ActInf GuestStream 035 ~ Jordan Hall & Matthew Pirkowski

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SESSION SPEAKERS
Jordan Hall, Matthew Pirkowski, Daniel Friedman

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TRANSCRIPT

00:06 Daniel Friedman:

Hello and welcome. This is active inference Livestream number 35.1. It's January 24, 2023. Today we're here with Jordan Hall and Matthew Prakowski. We're going to have a very interesting discussion. So thank you both for joining. We will begin with a hello and introduction from Jordan. Matthew will then set some context that will launch us into a dialogue that will take us on through. So thanks again. And Jordan, please, I thought I field.

00:42 Jordan Hall:

In the preamble, so a little bit of introduction. I'm noticing and this is, I think, part of the real interest of having a conversation with Matthew is something like it would be nice, I think, and implausible for us to actually produce something new and useful in this 90 minutes time span. And I expect that we'll want to be using something like a transparentigmatic method. So we should be grabbing concepts from a variety of different disciplines and frames and applying them in the area of inquiry and endeavoring to use that to actually identify something that is specific and perhaps hasn't been as articulated or deeply investigated, at least to my awareness, of course, before. And so the end result, hopefully will actually be worth actually having been done and to have been participated in.

01:40 Matthew Pirkowski:

Definitely. I hope that at least this recording, in and of itself as an artifact, will be something useful for a number of people who might have been paying attention to the initial context and that we can bring together as we typically do the many types of frames that we've been exploring in between our conversations that are quite hurtful and oftentimes bear fruit in conversation. So I always look forward to our conversation specifically for that reason why we are here this morning. Or I guess what did catalyze this initially was a tweet that I kind of randomly sent out the other day as I had a network of concepts floating around in my head around emergence, governance, the tendencies toward which that pattern flows. And so the tweet may be best to just read it because that all forms of governance trend toward parasitic corruption should be the first quote unquote law of political, quote unquote science. 02:47 The only questions are how long before this becomes unsustainable? Does it also generate valuable byproducts and will it fail catastrophically or adaptively? And so just a general frame for the conversation is to go on the lines of as we move through the world together and attempt to identify points of tension in terms of the relationship between our communities and the embedding context in

which they exist and attempt to navigate the world such that they can retain their ability to function, to cohere, to generate new solutions that help them mediate the tensions in the world that are constantly attempting to or constantly acting as a force against those structures as we come together to try to network ourselves such that we can function adaptive to create systems for doing so. And that's evolved quite a bit over time from informal systems at the tribal level, at smaller social scales with respect to structures that had much greater coherence.

03:55 Just as a function of the fact that everyone knew each other, everyone was around one another in a daily context, had a deep history in terms of their relational contextual knowledge of those interpersonal relations, these lineages.

And so you didn't need a great deal of abstraction in the quote unquote political domain. You didn't need to conceptualize an abstract structure and then attempt to convince people that this was the legitimate structure to buy into as a stewardship mechanism for themselves. But as we scaled up, we started to introduce these sorts least action. And we are certainly in a time now where it's worth asking this question as we create abstractions that are into which we pour our political energies. For example, the idea of a democratic governance or the sort of republic that we live in in the United States.

To what extent is there a tendency of those who are given stewardship over that, given their placement, given their necessity, necessary placement within this mechanism, but also in the necessity of the mechanism, but also just the structure of that mechanism being responsible as a small subset of the population for stewarding this large abstraction and this large degree of attention and this large degree of responsibility, is it possible for that to be resistant to corruption across long periods of time?

05:22 Is it inevitable that that corruption will exist? And this was the claim in the Tweet that people will fundamentally begin to make choices that direct all of that attention, energy toward their own ends, as opposed to the ends, ostensible ends of the collective. And then if that is a given, what frames can we hold? Despite the fact that this is a given, that can still act as evaluative criteria and so a useful evaluated criteria?

Which is what sort of those three. Ideas that I provided related to in terms of the degree to which that can be an unsustainable or sustainable structure, to the extent that it still generates valuable byproducts, even though that corruption is necessary or inherently emergent within. It or whether it will fail catastrophically or adaptively?

Will it undermine itself entirely or will it actually, within itself, despite that corruption, be able to surface new patterns into which itself can fail as a kind of lifeboat that increasingly expands its own capacity?

06:33 So I'll kind of step away now and just give time for reflection and analysis on yelp's part. But that was just sort of the initial frame that I think catalyzed some conversation here.

06:47 Jordan:
All right, well, there's a whole bunch of different things that are, I think, implicated. And I noticed that put a variety of different plates on the table without having to understand exactly what meal we're eating just yet, in no particular order.

One thing that comma up is I feel like there's an invocation of a frame that I've used a lot, and that is something along the lines of, like, major eras or apocs in the arc of evolution, specifically in the context of humans. And so the first era, which I refer to often as unconscious evolution or ordinary evolution is

the period that I think you were referring to be something like lineage, where there's the binding constraints, the various kinds of characteristics. Of behavior that steer the collective choice making of a group of indigenous humans was largely a consequence of a very long time and iterations under the ordinary constraints of what I'll just call ordinary biological evolution.

08:02 So lots of trial and error and conservation of relatively fit behavior, very tightly knit and with all the various advantages that are associated with that modality of exploring possibility space. The second era, the second APOC, would be conscious design.

