gain is someone else's loss. And vice versa: someone else's loss is your gain. ... [T]he best way to convince people of something ... is to believe what you're saying. One would therefore expect, in a hierarchical species endowed with language, that the organisms would often play up their own feats, downplay the feats of others, and do both things with conviction.¹³⁰

That's why when we win we believe it is due to our skill and prowess, but when somebody else wins it's because they got lucky.¹³¹

Summary of Self-Deception

In these and other ways, we are systematically blind to our own shortcomings and impure motives. Not completely, of course. We do have enough intelligence to be able to notice and think about ourselves and how we are thinking, feeling and behaving, but it requires some effort to do so. It helps to know something about the mechanisms and typical occasions for self-deception.

Maladaptation

Self-deception in the social realm is an evolved characteristic that is still – from a gene-centered point of view – applicable and effective today. But there are ways in which our cognitive machinery is not so useful today because conditions have changed since the time of the environment of evolutionary adaptation. Our mental modules are evolved to handle the environment our Pleistocene ancestors lived in, but we don't live there any more. In many ways the current environment does not match the EEA, so some of our behavior is maladapted to current conditions. Here are a few examples.

Road rage, the well-known condition in which one gets irrationally angry at other drivers, can be viewed as an outgrowth of primitive theory of mind. We encounter a bunch of large, fast-moving objects and interpret them as agents with goals. When one comes up rapidly from behind, we see it as a threat. When one cuts in front of us we interpret it as hostility and get mad. We do not have the perceptual cues that we get from seeing people's faces that might meliorate our judgments, so all we are left with are primitive, instinctual responses. It takes some effort of will and conscious, cold cognition to overcome them.

We are adapted to crave fatty, sweet and salty foods, which are nutrient-dense and were somewhat rare in the EEA. In modern times they are abundant, in part because

¹³⁰ Wright, *The Moral Animal*, p. 268.

¹³¹ Pinker, *How the Mind Works*, pp. 421-423.

people who manufacture them go to great pains to make them appeal to our primitive tastes;¹³² and such manufactured foods are simpler and contain fewer nutrients than their naturally-occurring analogues. Consequently in the developed nations many people are obese and unhealthy because they eat too much junk food and not enough healthy, natural foods. Again, it takes some effort of will and deliberate thought to overcome artificially-reinforced cravings and form habits of healthy eating.

Advertising of expensive products appeals to an unconscious instinct that they will either enhance or signal our fitness, much as peacock feathers signal that the male displaying them is strong enough to afford such conspicuous waste and hence would be a good mate. In humans they are leftovers from a time when we lived in small bands and rarely encountered strangers. But nowadays making such displays to strangers makes little sense. Evolutionary Psychologist Dr. Geoffrey Miller says “We evolved as social primates who hardly ever encountered strangers in prehistory.... So we instinctively treat all strangers as if they’re potential mates or friends or enemies. But your happiness and survival today don’t depend on your relationships with strangers. It doesn’t matter whether you get a nanosecond of deference from a shopkeeper or a stranger in an airport.”¹³³ Once again, it takes deliberate thought to overcome the instinctual, but unhelpful, appeal of certain kinds of advertising.

Modern warfare is an example of primitive instincts run amok with greatly exaggerated destructive potential. Many, many species, including chimpanzees, our closest genetic relatives, exhibit territoriality and hostile behavior to other members of the same species. Not surprisingly, humans do too. But humans, with our big brains and greatly increased intelligence, have so augmented our ability to inflict harm that the potential exists to destroy life as we know it on our home planet. Careful, deliberate thought and attention are needed to inhibit instinctual aggressive reactions.

We are subject to sometimes disastrous surprises from phenomena known as “Black Swans.” A Black Swan is a highly improbable event with massive consequences, so-called because for many years people thought all swans were white. Nassim Nicholas Taleb, successful securities trader and essayist defines it as follows:



What we call a Black Swan (and capitalize it) is an event with the following three attributes. First it is an outlier, as it lies outside the realm of regular expectations, because nothing in the past can convincingly point to its possibility. Second it carries an extreme impact. Third ... [we] concoct explanations for its occurrence after the fact¹³⁴

Examples of Black Swans abound [as of early 21st Century]: The terrorist attack on New York City of September 11, 2001; the rise of the internet; the demise of the Soviet bloc; the rise of Islamic fundamentalism; the Lebanese civil war of 1975-1990, which erupted unexpectedly after a thousand years of peace; and many more. None of these were anticipated before they happened. Taleb says that is because our minds are

¹³² Parker-Pope, “How the Food Makers Captured Our Brains”.

