Minds Almost Meeting: Two Cultures again

Season 10, Episode 7

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Imagine two smart curious friendly and basically truth-seeking people, but from very different intellectual traditions. Traditions with different tools, priorities, and ground rules. What would they discuss? Would they talk past each other? Make any progress? Would anyone want to hear them? Economist Robin Hanson and philosopher Agnes Callard decided to find out.

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Robin: Hello, Agnes, and welcome, Alok.
Agnes: Alok, right?
Alok: Yes.
Agnes: Hi.
Alok: Hello and welcome to the new year of Minds Almost Meeting. And today we're going to be talking about the two cultures again.
Agnes: Again, yes. And as background, we talked about an episode, and then Robin and I talked about it at the Manifest conference, and Alok was there. And we're gonna do this third time around. I think we're really gonna nail it.
Robin: Let's go. I just made sure I read some of my posts on the subject, because I forget what my opinions were, but now I remember.
Agnes: OK, so you want to start us out and give us a sentence? Are you on a side?
Alok: I'm on the science side of the two cultures. And for the odd listener that hasn't heard of this by now, the two cultures is basically science and the arts slash humanities, roughly speaking.
Robin: And you'll embrace engineering as part of the STEM label, right? Not just science.
Alok: All right, let's say STEM humanities. That's probably a better split anyway. All right. And it's the concept was popularized by an essay by C.P. Snow, I think around 1950, where Snow himself was in between both cultures. He was trained in the arts, but then went into the science of the writer. And wasn't all too pleased by this big divide between them. And so he writes about it. And I certainly agree that there is a divide. I'm not a fan of it. But I also think that there's a big glaring asymmetry between the two. In short, STEM knows much more about the humanities than the humanities know about STEM.
Robin: Is there something that humanities know that STEM doesn't know? Whatever name you want to give it to, is there something they know? better? You say STEM knows more about the humanities than the humanities do. There's something that the humanities people know about.

Alok: Oh, I'm saying that STEM knows much more about the humanities than the opposite of what humanities knows about STEM. Because Snow's essay basically says there's a divide and both sides sort of talk past each other. But the asymmetry here is that one side has done a much better job of learning about the other side than the other side has about learning of them. And that side that's done the better job by far is STEM.

Agnes: So can I ask, like, Do you think that, how good is STEM at knowing about STEM? That is, there's a lot of different parts of STEM, right? So like there's chemistry and there's like the biological classification systems and there's, and do you, so like one thought that I have is that it might be true that people in the humanities have to be pretty, like, decently well-versed in just about every part of the humanities. That is, the hyper-specialization is a bit less of a problem in the humanities, so do you think it might be true that people in the humanities know the humanities better than people in STEM know STEM in the sense of know their other part across areas? Yeah.

Alok: Yes, with an important caveat, which is that STEM people essentially have a common language, even if it's not always well-employed, which is basically of math. Even things in biology, which tend to resist mathematization, insofar as they are formalized, tend to be put into math. And certainly things like chemistry, physics, and math all of their language is math. Physics and math are the most obvious in this aspect, but I'd say it extends to the other fields as well, like computer science and more general kinds of engineering.

Robin: I think that both sides, my understanding, would agree with these claims. That is, STEM has more precise technical language, it's more specialized, so there's more different things to know that, you know, each one doesn't know all the other parts, and that humanities is more generalist and more less precise language. And these are things everybody will agree on, I think. So where do we go from here once we've made these observations? What do they imply?

Agnes: Yeah, I actually want to ask, Alok, when you said that you're on the STEM side, is the grounds for that, the fact that the STEM people know the humanities, but the humanities people know STEM, or is there some other grounds as to why you're on the side you're on?

Alok: I'm on the side that I'm on because I've, well, been in both. Like I've told you guys, well, not that Robin remembers, but until a like about the end of high school, beginning of college. I was not into math, science, et cetera at all. And anyone who's met me is often very surprised by this fact. Like my big interests were history and tailoring. And, well, I loved reading. I mean, I still do certainly. And I certainly did not think of myself as a math person. My friends were math people. I grew up in Silicon Valley, so there's plenty of math talent around here. my friends would go to AME or USMO or the like and to me those were just like sort of like a forbidding fortress for other people. But then I got into the sciences myself and I found that both culturally, knowledge-wise and vibe-wise that I fit in much more with the STEM side, and not just like this desire for precision or for things that can be made exact, since I think

that has been one of my gripes about some STEM friends of mine, sometimes taking like a need for precision and front loading it so that they can't talk about something if it hasn't been made precise at the very beginning, which is frustrating.
Agnes: Okay, but also that just I'm sorry, I'm sorry, I didn't mean to interrupt you. Go ahead.
Alok: But also that more than putting on the STEM side or rather away from the humanity side, there's the massive amount of ignorance that humanities people seem to have about the basic aspects of STEM, including ones that are allegedly taught in high school, which is like a whole thing. I'm not claiming that whatever is put down in a syllabus is what's going to be learned. That's very silly.
Robin: But so you've made a choice about your personal side, but I assumed that when you said you were taking a side, it would be more of a overall social stance. Do you think the percentage of people in the world allocated to STEM versus humanities is wrong? Should more people go to STEM? Should humanities people have to spend more time learning STEM? Would you make any claims at a larger level about humanities versus STEM?
Alok: I'd make a claim about the allocation of, let's say, attention and funding at a bigger scale. About the number of people, I don't actually know that that many more people could go into STEM than currently do. Sure, more could, but I don't think it would be massively more because it's hard, which is also the core of this asymmetry between both sides.
Robin: What would you guess is the current ratio of numbers of people in humanities at STEM? I would guess, you know, three to 10 or something. Like there's three to 10 times more people in STEM than humanities, at least. What would you say, Agnes, would you?
Agnes: Yeah, yeah.
Robin: I would guess like four to one or something.
Agnes: I look at the majors at UChicago. So philosophy is the only department that's on the top 10 majors in the humanities. And we're like, we've got one foot in the humanities, really. The rest of the humanities doesn't love us. Yeah, everything else is STEM. The other top nine besides philosophy, though, of the top 10. And we're the bottom. We're the number 10. We're on the top 10 list by being number 10. So yeah, STEM is more popular. It's not more popular in terms of what people like more. It's more popular in terms of people think they should major in it. So for instance, at eChicago, if somebody majors in philosophy, it's their first major. They're very likely to take a lot more classes in philosophy besides what's required for the major, electives and whatever, right? Whereas if they major in econ, they are likely to take exactly the number of classes required for the major and not one single class more, and the rest of their classes will be like in philosophy or in humanities. So often the humanities is what people prefer to major in, but they feel they ought to major in STEM. That's just very common. I see that very commonly with students. I had the opposite trajectory from you. I was a math and physics person in high school. And when I got to college, I was