And I think this is the domain where we see most of the problematics. And I'll invoke people like Tainter, Ari, Kahn as other individuals who have pointed to the problematics that seem to be intrinsic to the APOC or the modality of conscious design. And of course, one of the sort of most fundamental challenges is that it exits us from the equilibrium or the homeostatic feedback loops that are characteristic of unconscious evolution. So humans are able to operate in the mode of conscious design. We begin to create novelty in the environment that produces asymmetry in relationship with all the other feedback loops that we happen to have been embedded in contextually, but we don't actually fully understand the consequences of the asymmetries that we're producing.

09:13 And this creates a whole series of cascade effects. So Tainter explores that in the context of how a designed social infrastructure produces an arc that has a built in enclosure. Because as we sort of play out the entropy that was built into the inception of that social infrastructure, which may take generations or even many generative, we find ourselves collapsing back into the complex domain of the unconscious evolutionary basis. And then we have a reset. I think Kun more or less explores the same basic dynamic within the particular domain of science.

And I think they're largely, if you look at them as being examples of a more generalized problematic or even dynamic, you can then use that to create a meta theory.

Similarly, I'm not sure exactly who studied this most carefully. Perhaps Hayek looking at it in the context of businesses, which have a very similar and very well studied dynamic. The S curve of a business structure where an entrepreneurial group, usually one or two or five founders like a very small group operating in many ways principally from the unconscious evolutionary stage like operating in very much a human.

10:27 Indigenous modality using a lot of the basic human dynamics to be in deep relationship with each other and form a very fluid, open, coherent governance. Highly generative produces a large gradient or a large well of potential.

But then as it structures itself into the conscious design mode and starts creating an organizational structure, it plays the various tools and in many ways, kind of replicates the arc of social structures in general, recreating the rise and fall of civilizations and then forms some form of closure and that eventually dies. I think been studied pretty thoroughly in a number of different locations.

And given that language and I haven't actually brought in parasite, which is a very good so it's just bring in parasite and the notion of niche. So a general principle of evolution is that every niche will be ultimately explored. And there's something about both the presence of entropy in designed constructs or actually any kind of gradient, any kind of gradient has a dynamic of entropy, but it also has the dynamic of once a gradient is produced, that gradient represents a niche.

11:36 And the exploration and exploitation of that niche, of which parasitism is one fundamental strategy, seems to be something that needs to be we need to be aware of and think about how that's

addressed across different apocs. And then the last piece I would throw out is something like, okay, if we're endeavoring to move, Hinton a third mode, which would be something like the APOC of conscious evolutionary approach, which is able to sort of combine the best of the both and perhaps avoid the negatives of both, by the way, entirely by hypothesis.

I have no compelling reason to believe this is actually plausible. One of the things that might be interesting is to look at the phenotype genotype dynamics, ie. Evolution seems to have woven at a very deep level what I'll call a Coda, a very profound modal shift, which is that all phenotypes die, but there's continuity in the fact that the phenotype produces an embodied version of the genotype. 12:45 So the genotype has continuity exclusively, however, mediated by the phenotype and the phenotype has a kind of continuum, but exclusively mediated by the genotype. And the two are very, very distinct in terms of their physical characteristics.

13:03 Daniel:
Right.

13:03 Jordan:
The things that are associated with energetic gradients are qualitatively distinct and the shifting back and forth between the two seems to be a solution to the kind of problem that we're actually talking about. Okay, so that's what I'm putting into the mix, into the stew.

13:26 Matthew:
Number of ingredients to work with. Yes. So beginning at the beginning of your statement with respect to the introduction of Conor, hike and tainter, this is going to be some grammatic work. I think we have to do as well here. Because you use the word closure a couple of times and the manner in which you used it was sort of the epoch ending book end context in a way.

Is that a fair characterization of how you felt you were using it in a way that sort of the closing of an era, the end of an era the end of a phase, I.

14:14 Jordan:
Think even more pointedly to the notion of a thermodynamically closed system. Okay, these kinds of systems, the proposition I'm making is that they are closed systems and so therefore they have a finite time until they active. Something like an entropic equilibrium. And that arc of the playing out of that time is the story of their particular escrow, I would propose.

14:46 Matthew:
Okay, interesting. Yeah, there's a fascinating tension along the lines of sort of stable or unstable equilibriums or if you want to layer in another. I'm not sure how familiar you are with the work of Terrence Deacon, but he's quite interesting insofar as he provides thermodynamic frameworks around the ideas of different emergent behaviors that flow from sort of this first homeostatic level which is systems that tend to essentially equilibrium. So he introduced a little bit of language called orthograde as a sort of abstract, general term of like a number of systems that tend toward a more homogeneous state, let's say, or a more stable state, and then contragrade. Which is essentially the capacity of any

system to give it an ambient orthograde context to sort of act against that in some way continuously or with some degree of stability.

15:46 And he builds a framework of actually showing that certain types of structure itself. And this kind of resonates with a lot of Kaufman's work in terms of the origins of order, looking for non evolutionary, just physical constraints that give rise in processes that interact with those physical constraints that themselves give rise to certain forms of order in the world. So Deacon's claim is something along the lines of two types of systems that might themselves tend toward stable dissipative structure if put in relationship in a particular way with one another, can then give rise to that sort of frustration boundary flow through that frustration boundary give rise to some sort of actual structure in the world or pattern in the world. And the archetype of example he uses there is something called like a Rayleigh Benard cell which is heat trying to energy trying to flow through water or oil with a particular viscosity. And the first thing you get is the Attial bubbling of the heat rising.