¹³³ Tierney, “Message in What We Buy, but Nobody’s Listening.”

¹³⁴ Taleb, *The Black Swan*, pp. xvii-xviii.

adapted to an earlier environment and now circumstances have changed. Some of his speculations are unlikely, but these seem plausible: "In a primitive environment, the relevant is the sensational ... [but now we are in] a world in which the relevant is often boring, nonsensational."¹³⁵ Furthermore, "Our emotional apparatus is designed for linear causality. ... we are too narrow-minded a species to consider the possibility of events straying from our mental projections"¹³⁶ But Black Swan events are precisely not the result of trends that can be predicted with ease. Taleb gives a number of tips for overcoming this maladaptation, all of which involve exerting some effort to break out of habitual modes of thought. Fortunately, he says "the logical part of our mind, that 'higher' one, which distinguishes us from animals, can override our animal instincts."¹³⁷

There are numerous other examples of our inability to cognize with perfect accuracy – or even good-enough accuracy – the world we live in. Daniel Gilbert's *Stumbling on Happiness*, for instance, describes in some detail the difficulties we have in imagining our own future and predicting how happy we will be if certain things come to pass, things that we ourselves strive to achieve. The point is that we should not assume that all of our perceptions and judgments are accurate, since in many ways we no longer live in the environment in which our cognitive capacities evolved.

Afflictive Emotion

Recall that emotion in evolutionary psychology is more than just a felt quality such as fear or contentment. Emotion is an overarching cognitive program that sets an organism's highest-level goals. (See "Emotion," page 14.) An emotion is, in effect, a strategy for coping with reality; and some strategies work better than others.

Buddhist psychology calls certain emotions "afflictive" or "destructive" or "obscuring," meaning not only that they are harmful to the person experiencing them and to others, but that they distort our perception of reality, which is itself a kind of harm.¹³⁸ Some of the obvious ones are hatred, attachment, pride, confusion and jealousy.¹³⁹ They all have the characteristic that they impair one's judgment, they interfere with clear thinking. "[O]bscuring emotions impair one's freedom by chaining thoughts in a way that compels us to think, speak, and act in a biased way."¹⁴⁰

In this respect, Buddhism recognized thousands of years ago the phenomenon of emotional restimulation. (See "Emotional Discharge: The Overlooked Adaptation," p. 22.) To recapitulate, restimulation is reacting without the benefit of careful thought to a current situation as one did to an earlier, painful situation. One is, as it were, overcome with emotion. Hence, one's reaction may not be effective in producing a beneficial outcome. (Some restimulations do not have an intense felt component, but they influence thought and behavior nevertheless. Emotions need not be conscious –

¹³⁵ Ibid., pp. 87-88.

¹³⁶ Ibid., p. 88, p. 157.

¹³⁷ Ibid., p. 88.

¹³⁸ Goleman, *Destructive Emotions*, p. 75.

¹³⁹ Ibid., p. 78.

¹⁴⁰ Ibid., p. 76.

that is, attended to – to be operative.) Afflictive emotion is one of the causes of cognitive failure to perceive reality accurately.

When Volition Fails

Obviously, failure to perceive reality accurately leads to impairment of ability to cope with it. But even when we perceive reality accurately we sometimes find ourselves acting in ways counter to what we intend. It is not only our cognition that fails, but our will also.

Evolution does not work in a straight line. New structures and capacities are built on the framework of what has gone before, and the old structures and capacities remain in place. This is true of the human brain, and is an explanation of why our rational thinking does not always successfully guide our behavior. Psychologist Jonathan Haidt cautions against believing that conscious verbal thinking has complete power to guide our decision-making. It certainly has some power, but so does what he calls the “elephant,” automatic mental processes and emotional reactions that have a great influence on our behavior regardless of – and in many cases in opposition to – our conscious intent. The metaphor is that of a rider on an elephant:

The image that I came up with ... was that I was a rider on the back of an elephant. I'm holding the reins in my hands, and by pulling one way or the other I can tell the elephant to turn, to stop, or to go. I can direct things, but only when the elephant doesn't have desires of his own. When the elephant really wants to do something, I'm no match for him.¹⁴¹

We have all had the experience of wanting to do something – say, refrain from eating something tasty but unhealthy, or do some unpleasant but needed task – but then not doing it. It is as if our will has no power. (And this is one reason why some speculate that free will is an illusion.) Haidt gives a number of reasons for this phenomenon.

