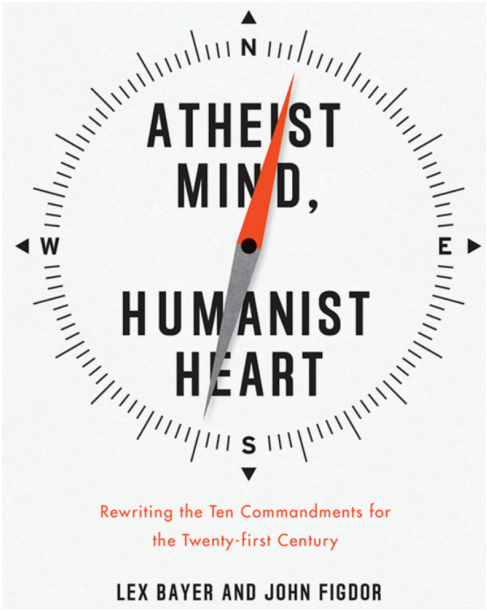
Empiricist Mind, Humanist Heart, Part 2

Candace Brower

Thank you Dianne, and thanks to all of you who came back to hear the second part of my talk, Empiricist Mind, Humanist Heart. I would like to begin by reviewing what I said in part one, so that by the end of part two, you will be able to see how the two parts fit together, like two halves of a nut in a nutshell, so to speak. As I did before, I will be using some of what I have learned about neuroscience to help me do just that.

As you may remember, my talk was inspired by this book, *Atheist Mind, Humanist Heart*, which I have been using as a framework for explaining what it means to me to be a Unitarian-Universalist.



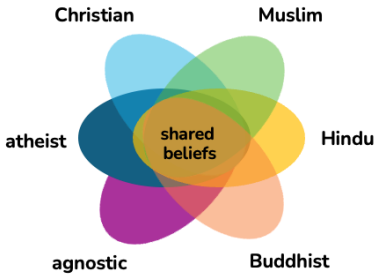
The authors, both avowed atheists, address the following question: in the absence of a higher authority such as God or the Ten Commandments, what should we believe and how should we treat others? In place of the Ten Commandments, the authors offer what they call the ten "non-commandments" — principles derived from common sense and everyday experience that represent a set of coherent beliefs on the one hand and coherent values on the other.

They call them "non-commandments" to make it clear that they are not set in stone, but rather are subject to revision. Furthermore, they invite us to use their non-commandments as a starting point for coming up with our own set of beliefs and values. I have been using their non-commandments to help me construct what I think of as a coherent set of beliefs and values that I think we Unitarian-Universalists can agree upon. In part one, I used their first five non-commandments to create what I see as a coherent set of UU beliefs. In part two, I will use the last five non-commandments to create a set of UU values that not only finds support in neuroscience but also corresponds closely to the version of UU values that appears on the UUA website.

I concluded part one with this slide, titled UU Beliefs. On the left appears a revised version of the first five non-commandments, and on the right a flower-like image that shows how I interpret our UU belief system as a whole. Most importantly, I struck out their fifth non-commandment, "There is no God," and put in its place a statement that captures our UU belief in the value of being open-minded: " Each of us is free to believe in God or not and understand God in our own way."

UU Beliefs

1. The world is real.
2. We use our senses to perceive the world.
3. We use language and thought as tools to describe and understand what we perceive.
4. We use empirical science as a tool to gain knowledge about the world that allows us to make more accurate predictions
5. ~~There is no God~~. Each of us is free to believe in God or not and understand God in our own way.



I also pointed out that the original version, "there is no God" is an example of what I called "this-not-that" thinking. This-not-that thinking is something that we all do at least some of the time because our brains are designed to produce this-not-that answers to this-not-that questions. I illustrated my point with the story of the blind men and the elephant and pointed out that our UU belief in being open minded can serve as a valuable antidote to "this-not-that" thinking.

We are now ready to take on the last five non-commandments, which appear in their original form on the next slide.

The Last Five Non-Commandments

6. We all strive to live a happy life. We pursue things that make us happy and avoid things that do not.
7. There is no universal moral truth. Our experiences and preferences shape our sense of how to treat others.
8. We act morally when the happiness of others makes us happy.
9. We benefit from living in, and supporting, an ethical society.
10. All of our beliefs are subject to change in the face of new evidence.