16:50 But at a particular point the energy can't escape efficiently enough so it actually takes on this structure hexagonal lattice. So you get these little cells, right? And if you've ever been to Pacific Northwest or other areas with like basalt rock with these hexagonal columns, you can actually see this exact thing embodied when lava cools and then cools and tries to cool release that energy in the same way and forms these giant hexagonal rock structures. In any case, my whole point of introducing that line of thought is that I think that there are with respect to homeostatic systems, this idea of closure is an interesting one because people are researchers such as like Monteville. Marco Kaufman as well, with his work Cycles and Monteville omasio.

They have this idea of constraint closures, which is why I went in this direction, which is deeply tied into the function of in their idea of their concept. They use the concept of a constraint as sort of a symmetry across time.

17:56 And so that symmetry across time, think of something like an enzyme, right? The enzyme has its own structure that is maintained across time, but in its interaction with some other process, it sort of locally breaks that symmetry to produce a transformation. And it sort of acts as a sort of you COVID look at it as like a functional or dynamical boundary that also changes what bounces off of it.

And then if you order these boundaries in a particular way and close that loop, which is where you get this closure, which is in many ways the way that I tend to use the word closure these days, the reason I'm laying the groundwork is just because this idea of closure is very fundamental. The kind of ways I've been thinking about this particular topic of emergence and governance, once that becomes closed, then you can start talking about these patterns of autocatalysis, whether that's a self reinforcing loop and what it actually self reinforces. And to the extent that we're talking about governance, I think it's relevant because of the fact that at each one of those points there are aspects, there are side affect of that function that are the inputs of one of these other functions.

19:10 But then there are also side effects that can have other functions in the context in which this closure might exist. And I think when we're talking about governance and the lifecycle of governance, we might be talking about something like that initial closure coming into being functionally such that its overall net byproducts might be adaptive.

But to the extent we become reflexive in understanding and this is that conscious evolution is conscious management to the extent that we can identify the closure and Clark mapping it and actually analyzing the points and the flows within our own minds as individuals we can start playing games with it. To the

extent that that closure and its side effects shift to a point where it actually shunts perhaps some of that energy that should be going to the adaptive capacity of the overall closure into sort of sub games of people's individual political dynamics, personal lives, wealth building endeavors that are within their own frame of reference but not represented in that closure that they are now able to see and take advantage of.

20:18 Which you might also introduce later in things like the action effect, where it's like if you're close to the money spigot and you see the game that's being played, you are more capable of taking literally that energy that's being released into the market and directing it into places that might be more to your own interest. Even if you are saying and claiming that they're in the general interest of that broader collective closure that we've created supposedly in the economic sense by the Fed to maintain homeostatic or homeodynamic stability at this financial level. So when you kind of bring in those concepts, they're very resonant with the way I've been thinking about it.

But I just wanted to sort of establish that context for grammar with respect to closure, because I think it's quite critical to the way I've also been thinking about these tendencies.

21:01 Jordan:

Yeah, that was great. Thank you.

With regard to that last point, when we're looking at the particular phenomenon or human endeavor of governance, we have a special case. I think this is very interesting to be able to focus. So the general case we could talk about in the context of folks like Tainter and Coon and Hayek, which is just things that happen in human built kinds of organizational systems that have these various dynamics built in governance is particularly because it's of that sort. However, the whole point of governance, it is in fact designed to be the thing that address the problematic you were just discussing. Right?

And so the whole point is actually the recursion or the microcosmic boundary where governance is itself subject to its own, we'll call right now, I guess we'll use closure. I'm not quite sure if I'm even using it right, because that was a lot you just put in there. But sort of the failure conditions that we're talking about.

22:03 And of course, you can then imagine this kind of an infinite regress of, okay, we'll do the governance on governance, and then the governance on the governance on governance. Is there reason to believe that there's actually a way to find a loop back whereby that whole meta system actually has something like a higher level of stability?

And you raise a lot of different points in the very beginning in terms of the three previous questions of what the word stability might even mean. It might not mean that it lasts forever, in fact, it rarely wouldn't, but it might mean that it failed. Really interestingly. So that like the biological organism, I die. I don't live forever, but my life might be part of a larger arc that has a completely different continuity process.

And that's actually the thing that we're thinking about. So I might die. Interestingly. And so that's a very different solution to the basic problem. Right.

What else was in there? There was something really interesting where I kind of tried to put okay, so I noticed also that I'll call it geometry.

23:09 So almost like the third mode. So you discussed a characteristic anticipative systems where relationships between two different structured possibility spaces produces a new architecture. It

actually produces order at a purely physical level.

And I would say this is something like there's principle of least action, principles of nature that are as fundamental as thermodynamics and because they're as fundamental, they constrain the playing out of thermodynamics.

23:46 Matthew:

And.

23:46 Jordan:

It'S important to recognize we actually have that, that's in the toolkit, we can use this. And one of the things I was thinking about is that one of the things that oftentimes shows failure conditions in human design systems is vertical or horizontal asymmetry. So, for example, if I have one person endeavoring to govern, those issues are actually in business.