The brain is not the only seat of mentality. Neural processing occurs also in the intestine, which contains over 100 million neurons. This “gut brain” is largely autonomous from the conscious mentality seated in the brain in our head.¹⁴² Called the Enteric Nervous System, it controls digestion but can also influence moods and emotions.¹⁴³

The rational and verbal part of our brain can get divorced from other parts. The left hemisphere of the brain processes information differently from the right hemisphere. The left hemisphere is specialized for language and analysis; the right, for pattern recognition. Patients whose brain has been split by severing the mass of nerves joining the two, the corpus callosum, show surprising behavior. The left brain can come up with a verbal explanation for a response to a stimulus given to the right brain only and hidden from the left, but the explanation has nothing to do with the true stimulus.¹⁴⁴ This process is called “confabulation,” and the condition is also found in people with

¹⁴¹ Haidt, *The Happiness Hypothesis*, p. 4.

¹⁴² *Ibid.*, pp. 5-6.

¹⁴³ Scholarpedia, “Enteric nervous system.” Rubin, “The Brain-Gut Connection.”

¹⁴⁴ Haidt, *The Happiness Hypothesis*, pp. 6-8.

intact brains when they fill in gaps in memory and believe their memories to be true.¹⁴⁵
Haidt says

[This shows that] the mind is a confederation of modules capable of working independently and even, sometimes, at cross-purposes. ...[O]ne of these modules is good at inventing convincing explanations for your behavior, even when it has no knowledge of the causes of your behavior. [This] “interpreter module” is, essentially, the rider.¹⁴⁶

Various parts of the brain evolved at different times and have different functions. The oldest parts, in the center and bottom, close to the spinal cord, connect it to the senses and to the rest of the body, so perception of the world can guide behavior. A newer part, the limbic system, surrounds the old brain and contains sections that coordinate basic drives and motivations, memory and emotional learning and response. The newest part, the neocortex, is the seat not only of conscious reasoning – the ability to think, plan and decide what to do with some degree of freedom from immediate stimuli – but of sophisticated emotional processing as well. We have seen this in the discussion of moral emotions (“Moral Intuition”, page 29), and it applies in many other areas as well. Whenever the world presents us with the possibility of reward or punishment, of pleasure, pain, loss or gain, part of the neocortex becomes very active. “When you feel yourself drawn to a meal, a landscape or an attractive person, or repelled by a dead animal, [or] a bad song ..., your orbitofrontal cortex is working hard to give you an emotional feeling of wanting to approach or get away.”¹⁴⁷

We may think of ourselves as rational, thoughtful creatures, but it is hot cognition, driven by automatic, instinctual emotional reactions, that most often drives our behavior. And in fact such emotion is a crucial component of that cognition. Research has found that people with a damaged orbitofrontal cortex lose much of their ability to feel emotion, even though their ability to reason is intact. In that state they do not act solely on the basis of reasoned argument. Instead, they have trouble acting at all! They spend hours examining alternatives and are unable to make simple decisions or set goals.

They must examine the pros and cons of every choice with their reasoning, but in the absence of feeling they see little reason to pick one or the other. When the rest of us look out at the world, our emotional brains have instantly and automatically appraised the possibilities. One ... usually jumps out at us as the best ... We need only use reason to weigh the pros and cons when two or three possibilities seem equally good.¹⁴⁸

This sophisticated emotionality comprises much of what Haidt calls the elephant:

Reason and emotion must both work together to create intelligent behavior, but emotion (a major part of the elephant) does most of the work. When the

¹⁴⁵ <http://dictionary.reference.com/browse/confabulation> as of 3 February 2010.

¹⁴⁶ Haidt, *The Happiness Hypothesis*, p. 9.

¹⁴⁷ *Ibid.*, p. 12.

¹⁴⁸ *Idem.*

neocortex came along, it made the rider possible but it made the elephant much smarter, too.¹⁴⁹

The upshot of all this is that *our brains function in two modes, controlled and automatic; and the automatic mode is far more pervasive*. The controlled mode is the mode of cold cognition, step-by-step reasoning to solve a problem that is new to us. The automatic mode is everything else: the “gut brain,” hot cognition, emotional response, instant pattern recognition, intuition and genetically-conditioned fundamental urges and drives. “It is no accident that we find carnal pleasures so rewarding” says Haidt. “Our brains, like rat brains, are wired so that food and sex give us little bursts of dopamine, the neurotransmitter that is the brain’s way of making us enjoy the activities that are good for the survival of our genes.”¹⁵⁰ In evolutionary terms, the rider – the verbal, analytic, consciously rational part of ourselves – evolved to serve the elephant. Those organisms (our ancestors) who developed the ability to foresee and plan, to think about things not immediately present, survived and reproduced better than those who didn’t; but the point, from a gene-centered perspective, was to survive and reproduce, not to create art, civilization, morality and philosophy. So when our conscious thinking runs contrary to our instinctual urges, oftentimes conscious thinking loses. Much as we would like to think of ourselves as rational beings, in charge of our destiny, in fact “the rider is an advisor or servant; not a king, president, or charioteer with a firm grip on the reins.”¹⁵¹