The sixth non-commandment begins with a common-sense observation: "we all strive to live a happy life." Neuroscience now helps us to understand the biological basis of happiness. Neuroscientists have discovered that the feelings of happiness that we strive for are produced by the release of dopamine in the so-called reward regions of the brain. Dopamine is sometimes called a "feel-good" chemical, because it causes us to feel such things as euphoria, eagerness, excitement, and motivation.

The second part of the sixth non-commandment: "we pursue things that make us happy and avoid things that do not" can also be explained in neuroscientific terms. Neuroscientists have shown that the

reward centers of the brain are hard-wired to help us learn by trial and error what is good and what is bad for us. When we happen across something that is good for us, we are rewarded with a burst of dopamine that not only feels good, but motivates us to pursue that thing in the future. Conversely, when we happen across something that is bad for us, it causes our brains to release so-called stress hormones that cause us to feel fear, anxiety, frustration, or anger, motivating us to avoid that thing in the future. Over time, we learn by trial and error which kinds of things are good for us and which are bad for us, and we use that to decide what to pursue and what to avoid in order to maximize our life happiness.

We are now ready to tackle the seventh non-commandment, which begins with the statement: "There is no universal moral truth." As you may have already figured out, this is yet another example of a "this-not-that" answer to a "this-not-that" question. Is there such a thing as a universal moral truth: yes or no? Unfortunately, as we've already seen, the problem with posing questions in black and white terms is that it makes it harder for us to see shades of gray. In this case, it discourages us from considering the possibility that universality could be relative rather than absolute.

Fortunately, we can safely x out this statement without losing the gist of what the authors are trying to say in their 7th non-commandment. When we read this part of the book carefully, it appears that what they are really trying to say is that rather than relying on so-called universal moral codes, we should rely instead on our own innate capacity for moral reasoning.

One advantage of using our own capacity for moral reasoning rather than relying on preexistent rules is that it allows us to take into account the particularities of a situation. Life is full of moral dilemmas, in which we must choose not between right and wrong, but rather the lesser of two evils. For example, when it comes to abortion, we are forced to ask ourselves: whose rights are most deserving of protection under the law, those of the mother or those of the unborn child? I think most of us would say that there is no universally right answer to this question. Being pro-choice is not the same as being in favor of abortion—it simply expresses our belief that the person best qualified to resolve the dilemma is most likely to be the mother of the unborn child. In situations like these, where there is no absolute right or wrong, relying on our own powers of moral reasoning is usually best because it allows us to take into account different sides of the same situation.

Here is how I have revised the seventh non-commandment to capture the gist of what I think they mean to say in this part of the book: "Each of us has the capacity for moral reasoning, and our experiences and preferences shape our sense of how to treat others.

Seventh Non-Commandment Revised

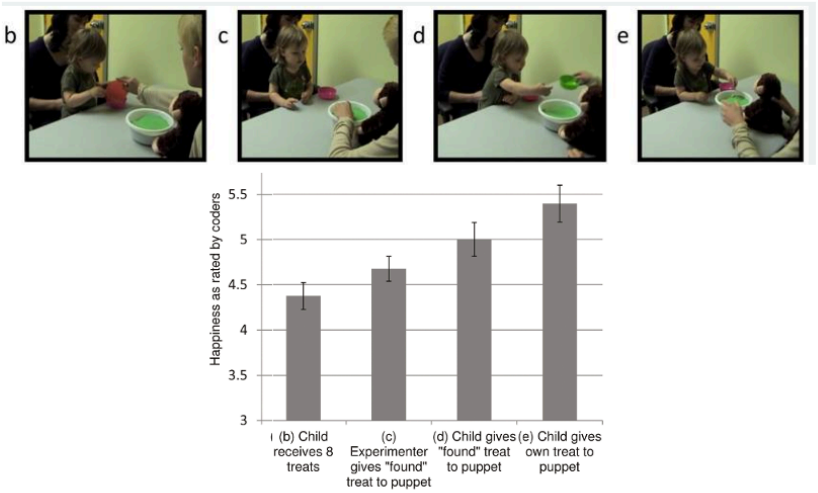
6. We all strive to live a happy life. We pursue things that make us happy and avoid things that do not.
7. ~~There is no universal moral truth~~. Each of us has the capacity for moral reasoning, and Our experiences and preferences shape our sense of how to treat others.
8. We act morally when the happiness of others makes us happy.
9. We benefit from living in, and supporting, an ethical society.
10. All of our beliefs are subject to change in the face of new evidence.

