



MIND & LIFE

Mind & Life Podcast Transcript

Lisa Feldman Barrett – Your Emotions Aren't What You Think

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Opening Quote – Lisa Feldman Barrett (00:00:04): *We are social animals. We evolved to be social animals. What that means is that we regulate each other's nervous systems, both for the better and for the worse. The best thing for a human nervous system is another human. And the worst thing for a human nervous system... is another human. We affect each other in extremely profound ways, and in very individualistic cultures like ours, there's a profound conflict that we face between what we value and endorse in our cultural practices and the reality of the way our nervous systems work. And many of the ills of social life come from that disjunction.*

Intro – Wendy Hasenkamp (00:00:56): Welcome to Mind & Life. I'm Wendy Hasenkamp. We are back with our second season of this show, and I'm really excited to get back into it. We've got a lot of great guests lined up this season who will help us continue exploring the human mind through the lenses of cognitive science, subjective experience, embodiment, clinical psychology, and more.

(00:01:20) We start today with my guest Lisa Feldman Barrett. Lisa is a cognitive psychologist and neuroscientist who spent her career studying emotions. And this path has taken her beyond the emotional world into some of the deepest fundamentals of how our minds work. I spoke with Lisa last spring in the early days of COVID, and our discussion is pretty wide ranging. We talk about her theory about how emotions arise in our bodies and minds. This gets into understanding the way the mind predicts and constructs our reality based on our past and our current context, and also how emotions are interpretations of our bodily state. Lisa explores the difference between what we think of as mood and emotions, and she shares some tips on how we might improve our emotional lives. We also discuss the process of deconstructing our experience through mindfulness, and how the ideas that she presents intersect with Buddhist theories of mind. Finally, we talked about the implications of these views for our understanding of self and other, and importantly, how stress might lead us to get stuck in entrenched views.

(00:02:34) There's actually a lot more than this in here, and as you can probably tell, this conversation covers a lot of ground. This is some pretty dense information, so if you're not familiar with these concepts, I'd recommend going slow and maybe taking a second listen. I'd say it's definitely worth the effort to sit with these ideas, because they have some profound implications for how we experience the world and also our role in it.

(00:02:58) If you're interested in going deeper, Lisa has a couple of wonderful books that really unpack these ideas in nuanced, but still accessible ways. The first is her 2017 book *How Emotions Are Made*, which goes into these topics and their implications for society in considerable depth. She also published a new book in 2020 called *Seven and a Half Lessons About the Brain*. This is a much shorter and more digestible tour of these concepts, but I was really impressed — it still gets to the heart of some pretty juicy stuff.

(00:03:30) We put links in the show notes to these and other resources from this conversation, including a short video of electrical towers jumping rope (which will make sense when you hear the conversation), so please do check those out. I personally find these ideas to be some of the most interesting and impactful that are coming out of cognitive science these days, and some of them are frequent topics discussed on this show. This episode actually pairs really nicely with my conversation with Anil Seth from last season, if you'd like to revisit that, or maybe check it out if you haven't heard it yet. Okay, I hope you enjoy and with that, it's my great pleasure to share with you Lisa Feldman Barrett.

Wendy Hasenkamp (00:04:14): Well, Lisa thanks so much for joining us today.

Lisa Feldman Barrett (00:04:16): It's my pleasure.

Wendy Hasenkamp (00:04:18): I would love to start, I really want to get into your theory about emotions and how they're made, but I'd love to start a little more personally with your story and how you got interested in psychology growing up.

Lisa Feldman Barrett (00:04:32): Wow. I wasn't interested in psychology growing up. I really thought I was going to go to medical school and be a physician. I was always really interested in physiology and in biology. I think now if I look back, I can see that I was interested in psychological topics, and I've been interested in theory of mind and how people think, and how they make decisions, and what role feeling plays in people's lives. But at the time, I didn't even know there was something called psychology, when I was growing up. I did gravitate to novels that were very psychological or philosophical, but I didn't really realize that's what I was doing, I would say.

(00:05:24) I ended up taking a psychology course in university, because I dropped my physics course. There was this great professor that everyone kept talking [about] — could fill a 1500-person hall. And I thought, "Well, just check this out." And I loved it! But when I was growing up, there was no high school course in psychology or anything like that. I just have always gravitated to trying to understand people's intentions and their mental life, without really realizing that's what something I was interested in.

Wendy Hasenkamp (00:06:06): And then so how about your interest in emotions in particular, how did that develop maybe later on?

Lisa Feldman Barrett (00:06:14): Well, oftentimes the way that people live a life in science is they stumble into a problem, and that's exactly what happened to me. I went to graduate school to study the self — that is, people's representations of themselves, how they think about themselves. And I was measuring emotion, measuring people's experience of emotion, and I was trying to replicate published studies, and couldn't. Actually, eight times I tried to replicate various studies and failed. Utterly failed. And after three years in graduate school, I thought, "I'm just totally not cut out for this science stuff."

(00:07:06) But when I went back and looked at my data, I realized that my failure to replicate the published findings was actually replicating itself. So, the finding that I was observing, which was basically that people were failing to distinguish between feeling anxious or fearful, and feeling sad and depressed. And I actually replicated this effect eight times. And I thought, "Well, that's really odd." Because everybody knows — I was training actually to be a clinical psychologist at the time — so everyone knows that depression and anxiety are very different diagnostic categories (except actually they overlap tremendously in their symptoms). But at the time, I was just really perplexed by this.

(00:07:52) And I had this really naive idea. I thought, "Well, I know that there are emotions that are basic and biological, and everyone makes the same facial expressions when they're angry, or when they're fearful or whatever. I should just be able to find a way to objectively measure someone's emotional state, and then I would know whether they were anxious or depressed. And also, I could maybe even figure out who's accurately reporting their emotions and who isn't, and maybe figure out why people are not accurate." So this notion of accuracy, of accurately reading off your own state in a verbal report was exactly the way that everybody else thought about it. And continues to think about it, I would say. Not everybody, but a lot of people still continue to think about emotional reports that way.

(00:08:49) And I just got really interested in this idea of objectively measuring someone's emotional state. And I thought, "Well, I'll take a couple of months. I'll sort this out and then I'll go back to studying the self, and I'll be armed with this fantastic, new set of tools." And you know, fast forward now, almost 30 years... *[laughter]* Talk about hubris as a young scientist! I was like, "Oh yeah, I'll just figure it out. I'll just spend like, I don't know, you know, just a couple of months and I'll work it out, and then I'll be back on my path." But that's not what happened.