This is an important point for the purpose of this work, to determine what human nature is in order to determine how to live a fulfilling life. Haidt suggests that it is a mistake to think of oneself primarily as a rational being: “Our minds are loose confederations of parts, but we identify and pay too much attention to one part: conscious verbal thinking.”¹⁵² The mistake is twofold, both conceptual and strategic. Conceptually, it is incorrect, for all the reasons listed in this section. Strategically, it just doesn’t work. The non-automatic portion of our mind has relatively little power to cause behavior, at least by directly confronting the elephant and commanding it to do something. Instead, we need to learn how to guide and influence the elephant, a matter of self-knowledge and practical skill.

To Know The Good ...

“To know the good is to do it.” Socrates does not say these exact words in Plato’s Dialogues, but it is a good summary of a certain ancient Greek idea. “Good” means beneficial; what is good for someone is what is beneficial or helpful to that person and enables that person to be happy. Socratic scholar Laszlo Versenyi puts it this way:

The good ... is that which makes man happy by fulfilling his nature. One can go no further than this and ask why men want to be happy rather than miserable; to Socrates, and, indeed, to all Greeks, this is self-evident: “All men by nature desire to be happy and no one wants to be miserable” (*Symposium, Meno, etc.*).

¹⁴⁹ Ibid., p. 13.

¹⁵⁰ Ibid., p. 16.

¹⁵¹ Ibid., p. 17.

¹⁵² Ibid., p. 22.

Happiness is the final goal of all desire and the ultimate end of human existence.¹⁵³

Since nobody wants to be unhappy, surely the only reason people do things that don't bring happiness is that they don't know any better. Once a person finds out what makes them happy, what works to bring fulfillment, then they will do it. That is the argument. Of course, some things bring short-term pleasure but long-term misery, so we have to figure out what works in the long run. But having done so, we would then do what works in the long run and eschew the short-term pleasures. In this view, the only reason anybody does anything that does not bring them happiness is ignorance.

Haidt shows why this is only partially true: because our verbal, conceptual rationality has only a limited ability to influence our behavior. We need to distinguish two meanings of the term "know," knowing *that* and knowing *how*. We can know that certain things are good for us, but that is not the same as knowing how to accomplish them. One may know that one would be better off abstaining from a rich dessert, but not know how to overcome the desire for it in the moment. In addition to theoretical knowledge, we need skills to handle the elephant. "The elephant and the rider each have their own intelligence, and when they work together well they enable the unique brilliance of human beings"¹⁵⁴ says Haidt. How to accomplish working together well is the subject of the next section.

¹⁵³ Versenyi, *Socratic Humanism*, p. 80.

¹⁵⁴ Haidt, *The Happiness Hypothesis*, p. 17.

Reclaiming Our Best Nature

It seems clear that intelligence, the capacity for rational, deliberate thought, is a core component of human nature; it enables us to “think about long-term goals and thereby escape the tyranny of the here and now.”¹⁵⁵ We are able to envision things that are not present in experience; make plans to acquire or avoid them; execute those plans; and revise our plans on the fly to accomplish our goals successfully. In order to experience the fulfillment of functioning well, we must be able to think clearly, and our thinking must guide our actions. We need to avoid unthinking, inflexible behavior. (Unless we have previously chosen to allow it. Using cold cognition to guide everything we do would be tedious and unworkable.)

Inflexibility arises in four ways: habit; afflictive emotional responses to triggering events; distress patterns; and instinctual behavior. These are ways in which the elephant – the non-rational, or pre-rational, part of us – makes its influence known. Different strategies are useful for dealing with each one.

Working with Habit

Habits are routines of behavior that take place regularly without conscious thought, and they are indispensable. If we had to think carefully about everything we do – tying our shoelaces, for instance, or getting the breakfast cereal from the cupboard – we would hardly get anything done. The problem is that we are prone to bad habits as well as good, things we do habitually that do not serve our long-term interests as well as those that do. We would like to shed bad habits and acquire good ones.