like, I'm gonna be a physics major. And I liked math and physics because there were clear answers. I knew exactly what I had to do to do well. I could do well at it. It was like, okay, here's the thing I'm good at. And so I learned, you know, as much math and physics as you can learn inside of school, you know, which including AP calculus and all that kind of stuff, and did very well in it in high school and like my first year of college, and then I discovered the humanities and I abandoned it all forever. I certainly, you know, you might say people don't learn this stuff in high school. I learned it in high school in the sense that I did really well. It was on top of my class. But I like forgot it all and don't like know any of it anymore. And I think I have no occasion to use it really. If I did, I think I would, you know, it's like languages that I've learned. Some languages I just forgot because I never use it. So partly it's like, I think I could do it. I don't see a point or a use. And especially now with ChatGPT, when there's stuff that's like, when there's an article that I want to read and it's like a technical part, I'll just be like, ChatGPT, can you explain this part to me so I don't have to really go through the technical details? So yeah, I just don't, I think I could do it if I really tried, but it doesn't seem worth the effort.

Alok: Yeah, this is part of why I agree with the claim of, or the thing I said earlier that said the number of people going into it be more. I don't really think so because it does have this nature of specialization, and that's probably the biggest difference between the two fields, like math for example. Math has got this huge tower of bavel edifice of concepts that build on each other in a way that even the other sciences really do not. And certainly, I don't know of anything that Andes would like this.

Robin: tree that goes so deep. That's easy to understand, though, right? Yeah. Like, in math, all you have to do to have a new concept is just define it and use it in some way, whereas all the other fields, to have a new concept, it's a lot more than just defining it. You have to show it's useful for something and integrate it into other concepts. Clearly, it's a lot more work to add concepts to other fields than to math.

Alok: Also, I just looked this up on perplexity, and apparently There are more STEM majors than humanities majors. However, there are also more credits earned in humanities than STEM, which is not really surprising because, well, STEM majors have humanities requirements. In fact, I remember one of my friends who got an undergrad degree in electrical engineering and computer science at Berkeley complaining that they had to take more humanities classes to get their electrical engineering CS major than an English major had to do to get an English major.

Robin: I feel like I'm going to be the STEM person here and say, we need to push for a sharper claim for our conversation here. We both agree there are humanities and STEM. We both agree that there are people in both. We don't seem to disagree on the number of people in each. Do we disagree on how they do it? Are they doing it wrong? sharp claim about STEM versus humanities that anybody wants to make here.

Agnes: Oh, look, you said you felt like STEM needed a better defense than what it got in our previous conversation. So I feel like it's on you to be like, tell us what the thing is. What's the big defense?

Alok: I think also in that conversation, I said that one big aspect of STEM for society's benefit is essentially it's compounding over time. Because I think I pulled out some quote by John Arbuthnot about the nature of light. John Arbuthnot was the royal doctor around the time of Newton. He also studied math, although now, insofar as he is known, which is not really, it's for being on Newton's anti-Leibniz committee.
Robin: I believe this is an accepted claim, though, that the stem is making faster progress, right? That's related to its specialization, right? It's accumulated more specialization over time and filled it in by making more progress, and that's part of why the differences appeared over time, right?
Alok: But the compounding has gotten to the point that now it has Like what can the sides tell each other? Well, there's a whole field of what STEM can tell the humanities pretty directly. I've always hated the name somehow, digital humanities.
Robin: Shouldn't that be evaluated by humanities people looking at digital humanities people and saying, well, is this actually adding something or are you just spinning your wheels, right? So shouldn't we be doing it in a neutral way?
Alok: Is it adding anything or is it spinning its wheels?
Agnes: Sorry, are you asking me?
Alok: Yes.
Agnes: I don't know. I don't know enough about it. I think it gets some respect in the humanities, but I just don't know. But look, let me. Let me frame it in following terms. You might think that our, like, what are our big problems today? Like, what are the problems in the world? And so, like, one way to think about the world's problems is, like, I don't know, maybe climate change or maybe fertility collapse or maybe political polarization. We could look at those problems and we can ask, OK, who's going to help us more with this? Is humanity going to help us or is science going to help us? Is STEM going to help us? To me, the answer to those questions is it's not obvious about those problems. But now let's move to a different meta, larger scale problem that Robin has been very worried about and I'm worried about too, which is cultural drift. That is, our values seem to be shifting. We don't know which values we're supposed to have. Robin will default to some evolutionary point of view where it's like, well, some values are adaptive, where somehow that just means we survive longer and that's better for some reason, but no explanation is given as to why that's better. I've got this big lacuna in Robin's science point of view that he doesn't feel a need to answer that question. And if I want to say, who's going to help us out, if anyone, OK, maybe nobody, but if anyone, who's going to help us out with what's arguably the biggest problem that humanity faces? Because in effect, it drives the other problems, cultural drift. The answer is going to be the humanities. We're the people who stand to help us. The STEM people can't, because they can't understand values. They don't even have the concept of value. They just run away from it. They just say, well, tell us what you need, and we'll give you that exact thing. But we can't understand why it's good, because that's not part of our mandate. And so in that way, it's like we desperately need the humanities to do a certain kind of service, a certain kind of work. whether it