Wendy Hasenkamp (00:09:23): So, fast forward 30 years and you have developed quite a revolutionary theory of how emotions work, and how they're made — and I would love to unpack that with you. I'm aware that there's a lot of different ideas that build on each other. So, I wonder if we might start, or you can tell me the best place you think to start, but I'm wondering if it works to begin by thinking about prediction in the mind. Is that...

Lisa Feldman Barrett (00:09:52): Yeah. I mean it's interesting... And it's so like you to be so thoughtful in this way. Usually people jump right in, right? They say, "Okay, well what's the classical view and what's your view?" Then I have to say, "Well, for me to explain my view, it takes many steps." And the way that I explain it is not the way that I discovered it either.

(00:10:14) I guess the way to start is to say, since the beginning of psychology as a science... So, psychology was a branch of mental philosophy, and then in the 19th century, scientists and philosophers began using the methods of physiology and neurology, as they were available in the 19th century, to try to understand the physical basis of the mind. In the western world. They were using western categories like cognition and emotion, and types of cognitions and types of emotions, and types of perception. The assumption was that you could start with the category — anger or sadness or fear or semantic memory or attention or whatever — and that you could go looking for its physical basis in the brain or in the body somewhere.

(00:11:06) And if I were to describe my approach, it's been somewhat turning things on their head and asking the question, "Well, let's try to understand how a brain works. Let's try to understand how a brain regulates a body in the context of other brains and bodies. And then try to figure out how does a human brain, connected to a human body surrounded by other brains and bodies, create the kind of

mental life, to create the kind of human mind that it does?" In fact, now I would say the kinds of human minds that it does, because a single human brain can create many different kinds of human minds, depending on the cultural context it's raised in, basically, and wires itself in. And not all the ontology, the set of categories, that a western mind uses is not the same as minds from other cultures. I might even say even two minds from the same culture may not exactly have the same ontology of categories.

(00:12:12) And so, we can start with prediction. We can say, to channel William James, you could ask, "Well, what are the basic functions of a brain and what do they tell you about the basic elements of a mind?" And one of the basic functions of a brain is to regulate the body in a predictive fashion. So in a sense, it's a big surprise. In a sense, it's a big surprise because it violates common sense. So to us, it feels like our brains are "off," and then they get stimulated by something in the world, like a sight or a sound, and then we process that cognitively. And then we might react to it emotionally. And then we act, right? So it's a stimulus-response chain with the organism, which is your brain, stuck in the middle.

Wendy Hasenkamp (00:13:06): Right, and from our perspective, you said it feels like it's "off," unless we're aware of thinking or feeling or acting. Yeah.

Lisa Feldman Barrett (00:13:15): Yeah, exactly. And people are willing to admit that they're influenced by things they're unaware of... But still the idea is that your neurons are off, they get stimulated by something in the world, and then they react, and then they cause action. And maybe along the way, they're also causing your mental life. But if you look at the structure of the brain... And in fact, if you look at the structure of any brain — a fly brain, a worm brain, a rat brain — if you look at the signal processing constraints on a brain, by which I mean a brain is made of neurons and neurons speak to each other electrically (and also chemically, but it's really the electrical communication that puts serious constraints metabolically on a brain). If you look at signal processing, if you look at anatomy, if you look at a ton of studies from brain imaging, or from people who measure single cells and so on, you can see that brains don't react, they predict.

(00:14:12) What you can say, generally speaking, is that a brain is running a model of the world, or really more accurately, it's running a model of its own body in the world. And it's making predictions, which are like guesses, hypotheses if you will, about what's going to happen next. And those guesses begin as preparation for movement. So, what your brain is doing first... So if you freeze the moment, freeze right now, freeze everything, your brain is in a state. It's preparing what it needs to do internally to the body — heart rate goes up or goes down, or move glucose here or oxygen there — to prepare action. And then what you experience is the predicted sensory consequences of those actions.

(00:15:11) So really, your brain is preparing you, it's regulating your body to prepare for movement. And what's called the "efferent copies," or the predicted consequences of those movements — the last time my body was in this state and I was in this context and I moved in this particular way, what did I see? What did I hear? What did I smell? What did I feel? Your brain is making these predictions.

(00:15:38) And sensory information from the body, and from the world, which we used to call "a stimulus," is actually either confirming those predictions, or correcting them. So it's really like your brain is running its model, and the elements of that model (psychologically speaking) help us understand, as scientists, why we have the experiences that we do.

Wendy Hasenkamp (00:16:12): Yeah. So just to make sure I'm understanding it right, the way we feel like we experience it, or the old way of thinking of brain function would be, there's stimuli in the world

coming in and we're responding in some way. But this view, as you said, flips that on its head in that our minds and our brains are constantly running and constantly predicting, or even simulating what's coming next, or what should be happening?

Lisa Feldman Barrett ([00:16:45](#)): Yeah. I would say your brain creates your mind, in conjunction with your body and the world. But really your brain is predicting. So this is a way to think about it. Your brain is stuck in a dark silent box, called your skull. And it's receiving information, sense data, from your eyes and your nose and the other sense organs of your body. And the sense data that it's receiving are the consequences, the effects, of some set of causes in the world. And your brain doesn't know what those causes are. It only knows the effects. So it has to guess. And the same thing is happening in your body. Your brain will receive sense data from your body, aches or tugs or what have you, and those are the effects of some set of causes. And your brain doesn't know what the causes are, it has to guess.

Wendy Hasenkamp ([00:17:42](#)): It needs to guess because it needs to figure out what to do?

Lisa Feldman Barrett ([00:17:46](#)): Yeah, exactly. What is that flash of light? What is that change in concentration of that chemical? What is that tug or ache? It has to guess so that it knows what to do to keep you alive and well. And the only information it has available is its past experience.

([00:18:02](#)) So really what the brain is doing, is it's asking: What in my past is similar to my present? And when you ask what is similar, what causes were similar to what I'm encountering now — things that are similar to each other, a group of things which are similar to each other is a category, and a mental representation of a category is a concept. So you could say that what the brain is doing is it's creating ad hoc concepts. And it's doing it predictively. So it's asking the question: Based on the way things are right now, what set of things, which are similar, am I likely to encounter in the next moment? And it starts to prepare internal bodily changes, and physical movements. And it predicts the sensory consequences of those movements.