A classic and insightful exposition of habit is found in the work of psychologist and philosopher William James.¹⁵⁶ According to James, habit is a result of the plasticity of the brain and nervous system. The more one exercises a set of physical motions, the more that set is entrained in the brain and nerves. The virtue of habit is twofold: (1) It “simplifies the movements required to achieve a given result, makes them more accurate and diminishes fatigue;” and (2) it “diminishes the conscious attention with which our acts are performed.”¹⁵⁷ His example is learning to play a musical instrument; in time what is difficult and tedious becomes easy and automatic, and after a while we do not need to pay attention to it. We play without thinking about physical technique and can concentrate instead on the music to be played, or even daydream about something else entirely.

In order to avoid bad habits and acquire good ones it is best to substitute a good habit for a bad one. It is difficult to stop something habitual by sheer force of will. It is easier to start a new habit, because there is no elephantine inertia to overcome; so the workable strategy is to start a new habit as a substitute for the old. To accomplish this feat, James gives some useful advice:

¹⁵⁵ Ibid. p. 16.

¹⁵⁶ James, “Habit” in *Principles of Psychology* and “The Laws of Habit” in *Talks to Teachers*.

¹⁵⁷ James, “Habit.”

- In doing so, launch yourself with *“as strong and decided an initiative as possible. Accumulate all the possible circumstances which shall reinforce the right motives; put yourself assiduously in conditions that encourage the new way; make engagements incompatible with the old; take a public pledge, if the case allows; in short, envelop your resolution with every aid you know. This will give your new beginning such a momentum that the temptation to break down will not occur as soon as it otherwise might; and every day during which a breakdown is postponed adds to the chances of its not occurring at all.”*¹⁵⁸
- *“Never suffer an exception to occur till the new habit is securely rooted in your life. ... The peculiarity of the moral habits, contradistinguishing them from the intellectual acquisitions, is the presence of two hostile powers, one to be gradually raised into the ascendant over the other. It is necessary above all things, in such a situation, never to lose a battle. Every gain on the wrong side undoes the effect of many conquests on the right. The essential precaution, therefore, is so to regulate the two opposing powers that the one may have a series of uninterrupted successes, until repetition has fortified it to such a degree as to enable it to cope with the opposition, under any circumstances.”*¹⁵⁹
- *“Seize the very first possible opportunity to act on every resolution you make, and on every emotional prompting you may experience in the direction of the habits you aspire to gain. It is not in the moment of their forming, but in the moment of their producing motor effects, that resolves and aspirations communicate the new 'set' to the brain.”*¹⁶⁰
- Finally, James advises *“Keep the faculty of effort alive in you by a little gratuitous exercise every day. That is, be systematically heroic in little unnecessary points, do every day or two something for no other reason than its difficulty, so that, when the hour of dire need draws nigh, it may find you not unnerved and untrained to stand the test. Asceticism of this sort is like the insurance which a man pays on his house and goods. The tax does him no good at the time, and possibly may never bring him a return. But, if the fire does come, his having paid it will be his salvation from ruin. So with the man who has daily inured himself to habits of concentrated attention, energetic volition, and self-denial in unnecessary things. He will stand like a tower when everything rocks around him, and his softer fellow-mortals are winnowed like chaff in the blast.”*¹⁶¹

These pieces of advice are tricks we can use to train the elephant to go along with the rider's will. They all rely on another fact about human nature, that we have a capacity for what I call second-order mentation, the ability to take oneself as an object of thought and perception.

¹⁵⁸ James, “The Laws of Habit.”

¹⁵⁹ Idem.

¹⁶⁰ Idem.

¹⁶¹ Idem.

Overcoming Afflictive Emotion

The great virtue of Buddhist psychology is that it not only identifies categories of cognitive and volitional impairment, but it suggests ways to overcome them as well. It is acutely grounded in self-observation and has been finely honed over years of assessment of reports of such self-observation. By observing our own experience, each one of us can in turn validate it for ourselves. The Buddhist view has close parallels with Western psychological findings.

