

Introduction Episode

What does it mean to be human?

How do we define ourselves?

What makes us special, unique, different?

This question has plagued philosophers for centuries. How do you even begin to answer a question so broad and indescribable? With our vast array of emotions, experiences, personalities, relationships, and actions, is it even possible to define?

Maybe the real answer lies not in answering the question, but in asking it.

My name is Megan Piggott and this is Human.

(music)

When I was a freshman in college I took a seminar about pain. Mind you, I study theatre not medicine, but all the same this class fascinated me. For sixteen weeks we explored the concept of pain—how we identify it scientifically, how we try to explain or convey our pain through language and art, how to try to differentiate a drug-seeking patient from a patient in pain who needs a higher dose, and how factors like age, race, and gender impact how our pain is understood and treated. The goal of the class, our professor constantly reminded us, was not to fully understand and explain pain, but to explore it more deeply and come to think about it in a new way.

As an actor, I'm learning to see the world through different eyes, to take in personalities other than my own and empathize with them. My job is to bring a character to life, to share my humanity with theirs so that together we become a new, fully realized person. This has led me down many a google deep dive into what humanity is. After all, I should try to understand it if I'm going to bring it into my work. But the more you think about what it means to be human, the further you seem to get from an answer. So I decided to start this project.

Like pain, humanity is undefinable. There are entire scientific fields dedicated to trying to answer the question of what it means to be human. The goal of this podcast is not to answer this question, but rather to understand the scientific and socio-cultural perspectives that shape *how* we answer this question. And hopefully, in asking the question, we'll come to think about it a new, more complex way.

Check in every Monday and Thursday for the next five weeks to hear interviews with individuals across the country as they share their experience in grappling with this question, and join me next week when I talk to Dr. Sean Carroll about how the field of physics shapes our understanding of humanity.

Physics Episode

We've all heard of space as the final frontier, but there are probably fewer of us who have thought of it as a gateway to getting a better sense of what makes us who we are. Physics, the scientific field known by most high schoolers as the class where you spend a year rolling cars down ramps, has quite a bit to do with understanding what makes us human. With the advent of the quantum revolution and new unifying theories like string theory emerging, physics has become an important player in the quest to understand what it means to be human.

[I'm Megan Piggott and this is Human.]

music

[My name is Sean Carroll. I'm a theoretical physicist at Cal Tech I do research on quantum mechanics, space-time, and cosmology.]

This week on Human we're looking at how Physics factors into the question of what it means to be human by talking with Dr. Sean Carroll, theoretical physicist and author of *The Big Picture*.

So let's start out with the basics.

[question 1 pt. 1]

Quick pause here to touch on the concept of emergent phenomena. So in physics, emergence is used to describe a phenomenon that occurs at macroscopic—or large—scales in space and time, but not at microscopic scales, despite the fact that a macroscopic system can be seen as a collection of microscopic systems. Take water, for example. At its component part, it's just an oxygen molecule with two hydrogen molecules adhering to it. But if you put a bunch of those molecules together, it becomes a substance with properties like liquidity, being a liquid, that the individual molecules don't have on their own. Okay—back to the original question.

[question 1 pt. 2]

[question 2]

[question 3]

Let's take a minute to explore the idea of consciousness a little more. Does consciousness make us special as humans? And does part of its significance arise from the fact that we can't quite explain how it emerges from particle interactions and forces? Where does physics stand in this debate?

[question 6]

[question 4 + follow-ups]

[question 5 pt. 1]

I'm going to pause again for a minute to talk a little bit about LaPlace's demon. Basically, French scholar Pierre Simon LaPlace pointed out that, as Dr. Carroll explains in his book, quote "the universe is something like a computer. You enter an input—the state of the universe right now—, it does a calculation—the laws of physics—, and gives you an output—the state of the universe one moment later, end quote. Since computers didn't exist in 1814 when LaPlace first explained this theory, he attributed it to a vast intellect, a moniker which his contemporaries found too boring, so they started calling it a demon to add a bit more pizzazz.

[question 5 pt. 2]

[question 7]

music interlude

Clearly, it's going to take more than just physics to provide an understanding of what it means to be human, but it's a good place to start. As the building block of science on the first rung of the hierarchy of sciences, it helps us contextualize issues like free will and consciousness which are big pieces in this puzzle. And at the very least, it provides us with a lens through which to view the world around us, observing how the human story fits in to the larger story of the universe itself.