([00:19:12](#)) Now when I say "predicts the sensory consequences," I do mean simulation. I think there's a lot of evidence at this point that the brain, when it's making these predictions... They're like anticipatory explanations for sense data it's about to receive, right? That's a big mouthful, but basically, it's guessing at what's going to happen next, what it's going to see, what it's going to hear. And it's also guessing at the causes. Those guesses are actually changing the firing of its own sensory neurons before the information arrives. That's what simulation is, that's what perceptual inference is, that's what memory is. We have a lot of names for these things, and we think about them as very different, but they're actually really similar to each other.

([00:20:01](#)) So the entire literature on embodiment is very, very consistent with this idea. For example, if I say the word apple — like a McIntosh apple of the sort that you would eat, as opposed to type on — if I just say the word apple and I was imaging your brain, we would see activity in motor cortex, particularly in the hand and the mouth region, depending on the physical state of your body. If you're a little low on glucose, you might be salivating. We would see changes in the regions of the brain which regulate the gastrointestinal system, and we might see changes in visual cortex, because McIntosh apples have a particular set of colors, and so on and so forth.

Wendy Hasenkamp ([00:20:50](#)): So all of this because you're preparing your body to eat the apple, or interact with the apple?

Lisa Feldman Barrett (00:20:55): Yes to encounter an apple. Your brain is preparing your body to encounter an apple, and what to do with that apple.

Wendy Hasenkamp (00:21:03): And we know that based on the past, our past experience?

Lisa Feldman Barrett (00:21:06): Yeah, on the basis of past experience. And you might say, "Well, what if you'd never encountered an apple before?" So the brain has this really amazing capacity, which cognitive scientists call conceptual combination and neuroscientists call generativity. It's basically this idea that your brain can take bits and pieces of past experience, and combine it in novel ways to create representations, guesses, of things that it has never ever encountered before.

(00:21:35) So when I'm giving this talk live, I have this great image. It's a little movie of electrical pylons jumping rope.

Wendy Hasenkamp (00:21:48): Huh.

Lisa Feldman Barrett (00:21:49): And what's so cool about it is first of all, if you ask people what are you looking at, they're like, "Hmm, I think they're like electrical towers jumping rope?" Have you ever seen electrical towers jumping rope in your life? No, you never have. But yet you understand what it is. The cool thing is, when you watch this video, you feel this thud in your chest, and you can hear the thud as the pylons hit the ground.

Wendy Hasenkamp (00:22:18): Huh, but the clip is silent?

Lisa Feldman Barrett (00:22:21): Exactly. But of course, why would you feel vibrations in your chest and why would you hear the thud? It's because your brain is simulating. It's changing the firing of its own sensory neurons as it's making sense. Your brain has constructed an ad hoc concept, this on-the-fly concept to make sense of this visual input. But in the process, it's simulating other sensory modalities, in a very literal way — meaning, your brain is changing the firing of its own neurons — as part of the construction of this concept.

Wendy Hasenkamp (00:22:57): So how does all of this categorization and the concepts that we create, how does that relate to emotion?

Lisa Feldman Barrett (00:23:04): Right. So your brain is always controlling your body, and it has to guess what the sense data from the body mean, just like it has to guess what sights and sounds and smells mean. And you learned, your brain was wired to acquire, certain meanings for when your heart races, or when your blood pressure goes up, or when you sweat, or a whole ensemble. So an ache in your stomach can be hunger, it can be longing, it can be anger, it could be anxiety, it could be determination, like souping yourself up to do something really hard. It could be a feeling that someone is guilty of a crime if you're in a courtroom. There's no inherent psychological meaning to an ache in your gut. Your brain has to make a guess about what caused that ache, so that it knows what to do next. And it makes different guesses depending on the context that you're in, based on what it's learned.

(00:24:08) Similarly a curl of the lip, a smile. A smile isn't always happiness. The exact same smile can mean something entirely differently depending on the context in which it's encountered. And that's because your brain has learned what that smile means — in the past, what that smile means in that

entire ensemble. And so it's making predictions about when someone will smile and what that smile will mean in that particular situation.

Wendy Hasenkamp (00:24:46): Am I taking you to say that how we perceive emotions or think about emotions are our conceptualizations of what's happening in our bodies?

Lisa Feldman Barrett (00:24:59): In relation to the world. So your brain is doing this under the hood, really automatically and effortlessly and in a sense and in an obligatory way, because we have to train ourselves not to do it, right? We have to train ourselves not to conceptualize or not to categorize. But yeah, your brain is basically making sense... Its job in a sense, its major job is to make sense of the sense data from your body, in relation to what's going on around you in the world, so that it knows what to do next to keep you alive and well.

(00:25:27) And that's how the same sense data can have very different meanings — meaning, your brain will guess what it will do next very differently — depending on the context that you're in. And the context is not just physically the spatial context, but also the temporal context. Meaning, what just happened, right? For example, when you look at my face, the context for your brain to make sense of my face, or the sound of my voice includes... So let's say the movements of my face. Well, your brain is also taking in information about my body posture, and also the sound of my voice. Also, your body state is a context for your brain to make a guess. And also what just happened. So what interaction did we just have? What facial movements did I just make a moment ago? What just went through your head a moment ago? All of these things are the context for your brain, these temporal and spatial things, the your context for your brain to make its next set of guesses.

(00:26:34) And these guesses are like a filter on the world, and on the body. Basically, they're like, we would say a Bayesian filter, because the hypothesis is that the brain is using Bayesian logic.

Wendy Hasenkamp (00:26:45): Like probabilities?

Lisa Feldman Barrett (00:26:47): Like probabilities... about which guess is most likely to be correct based on your prior experience. But the idea is that it's a filter, because your brain doesn't actually take in and process every piece of sense data that's available. It only takes in unexpected information that it predicts will be important for regulating the body at some other time. So I can smile and you cannot notice. I can say something, and you can mishear it. Basically, there are no independent stimuli in the world. In part, your past experience is like a filter on your immediate future, which becomes your present.

(00:27:41) – *musical interlude* –

Wendy Hasenkamp (00:27:55): So this is a very different view than most of us would naturally think about our emotions. I think it feels subjectively like emotions are just naturally emerging. It's a bit out of our control, it's almost "happening to" us. Whereas the view that you're presenting is much more constructed out of our own past. It's fluid, it's happening in the moment, on the fly. Can you say a little more about the distinction there, and why that might be difficult for us to understand?