According to the Buddhists, there is a reliable pattern to the onslaught of an afflictive emotion, and knowledge of this pattern gives one the power to intervene and deflect its afflictive power. Such an emotion first arises from a perceptual trigger, a recognition that something is happening. Western psychologists call this an appraisal, because it is cognitive, a form of instant pattern recognition. For example, perhaps someone cuts in front of you in line. (In many Western cultures this is considered quite rude.) Your appraisal is that the person is being rude. Then, almost instantaneously, comes an emotional reaction – anger – and an accompanying impulse to action – to object sharply. The emotion rapidly grows in intensity and one is caught in a full-blown reaction, verbally berating the rude person. In this state one has virtually no power to think clearly or to stop the reaction. The elephant is roaring full blast. Eventually the emotion subsides and one can reflect on what happened.¹⁶²

There are three different choice points in this process: During the appraisal, during the impulse and during the resulting action.¹⁶³ A fourth occurs after the emotional reaction has subsided.

The easiest point of intervention is after the emotion subsides. One can notice and reflect on what happened, see that it is an instance of a repetitive pattern, compare the effects of the afflictive emotion with other, more benevolent, emotions, and resolve to do something different next time.¹⁶⁴

The hardest point of intervention is during the emotional reaction. In that state one has little, if any, ability to think critically or to observe oneself. Fortunately this state need not last a long time. Neuroanatomist Jill Bolte Taylor notes that physiologically it takes less than 90 seconds for an emotional reaction to subside: “Within 90 seconds from the initial trigger, the chemical component of my anger has completely dissipated from my blood and my automatic response is over.”¹⁶⁵ After that, one has a choice whether to continue in that state or not. With practice one can learn to simply allow the emotion to surge for 90 seconds and then choose not to continue it. One learns to shorten the duration of the reaction.

Another point of intervention is just as the emotion is arising, after the initial appraisal and before one acts on the emotion. One pays attention to one’s own interior life. “The crucial point here is to free emotions at the moment they surge in one’s mind, so that they don’t trigger a chain of thoughts that proliferate and take over the mind, thus

¹⁶² Goleman, *Destructive Emotions*, p. 145.

¹⁶³ *Ibid.* p. 146.

¹⁶⁴ *Ibid.*, p. 83.

¹⁶⁵ Taylor, *My Stroke of Insight*, p. 146.

compelling one to act – to harm somebody else, for instance.¹⁶⁶ Western psychology calls this “impulse awareness,”¹⁶⁷ although I would prefer the term “impulse consciousness” (see the chapter on [Consciousness and Experience](#)), and the goal is to increase the time between impulse and action,¹⁶⁸ thereby creating the possibility of avoiding harmful action.

The final, most subtle point of intervention is at the point of the triggering perception itself, to increase the time between appraisal and impulse.¹⁶⁹ To do this, one must spot, at the moment of appraisal, the potential arousal of an afflictive emotional impulse, and to head it off. Again, one pays attention to one’s own interior life. This requires much practice and familiarity with one’s own mind and the phenomenal nature of thoughts and emotions, how they arise, persist and fade away from the spotlight of attention. The uniquely Buddhist contribution to treatment of afflictive emotions is to recognize that such “appraisal awareness” is indeed possible.

All of these forms of dealing with afflictive emotion entail self-knowledge, what we might call emotional mindfulness, in one form or another. After the emotion has subsided, one can remember and think about what happened, including one’s own reactions and role in the affair. During the emotional storm it is very difficult to pay attention to oneself, but with practice it is possible. Both impulse awareness and appraisal awareness entail being conscious of oneself in the moment, paying attention to the subtleties of what is happening subjectively in one’s experience. The more one practices such self-observation in times when one is not emotionally triggered, the more one has the capacity to engage in it when one is.

These too rely on the human capacity for second-order mentation, the ability to take oneself as an object of thought and perception.

Overcoming Distress Patterns

The modern recognition of the function of emotional discharge has added an important insight and an important strategy to the ancient Buddhist doctrine of afflictive emotions. (See “Emotional Discharge: The Overlooked Adaptation”, page 22.) There is a way to reduce the impact of the triggering event, such that it is less likely to spark a cascade of potentially harmful emotion and action: by discharging away the tension that causes it to be a trigger in the first place.

We can think of our susceptibility to restimulation, to being set off by a triggering event, as a button. The triggering event pushes the button and closes an electrical circuit; and the resulting appraisal, emotion and action then follow automatically. Emotional discharge removes the wire from the button. The triggering event happens from time to time, but the more one discharges, the less effect it has. Discharging the tension gives one more freedom at the very beginning of the process. One can cognitively reframe the triggering event, appraise it in a different way. One does not

¹⁶⁶ Goleman, *Destructive Emotions*, p. 83.

¹⁶⁷ *Ibid.*, p. 145.

¹⁶⁸ *Ibid.*, p. 144.