can do it, whether it's going to do it is a separate question, but that would be like an argument for the significance of the humanities and even for how much blame we need to be able to place on the humanities if it doesn't do this task.
Robin: I guess I could put, yeah. I'd give a meta variation on that is just to say, look, people in the world have all sorts of things they want to know and needs they have. And some of them seem to feel attracted to humanities as somehow addressing their needs. And others are attracted to STEM as addressing their needs. Are they making wrong choices here? Or are they roughly getting it right? If you were concerned about cultural drift, then you might well think, oh, humanities is it looks like it's going to be helpful to me here. But the more general point would just be, People have all these different things they're trying to do with their lives and humanity seems to be the better answer for some of them. Are people mistaken in that judgment? I mean, aren't they roughly right that in fact some of their needs are in fact better addressed by humanities and it's appropriate for them to go there for those needs.
Alok: So what Robin said, I don't know, but the thing about drift and well, for solving the world's problems that it has to come to the humanities, basically, because that's where the concept of values live, that STEM is concerned with the how and the what, but not really the why. that's supposed to be the domain of the humanities. As far as drift goes, like the thing you said with chat GPT, this is something I worry about too, which is that like STEM has become ever more successful, but it's also sort of like this big glittering crystal in the world that's just sort of locked off from the rest of it, getting ever prettier on the inside and harder and harder to access for most. And then it's just sort of like plopped in the middle of the masses. But I disagree that although the why is not a purely scientific question, that doesn't mean it's not a question that science people can't ask or do. that even if taking for the sake of it, then in some sense that science itself is value neutral or doesn't prescribe any values, going by the whole evolutionary bioperspective, well, it does just in this very long roundabout way. But I'll leave that to Robin because I'm sure he's elaborated that point before.
Robin: What you're saying is science could address it, but maybe what Agnes is saying, well, look, if you're just looking- Science could address it, but for the problems that are scientific, the humanities can't address them. But nevertheless, who is addressing them might be the most practical, straightforward question. If you have this topic and you go into the world and look who is addressing it, you don't want to look for who potentially could address it in some counterfactual world. You want to look for who's actually addressing it. And doesn't humanities deserve credit for, on the face of it, apparently actually addressing?
Alok: What did she think of that?
Agnes: I wrote a book about it.
Alok: Open Socrates.
Agnes: It's coming out in two weeks, yeah. The Case for a Philosophical Life, in which I try to explain what values you're supposed to have, which ones are the right values.
Alok: Did you draw the cover?

Agnes: I did not draw the cover. I did try to draw the cover, and they were like, that's really cute. We're not using it. We're going to do. But I think they were inspired by my version of the cover, as I tell myself that. So just about why versus how, I don't think why versus how is exact. I wouldn't frame it that way just because why covers causal explanation in addition to for the sake of what type explanation, right? So the word why is ambiguous between those two and obviously science discusses causation. Not totally obviously, actually. Hume would have a little bone to pick about that, but maybe it's all just correlation. But certainly scientists feel free to help themselves to concepts of causation, whether or not they legitimately ought to be able to help themselves to it. And I think they also help themselves to normative concepts, and for the sake of what concepts in the evolutionary context all the time, whether or not they legitimately have a right to them. Um, uh, so it's, it's, it's more like my, my claim was sort of that the thing that, you know, you were saying about, um, having to people who have to agree on the definitions ahead of time, like a lot of these topics, they're just kind of vague and fuzzy, at least when you start on them. And, um, You need a bunch of people who are tolerant of the vague and fuzzy in order to address them. I don't think it's so much that scientists couldn't. They could. They absolutely could. They choose not to. Because they're like, no, we need all our terms defined first. And we started this conversation, we haven't defined our terms yet, right? I would say this is not a very technical or scientific conversation that we're having right now. And I'm not sure there is such a conversation to be had about the two cultures. But I think there's potential knowledge to be had about the two cultures by way of conversation. And it's humanistic conversation.

Alok: I think as far as policy goes, maybe the classic one of science people who have not had that big of an impact on policy is probably the classic discussions about climate change to the point that there's like movies like Don't Look Up making fun of bits of it, like scientists says thing and is mostly ignored, etc. And that the people by and large setting the policy for it or let's say the humanity side roughly in fact stereotyping politicians basically lawyers.

Robin: So, one of the key differences here is that humanities folks are more used to and have spent longer time dealing with value questions. and policy questions. And the STEM people could deal with it more. But I will say in my experience, part of how STEM people manage their world is they tend to have like intellectual standards that are strong enough to discipline their choice of particular conclusions. But that doesn't work so well when people really care a lot about things. So when STEM people get close to things people care a lot about, they tend to fail to maintain their typical intellectual standards. And I've seen that many times, because I'm an economist and there's a lot of that near economics. And so that has to be one of the issues here in this trade-off. STEM people could address more value questions if they were able to maintain their usual standards in the face of people strongly caring about things, but they tend to fail at that. Humanities people, they usually don't try to so much have neutral, independent intellectual standards. That's not how they handle dealing

with things people care a lot about. So that's one of the obstacles to STEM people colonizing a wider space of value questions, is their inability to maintain their neutral analytic standards in the face of just caring a lot.

Agnes: I was gonna say, I'm not sure that we should call the lawyers humanities people, like, I'm not sure that there's just two kinds of people in the world, I think. And I'm not sure that humanities people are so well versed in policy questions I don't think we can give them credit for that actually that maybe politicians. But that's, you know, that's a different world from the world of people who spend a lot of time reading literature or those people actually, I would say, didn't have pretty naive views on policy, like not necessarily the most informed or what people like me. So just to... Right.

Robin: So maybe that's part of the hostility here is each one tends to assume or think the other one is having more policy influence because they know that they're not having it.

Agnes: None of us are.

Robin: Not quite realizing that's a third group of people out there who have policy influence that's not STEM or humanities people.

Alok: Well, maybe it's time to define a term then. I think STEM people of who is a STEM person is a bit easier to sort of point at. It's like, yeah, that's one. So maybe we should try and define, well, who are humanities people instead of like an amorphous mob of, well, everyone who's not in STEM.

Agnes: How about people who study culture?

Robin: In talking to Agnes, I tried to work out a more specific theory of what the difference was. And my theory is about systems. STEM people have more developed intellectual systems they work with, like thermodynamics and math and decision theory and things like that. And humanities people just rely more on basic logic. And that to me summarizes a lot of the correlates and distinctions. And so that explains in part why it's STEM where people elaborate more specific and detailed substructure and specializations because that's what systems let you do.

Agnes: Then a logician would be a paradigmatic humanist on your view because they rely on just basic logic?

Robin: Well, if they are doing specialized logic things. I mean, most philosophers, they're just relying on generic logic, but logicians have systems of logic, and then they prove axioms about systems of logic, and now they've got those systems, but that most people doing, you know, reasoning with logic aren't using logician systems.