Lisa Feldman Barrett (00:28:33): I think part of the problem is that the classical view of emotion is very straightforward. It's very intuitive and it's very easy to understand. You have some circuits in your brain. You were born with them, everybody has them. They trigger automatically and eruptions of emotion

occur. So if there's a snake or a gun or something that is frightening to you, that triggers your fear circuit, that fear circuit creates a state of fear. You make a certain expression on your face, you have a certain feeling, your body takes on a certain pattern of comportment, of heart rate changes and so on. And you have a propensity to act in a particular way — to run away, say. That's really straightforward.

[\(00:29:30\)](#) What's interesting is that it's not a universal stereotype. You know, so the stereotype of what to do in fear in Bali is to fall asleep. And of course, this to a western mind is bizarre, but that just shows that we don't have an understanding of emotion that is Balinese. We have an American understanding, or a very western European understanding.

Wendy Hasenkamp [\(00:29:58\)](#): Right. And so for people who are within the same culture, like Americans, that kind of a shorthand understanding of fear can often work, right, because we all culturally agree...?

Lisa Feldman Barrett [\(00:30:12\)](#): I think it's a Faustian bargain actually. I think the idea... We could talk a lot about where these particular ideas come from and what they are designed to do. But functionally, what they do essentially, is let you off the hook for responsibility for your emotions. We see this in the law, and we see this in other domains as well. "You were hijacked by your amygdala. Therefore, you're not really responsible for what you say and do under the influence of this foreign, ancient instinct."

[\(00:30:47\)](#) Ideas about emotion, at least western ideas, you can trace all the way back to ancient Greece, which really is the birthplace of some of our most cherished views, western views, of the mind. But we have to understand that those views of the mind were cultivated for the purposes of understanding and assigning moral value. What it means to be a good person... So emotions were seen as your inner ancient beast that has to be controlled in order to be virtuous and moral. That's part of the narrative, right?

[\(00:31:30\)](#) What's interesting I think is that what the scientific findings suggest is something almost — it's very counterintuitive, but in terms of responsibility, it's almost the opposite. Which is, you are more responsible, because you have more control than you think you do. It's not easy and it's not pleasant always, and it's not always desirable to realize that you have more control than you think you do, but the implication of the science would suggest that you certainly do.

[\(00:32:04\)](#) The problem is, it's a more complicated story, and there are all kinds of pieces you have to put in place for someone to understand what's really going on under the hood.

Wendy Hasenkamp [\(00:32:14\)](#): Right, right. I'm curious that... What you were just getting into about having more control over our emotions than maybe we think we do. Can you say more about the implications there?

Lisa Feldman Barrett [\(00:32:25\)](#): Yeah. I think the important thing to understand, the first thing to understand is that more control doesn't mean you get to choose how you feel. It doesn't mean that you just snap your fingers and employ a couple of Jedi mind tricks, and then completely change how you feel. Sometimes, what more control means is, setting up the situation to reduce stress. Sometimes, it means just doing the best you can with what you have. But everyone can always do something to have a little more control over their emotions.

(00:33:04) I think it's important for people to understand, first of all, that there really is a difference between what we would call affective feelings and emotions like anger and sadness and fear.

Wendy Hasenkamp (00:33:15): Oh yeah, if you could parse that out.

Lisa Feldman Barrett (00:33:18): Yeah. So, your brain is always regulating your nervous system. It's always running a budget essentially, an energetic budget for your body. Your brain doesn't budget money. It budgets glucose and salt and water and things like that. And generally speaking, there's a constant stream of sensations, sense data, that come from your body to your brain, and your brain has to figure out what it means.

(00:33:54) So, you can think of your brain as being in a dark silent box, called your skull. It's receiving sense data from your body, and from the world, and those are the effects of some set of causes. But your brain doesn't know what the causes are, it has to guess. For example, an ache in your tummy could be hunger, could be anxiety, could be longing, could be excitement, it could be the flu. I mean it could be many, many things. And your brain has to figure out based on the context and what just happened, what's the likely cause. The interesting thing is that unlike vision and hearing and... Particularly hearing and vision and touch, where we have precise, like high definition detail, so you can think of vision like high definition television, the sense data that you get from your body is nowhere near as precise. So if vision is like high definition TV, then the sense data you get from your body is more like a signal from a 1950s black and white television, in the rain. It's just like...

Wendy Hasenkamp (00:35:12): Right, it feels very vague.

Lisa Feldman Barrett (00:35:13): It's extremely vague. It's extremely vague. And actually, we're wired for it to be vague. And there's a good reason for that, right? I forget which philosopher it was that I heard speak about tragic embodiment. Actually, I think it was at the Mind & Life, the Summer...

Wendy Hasenkamp (00:35:34): Research Institute. Yeah.

Lisa Feldman Barrett (00:35:35): Yeah, where I heard someone speaking about tragic embodiment, and I was just captivated because that's exactly right.

Wendy Hasenkamp (00:35:43): What is that? Yeah, what does that mean?

Lisa Feldman Barrett (00:35:44): Yeah, so here's what it means. Here's the story she told, and I'm not going to tell it as well as she told it and I'm embellishing a little bit. But basically she's talking about how she's in the kitchen, she's peeling carrots or cutting carrots or something. And she's listening to a story on the radio and it's really sad story. There was a plane crash and 300 people died, and she's listening to this very sad story and it's captivating her attention. And because it's captivated her attention, she slices, like a little bit slices as she's cutting, into her finger. Not a huge cut, just a bit. And ALL her attention goes to her finger. And she completely is no longer attending to anything else, including the story about 300 people who just died. She's not making a moral statement, like my finger is more important than the 300 people who just died. It's just she can't help it, but that's how she's wired, right?

(00:36:39) So the point here is that when anything is wrong in your body, all your attention is on your body. You can't help it, that's how you're wired. The problem is that most of the time, you don't know what that is. So any listener you have who's had a GI problem will know what exactly what I'm talking

about. And women have no problem understanding this because every month, we get cramps and we don't know... Is this constipation? Is this a menstrual cramp? Sometimes, you can't tell. And it's because we're wired not to be able to tell.

Wendy Hasenkamp ([00:37:20](#)): Why is that useful, to not be able to tell?