¹⁶⁹ *Ibid.*, pp. 144-145.

feel such a strong urge to incendiary emotion and action, so one can choose to act differently.

Emotional discharge is a way of preparing oneself in advance to handle triggering events. The practice of self-observation in order to intervene at critical points is a way of handling them when they arise. Together, the two techniques provide a powerful way to free oneself from the unchosen, mechanical effects of restimulated afflictive emotion.

Another strategy for handling restimulating trigger events, of course, is to avoid them. If a certain person or type of person always seems to push one's buttons, one can try to stay out of their way. If one can't seem to refrain from rich desserts, one can eat at home and not have them in the house. Such a strategy can work, but has the disadvantage of restricting one's range of activities. And, if one encounters the trigger event despite precautions, one has no defense. This strategy is best used in conjunction with the others, not as a sole remedy.

These methods also entail some self-knowledge, some second-order mentation, to know what to discharge about and what types of triggers to avoid. The more one discharges, the more one has the possibility of accurate self-knowledge.

Working with Instinct

Some repetitive and inflexible patterns of behavior are built in, as it were, part of our genetic inheritance. These are the hardest to counteract. Psychologist Paul Ekman gives an example:

It is very unlikely that we could ever learn not to be emotional about certain events. If there is a sudden sense of free fall, such as occurs when you're flying and suddenly hit an air pocket, there is a fear response. I've talked to airline pilots, and they still have that fear response even though it happens every day. That is ... an emotion theme that is built into us; we're not going to get over it.¹⁷⁰

There may be many more such instinctual reactions. It is hard to tell, because humans have such an enhanced ability, compared to other primates, to modify their own behavior, and such a susceptibility to distress patterns caused by undischarged painful emotion that it is hard to know what is truly instinctual and what is not. We have clues: if there is a plausible explanation of its evolutionary benefit and it does not yield to repeated discharge, a reaction or behavior pattern may well be instinctual. Even so, instinctual reactions may be mitigated by self-observation, the "appraisal awareness" and "impulse awareness" mentioned above.

¹⁷⁰ Ibid., p. 146.

Conclusion: What Is It About Humans?

We started out this chapter with a goal in mind: to find out what human nature consists of as viewed from an objective, scientific, third-person point of view. We wanted to do this in order to find out how to live well. We are now in a position to fulfill that goal and make some plausible assertions about human nature and what we need to do in order to experience the fulfillment of functioning well.

We are embedded in nature; our differences from our closest genetic relatives are a matter of degree, not kind. We are not separate from the biological and physical world, not somehow divorced from the rest of reality, raised above it in some special way. Instead, we are connected to each other, to all life and to the entire universe. Our minds are adapted to the world we find ourselves in because we have co-evolved together with it. Hence, we are completely at home here. The idea that this world is somehow a prison or a place of exile for a soul whose essential nature is to be disembodied is not in line with the findings of evolutionary psychology. One obvious implication is that there is no need to be ashamed of being embodied. Rather, it makes sense to enjoy being here and to take care of our bodies. Good health comes from spending time outdoors in natural settings, exercising and eating good food. Another implication is that for our well-being we need to take care of our environment, because our environment nourishes us. To do that we are better off when we work with nature instead of arrogantly against it. Doing so can take many forms; designing dwellings, gardens and landscapes to work like natural systems is just one example.

With our greater intelligence, *we amplify the characteristics of our sibling species*. We can be aggressive and competitive like chimps but also peaceful and cooperative like bonobos, and in either case we go to greater extremes. Modern weapons enable us to kill and maim far more effectively than any chimp, but we can also live peacefully and harmoniously in much larger groups than bonobos. It is up to us to choose which way to be. And it is not just that one is bad and the other good. There are obvious benefits to a peaceful way of life, but there are virtues to be found in the violent and aggressive side of our nature as well. A certain toughness enables us to overcome hardship and adversity, some of which comes from other humans and some of which comes from the vicissitudes of nature.

We have a much greater intelligence than other animals, so much so that we can be called the species that makes plans. We can envision states of affairs not present and clearly distinguish what is here and now from what is only imagined. We can tailor our behavior to particulars of the present situation in order to reach targeted goals. Hence, it behooves us to keep that intelligence functioning well. I list some ways to do that in "Reclaiming Our Best Nature", above, page 55.

We can be far more loving, powerful, cooperative and enthusiastic about life than most of us have imagined. These traits, along with intelligence itself, are diminished by emotional distress, but we have the capacity to recover from such distress through the innate healing mechanism of emotional discharge. The more we do so, the better we function. See "Emotional Discharge: The Overlooked Adaptation" on page 22.