The second part of the seventh non-commandment, "our experiences and preferences shape our sense of how to treat others" is just another way of stating the Golden Rule: "do unto others as you would have them do unto you." To apply the Golden Rule, we must put ourselves in another person's shoes—that is, we must imagine what it would be like to be them, and then treat them as we would like to be treated under similar circumstances. It turns out that this kind of act of the imagination requires the use of specialized neural circuits in the right hemisphere, located right about here. Dedicated circuits in this part of the brain light up whenever we use our powers of empathy on the one hand and what neuroscientists refer to as "theory of mind" on the other. These are the same parts of the brain that are activated whenever we read a story and identify with one of the characters, allowing us to see what they see and feel what they feel. For example, it is this part of the brain that allows us to imagine what it would be like to be a little fish lost in the dark, or a little girl who enjoys sharing her bread with the fishes below.

Now we are ready to tackle the 8th non-commandment, "We act morally when the happiness of others makes us happy." This non-commandment finds support in neuroscience as well, in research that suggests that we are hard-wired to want to share with one another, to help one another, and even to sacrifice some of our own happiness for someone else's sake.

My next slide shows the experimental results of a study that illustrates just this. In this study, toddlers interacted with a puppet monkey in four different scenarios, as shown by the four snapshots, while the child's level of happiness in each scenario is indicated in the graph below. In the first scenario, the experimenter puts eight treats into the child's bowl. In the second scenario, the child watches as the experimenter then gives a treat to the puppet. In the third scenario, the experimenter gives the child a treat to give to the puppet. Finally in the last scenario, the child is encouraged to give the puppet one of the treats out of their own bowl. As the graph shows, the child's happiness goes up from the first to the last scenario, with the child feeling the happiest when they sacrifice one of their own treats for the sake of the puppet.

Aknin 2012, "Giving Leads to Happiness in Young Children"



Given how young these children are, it seems unlikely that these acts of generosity are the result of teaching. So what causes young children to behave so generously and to take pleasure in doing so? It turns out that there is another feel-good chemical, oxytocin, that rewards such behavior. You may have

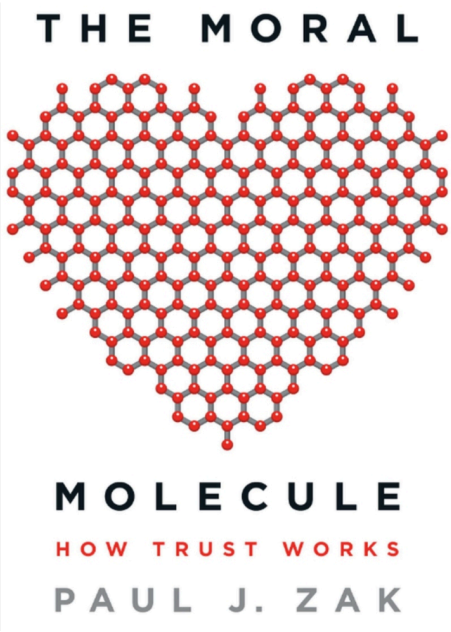
heard of oxytocin as the hormone that produces contractions when a mother goes into labor and also causes the release of milk when she begins to nurse. But it turns out that oxytocin plays an equally important role in causing us to feel love for one another on the one hand, and motivating us to treat one another kindly on the other.

After an infant is born, the oxytocin that courses through the mother's body causes her to feel intense love for her newborn child, motivating her to hold the baby close, to gaze into her baby's eyes, to smile at her baby, and to play peek-a-boo to their mutual delight. This kind of loving interaction between mother and child lights up neural circuits in both of their right hemispheres very close to those activated when we engage in empathy and theory of mind. These neural networks are called "resonance circuits" because their neurons fire in a synchronized way. The firing of these neurons in both brains causes additional oxytocin to be released that makes the interaction extremely rewarding for both mother and child. It is this kind of interaction that allows children to become securely attached to their parents and to grow up to be the kind of parent that can do the same for their own child.