Lisa Feldman Barrett ([00:37:22](#)): Oh, because you'd never pay attention to anything else outside your own skin ever again. If you had the degree of sensitivity and detail that you have for vision, if you had that for your internal sensations, you would never pay attention to anything ever again that's outside your skin. I guess the point is that you don't have like a smart watch that tells you that you're low on glucose, or that you're low on water. What you have is a vague feeling of feeling pleasant or unpleasant, feeling calm or feeling worked up, feeling alert or feeling fatigued. And these are not emotions. This is what colloquially we call mood, and what a scientist like me would call affect.

([00:38:15](#)) So affective feelings are the subjective feelings that really come from, or derive from, the internal sensations of your body as your brain is tracking them. Scientists don't know how the brain conjures these affective feelings. That's a very basic question of consciousness. But we do know that sensations from the body are key to understanding these affective feelings. So your brain is always regulating your body budget, from the moment that you're born until you are no longer alive. And that means affective feelings are always with you from the moment that you're born until the moment that you die. So you can think of these as properties of consciousness in a sense.

([00:39:05](#)) Emotions really are episodes where the brain is attempting to make sense of these sensations as distinct events. It's the brain asking what caused this unpleasant feeling. And this is a key to understanding something. Your body budget could be running a deficit for many reasons, but your brain has been socialized, basically, to understand those reasons mostly as emotions. So if you don't sleep very well, you're going to very likely have a day that is filled with more negative affect, more negative mood that your brain will be making into negative emotions. And you can teach yourself not to do that, but it's hard. It's hard in the moment to deconstruct a moment of fear or anger or anxiety into — this is just my body budget out of whack, I'm running a deficit and really the problem here is I haven't slept, I haven't eaten enough, I haven't exercised, there's concerns about money. I mean real concerns. Your brain is sort of agnostic. It treats all withdrawals similarly.

Wendy Hasenkamp ([00:40:28](#)): Right, right. And then it kind of compounds, and the people that you're interacting with are interpreting your behavior with other meanings behind it, that may not actually be there.

Lisa Feldman Barrett ([00:40:39](#)): Yeah, yeah. So, how many times have we in our lives snapped at someone, yelled at someone, done something... How many divorces do you think probably were caused by people making sense of their negative affect, that the negative feelings that come from a deficit in body budgeting, that could be explained simply as discomfort. Physical discomfort. Which is really what it is, and then we make sense out of it in a mentalized way.

Wendy Hasenkamp ([00:41:13](#)): Right. So just to go back, the way that we make sense of them is by overlaying these emotions, which are concepts that we've learned from our culture...?

Lisa Feldman Barrett ([00:41:24](#)): Yeah, so I wouldn't say we overlay. I would say, your brain is always constructing concepts on the fly from past experience in order to make sense of incoming sense data.

And it's doing it predictively, as we talked about. So you have many concepts you can construct for an aching stomach, or an ache in your chest. I mean that's one of the problems right now — you have an ache in your chest. Do you have the flu? Have you been exposed to COVID-19? Is it just allergy season? Are you anxious? I mean it's not like you can be wrong. I mean in the sense that it's not like there's one tightness in your chest for allergies, and a different tightness in your chest for the flu, and yet a different tightness in your chest in response to this virus, and yet a different tightness for anxiety. There's tightness. And tightness can have many causes. It's a reverse inference problem, and your brain's got to guess what's the most likely cause. The thing is in this culture, we don't guess I didn't sleep enough, I didn't eat enough, I didn't... I mean our culture is just filled with opportunities to run a deficit in your body budget.

[\(00:42:40\)](#) So, most of the time when we're really uncomfortable, our brain is sort of on autopilot and it's using concepts for emotion, instead of other concepts that you could use to make sense of what the sensations are in your body. And that can cause real problems. And so the classical view of emotion reifies emotion in a way that a more constructionist approach really doesn't. It says you have some authorship over the emotions that you make out of these ingredients. And if you have more authorship, it means that you have more responsibility. So I don't mean that anyone's responsible for the distress that they feel, or the terrible circumstances they may find themselves in, but I am saying that sometimes the only person who can change your distress is you. Control doesn't mean you can snap your fingers and feel differently. What it means is that you have more options.

Wendy Hasenkamp [\(00:43:49\)](#): You can influence.

Lisa Feldman Barrett [\(00:43:50\)](#): You can influence. And for example, using mindfulness meditation, you can transform distress into mere discomfort. And therefore, you have responsibility — not because you're culpable, not because you're to blame for how you feel, but because you're the only one who can change it.

[\(00:44:09\)](#) – *musical interlude* –

Wendy Hasenkamp [\(00:44:47\)](#): You were just speaking about the possibility of using mindfulness to be able to transform distress into discomfort. I was going to say this seems like where contemplative practice can become really relevant. Because to be able to become aware of those more low-level physiological affective feelings — of just pleasant, unpleasant, discomfort, before you come into the levels of concepts and what that might be about — is a big part of what a lot of basic meditation practices do. Focusing on just the more raw experience. So it seems like that can be really useful in then helping us be able to then have a choice and shape how we interpret them, and how we respond.

Lisa Feldman Barrett [\(00:45:35\)](#): Yeah, exactly. And to some extent, emotions are recipes for action. They're ways of interpreting your affect — these feelings that come from the sensations in your body — in a particular context so that you prepare your action, prepare to act in a particular way. So when you have an ache in your stomach and your brain is making anxiety out of it, you will act very differently than if your brain is making envy or hunger. You know, so here's an example. This is one that I find myself experiencing quite a bit these days, which is that when I am feeling low energy, my brain immediately makes hunger. But if I really stop, and do a body scan and try to focus, I realize I'm not hungry, I'm tired. I'm low energy. Now in the past, eating often gives me energy. But not when the lack of energy comes... the lack of energy has to be coming from low glucose levels. If it's coming from something else, eating any amount is not going to help me feel like I'm more alert, basically.

Wendy Hasenkamp (00:46:53): It's like stress eating, right? It's why people... Yeah.

Lisa Feldman Barrett (00:46:56): Yeah. Oh, absolutely. In my TED Talk, I give this example of waking up in the morning, and I think everybody has had this feeling if they've lived in the modern world, which is as you're surfacing into consciousness, you just feel the crush of stuff that you have to do. And immediately, your brain can just make anxiety out of it. But there are other ways to understand what's happening to you in that moment that can... Instead of causing you to race around and get your email before you've even brushed your teeth, or had a cup of coffee, there are other things that you can do that can completely change the trajectory of your day, which will impact your body budget.