Thanks for joining me this week on Human and check back this Thursday for an interview with Dr. Katie Pollard as we take a look at how biology tries to answer this question.

Special thanks to Dr. Sean Carroll for his participation in today's episode,

Lee Rosevere for the theme music

And Dr. Jen-Scott Mobley, Dr. Tim Christensen, and the ECU Honors College for supporting this project.

If you're interested in learning more about today's topic, look in the description below for a list of additional resources.

And thanks for joining me this week on Human.

Biology Episode

In 1990, the Human Genome Project was initiated with the goal of sequencing and identifying all three billion units of the human genome. Thirteen years later in 2003, this project was completed. Since then, scientists have been able to use this information to better understand viruses and how to develop targeted treatments, understand the mutations associated with different forms of cancer, create biofuels and advancements in agriculture, and so much more. Sequencing the human genome has also given the field of biology a unique and powerful tool in the quest for what it means to be human

[I'm Megan Piggott and this is Human]

music

[Hi I'm Katie Pollard...]

This week on Human we're taking a look at how the field of biology tries to answer what it means to be human, and the role that DNA plays in this search by talking to Dr. Katie Pollard.

[Question 1]

[Question 2]

Before we go on to the next question I want to provide a little bit of background information. When we talk about gene editing, one of the main tools scientists use is called CRISPR. At a very basic level, CRISPRs are pieces of RNA copied from viruses that attack bacteria. Bacteria use these as a sort of book of mugshots, so that when it recognizes a virus its encountered before, it produces an RNA copy of the CRISPER that guides an enzyme called Cas-9 to cut up the virus rendering it harmless. Scientists are now building their own CRISPRs that use this same technique to act as genetic scissors, if you will, to edit or alter certain genes to understand how they work, repair broken genes, insert new ones, and disable harmful ones. Now onto the question.

[Question 3 pts 1, 2, 3]

[Question 4]

[Question 5 pts 1 and 2]

[Question 6]

Music interlude

While scientists have come a long way in understanding DNA and the roles of genes, there is clearly still a lot of work to be done. Genes work together to create a complex array of abilities, attributes, and behaviors, in ways that its possible we will never fully understand. But knowledge of the human genome does give us a concrete starting point to work from, and the advancements it has already facilitated in understanding how we work are invaluable. While the answer to what makes us human won't lie within the field of biology alone, understanding how human life has adapted and evolved from our ancestors and from the other forms of life we see around us, will almost certainly be a large piece of the puzzle.

Thanks for joining me this week on Human and check back this Monday for an interview with Dr. Chris Brighton as we take a look at how sociology factors into how we understand what it means to be human.

Special thanks to Dr. Katie Pollard for her8765 participation in today's episode,

Lee Rosevere for the theme music

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Sociology Episode

Today we're bridging the gap between science and culture by looking at the perspective of a scientific field dedicated to the study of human society: sociology. As we move from the physical sciences into social science, we can now explore why we do what we do and how our actions are shaped by our larger culture. After all, we can't talk about what any one individual thinks it means to be human without recognizing the influence of the society around us in how we think about and answer this question.

[My name is Megan Piggott and this is Human]

music

[Hi I'm Chris Brighton...]

This week on Human, we're looking at how sociology answers the question of what it means to be human, and how culture affects how we perceive this question by talking with Dr. Chris Brighton.

[Question 1]

[Question 2]

The audio cuts out here little bit, so for context, I've just asked him how determining what it means to be human fits into our understanding of culture.

[Question 3]

[Question 4]

[Question 5]

[Question 6 + follow up]

[Question 7]

[Question 8]

music

By better understanding our culture, we better understand ourselves. Sociology is an exceptional tool in understanding who we are and what makes us the way we are. The answer to what it means to be human differs from person to person and is shaped in large part by their

values and beliefs. When we can make ourselves aware of these values and understand how they affect us, we can become stronger agents of choice and change.

Moving forward in the following three episodes, we will begin to explore the impact of different value systems or cultural groups, and how they shape people's understandings of themselves and those around them. There are no real experts when talking about the experience of gender, or of immigrating, or of connecting to a higher power, so instead of interviewing one person to represent the views of a particular field, each episode will feature three interviews from people of different backgrounds to paint a broader picture of the stories found in each topic.

Thanks for joining me this week on Human and check back this Thursday for interviews with David Ingram, Christine Piggott, and Olivia Williams as we take a look at how gender factors into how we understand what it means to be human.