That should be the ordinary sort of business organization. The notion of span of control in military and for all bureaucracies is pretty well understood. But if I have a manager or a business governance function, they generally can't actually govern more than a small number of other people. So if I have a single manager, one governance function, and they're endeavoring to govern, say, 500,000 people, that asymmetry in terms of information, like, I think in terms of information theory, perception, sense making and effective choice making that can be actuated down, will create a wide variety of gaps and niches for parasitism.

24:48 But maybe there's something to be found in the context of a proper geometry where the information asymmetry is inside of some sort of conscious boundary.

We can even think about in terms of what's actually possible in terms of the space of consciousness, how we can produce larger spaces of consciousness, and then how we can actually design information flows that are within that space. So that energy flow is actually held within a governance envelope that doesn't produce these niches for parasitism.

25:22 Matthew:

Yeah, I mean, 100%. That's very resonant. I think that in that context, to pick apart this symmetry asymmetry question a bit more, this relates to this sort of a long line of undercurrent of political science that's not as popular, that sort of flows through machiavelli.

Moscow. Burnham that vein of just pointing out the side effects of this kind of asymmetry with respect to the idea of leadership, or sort of the raification of any system in so far as it must take place within a subset of the population. It can't be even the idea of democratic governance itself has to be acted out on the day to day by a fraction of the entire group on behalf of which is being played out in theory. And so that subset of people who are identified then become responsible for enacting that game with a particular degree of integrity.

26:32 And I think that that concept of integrity, this kind of relates to maybe the quality of those governance envelopes you're talking about in the structure, but also the scope and scale over which perhaps responsibility is one way of thinking about it but then also accountability because I think to some extent that accountability, transparency, game to the extent more and more people are playing out their lives while trusting you to do the right thing.

Especially part of that is going to mean that more of their resources are pulling into you with that trust, which increases the incentives for you to potentially do something that they will not see while their eyes are directed elsewhere. It's kind of like I like to use the game of the more money that's in the pot on the table, right? The more you have to be careful going to the bathroom. If everyone leaves the room and you just leave one guy in there, you got to be a little bit careful, because even if that's a very trustworthy person at that table, the larger that pod gets, you start beginning to test that degree of integrity.

27:37 And that's kind of that same asymmetry is like, the better system of governing.

The best systems of coherence, they create the more of the systems we create to generate value. If they are actually successful, it is exactly that value that's created by them that becomes the temptation for defection. And so this is very interesting with respect to this envelope question because it transforms into this accountability and representation question, I think. And to the extent that we are forced to represent these systems or to have accountability with these systems, I think we live in a very interesting time because we are beginning to be able to have representative granularity and transparency in ways that were never before possible and using those to sort of act as proxies for maintaining integrity and binding constraints on people's behavior. And it's an interesting balance because we obviously if someone is a representative we want those people to enact the highest ideal in theory of their representative position.

28:40 That being said, we also need to have that position be somewhat attractive. And to the extent that anyone is looking to act out that position if it is fully constrained and surveilled they might no longer be interested in taking on that position. One solution to that might be something along the lines of like we'll automate the whole thing but humans don't as embodied beings, humans don't tend to respond well to the idea of an abstract entity that they don't really fully understand the internals and that kind of aren't actually hitting our mirror neurons in the right way either. We're not getting that reflexive property of like yes, I intuitively understand this thing. I think we get also innately suspicious whenever the idea of some sort of abstract system acting as our representative or acting as our governance. Even if that were Bull transparent and less likely to defect against us or probably would not defect against us, we might just rebel against it anyway. So there's sort of this possible Catch 22 there.

29:43 Those are some thoughts there.

29:45 Jordan:

Yeah, that's interesting.

That last piece let me see this, right? The last piece, which was just called the AI governance Piece is kind of worthy. It's tremendously worthy of a really serious deep dive and maybe sooner rather than later. We're actually accelerating in the direction where that kind of science fiction narrative is plausibly and let's not say like we don't know these things happen in step functions they don't tend to go on a straight curve, but plausibly is on the event horizon, so we may actually have to wrestle with that. I would propose, though I cannot prove it with adequate rigor, so it would require a collaborative effort.

But I propose that in fact, that idea can't work. And there's actually, I believe, and actual rigorous proof that is available that the notion of a fully automated governance system is intrinsically unstable.

30:48 But that doesn't mean that we won't try to do it and trap ourselves thereby. So let me back up a

little bit before we get there because we can talk about the stuff that's sort of in between. And this is very much the Tainter story, more or less, we get the idea of the first movement is the relationship between contextualization and decontextualization, which may be the thing that humans specifically most fundamentally do, is the ability to decontextualize.

We can pull the salient elements of some particular landscape out as we see fit, right? Not just by virtue of evolutionary fitness. We can actually fluidly identify characteristics that we'd like to pop into the foreground and sort of reify down into principles and then most specifically endeavor to govern, to optimize for or against or modulate according to our own preferences. And of course, one of the things that we can do with that power of decontextualization is we can then brain architectures on the basis of that decontextualization, which is the term technology.

31:51 That's what that means, right?

Technology is the ability to use decontextualization to design in nature phenomena that are specifically optimizing for particular principles that we've been able to pull out of what is otherwise a larger million. And I would propose that this is at the basis of both the strength and the weakness of the design, like the epoch of design. And the limitations of decontextualization are very deeply woven into the fragility or the problematic of, say, Taintroid style curves, all the things that we're talking about. So of course, in the process of decontextualization, on the one hand we're able to identify what's called the most the most relevant or the most salient characteristics of some system and then we can begin to control for them, say, okay, I want more calories per unit yield of wheat. But of course, the the inverse is also true.