(00:47:41) So, it's hard in the moment to change your conceptualization of what something means. We have fancy words for this in psychology, we call it reappraisal. You can, it's just really hard. What's somewhat more advisable I would say, is if you expose your brain, if you cultivate experiences quite mindfully, you're basically exposing your brain to new opportunities for learning, and you can add flexibility or learn new concepts or learn new emotion words or new words for other categories in other cultures or whatever. But what you're doing is you're expanding the conceptual system in your brain, so that your brain can be more flexible with what it constructs.

(00:48:33) And I would also say if you do mindfulness meditation, you can also learn — colloquially I would say to deconstruct your experience — but really what you're doing is you're categorizing it differently. You're always categorizing it, but sometimes you're categorizing it in a way that is so close to the sense data that when you're thinking about the similarity, sometimes the similarity is so close in terms of the sense data that it feels like what you're doing is deconstructing your experience.

Wendy Hasenkamp (00:49:06): Yeah, that's interesting. You're talking about mindfulness meditation, which often is a focusing on sensations and on the body in the present moment, as opposed to thought patterns that might come along (or those come along, but then they're dropped and you come back to the body). Can you say more about how that deconstructs, or how that process — focusing on sense data — might help deconstruct concepts?

Lisa Feldman Barrett (00:49:33): Yeah. When we talk about focusing on sense data, really what we're saying is, a lot of the similarities that our brains construct are functional similarities. So the sense data are different, but the function is the same. Money for example, what has served as money throughout the course of human history, doesn't share any perceptual features in common, there's a functional similarity — they've traded for material goods. And in a given moment, when your brain is constructing ad hoc concepts to conceptualize incoming sense data, it's often constructing those concepts based on functional similarity. But when we start constructing concepts based on very low level sensory data, sense features, that's what it means I think to "pay attention" (so-called) to sense data.

(00:50:24) Here's what I mean. If you show me a glass filled with water, and you ask me to look at that 3-dimensional object filled with water and paint it on a canvas, a 2-dimensional canvas, if I just look at the glass and try to paint it on the page, it's going to look pretty crappy. However, if I take that glass and I try to deconstruct it into pieces of light — so now what I'm doing is I'm taking that sense data and I'm categorizing it at very fine grain — and the "object" disappears in my perception, and all I have are pieces of light. And I render those pieces of light on the page, then I will get a pretty decent looking 3-dimensional object.

(00:51:10) It takes tremendous training to do that, because your brain is so used to categorizing on the basis of, like a glass or cup on the basis of the function, but here what you're doing is you're taking exactly the same sense data and you're categorizing it very differently, in a way that's very, very close to the low level sensory features. And that to us feels like we're deconstructing the glass and we're actually perceiving the sensory, the low level sense data. I think that's what we do with our experience, that's what we learn to do in mindfulness meditation. It's exactly that.

(00:51:51) And the reason why it's not suspending prediction is that, if you suspend prediction, you will have a lot of arousal. Because when there's no prediction, there's a lot of prediction error. And what the brain does with prediction error is it attempts to learn it. So when you're not predicting well because you're in a really novel situation, you will have a great surge in arousal because norepinephrine, which is a neurotransmitter, helps your brain to learn prediction error. Now, little infants have a lot of prediction error all the time, and they don't look highly aroused, like anxious all the time. So it's also possible that you do learn to turn off prediction (whatever that means) and also the arousal that goes with it. That is actually also a possibility. Those are two completely different hypotheses, neurally, for what a brain might be doing, that as far as I know, nobody's actually tested either one of them particularly well. But that's how I would understand it.

Wendy Hasenkamp (00:52:59): Yeah, I wonder that about meditation, about which way that's going... If it's actually trying to tamp down the prediction system.

Lisa Feldman Barrett (00:53:09): Well, I mean it might... I guess my point though is that, understanding a brain this way leads to very novel hypotheses about what a brain is learning when it learns to meditate, and also what the consequences of meditation are. The assumption is that the consequences are attentional. And that might be true, but what attention is and how it works is understood somewhat differently in a predictive framework than in this classical framework.

(00:53:42) I also think — like oftentimes, people will say, "Well, how do you change your emotional life?" I often will say, "Well, you have to change the ingredients." So you can change the sense data that come from your body. If you sleep and if you eat well, and you sleep enough and you exercise, then it makes it easier for your brain to regulate your body. And so there's less discomfort that's coming from your body that you have to categorize, or ignore, which is really hard. The other thing though is that you can also change the context that you're in, because the context is influencing the next volley of predictions that your brain makes. And you can do that by physically moving, but you can also do it by being mindful. Because when you're mindful, you're just focusing on certain features of the world that you've ignored before. And that is literally changing the opportunity for your brain to categorize the sensations in your body in a very different way.

(00:54:44) So in a sense, mindfulness can help you deconstruct your experience (or I would say categorize it in a way that's much closer to the sense data), or it can help you change your conceptualizations, because you have the flexibility — and this is where attention comes in — to foreground certain aspects of the environment, your immediate surroundings that you were maybe originally ignoring, that were being filtered out. And that will naturally change how your brain is conceptualizing the meaning of the sensations in your body.

Wendy Hasenkamp (00:55:24): Yeah, that's great. So it's widening, it's just giving you more data to work with, to interpret the sensations.

Lisa Feldman Barrett (00:55:31): Yeah. And I think the other thing to me that's really interesting — I know you and I have talked about this before — is... You know, I'm not a contemplative scholar, but I always thought that this view of emotion, this approach that we have to understanding emotion is very contemplative. And I never could really understand why, in the classic Abhidharma view of emotion, emotions are like basic elements of the mind, right? They're indivisible. So the self is a fiction, but emotions are real.

Wendy Hasenkamp (00:56:09): Yeah, it's so interesting. And I'm not a scholar either of Buddhism, so I can't break it down, but there does seem to be some tension in the way that I've heard things described. Because there is in some forms of Buddhism, very much this embracing of concepts, as you've described them, being constructed and all of that.

Lisa Feldman Barrett (00:56:28): Exactly, exactly. So there's a part of me that feels like this debate, which has gone on in western culture for the last couple of thousands of years about the nature of categories and concepts, also you can see it in the contemplative tradition too.

Wendy Hasenkamp (00:56:46): I think that's true.