Agnes: I think that that's not a, like, I think that there's something to that, but you're defining the humanities side just negatively. It's basically like saying you're not using much by way of systems, which is correct, but it doesn't, it's not, humanities doesn't equal everyone who doesn't use much by way of systems, because we're going to include the politicians and the lawyers. So I think- You're right. I think we want to add something like, and they somehow study culture in some way, which might be by way of- I think that's right.

Robin: It's just really hard to define the word culture.
Agnes: OK, I mean, you didn't make us define the word system. We're going to have to use some words here that we don't define, right?
Alok: Thinking, is the word culture specific enough to just black box and work with? Because I do think the word system is. And maybe that's my bias.
Robin: To me, a system also has just much more specific connotations about what it is to reason with a system rather than culture.
Alok: I think it's worth teething apart culture a little bit, at least.
Robin: I would say culture is wrapped up with norms and values that are shared by a community. You can have many things you don't have systems for that you don't have norms and values wrapped up with. Cooking strategies might not have very many systems, but they're also not usually wrapped up with norms and values, so we don't talk about cooking strategies as culture.
Agnes: Right. I think it's, you offer several different definitions of culture on your blog. I'm trying to find one of them. One of them is about, but one of them is like just like all the soft rules.
Robin: So a game theory concept I had is that in game theory, you have a game and you have different equilibria, and then something determines which equilibria you're in. And I said culture is the thing that determines which equilibria you're in, i.e. it's not about personal strategies and what's optimal for you, but about how you're coordinating with other people to behave together. Another way to try to characterize it, which definitely means norms and values are closely related there.
Agnes: Right.
Robin: Well, we might ask what we want to do with this definition of culture or STEM. Now that maybe we have some candidates, where can we go with it?
Alok: Jump back up a level to piece it together with a positive claim by the humanities to figure out, well, just who are humanities people?
Robin: Certainly humanities people are more associated with stories and arts and cultural artifacts, i.e. things we would call cultural things, like stories and songs, etc. We say humanities people are more focused on those things.
Alok: Would you say a songwriter is a humanities person, Agnes?
Agnes: I would say someone who studies songs. I mean, I'm thinking of people who study something here. We could broaden it, like, say, to novelists. And some novelists are very erudite, and they're very interested in studying, and some aren't. And so, like, you know, I think the way Snow thought of it the novelist would be included. The way I'm inclined, I partly said I'm at a university, so I'm thinking about this as a division in the university, which is going to be people who study different things. That's the division. And I'm not thinking so much about how do we take people in the outside world and stick them into this.
Alok: Maybe it's easier to start with just within the context of the university, also to use that to, well, make specific normative claims and basically punch the question of, well, society at large.

Agnes: Can I go back to something you said earlier, Robin, because I thought that was an interesting thread about you know, the STEM peoples like have, are basically able to maintain a detached, neutral, impartial stance and have a bunch of standards to evaluate what's correct and what's incorrect within a certain, you know, delimited domain. They have like strategies for doing that. And I think it's really right that humanists don't have that. And that almost another way to define humanity is it's like studying what you care, stuff you care about instead of stuff you don't care about. And I'm not saying you couldn't come to care about, if you love math or whatever. But the point is that the stuff that we're studying, even antecedently to our studying of it, we care about it. And so you're studying something which, on some level, you think, there is no hope of getting a completely detached, impartial, neutral stance on this thing. That's not what I'm trying to do. I'm trying to make intellectual progress, even though I can't do that. That seems to be to be important and to sort of the conduct of the like if we're trying to figure out let's say, what kind of value should our whole culture have we're not going to step back from all our values and be like let's forget about our values and let's choose our value from the point of view of having no values, we can't do that. We have to choose it from the point of view of having values. And so obviously then, well, there's a huge risk of bias. We're going to bias. It's like, yes, and that's the nature of the problem. The problem is to try to conduct ourselves in an intellectually respectable fashion, even though we can't be detached, neutral, and impartial.

Robin: As an economist, I think we try to hold ourselves to a higher standard than that. That is, we try to say, here are these things we do care about, but we do have this neutral analytical framework. And we're going to agree about what this neutral analytical framework implies about these things we care about, even though we'll agree that that's not the only consideration maybe in making the final choice. But we will try to penetrate hard, difficult topic areas where people have strong emotions. by consistently following our analytical tools and make concrete claims.

Agnes: Though you didn't care about them.

Robin: Exactly.

Agnes: Strategy of economists. Yes. That's why economists belong in STEM. They're not studying stuff we care about, in my sense.

Robin: Right, but they are talking to the things you care about.

Agnes: That is, the claims they make are relevant and- So that's why economics is like a, it's on the edge. And so is philosophy. Philosophy is kind of on the edge.

Alok: But I still think it's fair to say- Yeah, I was going to bring up a point about philosophy actually and study of it. Let's say, like the philosophy of time. That's just a classic one. People have been obsessed with that naturally for, well, a lot of time. But science has a lot to say about that, especially with relativity and concepts like the relativity of simultaneity and such. And ignoring that seems like sloppy philosophy.

Agnes: Oh, sure. But all philosophers who work on time don't ignore it. Most of them have PhDs in physics.