32:51 By virtue of decontextualization, we move away from an ability to have high quality perception of all of the other things that are going on in that embedded system. So we lose track of them and by virtue of losing track of them to the degree to which they matter. And of course, now we're getting into kind of like something around heisenberg and deep chaos there, meaning tiny, tiny differences, microcosmic differences, possibly at the Planck limit, tend to build up into large consequences. So that as we decontextualize, we render into the invisible. We render out of the realm of design, out of the. Realm of the conscious, a whole bunch of things that were in fact, by definition calculated via relevance, realization at the unconscious evolutionary level just by sheer actual having causal effect on the system. And then of course, we're setting ourselves up. We're setting ourselves up to have unintended consequences, cascade out into our larger environment. And then what we tend to do then and this is the Taintrid move and the thing that I want to kind of bring into the foreground is that we tend to double down.

33:55 So what we do is we will bricolage or we will collude new technologies at the edge.

Oh, okay, this particular problem is showing up great. I'm going to do the same move. I'm going to look at that problem. Foreground or decontextualize the elements that I can identify in the problem, put together a new technology, connect it to the previous technology. We kind of get one of these. Remember building mobiles when you were a kid and kind of add something at the balance point. It can come layers, layers down. And of course the point that somebody like Tainter very specifically makes and I think Conor also maybe not quite as clearly makes is that we then get lost in our own creation. The machine that we have built has so much complicatedness to it. It has so many different things going on that we're no longer actually able to be mastered of our own machine.

And this moves us back into an unconscious design phase. So now we're effectively maintaining

something that we don't understand in many cases our generations past its origin story.

34:56 So we have a tiny window of awareness in a much larger field. But that larger field doesn't have the advantage of a tightly coupled, deeply nuanced, complex, fully contextualized characteristic. Instead, it actually has lots of these little decontextualization gaps, foregrounds and backgrounds, but we're super not aware of them.

We've lost track of it a lot. And now this is part of the niche environment. Every one of those gaps becomes a niche for various forms of parasitism or become places where local entropy is collected and ant be addressed because they're effectively in various kinds of blind spots or in what the Santa Fe people would call frozen accidents of our own complicated machinery. I. E.

It's just a gap that arose because of the way that we built the control system. And for us to actually this address the gap, we have to deconstruct the control system. But the game theory doesn't work. The cost of deconstructing the control system is something that we're not willing to do. So the local entropy just gathers and gathers and gathers until it festers and it eventually creates a breakage that we sort of unconsciously just accepted is what's going to happen.

36:05 Okay, I think that sort of played out what I had there. I can hear you, by the way. I'm just going to get some more water.

36:12 Matthew:

Okay? Yeah.

No problem. No problem. Yeah. And so, I mean, that obviously ties into the dynamic of sort of at the more colloquial level, the fact that humans don't act, in general, creatures, biological organisms, but especially humans that are, in theory, through one lens, known. To be the kind of creature that attempts to look into the future, the horizon of possibility, and attempt to act in line with a manner in which that feature remains habitable.

Let's say. But then there's always this long term, short term tension with respect to at what point do the possible threats do the potential threats start to realize themselves or actualize themselves at levels that generate sufficient sufficient you COVID call. Entropy or suffering or something that sort of shakes you strongly enough or deeply enough to change behavior or your frame of reference at the appropriate scale to produce transformation that can respond to whatever that blind spot that you're mentioning by the process of decontextualization whatever has been manifesting in that blind spot that is then threatening the integrity of the process or the capacity of that process to maintain its continuity across time.

37:36 One thing that really struck me that's interesting as well, and I think I guess I've been playing around with a lot of these types of ideas lately in terms of with respect to words and the sort of inversion capacities or cyclic capacities of taking a concept and flipping it and seeing what happens. This idea of decontextualization is fascinating to me because when you're discussing it in my mind, something that's popping up is another way of looking at this very phenomenologically is that if we look at ourselves as categorizing beings attention.

To. And to me, what categorizing beings tends to mean is having a functional attractor of some sort that we're binding representations to with this sort of agglomerative tendency of more and more things that have that likeness or sameness or are associated with that network building over time. One of the essential characteristics is that we can't focus on everything at a given point in time and therefore we

have to live inside a given framework that mediates, facilitates and hones our attention capacity to actually navigate that process of using this category structure to relate to actualities and possibilities continuously across time.

38:53 And so, interestingly enough, the concept of that ambience. One way of looking at decontextualization might also be a process of hyper contextualization in the sense where we are taking a very small representative subspace, we're identifying a particular set of concepts.

I think abstraction is a way of looking at this right. Like you were saying, there's a set of similarities here and they're graspable enough within my mind at the moment. So I'm going to take those and then begin to act as if I'm living inside those as the full context. And so through that zooming in to the abstraction or to that subset of the possible pattern space, I begin to act as if that subset is the entire ambience and therefore become blind to everything that is not inside that subspace. And so you're sort of living inside the micro niche, this micro gradient, because you identified a useful gradient inside that abstraction for some perhaps instrumental or even something that was truly convincing.

39:59 The idea of calculus is extremely compelling and we got a great deal of adaptive utility out of that concept. But does it hit a limit at some level in terms of the metaphors and the way of seeing the world through the lens of calculus? Does it start to break down? I mean, I would argue yes. I think there are boundaries when you start to see the world as a set of instance.