Lisa Feldman Barrett (00:56:48): Yeah, exactly. I learned from our friend John Dunne that in fact there is — I think Dharmakīrti is the scholar who's most identified with this — but this idea that even some of the dharmas that we think of as being basic elements of consciousness actually can themselves be thought of as conceptual constructions of a human mind. And I would say that is the closest contemplative idea, it's identical actually, to what we are proposing scientifically, as what we think of as the best explanation for what your emotions are and how they work.

(00:57:29) – musical interlude –

Wendy Hasenkamp (00:58:06): I was really struck by, when you said originally that you went to grad school to study the self. And then you've taken this long diversion into emotions. But of course, there's a lot of links there, and a lot of implications for our understanding of self.

Lisa Feldman Barrett (00:58:21): Yeah. So, when I went to graduate school, I was mostly interested in the self, and I was really perplexed by the idea that there was a self-concept, like a single self-concept, that was supposed to be unchanging like an essence. Of course, I didn't know anything about Buddhism or contemplative philosophy or anything about like that. But I just thought that couldn't possibly be true. And about the same time, there was this work on multiple selves, and this work on facets of the self, and how when different facets didn't line up particularly well or different versions of the self didn't line up particularly well, you would feel anxious or depressed or what have you.

(00:59:06) So, I was always really interested in, I guess, dissolving what looks like natural boundaries. And so one thing that's very attractive about Buddhism and contemplative practices more generally is this idea that the self is a fiction. And actually if you believe too much in it, in this fiction, it can alienate you from your experience, and really make you profoundly miserable.

Wendy Hasenkamp (00:59:38): Can you say more about how the science and the research that your lab does supports this view that the self is not a single thing?

Lisa Feldman Barrett (00:59:49): Yeah, sure. We've directly done research with Larry Barsalou on the self as a concept. So what you experience as your "self" is a construction that your brain makes, to make

sense of your sense data. Partly, what your brain is always doing, at a really basic level, right? At a really basic level, your brain's always asking, "Is this me or is this not me?" Your brain doesn't actually know where your limbs end and the world begins. That's very porous and your brain's always guessing at that boundary, which I know sounds really nuts, but there are really nice experiments which demonstrate it. For example, the rubber hand illusion. Which is this illusion where you remove from sight someone's own hand, and then you put a rubber hand in front of them, and then you stroke the person's hand at the same pace with the same object as you stroke the rubber hand. And if you do that for a couple of minutes, and then you go to stab the rubber hand, the person reacts as if they are about to be stabbed.

Wendy Hasenkamp ([01:00:53](#)): Right, you start to incorporate the rubber hand into your own body.

Lisa Feldman Barrett ([01:00:56](#)): Yeah. But more generally, everybody who drives has had the experience of getting into a car, and then their personal space expands immediately to include the car. You understand what's called your peripersonal space, where the boundary is between you and the world, you and your car. You understand that boundary, if you've driven that car before. And what feels so weird about getting into like a rental car is that you don't have that experience, you have to learn it, right?

Wendy Hasenkamp ([01:01:26](#)): Right.

Lisa Feldman Barrett ([01:01:27](#)): But you learn it really fast. After a couple of days, that car is part of your body for a certain period of time.

Wendy Hasenkamp ([01:01:32](#)): Yeah, interesting.

Lisa Feldman Barrett ([01:01:33](#)): Similarly, your immune system is always, "Is this me, is this not me?" Like always, right? So you have all these mechanisms for "Is this me, is this not me?" And philosophers and some neuroscientists have thought about how this basic sensing and modeling of your body gives you this really basic sense of self. That is, of something that persists through time. But of course, it's credibly malleable, as I've just mentioned. If you've ever had a growth spurt, or you've ever been pregnant and been whapping people with your big belly because you sort of don't know it's there. (I mean you know it's there, but you're just not used to it). So our physical body is always changing and expanding, or changing in some way, and brains are having to accommodate to that. So if your basic sense of self comes from this, then that's always changing too.

([01:02:31](#)) But really the idea is that, there's a whole line of research on the role of memory in the self-concept. The reason why you perceive yourself as someone who is unchanging over time, one constellation of features that is unchanging over time, is that you're constantly using your memory. When we talked about prediction and how the brain predicts and it doesn't react... And what's it using to make sense and predict incoming sensations? It's using memory, it's using past experience. When people develop Alzheimer's, they lose their sense of self because they're losing their memory.

([01:03:09](#)) So to some extent, what your brain is always doing is it's always reconstructing... There are ad hoc concepts that are being constructed all the time. Your brain is basically constructing a sense of self continually through time, using whatever is relevant in the moment. And the features change, and certain things are backgrounded or foregrounded. You could think of it as an ever-flowing river. But to you, it feels like one entity that is unchanging over time. But that's our summary of it, but that's actually not how we're experiencing it in the moment, which is the whole point, right? That if you have this

fictional sense of self — of you are one thing and always one thing with a set of features — what you're missing is the moment-to-moment variation of your true authentic experience.

Wendy Hasenkamp (01:04:03): Right, right. Yeah, a place where this can become really obvious is just being with different groups of people — friends from different periods in your life or family — and you can start to become aware of how differently you behave and, yeah.

Lisa Feldman Barrett (01:04:17): Yeah. You can think about your sense of self, this static self, as a stereotype. And so we would say the same thing about emotions. You think about anger as one thing, with a particular facial expression, a particular bodily pattern and a particular action. But it's not one thing, it's many, many, many things. When you feel angry, sometimes you feel unpleasant, sometimes you feel pleasant. Sometimes you certainly scowl, but only about 30% of the time if the data are correct, which means you're doing lots of other things with your face when you're angry. You might cry when you're angry. You might laugh when you're angry. You might have a completely still face when you're angry. Your blood pressure could go up or go down, or stay the same. It's not random. Your brain is always preparing your body for action.

Wendy Hasenkamp (01:05:05): In that situation.

Lisa Feldman Barrett (01:05:07): In that situation. It's contextual variation, it's situated variation. So if you believe that anger is one thing, it's a stereotype. But really in reality, your anger is not everything, but it's more than one thing, more than one anger. There could be multiple angers for you. Then if you believe in that stereotype, you are alienating yourself from the authentic experiences that you have. And you can say that about any emotion.

Wendy Hasenkamp (01:05:42): Right. So the next place that my mind goes with all this is thinking about how... You've described how emotions are constructed, and are basically concepts. And similarly, our sense of self can be viewed as a concept and is constructed. So I'm thinking about then, how that impacts, or how that relates to the way we interact with others. Are there implications of this theory in that space — thinking about interpersonal relationships?