Robin: Conversely, ignoring all the things we know that we actually care a lot about in STEM is sloppy STEM. And, you know, you should at least realize that stuff is there and acknowledge it. And, you know, credit it for existing and being relevant, even if you're going to try to stay within your neutral analysis framework.
Agnes: um you know like a question would be like can we make sense of the a series in understanding time like if we had a totally tense like physics might give us this tenseless picture of time but like we know from our experience that tense is real and it's important to us and so that would be like it's not like we can ignore the b series it's like we can ignore all our scientific understanding of the tenseless point of view on time but If you try to ignore the fact that the past feels very different for us from the future in a distinctive way, that just seems like ignoring an important aspect of the human experience.
Alok: I think of how math is also somewhat in between these two cultures, funnily enough. Certainly, the biggest difference from the science of that large, in fact, putting it in mathematical terms from category theory, that mathematics is basically what you call an exponential, in that you have little dots you start with, the axioms, then you've got arrows, the rules of inference, and then you start connecting them together to build this whole tree of, well, inferences. But whereas in the sciences, you can't prove things, which would correspond to a co-exponential. Essentially, there's a logic of falsification, which is like Popper's whole thing. But math has the same sort of interpretive style as many humanities do. Although it also has, of course, its famous degree of precision that also sets it apart from fields. But Like even in math is certainly not value-free since not just in what people study, but even the axioms picked often come with like a very explicit point of view, like taking the standard axioms of the FC. They were essentially devised by Cantor to be able to formalize the real numbers. And if they couldn't have done that, or if they were found to be contradictory to some known behavior of ordinary numbers, well, people would throw them out in a heartbeat. because we all know like three and four is seven, that kind of thing. And so there's a big value aspect there. That's sort of a strange kind of way, because there's the stricture aspect of the sciences that I'm trying to put into words that really distinguishes them, whereas the humanities, Certainly there's not nearly so much of it, but I think it would benefit essentially at the local level. Like if you've got, say, an essay, value-laden, well, specific pieces of it, since you're trying to talk about it in an intellectual way, at some point get reduced to put in your word the kind of things you can't care about so that you can have at least some sort of yes or no on each piece, at least assuming you follow the person's beliefs. Does that make any sense?
Agnes: I'm not sure I understood the last bit. So was the idea that you could take something like a mathematical method and apply it to humanistic reasoning by evaluating, I don't know, I mean, actually- Exactly.
Alok: You had said that earlier, the humanities, well, you're trying to talk about these things that are necessarily value laden, and in that sense, don't have a right answer, or at least not a definitive one, but you're still trying to do it in an intellectual way and

make intellectual progress on them. And this is getting at, well, what does intellectual progress actually look like in these kinds of domains?
Robin: But the way you just said that, I think, is greatly at odds with Agnes's core view of the world, which is that values are exactly the sort of things we can come to understand and have right answers on.
Agnes: I think they're right answers, yeah. I just think we don't know them yet. I think these are just way, way harder questions. Yeah, there are answers about value questions. I make claims as to what they are in my book. And I'm sure that will come in for some correction. But my answers build on some answers from other people. And the building on relation is much less stable than what you have. I'm going to grant everything. But yeah, no, I think there are right answers about value. I think there's what's in fact valuable and we can learn what that is. And it's just going to take us like more than a few thousand years.
Robin: This helps us, though, to see a key difference, which is a very common practice in STEM is to find the things that are most controversial and bracket them by making assumptions. so that you can make progress without having to settle those questions. And that's what I think people mean by saying value questions are, you know, unanswerable. What they mean is, you know, they seem hard to answer. Let's find a way to make progress on something else without taking a stance on that.
Alok: Yeah, I would agree with that. I certainly agree that the, let's say value questions are like, if humanities questions have ultimate answers, that they're really, really hard. I don't think STEM has gotten to the point yet of its edifice has compounded enough that it can finally approach Well, these sort of ultimate questions about values.
Robin: So, so there is a directly but a key conflict getting there. Often in STEM, we have a space of concepts and then we decide to rearrange the space of concepts in such a way that some of them. go away. That is some previously respected concepts we decide are no longer of interest or meaningful in the way that we rearrange concepts. And then sometimes when STEM people go into humanities related areas, they try to make that move, make to rearrange the concepts and say that some of those STEM concepts, those are just, you know, a mistake. And then humanities people are often quite resistant to that. for plausible reasons, but that's a way in which there's actually concrete conflicts, because it's not obvious that all the concepts that humanities people use in the end will be coherent and useful concepts.
Agnes: Right. But that's happened in humanities too, like the will. The will did not exist before, let's say, Augustine. And I'm not sure it exists anymore after, I don't know, 1930 or 40 is when it's starting to go away. But there was a period during which that was this really important thing, the will. It was an entity. And it answered for us.
Alok: It's a funny gravestone, the will. When was Augustine alive?
Agnes: Oh, yeah. I don't remember exactly this. I'll make it up. Okay.
Alok: It's the will 800 to 1930. We hardly knew you.
Agnes: Right. He died in 430 AD. It gets a little more.

Robin: So there's a related topic. I think the most interesting topic near here is the hostility. That is, we can easily get to the topic and decide, oh, there's a place for both of them and see that they have these socializations. But that doesn't address these very strong common hostility between the humanities and STEM. And I think it's important to ask, well, what is that hostility coming from? And one obvious candidate is just prestige. Both of them have some stance why they should be the higher, the most prestigious of the studies. And they want to see themselves as the more fundamental, deeper, truer kind of study.
Alok: Noah actually had quite a lot to say about that in his original essay. Certainly. It's probably this vibe in the first place, that there is a big difference in vibe and that there is a sort of ambient hostility. I can't think of a better word. From the science side to the humanities side, One is probably just like the basic thing of each side is just complaining, well, you're not me of like, well, you don't define your terms. It's like, well, yeah, you're not supposed to.
Robin: You don't meet our standards for excellence. You have these other standards and your standards don't meet ours. Like, humanity people, you guys aren't well defined. You're not defining your terms precisely enough. How can we deal with you if you won't define your terms? And the humanity people can say, you just don't make it clear why any of the stuff you're doing is important. I will say for me, one of the big vibe things is the,
Alok: Many humanities people just seem to know very little about the sciences, even like rather basic concepts, to a degree that, like if I knew the correspondingly little about the equivalent in the humanities, it would like being illiterate. And it's hard to be taken seriously in the humanities if you can't read a book, I'm guessing.
Agnes: I think each side tends to say not anything like we should be the more important one, but the like, well, it's the other side doesn't respect us. That is, it's like they started it. There's a lot of, they started it. Like kind of a look, you started with a, they started it. Like, oh, well the science people know more about them than me. They're the ones disrespecting us. So they started it. But I think it's interesting. Like, you know, it may, you could well imagine that there's, I don't know, Like, you know, maybe plumbers, let's say, let's just hypothesize. Suppose that plumbers knew a lot about how to fix cars. But suppose the people who know how to fix cars don't know anything about plumbing. Suppose that was the world we live in. I have no reason to believe that's true. I just don't imagine that the result would be like all this hostility and the plumbers being like, yeah, they never bothered to learn anything about plumbing. Like, I think they just wouldn't care, probably. And so to me, the existence of the hostility Like, so what if the humanities people are illiterate? Like, why would you care? And it points to something, which is to say, we all realize that being an educated person means that there's a big thing that you're missing. And when people like you are saying, oh, I'm just like embarrassed for the humanities people that they're so illiterate. really what that's covering over is like, I'm embarrassed for myself that maybe I'm not literate enough and maybe my knowledge is only half the knowledge