With respect to my studies in consciousness and like the emergence of consciousness and topology of consciousness. I think one of the things that actually has done inhibits us quite a bit is trying to think of it as an instantaneous property of a system, something that could in theory be pointed out as a point on a tangent curve somewhere. Right? So in any case, like this decontextualization frame, I think is a very deep frame. Andy Clark of this phenomenological tendency.

We have to see patterns and then start living within side those patterns as an adaptive framework and then just to close us off, I guess, with respect to the Julian take on that as well, he's well known for structure of scientific evolution.

41:03 But my favorite essay, essay by Kun is an essay called The Essential Tension, which is like the essay in which he kind of responds to the public response to his structure of scientific revolution. Speaking in front of, I think it was the APA or something like that at the time, and saying essentially I've been largely misinterpreted by people who want to use that work as a justification for throwing off all constraints. But in reality, what he was saying, this essential detention was like, there's a frame that's established a very formal, rigid frame. And the point of that formal, rigid frame and discipline is to move to a point of convergence.

Not because the convergence point is the transcendental ideal that we absolutely must get to, but because by acting as if that convergence process is worth moving toward, as we converge, we will realize what is outside of that cone of convergence, so to speak. It'll start showing up as aberrations. And then by collecting those aberrant pieces of information, we can begin to realize.

42:08 Oh, okay. This is how we can print, in a principled and structured and continuum manner, once again.

Open that frame back up, recontextualize the decontextualization, or, like, zoom back out of that hyper focus contextualization and synthesize a new frame that doesn't just jettison the value of the previous frame. Arbitrarily but that also isn't myopically focused beyond a point of critical collapse, let's say, on pursuing that singular interpretation of the old framing. And so I think to some extent, this is the set of

patterns that we're trying to work with. When we talk about, I think, instead of the structure of scientific revolutions, we're like, we're beginning to see the traces of the necessity of that analogous process occurring at the structural level of governance.

43:09 And this is sort of the zeitgeist of our era, with many people attempting to place ideas, place new frame possibilities.

How should we direct our attention into the space of public discussion and hopefully experimentation and try to figure out, can we get some positive signals so that as this prior frame begins to disintegrate, are there lifeboats that are actually capable of carrying more than one to five people at a time?

43:38 Jordan:

Yeah. So it's notable that Tainter referred to it as the collapse of complex societies. And I think the proper way of describing what what Coon was describing was not so much a paradigm shift as a paradigm catastrophe. And I think there's a very specific point there.

We're we're actually looking for paradigm shift. You know, it's okay, I got a paradigm. Okay, now it's time to shift in that movement. And I would like to very much invoke here the cognitive science notions of opponent processing and how the brain, very specifically, all the way down to the most basic animals, uses modal distinctions. Specifically, the one I was thinking about is very much the dynamic where, okay, it's time to focus on a very localized task, but there's something happening at a meta level that allows and requires in fact, they're shifting back to diffuse and then moving back and forth, right? And that action of modal distinction, right brain, left brain distinction, are qualitatively different in how they go about orienting towards where to allocate attention and even how to do sense making in the relationship to perception.

44:48 And then there's a meta dynamic that moves back and forth between them. So that kind of a tricameral structure at a very deep modal distinction or qualitatively distinct level seems like it's the proper design for any kind of new kind of collective intelligence. And I was brought to mind of the of the distinction between thinking and simulated thinking that I was trying to make, gosh, about five years ago. And I think that was that was oftentimes also not fully grasp.

So if you wouldn't mind, I'll just recapitulate because the point is very specifically the point we have two modes, at least definitely two modes of thinking. One mode that I called habit mode and one mode that I called Explore mode. And I'm not necessarily trying to say that I invented any of this. And there are many people I'm sure you've done a much better job as trying to point out. The thing I'm trying to point out is not that, but the idea that habit mode like paradigm is able to take advantage of a variety of different frameworks that are relatively well designed for a particular domain and therefore quickly and accurately and predictably be able to make sense and select appropriate choices in the context of a certain domain.

45:55 That's a very functional thing to have. Explore mode is a mode that is modally distinct, has a more diffuse awareness, much more contextually aware, is oriented towards things like insight, I. E. Breaking existing assumptions and very oriented towards the subtle things that may not ordinarily be noticed in habit mode but may actually be relevant. And that's why we have to have this different Explore mode.

So the meta processes is okay, which mode should I be in right now? Am I am in a concept where Explorer mode is the most adaptive mode or am I in a context where habit mode is the most adaptive

mode? And can I fluidly move back and forth so that's that third. So I've got one, two, three and the premise of this notion of simulated thinking is that there's something about habit mode where we can get stuck in it. So it somehow habit mode breaks this third governance layer that allows us to fluidly move back and force and then gets us more and more stuck in habit mode in particular where we begin to build a habit that simulates governance.

46:57 And then we're in trouble because at that point we can't actually make proper use of explore mode because we actually haven't got the capacity. All we can do is when the governance system is saying hey, it's time to move to Explore mode, habit mode says oh, I've got it. And then produces something vaguely like Explore mode but still within the fundamentals of habitat mode. And you can sort of extend that to all the different examples we've used, right? This operates in any dynamics. So in coon's model it would be anomalies are being thrown and the largest system is saying hey, there's something wrong with our paradigm. But the paradigmatic mind says well, I'll just produce a more complex version of my existing paradigm to absorb those anomalies into it. Or I'll use the function of ignoring. In other words, I'll put them into an area of local entropy and just kind of let them sit for however long, maybe forever, ideally, right? And the metaphors is that's the problem that is the problem of conscious design is that getting stuck and not actually having the opponent processing built robustly enough that we can move from habit into Explore without having to go through a crisis.