Special thanks to Dr. Chris Brighton for his participation in today's episode,

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Gender Episode

In the moments after you're born, doctors and nurses ensure your health. They cut the umbilical cord, make sure you can breathe on your own, and clean you up so your caretaker can hold you. A few minutes later they work to identify you. They measure your weight and length, make copies of your handprints and footprints, and assign your sex based on your genitalia and chromosomes. For many years, people assumed that this is where the discussion on sex, gender, and identity stopped—in the moments after birth—but in reality, this is not the case.

[I'm Megan Piggott and this is Human]

music

[I'm David Ingram, I'm Christine Piggott, I'm Olivia Williams] full intros

This week on Human we're taking a look at how gender affects our understanding of what it means to be human by talking with three individuals about their experience with their gender identity. Before we begin, I think it's important to clear up a few things. Like I mentioned before, for a long time people thought that the discussion of gender began and ended with the assigned sex you were given at birth, and thus used the terms sex and gender interchangeably. However, these are two very different things. Your assigned sex is the label of male, female, or intersex that you were given by a doctor at birth based on the genitalia, chromosomes, and hormones present in your body. This is not the same thing as your gender. Gender is a social construct that encompasses society's expectations about your behaviors, characteristics, and thoughts. Instead of being about anatomy, it deals with how you're expected to act and express yourself.

So let's start out here, and have Liv explain the idea of gender in a little more detail.

[clip of Liv explaining gender around the 9 minute mark]

Now that we understand the basics, let's start out by looking at when people first became aware of their gender. We'll start with Christine

[Question 1
Christine answer]

Here's Dave
[Dave answer]

Here's Liv
[Liv answer]

[question 2: christine, dave, liv]

[question 3: christine, dave, liv]

[question 5: christine, dave, liv]

[question 6: christine]

[question 6: dave]

[question 6: liv]

question 7: christine, dave, liv]

music

Gender is just one of many identities that shape who we are, but for many people, it's a deeply impactful one. Our gender identity affects how people see us and treat us, how we interact with the world, and the rights we have in society. And with the growing knowledge and understanding of the entire gender spectrum and increased visibility of different genders in the media, people are finding more freedom to express their true selves and show the world that to be human is more than to be male or female; it's to be yourself.

Thanks for joining me this week on Human and check back on Monday for interviews with Dr. Aakash Tyagi, Andy Li, and Mehri Alba, as we take a look at how race and immigration factors into how we understand what it means to be human.

Special thanks to Christine Piggott, David Ingram, and Liv Williams for their participation in today's episode,

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And Dr. Jen-Scott Mobley, Dr. Tim Christensen, and the ECU Honors College for supporting this project.

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And thanks for joining me this week on Human.

Race and Immigration Episode

In the past few years, immigration has become quite a hot-button issue. Claims that immigrants from various countries are out to steal our jobs, use up our resources, or commit crimes have run rampant in politics, news outlets, and online. While I'm by no means an expert in this topic, I think that this has largely been driven by fear, namely fear of the unknown. In the episode on Sociology, Dr. Brighton commented that when we see people as an "other," we tend to set ourselves against them. Intentionally or unintentionally, we set up an us vs. them dichotomy and assume that anyone who is unlike us is bad or dangerous. Yet at the same time, on an individual basis, most people are willing to learn about the cultures and people they are unfamiliar with, especially when they meet someone face to face, slowly shifting the tide from seeing someone as other, to seeing them as human.

[my name is Megan Piggott and this is Human]

music

[quick name intros]

This week on Human we're exploring the concept of race and immigration and how it factors into how we understand what it means to be human. This topic is incredibly vast and encompasses a wide array of cultures and experiences. So for our purposes, we're going to examine this concept through the lens of three different stories: those of Dr. Aakash Tyagi, Andy Li, and Mehri Alba.

Let's begin with Aakash.

[interview]

Now let's move on to Andy, who has a unique story of life between two countries.

[interview]

Finally, let's talk with Mehri.

[interview]

music

The story of race and immigration is a personal one. It's a story of who you are and how you came to be. It's a story not only of where you have lived, but of the many people and many cultures that have made you who you are. The more people you meet, the more places you go, the broader your horizons and the more you come understand, like Andy said, that we all have

complex stories that shape who we are. At the end of the day, the concepts of race and nationality are constructs. We've created these ideas to help give us structure and order, control over a sea of complexity. But sometimes I think we let them get in the way of the deeper fundamental truth that at the end of the day, we are all human.