Oxytocin plays an equally important role in fueling feelings of romantic, paternal, and platonic love. The release of oxytocin in the early stages of a romance helps to form a strong and secure bond between partners that allows them to take on the many challenging tasks of co-parenting, many of which require significant sacrifices for the sake of the child.

Oxytocin's role in motivating our caring, sharing and helping behaviors extends far beyond the nuclear family, making it possible for us to care not only for family and friends, but members of our community, and ultimately all of humanity and life on this earth as well.

One neuroscientist in particular, Paul Zak, has done more than anyone to help us to understand the important role that oxytocin plays in promoting moral behavior, as described in his book, *The Moral Molecule*.



Its portrayal of the oxytocin molecule in the shape of a heart reminds us that oxytocin also fuels our feelings of love, while the book's subtitle, "How Trust Works," captures yet another important role of

oxytocin, namely, in promoting feelings of trust. Only by trusting one another are we able to work closely together in pursuit of shared goals. Given how interdependent we are as a species, it is not surprising that we would have evolved programs that promote the kind of cooperative behavior needed to ensure the survival of our species as a whole.

Now that we understand better the cause and effect relationship between moral behavior and happiness, I have reworded the 8th non-commandment to reflect that as follows: When we act morally, the happiness of others makes us happy."

Eighth Non-Commandment Revised

6. We all strive to live a happy life. We pursue things that make us happy and avoid things that do not.
7. Each of us has the capacity for moral reasoning, and our experiences and preferences shape our sense of how to treat others.
8. When we act morally, the happiness of others makes us happy.
9. We benefit from living in, and supporting, an ethical society.
10. All of our beliefs are subject to change in the face of new evidence.

We are now ready to look at how this revised version of the last five non-commandments matches up with the UU values that appear as a flowerlike shape on the UUA website.

On the next slide, these two versions appear side by side, allowing us to see more easily how they relate to one another. On the right, I have numbered each of the six values surrounding the word love to show how they correspond to particular non-commandments on the left. The arrows pointing outward from the word love show that it is our feelings of love for one another that motivate us to help one another, to care for one another, and to treat one another with kindness.

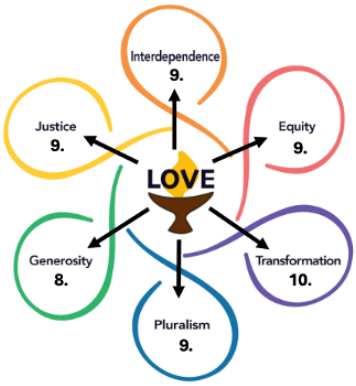
UU Values

"me" happiness (dopamine)

6. We all strive to live a happy life. We pursue things that make us happy and avoid things that do not.
7. Each of us has the capacity for moral reasoning, and our experiences and preferences shape our sense of how to treat others.

"we" happiness (oxytocin)

8. When we act morally, the happiness of others makes us happy.
9. We benefit from living in, and supporting, an ethical society.
10. All our beliefs are subject to change in the face of new evidence.



On the left, I show how the feel-good chemicals dopamine and oxytocin play a role in supporting this system of values, with dopamine fueling “me-happiness” on the one hand and oxytocin fueling “we-happiness” on the other. The upward arrow pointing from oxytocin to dopamine reflects another way that oxytocin contributes to our overall happiness. As Zak explains, the reward centers of the human brain also include receptors for the oxytocin molecule, so that the oxytocin generated by our acts of kindness causes dopamine to be released as well. Thus it appears that one of the best ways to increase our life happiness is to engage in behaviors that benefit others as much as ourselves. It turns out that the more we invest in caring for others, the happier we ourselves are likely to be.

I began today by promising to put parts one and two of my talk into a single nutshell. To do that, I will need to talk about yet another area of neuroscience that helps us to put all the pieces together, namely, the study of hemispheric specialization.

My next slide shows an image of the human brain with columns on either side to show some of the tasks that are handled mostly by one or the other hemisphere. If you look at the column on the left, you will see that it includes both language and empirical science, two of the tools that we talked about in part one that allow us to describe and understand the nature of the physical world. What brain scans show is that whenever we think in words or engage in scientific reasoning, it is the left hemisphere that springs to life.