that a human being needs. And so I'm like, I'm like missing my other half of my, my, that would make me an epistemic hole. And like, one of the ways that we process that or deal with that situation is to create this hostility to say, well, the other people are not, they're a sham. Oh, humanities knowledge is bullshit knowledge. Oh, the science knowledge is just technical. You don't need to have it. You have to put down like the other half of the whole to, feel yourself as though you were a whole person?
Alok: The thing is that actually, with regard to my humanities knowledge, I do feel like reasonably whole, and not just because I have some amount, it's like, oh, this is good enough, but because I just enjoy it personally as well. And so I've put a fair amount of time into it. Say again?
Agnes: You might not have that much hostility, too. So you might not be a great example of... Well, I think there's plenty of hostility in this sense. Towards the humanities.
Alok: Yeah, well, more than the other side. I certainly have my gripes about STEM people, like the thing of, well, defining all terms. As much as I like that, if every conversation has to start with precisely defined terms, we're not going to get very far on especially interesting questions, because you won't even be able to say anything about them. And also I'm a big fan of just like sort of muddling around until something becomes more precise in the first place. I think it's hard to get to absolute precision just right off the bat.
Robin: I think maybe all their hostility is really directed at the three of us who can do both. you know, that's really what it's about. The idea that we're better than the rest of them because we understand both humanities and STEM.
Agnes: Okay, well, that's about what I was gonna say that of the people certainly that I've met who can do both, both
Alok: almost without exception, or what I would say is like on the STEM side, and they themselves would categorize themselves in that way. But they're essentially like a scientist who happens to be great at doing music, or writing a book, etc. But I've never met someone who would say like a musician that is, I don't know, let's say into physics or something.
Agnes: I think it's partly that I was a STEM person growing up and that's what I was good at and that's what I did. But I think if you stop doing it, you lose a lot. I could probably get it back if I tried really hard. Maybe I couldn't, who knows. But it's different with the humanities. I think there isn't that much that you would necessarily need to keep up with. So it's not like there's like, you could dip in and out of it with less cost, it seems to me. because of the absence of systems.
Robin: I'll also say that to the degree that I have some ability to assimilate the humanities, it's mostly now because I just had this long life. And I have all these things I know about the world and people and everything else that I can use to help understand humanity's things. If at the age of 20, I would have been pretty hopeless, I think, at assimilating novels and songs and things like that, because I just hardly knew anything. So I guess there are just people who know the right sort of things at a

young age and who can make sense of all that. I think finally now, later in life, I can penetrate and make sense of things because I just have all this knowledge of life in the world to work with.
Alok: What were you into when you were 20? Were you like a science-y kid?
Robin: Pretty much. Physics was an undergraduate, so yeah. I mean, I liked movies or stories, but I just didn't have much of an ability to reason abstractly about them.
Alok: I'm also thinking of an analogy you had given of plumbers. Like one complaint of people in the sciences is, what's the word? It's like an offshoot of physics envy, but I don't know what the term is. It's like a physicist who thinks that they're like a better chemist than any chemist or better biologist than a biologist and so on. At least for mathematicians, I can think of a few examples where this basically seems true, actually. Although not nearly so much the other way around. I've yet to meet or read about a biologist who's made anything significant in, say, mathematics. I'm saying basically, there does seem like at least a rough directionality.
Robin: In STEM, there's this pecking order that has to do with how theoretical fields are. So physicists often say there's physics and, you know, stamp collecting, and that's all there is in the world. Basically, anything that isn't their high theory concepts is just a bunch of details you have to remember. And they don't really see other abstractions elsewhere.
Alok: for Fisher for doing lots of work in statistics and math, but also is probably known by people insofar as he's known at all for his work on biology, which he was quite dismissive of himself, basically viewing it as, well, this is easy. In a more positive note, there's a type theorist named Per Martin Loaf, who's thankfully still alive, whose very first paper was actually, I think, on some aspect of birds and still writes about ornithology and has got plenty of citations for it, maybe more than for math, considering how niche of a topic math is. And also, at least from the mathematicians I've known, all sorts of like random niche interests of this kind, which they often go quite far into. But they also, well, can do math by definition.
Robin: So are we at risk of agreeing too much here? I mean, do any of us want to embrace any of this hostility and take it on as something we want to defend or?
Agnes: I did give a theory of the hostility, but I mean, I'll take a step back to like, you know, the thing you were saying about, well, the STEM people can do the humanities, but the humanities people maybe can't do STEM. I think that might be true. and also maybe the math people can do physics and the physics people can do chemistry, but not vice versa. I'm ready to believe that. That was sort of my experience in high school, is that what I cared about maybe was proving that I was one of the smartest people. And if I wanted to do that, if I really wanted to be in the intelligence competition contest, I should go towards STEM. I don't think I would have gone much further than I did. I was a smart person. I wasn't a genius at these things. by any means, but at least I could have been showing off, you know, as far as I can get to the showing off dimension, that would be the dimension that I would go in. So it makes sense, like, that if that's, if that's your goal, but like, you know, it seems to me like, well, but like biology, the

things biologists study are just interesting, like, and kind of important. And then the things that like, philosopher study are like really interesting and important. And so the question is, are you going to pick your study by which one lets you show off how smart you are? Are you going to pick it by which ones are the more important things to know about?

Robin: Right. So I was going to say earlier, if we're thinking of whether there's too much effort in STEM or humanities, one way to think about that is to come up with theories that would predict too much of something. And those would be tend to be signaling theories. And so we could say, on the one hand, there's too much STEM because it's such a reliable way to show you're smart, even math, that people will just do it for that reason, and then we'll have too much of it for that reason. And I think the counter argument on the humanities side is humanities, when you're all immersed in values and culture, just lets you show how you have good cultural taste and you have good morals. And people really love to show off that as well, good taste and good morals. And so that argument says you'll get too much of humanities. And maybe the world just is going to have too much of both for both of these reasons. And they should have more of the plumbers and more of the politicians and the others.

Agnes: We need less of either of the cultures. We need the third culture, the practical culture.