Thanks for joining me this week on Human and check back this Thursday for interviews with De'ja McNab, Gabrielle Goodman, and Waseem Alzeer as we take a look at how religion factors into the quest for what it means to be human.

Special thanks to Dr. Aakash Tyagi, Andy Li, and Mehri Alba for their participation in today's episode,

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And Dr. Jen-Scott Mobley, Dr. Tim Christensen, and the ECU Honors College for supporting this project.

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Religion Episode

From a purely anthropological standpoint, religion has three major functions in human society: It provides social cohesion to maintain solidarity within a group through shared rituals, it acts as a means of social control to enforce morals and norms and maintain conformity in society, and it provides meaning and answers to large existential questions of life and purpose. And in some ways, this assessment is correct. If you track the course of religions throughout history, you notice all three of these functions come into play both in the past and today. But to many people who are religious, their faith and practice is so much more than that.

[I'm Megan Piggott and this is Human]

music

[quick intros]

This week on Human we're taking a look at how religion factors into what it means to be human by talking with three individuals about their personal experiences with their faith. While there are many religions practiced throughout the world, today we'll be focusing on three of the most widely practiced ones: Christianity, Judaism, and Islam.

[De'Ja Interview]

[Gabby Interview]

[Waseem Interview]

For many people religion is more than just a means to find community and answer big questions—although that is certainly part of it—it's a lens through which to view the world. It can provide peace and guidance in turbulent times of life and a platform to begin to better understand yourself and who you want to be. Like anything, religion can be used as a tool of destruction and oppression, or it can be used as a tool for healing and connectivity. And at the end of the day, a religion is nothing without people. We shape religions with our actions and interpretations and understanding of what is right and just in the world. Religions guide us through the world, but ultimately we are the ones who have to live our lives day in and day out. After all, as humans we have the unique ability to build the world that we want to be a part of. Let's use that power for good.

Thanks for joining me this week on Human, and check back on Monday for our last episode of the season as we wrap up our journey and take a look back to see how all of these factors combine to shape how we understand what it means to be human.

Special thanks to De'Ja McNab, Babrielle Goodman, and Waseem Alzeer for their participation in today's episode,

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And thanks for joining me this week on Human.

Conclusion Episode

[everyone's answers to what it means to be human]

[I'm Megan Piggott and this is Human]

music

From the very first episode, the goal of this podcast was clear: I didn't set out to answer what makes us human, but rather to understand all of the ways we go about answering the question, so that hopefully, little by little, we'll come to understand it in a deeper, more complex way. And while I think, or at least hope, that we've achieved this goal together, I have also learned so much more than I thought I would from the process of making this.

Beyond the logistical basics of how to physically bring this project into the real world, get it down on paper, and share it with an audience, I have learned that people are exceptionally kind, generous and understanding. Twelve people, some of whom I knew well and others who I had never met before, agreed to share their stories with me and with all of you. They took time out of their day to open their hearts and share their passions, their fears, their joys, and their wisdom. And what struck me most was the kindness and understanding that each person brought into the interviews and into their lives. Some of the people I interviewed have dealt with incredibly difficult situations and life experiences, and yet they bring with them not sorrow and anger, but a desire to help others understand them and to make the world a better place than the one they were born into.

The poet Muriel Rukeyser said that the universe is made up of stories, not atoms, and over the course of these five weeks I've seen that idea unfold and manifest itself before my eyes. I've seen how powerful and potent the need is to understand, to find meaning, to validate oneself and their place in life. I've found myself trying to do the same thing, especially when it feels like life is slipping out from underneath my feet and I have no control over anything other than that I am me—something which is now even harder to define and encapsulate into a quick phrase than it was before.

So I choose to take meaning and joy from the process of looking, of yearning to understand and coming up with more questions than I began with. There's an old saying that the joy in life comes not from arriving at a destination but from the journey of getting there. And since in this quest I highly doubt I'll ever reach that elusive end point of enlightenment, I choose to relish the journey and everything that it entails, and I hope you will too. And who knows. Maybe in doing so we'll all become a little more human ourselves.

Music

Special Thanks to Lee Rosevere for the theme music

Dr. Jen Scott Mobley, Dr. Tim Christensen, and the ECU Honors College for supporting this project,

And everyone who shared their time and stories to make this project possible.

I'm Megan Piggott, and thanks for joining me on Human.