Hemispheric Specialization

Left hemisphere

- Language
- Concepts, categories
- Knowledge base
- Empirical science
- Logic, rules
- Planning
- “this-not-that” thinking
- Self-as-separate
- Perception of parts

Right hemisphere

- Bodily & emotional feelings
- Empathy
- Theory of mind
- Imagination, creativity
- Intuition, insight
- Metaphor
- Cognitive flexibility
- Self-as-connected
- Perception of wholes

Conversely, if you look at the column on the right, you will see that it includes both empathy and theory of mind, faculties that allow us to engage in moral reasoning. As already mentioned, empathy and theory of mind cause specialized circuits in the right hemisphere to light up that are close to the ones that spring to life when we interact with our loved ones face-to-face.

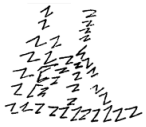
It turns out that virtually everything I said in part one about beliefs involves use of the left hemisphere, and virtually everything I have said in part two about values involves use of the right hemisphere. Thus, we could say that the left hemisphere is home to the empiricist mind, and the right hemisphere is home to the humanist heart.

Although there is much more I could say about hemispheric specialization, I would like to draw attention in particular to the two tasks that appear at the bottom of the two columns; namely, perception of parts vs. perception of wholes. This feature of hemispheric specialization is of special interest because it helps to shed light on all of the rest.

How the perception of parts and wholes applies specifically to vision can be seen on my next slide, which shows the results of a study done on stroke patients.

Delis et al 1986, "Hemispheric Specialization of Memory for Visual Hierarchical Stimuli"

LH & RH together

LH only 

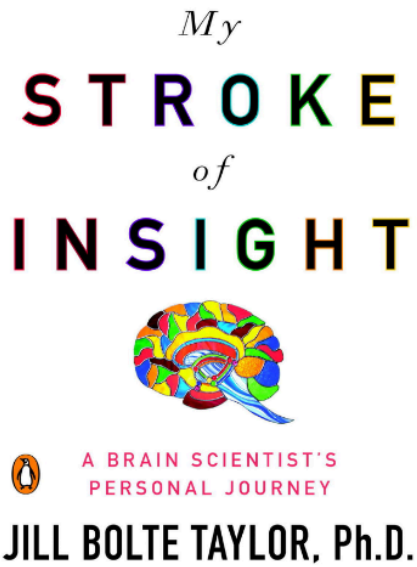
 RH only

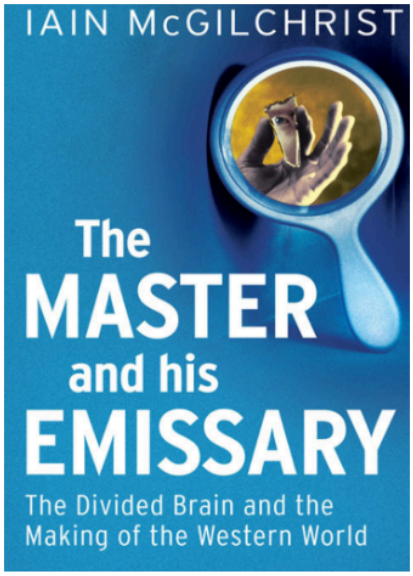
At the top is the visual image that was shown to stroke patients, consisting of a large M made up of small Zs. The images on the left and the right were drawn by stroke patients to show what they saw. The image on the left, drawn by a right-hemisphere stroke patient, shows lines of small Z's arranged haphazardly with no sign of the large M. The image on the right, drawn by a left-hemisphere stroke patient, consists only of the large M, with no sign of the small Zs. This allows us to appreciate just how differently the world appears to each hemisphere, with the left seeing only the parts and the right seeing only the whole.

That the left hemisphere sees parts while the right hemisphere sees wholes sheds new light on the story of the blind men and the elephant. As you may remember, the story brings together the blind men who can see only parts of the elephant with the wise prince who sees the elephant as a whole. Thus, it appears that the blind men personify the left hemisphere while the wise prince personifies the right hemisphere.