48:06 The problem is not that sometimes our habits aren't functional, we have to move to a different mode. The problem is sometimes we get addicted to our habits and the only way we can get out of them is actually to go through hitting rock bottom. And that's a very adaptive way of solving that kind of problem.

48:26 Matthew:
Just sort of like to test the language a bit and make sure that I'm with you here and also use it potentially to synthesize some of the topics that we've been talking about.

It's fascinating to consider this in light of this question in terms of parasitism that we've been talking about and also the question of the benefits of parasitism, possibly right, because you're talking about this catastrophic or this catastrophe, which is in dynamics systems in many ways analogous to falling off a cliff in the map that is actually exactly like that in many ways. And so it could be the case, right. That one way of looking at parasitism. If you can endogenize it or if you can actually internalize some amount of it or look at it as a property of systems is potentially the smoothing function for that cliff. Insofar as this gradient that we were talking about before in light of the language you're talking about in terms of this habit mode, right, and exploration mode with respect to collective governance or collective systems used for simulating this adaptive process as a collective, that collective process of governance can at times be in that exploration mode, potentially discovering some new form.

49:51 So if you look at the inception of the nation of the United States, there's a lot of synthesis happening, a lot of different ideas from a lineage extending thousands of years into history drawing from all of that to try to synthesize a particular novel framework. It was very conscious, hyper conscious, hyper synthetic, very exploration. But it created something that in its stability and efficacy became so functionally stable that more and more people were able to move into habit mode with respect to that as a foundation. And as that happens, interestingly enough, it opens up little exploratory niches for actors to go in and say, are there micro gradients in that system? Because of the fact that all

these people are in habit mode no longer their attention is focused outwards, it's no longer attending inwards.

And so they actually go in and start siphoning energy perhaps in their own explorer modes as perhaps parasitic behavior from this governance loop.

51:01 But interestingly enough, that can function as a way of testing the stability of that loop to some extent. Like they are forcing that fundamental functional closure of governance that people have stopped attending to on Moss generally. They're forcing it to operate under additional constraints, under additional load. Even though that load, that's an internal load that it might not have necessarily been formally designed to bear, but that parasitism, like a parasite load on any animal, is forcing that animal to operate over and above what they would have to do otherwise without that parasitic load. And so it's actually building some slack into the system, perhaps, such that when we start, when things start getting shaky and people turn their attention back, Hinton that system, see the parasites and potentially get rid of them, there's still enough slack left in that mechanism, hopefully to navigate the cliff or to smooth the cliff.

52:03 So that's like, a possibility. I'm not sure how coherent that was. If that made sense, let me know.

52:10 Jordan:
It maps to, I believe, pretty almost exactly to Brett Weinstein's story about peacock tails of pyramids. His argument is effectively, peacock tails and pyramids are exactly what you're talking about. It effectively the peacock tail is not just a pure sort of sexual display, but it's actually effectively a parasitic reservoir that provides a fail safe to the degree to which the context no longer supports it. You can lose a lot of fucking tail, get back a huge amount of adaptive capacity without losing any real heuristic total fitness, and respond to what's happening. Same thing with pyramids. Like, if you put a lot of social excess, would that be called surplus into pyramids, as opposed to, say, for example, more people?

Your carrying capacity is actually buffered so that if there's actually a significant drought where food production is not as high as it was, you just stop building as many pyramids and you don't actually have a Castro collapse of the underlying deep structure.

53:13 Matthew:
Was that in his thesis or I haven't heard him talk about that. Surprisingly, I've heard him talk about a number.

53:18 Jordan:
He did have shared this public, so I may have just outed him. I apologize.
Force some reason, I thought it was.

53:22 Matthew:
Like I was like, yeah, because in the Hunter Gatherers Guide, that one or maybe I haven't read it once, I need to reflect back on it. It might be there, but yeah, precisely. Certainly not surprising to be the Brett and the mind that Brett has in the way that he thinks. I think you and I tend to dovetail and converge to a lot of similar frames of reference so that's, yeah, I think precisely these abilities to maintain higher

carrying capacities within any given system fundamentally provide slack in that system.
And if we look at it just at the object level through almost entirely moral framework, then it can lead us to believe that there's no benefit here and to perhaps be a little bit overly acerbic in our language toward what's going on. Interestingly enough, it might have been selected for we might be selected precisely in the same way that we have some interesting side effects of psychopathy that might have overall adaptive side effects at small levels in society.

54:32 Some element of sort of corruption and parasitism at a base level within even healthy systems might be optimal to the extent we can talk about optimality in such a system, knowing that might brace us against becoming overly cynical. Right. Because I think that at some level, the greatest threat to our current capacity for adaptation is an abundance of cynicism, and an abundance and the innervating quality of that cynicism with respect to sapping us of the necessary will, energy, and belief that we can actually do anything that is worth doing.

55:15 Jordan:
Daniel, how much time do we have left?

55:20 Daniel:
25 minutes. But I'm happy to stay on anytime you want to. Feel free to continue this section and then we can go into Q and.