Alok: Maybe. With regard to overproduction, let's say, I think at least in one sense, there is overproduction of, let's say, math at a societal level. essentially to show that you are smart. People, at least at some intellectual level, are pushed to do, say, calculus. Even for many engineering types, they will probably not use calculus well ever, which is why it's semi-fashionable in our circles to say, oh, they should learn statistics instead or something. On the flip side, I think it is more than just like seeming smart by doing math, seeming cultured in part because it is easier to do. It's like, well, anyone can read like a fairly fancy book, but certainly not anyone can like pick up a textbook on model theory.

Agnes: Yeah, but like, okay. I wrote an essay on The Man Without Qualities. It's a book, okay? It's a very fancy book.

Alok: Yeah, I like it. I'm a big fan of it too.

Agnes: There's a quote about math in there too. There is a discussion. Yeah. And actually, this book is about the two cultures. But the, you know, like, yeah, I think anyone could be like, I read the book. And they could have actually read it. Right. But I can write an essay about it. And my essay sounds pretty good. Like, it sounds better than what most people would say if they just read this book.

Robin: It's hard to do well to notice the right interesting things about it.

Agnes: And to notice connections between them. So in effect, if the thing you have to do to show off is just to have read the book, then yeah, that's not gonna be, even that's like a bar, if you're not lying, that's already a bar for this book, it's a hard book. But if the thing is gonna be, say insightful things about the book that are like original

and that grab people, maybe even the grab people who haven't even read the book, that's not so easy, I'm not sure.

Alok: A distribution of the two for, okay, let's take a sort of model theory textbook, or even like a textbook on calculus, because why not? Versus yeah, the man without qualities, The Man Without Qualities, like one bar as well. Did you just read it? like beyond just like flipping through the words or like looking at each page briefly and then there's did you write an essay about it that's changed hearts and minds and then there's like a whole thing in between yeah but the thing is that it's you get this broader distribution and that it's much more doable to find something in this big spectrum in between and to do it and so at least for the purposes of well signaling it introduces like this nice continuous hierarchy Whereas with a math textbook, there's going to be just one of people who are basically flatlined who just can't read it at all. Then there's ones who can read it. But then there's this enormous jump of, well, can you say something insightful? Or even people who are going to be very competent at calculus, well, inventing math is a hell of a lot harder than doing it.

Robin: I would say that the systems we have in STEM, make it easier to evaluate people's competence and knowledge in STEM. We just have problems, you can give them a know the right answer. And it's just more work to create consensus about the relative quality of an essay on the man without qualities. And that's why basically, you know, STEM people notice that it's harder to agree on who's good. in the humanities, and it just is harder. And so they have to put more effort into talking to each other about who's good and evaluating, because that's just harder there. But it's still possible. It's just you're going to do it with more noise.

Alok: Yeah, I think this is like an offshoot of the whole precision effect of, or the difference in the role of precision in the two fields, which including, it spills over into evaluating people as well.

Robin: But many STEM people, when they look at the humanities things, they really can't tell the difference in quality. And they will often leap to a cynical theory that they're, you know, that's all just a matter of who you know, fashion or something else, because they can't see the differences. and they're not willing to grant the credit that those people are actually seeing real differences that they're acting on.

Agnes: So it's actually interesting to think about maybe different kinds of signaling that are taking place. I really like this point about the gradation, and that in some sense, there's something quite simple about the mathematical signal that is maybe it's got three levels or something. And where you don't step is the point.

Alok: Yeah.

Agnes: Yeah. Okay. Right. Um, but the point about that kind of signal is that maybe you don't actually need to know that much math to interpret the signal. Right. Right. Um, so you can, you can be like, okay, Von Neumann, he was really smart. I can, like, I can say that someone can say that we don't know anything about what he did, right? Whereas even to say, oh, Shakespeare, he was really smart. If you've never read a Shakespeare play, you're like, what are you even saying? It's not clear you're saying

anything. And so I think that it's both the gradient point and the point about maybe in order to evaluate it, you need to be in it a bit. That just means it's a different type of signal. Like even if we're, even if we're signaling.

Robin: So I think that's why there's more connoisseurs of the humanities than of STEM, because a connoisseur is showing their ability to distinguish quality levels as a collector or connoisseur. Whereas if it's really easy to evaluate, you know, why be a collector or a connoisseur of von Neumann or Einstein, if everybody agrees he's great, you're not really showing much clever taste or distinction to be able to say that. Whereas in Shakespeare or something, you're showing more ability if you can tell the difference.

Alok: Thinking for an extreme example of this, like in the pre-talk bit before we started recording, I was telling Robin about Lean, the theorem prover. Well, one thing you could put into Lean is say the Riemann hypothesis and say someone or something comes up with a solution for it and it passes the type checker. You can, I mean, even be able to read the statement of the Riemann hypothesis is still pretty hard, but it's a hell of a lot more doable than proving it evidently. But all you'd have to see is that the type checker said, yeah, that's the right proof. It's valid. And in that sense, you can say, well, shit, this guy did it, which really decouples the evaluation aspect.

Robin: It is progress in the world. The more things we make it easier to judge the quality of, But we just have to admit that there will remain a bunch of things where it's hard to judge quality, and we need those things. So we're going to have to pay the price of having people who do the work judge quality for those things.

Alok: Plus for a lot of, well, let's just take novels. Both the quality and also just the pleasure of reading a novel in the first place and the actual doing of it, that it's not just a spectator sport. I would say the pleasure of math is in doing it, although the ability to evaluate it is not necessarily is a spectator sport, it can be anyway. I agree about this point about coupling or the difficulty of decoupling.

Agnes: It's interesting to me that people, especially in the humanities, I think they enjoy playing games of like, who's better than who. I don't know, Shakespeare versus Homer or something, or, you know, or something.

Alok: Who's better, Shakespeare or Homer?

Agnes: I don't have, I don't know. But, um, um,

Alok: Socrates or Plato? I'm just messing with you.

Agnes: There's some questions I can answer. Plato would have said Socrates. But one thing that's interesting is that we in the humanities, a thing we hate to do is evaluate our students' work, even though we love evaluating the work of, right? So there's a kind of evaluation that we do reflexively and like, oh, how was this novel? Was this a good novel? Was it a bad novel? We like to do that, but we somehow don't like it when it comes to our students' work. We don't necessarily mind the part where we give the students some comments. But we don't like being like, this is a B or this is a C. We hate that. And I think we hate it more in the humanities than they hated in the sciences.