The LH sees the parts; the RH sees the whole

My next slide shows two books on hemispheric specialization that focus on different aspects of the right hemisphere's greater capacity for holistic perception.





In *My Stroke of Insight*, Jill Bolte Taylor tells the fascinating story of her own left hemisphere stroke, which left her in blinding pain, but at the same time caused her to feel blissfully connected to everything in the universe. After she recovered from her stroke by retraining her left hemisphere to do all the things it had done before, she continued to cherish the abilities of her right hemisphere to offer a more connected way of relating to the world that she came to prefer to the more ego-centric view of the left hemisphere.

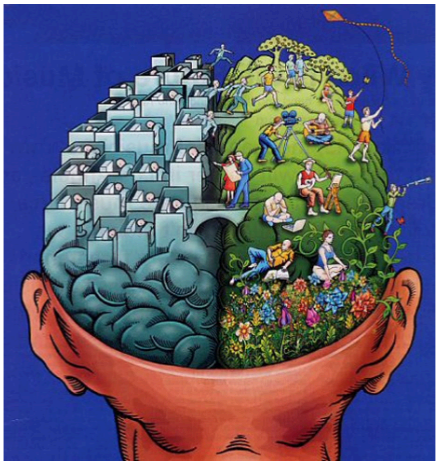
In *The Master and his Emissary*, Iain McGilchrist reaches a similar conclusion based on his exhaustive study of the field of hemispheric specialization. He argues that with the advance of western civilization, we have ceded more and more control to our left hemispheres with dire consequences. Language and science have exponentially expanded our powers of thought and reasoning, but they remain nothing more than tools that can leave us stuck inside repetitive loops of this-not-that thinking, imagining that logic is an end unto itself rather than a means to an end. He argues that it is the right hemisphere that should be the master, the "wise prince," and that the left hemisphere should be the servant, the emissary who goes out into the world to gather bits of information to share with the master.

My next slide poses the question that came to mind after I read McGilchrist's book: how can we put the right hemisphere back in charge? Although I can't address this question right now, I would like to leave you with a view of the two hemispheres that highlights some of the reasons we might want to shift some of our neural activity from left to right. In the cartoon-like image of the hemispheres that you see, the left hemisphere appears to be made up of gray cubicles occupied by individuals narrowly focused on the computer screen in front of them, while the right hemisphere contains colorful images of nature and activities such as painting, playing music, flying a kite, peering through a telescope, and walking hand in hand. In my next sermon I hope to offer some ideas for how we can get our right hemisphere back in charge, and hopefully this slide will inspire you to come back to hear more about that.

How can we put the RH back in charge?

Left hemisphere

- Language
- Concepts, categories
- Knowledge base
- Empirical science
- Logic, rules
- Planning
- "this-not-that" thinking
- Self-as-separate
- Parts



Right hemisphere

- Bodily & emotional feelings
- Empathy
- Theory of mind
- Intuition, insight
- Imagination, creativity
- Metaphor
- Cognitive flexibility
- Self-as-connected
- Wholes

My final slide fulfills the promise that I made at the beginning—that is, to put both parts of my talk into a single nutshell. The non-commandments representing our UU beliefs appear on the left and those representing our UU values appear on the right, below which appear the flower-like images that portray them in visual form. Nestled between them is the picture of a walnut in its shell, looking very much like the two hemispheres of the brain. This visual metaphor is intended to remind us that the more we ground our beliefs and values in what neuroscience has to teach us about the workings of our own brains, the less we need to rely on external authority to tell us what to think or do. Rather, we can rely on the innate capacities of our human brains to figure that out for ourselves.

Empiricist Mind

1. The world is real.
2. We use our senses to perceive the world.
3. We use language and thought as tools to describe and understand what we perceive.
4. We use empirical science as a tool to gain knowledge about the world that allows us to make more accurate predictions.
5. Each of us is free to believe in God or not and understand God in our own way.

Humanist Heart

6. We all strive to live a happy life. We pursue things that make us happy and avoid things that do not.
7. Each of us has the capacity for moral reasoning, and our experiences and preferences shape our sense of how to treat others.
8. When we act morally, the happiness of others makes us happy.
9. We benefit from living in, and supporting, an ethical society.
10. All of our beliefs are subject to change in the face of new evidence.