We are good for each other. In fact, we are indispensable for each other. Much of our most profound fulfillment is found in intimate connection with other people. Hence the more we make close connections with others, the better off we are. Closeness aside, our survival depends on cooperation with others, so the more clearly we communicate with them the better off we are. Hence, it is advisable to learn to share intimacy and to communicate clearly.

We have an innate sense of morality. The few of us who don't – psychopaths who lack conscience and empathy – we find so horrifying that they seem almost not human. But we do not all have the same sense of morality. The moral impulses are filtered through the lenses of different cultures and different temperaments. People respond to moral quandaries with different instinctive moral judgments. Each of us needs to think carefully to determine how to act and what kind of person to be, rather than accept uncritically the morality handed to us.

We have an innate sense of religion. Even atheists find satisfaction in aligning themselves with a purpose greater than themselves. In a talk at the 2002 TED conference, noted atheist Daniel Dennett says that the secret of happiness is to "Find something more important than you are and dedicate your life to it."¹⁷¹ There are many causes to which one could dedicate one's life. The trick for a thinking being is to determine which of the many candidates to choose.

We are prone to self-deception. One might argue that since we are good at self-deception it must be a human characteristic that should be encouraged, but that would be a misreading of the premise of this inquiry. Self-deception is good, under certain circumstances, for propagation of genes but not for the healthy functioning of the human being. This is an important point: what is good for the genes is not necessarily good for the individual; and this inquiry is about how to live a fulfilling life, not about how to propagate genes. Genetic propagation is a mechanism that explains much of our behavior, as do, in their own way, physical, chemical and biological mechanisms; but now that we know that, we have a choice as to what to do about it. Certainly self-deception is harmful, as it interferes with accurate perception of reality, and thereby impairs our ability to think and plan accurately. Fortunately, we know how it works, and that gives us ammunition against it. We can be on the lookout for it and intervene from the vantage point of self-observation and knowledge. Stephen Pinker puts it well:

Still, thanks to complexity of our minds, we need not be perpetual dupes of our own chicanery. The mind has many parts, some designed for virtue, some designed for reason, some clever enough to outwit the parts that are neither. One self may deceive another, but every now and then a third self sees the truth.¹⁷²

Self-deception is an instance of a larger point: *Our rationality is not perfect and is often not in control.* We are both rider – the rational, step-by-step thinker and planner – and elephant – the impulsive, emotionally reactive pattern-recognizer. Without the rapid emotional evaluations of the elephant we would be paralyzed with indecision. Without the foresight of the rider we would (and often do) get ourselves in trouble.

¹⁷¹ Dennett, "Dan Dennett on dangerous memes," 5:25.

¹⁷² Pinker, *How the Mind Works*, p. 424.

Haidt says "The elephant and the rider each have their own intelligence, and when they work together well they enable the unique brilliance of human beings"¹⁷³ It certainly behooves us to learn to know ourselves well enough and to acquire enough practical know-how to enable the rider to work with the elephant instead of against it. (This is an example of working with nature rather than against it.)

In the movie *The African Queen* Katherine Hepburn says to Humphrey Bogart, "Nature, Mr. Allnut, is what we are put in this world to rise above."¹⁷⁴ We cannot rise above it completely, so we would be better advised to learn to live well within it. But in order to do so, we must indeed rise above it enough to perceive, understand, plan and strategize about not only the world around us but ourselves as well. This requires us to utilize our capacity for second-order mentation, the ability to take oneself as an object of thought and perception. Understanding evolutionary psychology helps. As Robert Wright says, "[W]e're all puppets, and our best hope for even partial liberation is to try to decipher the logic of the puppeteer."¹⁷⁵

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¹⁷³ Haidt, *The Happiness Hypothesis*, p. 17.

¹⁷⁴ The Internet Movie Database, <http://www.imdb.com/character/ch0011313/quotes> as of 11 February 2010.

¹⁷⁵ Wright, *The Moral Animal*, p. 37.

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Revision History

Version	Date	Author	Change
1	19 March 2010	Bill Meacham	First draft for publication.
1.1	15 June 2010	Bill Meacham	Minor edits.
1.2	17 October 2010	Bill Meacham	Fixed minor typo.
1.3	30 November 2010	Bill Meacham	Added reference to Wason selection task.
1.4	6 February 2012	Bill Meacham	Added: food richer in Bonobo habitat.
1.5	28 February 2012	Bill Meacham	Deleted table entry on play.