Robin: So as an economist, I typically have two kinds of assignments in my upper level classes. There's essays and then there's quizzes. And I've noticed over the years that things like quizzes with math problems are things where there's less noise in my evaluation of them, but also the students are less happy because they can also see what they're doing with less noise. Whereas with essays, I have more noise in evaluating, but they also can't see how good they are. So they feel better about essays because they feel they had a good essay. even if I didn't give it a good grade, but they get, you know, dispirited by seeing that they can't do the math. So that's a way in which, in some sense, students gravitate away from the STEM parts because they don't like that sharp view of their poor performance.

Alok: Also, if you want to psychologically insulate yourself as a math professor or a STEM professor, yeah, you can give a lot of quizzes. And they're like, if they complain, it's like, sorry, man, it's a B. 80%, it's right there. Which is like kind of hiding behind the number there, but still.

Robin: So maybe you should have more essays, but you don't because you like to have easy grading.

Agnes: But I don't think my, I do get more and more, by the way, over the years, complaints about grading. And I think I'm fair in dealing with them. Usually I'm like, here's why you got the grade you got. And I actually don't hate that so much. I hate the evaluating, not the complaining. I can deal with the complaining. I think that even if I knew the students were not going to complain for sure. I don't think I, back when they complained way less, I didn't hate it less. There's something, and so maybe it's the thing you're saying, Robyn, which is that I know that they don't have a clear view. of why the ways in which this is bad, and I've got to be the one to break it to them. Whereas if it was like, and I give exams as well, and I feel much better about the exams, because I think with the exams, they know they screwed. When they give a bad answer, short answers, it's still writing, but it's much clearer. You know, when I'm like zero out of ten on that one, they're just like, yeah, I was making that up, you know it. And so they, the news is not coming from me that they suck. The news was coming from themselves and it just sucks to be the bearer of that.

Robin: I think this creates an asymmetric resentment. All the STEM people you see took humanities classes where they got low grades and they didn't understand why. And they kind of resent that, you know, how do I know those people really know what they're talking about? And then on the other side, the humanities people know they took STEM classes where they got low grades and they know they were just bad and they just, They just resent the fact that somebody highlighted so vividly and starkly unfriendly that they were bad at something.

Alok: I think that's a good point. I can certainly mentally simulate basically just this happening to someone. Plus, I'm sure if I went on Reddit and looked at people's complaints, something like this sentiment would probably be pretty easy to find.

Robin: Right. So the humanity complaint could be, yeah, I was bad at that, but they never showed me why that was important. They never explained that that mattered.

They just said I was bad at it. Whereas for the other side, you know, okay, I get that's important, but they never showed me why I was wrong. Yeah.
Agnes: And it feels like I know as a grader, I feel like I have all this leeway as to how harsh I'm going to be. And I really have to make a big gap. I have a lot of rules for myself about how I do grading. For instance, I have a timer to make sure I give the same amount of time to each paper because otherwise you start to go faster and I feel like it's unfair. And I try to stay in the same mood. you know, like I think my mood does affect it and it's really really hard because like I could I could be like as harsh as possible on this and say all the things that are wrong with it or you know and I can't do I have to have to hit the right register and then I got to do the same for all the students. All that is just so hard to do. And I think this is why we all hate grading so much. Because we kind of know that we're not really doing such a great job at it. That is, we're not showing the person exactly why they're screwing up.
Robin: In the humanities, you hate grading that much. But in STEM, you don't have to hate it as much because you can just pick one of these objective rubrics and just go through it. I just looked at both of your Rate My Professors out of curiosity.
Agnes: Oh, OK. I never looked it up. What's my rating? I didn't even know I had a rating.
Alok: You've only been rated by three people so far. I'll just read them. Your average rating insofar as the average is meaningful when there's only three people. One gave you a five, the other two gave you a one. The five fantastic professor was out of five.
Robin: Okay, yeah. So that's clearly a selection effect there.
Alok: Maybe I shouldn't read these. The middle one's rather rude.
Robin: Don't need to read the words, but if you gave the numbers for her, you gotta give the numbers for me.
Alok: Yeah, you have 40 people who have reviewed you and your average is three. Okay. And the distribution is out of 40, 13 gave you a five, four, a four, seven gave you a three, seven gave you a two, and then nine, a one.
Robin: And what's the median for the site, I guess? What's the median evaluation overall? But maybe it's hard to look up, but I can put that at the end.
Alok: So I kind of feel like this resentment on both sides have to each other is one of those kinds of resentment that is largely placated by merely discussing the resentment.
Robin: I feel like most people on both sides, if they just had a conversation with the other side about the conflict, the mere fact of having the conversation would make them go a long way toward feeling it less harshly. I think they just resent having this resentment and not having it addressed or something.
Alok: Maybe then a recommendation for, well, what to do about all this could be that, at least among professors, that they essentially have what's sort of group therapy session of, well, saying this aloud.
Robin: Yeah, I don't think this would happen. Maybe we don't want it to go away.
Agnes: Like, I'm not sure I agree with Snow that what we want is like some big harmony where we all do everything. you know, specialization is good. And maybe

sometimes specialization produces resentment. But maybe we want some amount of insularity and some amount of we have got our own culture and our own way of doing things and our own standards for intellectual excellence. And like, I'm not saying I believe this, I'm saying it's possible.
Robin: Possibly. Yep, I agree.
Agnes: It's just not, it's not obvious to me that like, what we want is like a kumbaya world where like, everybody, everybody equally does everything and appreciate everyone.
Alok: Yeah, I don't.
Robin: Right, no, the virtues of war are underspoken. War and conflict.
Alok: That said, I still think the current amount of division is more than I at least personally would like.
Robin: Well, I think we're over our usual allotted time.
Agnes: We are, we've been over.
Robin: So, thank you for coming on our show.
Agnes: Yeah, thank you, Alex.
Alok: Thanks for having me. And Happy New Year to you guys. Happy New Year. To making it at least another 25. This world's changing pretty damn fast.

Robin Hanson, Agnes Callard & Alok Singh
Minds Almost Meeting: Two Cultures again
Season 10, Episode 7
Feb 13, 2025

<youtube.com/watch?v=GWdZOFGXYu4> &
<mindsalmostmeeting.com/episodes/two-cultures-again>