Lisa Feldman Barrett (01:06:14): Oh, very much. I mean first of all, we are social animals. We evolved to be social animals. What that means, it means a lot of things, but one of the things it means is that we regulate each other's nervous systems. We have more authorship of our own experience than we might realize, but we are also much more responsible for other people than we realize too. It's not a zero-sum game. We're just basically more responsible than we might realize. We're more responsible for other people because we have an impact on other people in ways we are not aware of, both for the better and for the worse. So like, the best thing for a human nervous system is another human. And the worst thing for a human nervous system is another human.

(01:07:00) We affect each other in extremely profound ways, and in very individualistic cultures like ours, it's very hard to reconcile this very socially entwined nervous system with social rules and practices, which are highly individualistic. Sometimes people mistake me for saying that I think we shouldn't be so individualistic. Really, what I'm saying publicly as a scientist (of course I have my own values and beliefs), but as a scientist what I'm saying is, there's a profound conflict that we face, often on a daily basis, between what we value and endorse in our cultural practices and the reality of the way our nervous systems work. And many of the ills of social life come from that disjunction, that we should

be talking about. So I'm not saying I have the answer there. All I'm saying is trying to shine a spotlight on it and say, "Let's pay attention to this."

(01:08:11) I also think that many of the ills in our culture come from categorizing, this automatic categorizing we do, of people in a way that precludes our awareness of their similarity to us. If you knew that that your brain was automatically categorizing, and that you could have more flexibility over how your brain does it, why wouldn't you choose to embrace that flexibility? It just doesn't really make a lot of sense.

Wendy Hasenkamp (01:08:48): Yeah. Just to answer your question, or think about it, I wonder if there's a safety... What you're suggesting is an expansion of a mindset, which requires a lot of energy and requires...

Lisa Feldman Barrett (01:09:01): Yeah, I think that you're pointing out something really important when you say it requires a lot of energy. A major constraint on the functioning of a nervous system is metabolic, actually. It's energy constraint. And the brain predictively tries to regulate the body in a way that is metabolically efficient, which we call allostasis, but I try to explain it as "your brain is running a budget for your body." What are the two most expensive things you can do, is move your body and learn something new. If you're running a deficit, what do you do when you're running a deficit in your bank account? You stop spending. So what does a brain do when it's running a deficit? It stops spending, or at least it slows its spending. So what does that mean? That means it might not move as much, so you might feel fatigued, stressed as it were. Or you might not expose yourself to things where there's a lot of prediction error, where you would have to learn something new.

(01:09:57) I think that's one of the reasons why people stay stuck in the way they categorize. They surround themselves, more likely to surround themselves, by people who are similar to them, because it actually reduces... This is my speculation. It reduces the metabolic costs on the brain. And so if you're running a deficit — biologically you're running a body budget deficit because you don't sleep enough, or because you have stresses in your life, like financial stresses, or you're worried about your kids, or anything which is spending metabolic resources, or you're not taking enough in, you don't eat well, you're not exercising sufficiently, whatever — you're more likely to do things to cut the spending. Which could include living in an echo chamber, and only surrounding yourself with people who are similar than you. Or finding differences between you and other people to distance yourself from those people. And so rising nationalism to some extent goes along with stress, for a really good metabolic reason. I'm not reducing everything to metabolism, but I am saying I do think that there is an equation here that we maybe haven't completely considered and grappled with.

Wendy Hasenkamp (01:11:17): Yeah. Of course, even more important to think about where we find ourselves now with a global pandemic and many, many major stresses happening around the globe.

Lisa Feldman Barrett (01:11:30): Yeah, yeah.

Wendy Hasenkamp (01:11:31): Well, so the last thing I wanted to ask, and I know we're coming up on time and I feel like we could go on for hours...

Lisa Feldman Barrett (01:11:38): No, I know we could. I love talking to you so it's so...

Wendy Hasenkamp (01:11:40): I know, likewise.

Lisa Feldman Barrett ([01:11:41](#)): Yeah.

Wendy Hasenkamp ([01:11:43](#)): What you've been talking about so far is really beautifully laid out in your book, *How Emotions Are Made*. And I know you've been working on a new book. Do you want to share a bit about that?

Lisa Feldman Barrett ([01:11:53](#)): Yeah, so I just finished a new book. It's called *Seven and a Half Lessons About the Brain*.

Wendy Hasenkamp ([01:11:58](#)): Seven and a half?

Lisa Feldman Barrett ([01:11:58](#)): Seven and a half. [laughter] And actually, it's a book of little essays. Each essay is maybe 3000, 3500 words. It's meant to be read at like one subway stop, or one brief moment in the bathtub at night, or one lunch hour. Basically, they're little essays that talk about some tidbits of science about the brain, that people don't generally know, that make us think about human nature, about what it means to be human in a world like ours. It doesn't tell people what to think. It just gets people to think about dimensions of their lives that are really profoundly shaped by the kinds of brains we have.

([01:12:56](#)) The idea really is to entertain people, to make them think, and to give them a couple of tidbits of science so the next time they go to a dinner party (once we're not all quarantined), they can entertain people by those tidbits of neuroscience that they know. It's really written for people who would not pick up a popular science book. You know, *How Emotions Are Made* is a classic popular science book. It's science written for the public. This book is written for people who wouldn't pick up a science book. They're very lyrical essays, or at least that's my attempt, and the popular science bits are really in the appendix and in the online references.

Wendy Hasenkamp ([01:13:42](#)): Great. Well, thank you so much for spending your time with us today and for sharing your wisdom. It's been wonderful to talk with you.

Lisa Feldman Barrett ([01:13:49](#)): It's been my absolute pleasure, and I hope we can do it again.

Wendy Hasenkamp ([01:13:53](#)): Definitely.

Outro – Wendy Hasenkamp ([01:14:01](#)): *This episode was edited and produced by me and Phil Walker. Music on the show is from Blue Dot Sessions and Universal. Show notes and resources for this and other episodes can be found at podcast.mindandlife.org. If you enjoyed this episode, please rate and review us on iTunes, and share it with a friend. If something in this conversation sparked insight for you, we'd love to know about it. You can send an email or voice memo to podcast@mindandlife.org. Mind & Life is a production of the Mind & Life Institute. Visit us at mindandlife.org, where you can learn more about how we bridge science and contemplative wisdom to foster insight and inspire action towards flourishing. There, you can also support our work, including this podcast.*