55:27 Jordan:
A. I have another piece that I'd love to drop in right here.
So let's see. Yeah, the psychological consequences of being stuck and almost like the psychosocial consequences, like the feedback loop. So on the one hand you have the interior psychology of being in something like simulated thinking where you can't get out of your own habits of thought and you can't escape into a higher level of insight. You can't escape back into Explore mode, but also the feedback loops of being stuck in a collapsing complex society where Explorer mode is in fact inhibited because it doesn't have any place to get energy or resource, for example, or positive feedback, the energy resource and all the different human needs modalities. And so what happens when you're in there? And what happens there is you start getting things like you get depressed, you get cynical, you get nihilistic, you get anomia. Right?
56:29 Okay, so let me think. Okay, I'll do it. Free things first.
That notion of parasitism as a reservoir of potential is very interesting and I can think about that immediately in two ways. Two examples that pop up. One is that the notion of like 80% and 85% of people are in so called bullshit jobs, or at least self reported, which I think is very reasonable, particularly if you sort of think about the cascade effects. Meaning if you were to remove a whole category of bullshit jobs, you would realize there's a whole other set of jobs that are actually bullshit jobs produced entirely by the first category. So if you start unwinding them, well, on the one hand, that's terrible.
It means that people are wasting their lives and their energy and just spinning. On the other hand, oh, well, that's really good because that actually means that I've got sort of 80% of the human population is sitting on the sideline waiting to be deployed generatively as soon as we can get our head out of our

ass. That's nice. Catch both ways. I also recall during the 2008 2010 financial crisis saying, okay, well, how far down does this system actually call?

57:36 It need to fall for a truly robust reset, ie. If the too big to fail system had been allowed to fail properly, which is what should have happened, what would that have looked like? It's like, well, we're probably not going to drop below like a 1972 level of standard of living. That's a pretty big fall from where we are right now. And I recall the 1972 was actually pretty nice and it wasn't a terrible style of life.

And the point being that there's almost something like the what do they call the like the F 350 Hypertruck. Well, it turns out that if, if we have to actually give up our F 350 and just scale back down to an F 150, that's actually not that bad. We'll survive. That's not a catastrophe. That's actually a pretty decent amount of fat built into the system that we can allow to cut back and not lose our shit.

The challenge, of course, is, can we do that elegantly? So then I'll get to the third piece. Everything what I'm about to say, from my point of view, is entirely hypothetical. I am making up this story on the basis of some heuristics, but the notion is something like this kind of dynamic of modal opponent processing and some kind of system that catalyzes the movement back and forth between them is very, very old, like, deeply fundamental.

58:55 It's too important not to be woven in.

Obviously, the sympathetic, sympathetic nervous system go way back so that basic structure is super fundamental and shows up all over the place. All right, second, humans at the kind of the first APOC, indigenous humans almost certainly, therefore, would have used that at the social level. We would not have been able to achieve something like a social cultural style of collective intelligence that didn't also have this kind of structure woven in deeply, but it would have been woven in deeply using embodied cognition, obviously not design cognition, because we weren't at the design cognition APOC. So what does that mean? What does it look like?

The proposition is something like when the external context when the conditions that we're in are signaling a need to move to a group explore mode exiting paradigmatic obligate paradigmatic mind or stuckness exiting habit mode into a more liminal form of collective intelligence.

1:00:02 Every distinct human at an embodied level will sense that differentially. And they will suddenly begin to signal that differentially back into the collective environment. I'll give that concrete. It's been raining less and less. We don't have concepts of rainfall. We don't have meteorology. Like, this is a long fucking time ago. But we notice in a very fundamental sense, our bodies are a little bit more dehydrated or the energy necessary to get water is a little bit higher.

We're noticing the prey animals are reduced are not as common. We're noticing that yield of food is decreasing. Noticing at the physical level, deep, deep stuff like biological. And then there's different types of humans. We have a different typology.

We have old women. We have young women. We have young men. We have children. We have older men.

And probably, I'm guessing, something on the order of, like, seven to 40 cognitive typologies that cover the different kind of modes of reality that it's useful to have strengths and weaknesses in it.

1:01:06 So the collective intelligence at the indigenous level is constructive typological differences. Each of those typological differences will have differentiate and sensitivity to the subtle signals of is it time for us to actually move to a new niche? Do we need to leave the valley and go into the mountains?

Because the rain and fall is telling us the flow time is about to come.

That kind of thing, right? And that will show up in behavior. That's the key thing like actual physical behavior. Physical behavior will produce a second order feedback loop as I notice the older women behaving in a different way. It signals me in an embodied level to begin that adds additional differential signal to my own perception and that will change my behavior.

So when I'm noticing for example that the young women are giving attention and perhaps sexual access to a different kind of behavior in men, very clearly this will change the behavior in young men but that also will cause to tend to cascade throughout the larger environment.

1:02:07 The idea is there's something like a very very complex set of multi typological feedback loops pulling in subtle information from the context that will eventually catalyze a pivot from tribal paradigmatics locked in very functional and effective adaptive habit mode into. Okay, let's all sit around the fire hand off the Conor from the chief to the shaman. Let's talk about the oldest deepest mythological stories. Hey elders, are you aware of anything like very different mode?

Right. The premise I'm making is that that's actually the case. I'm going to argue that we have that that a large part of what's actually going on. Like characteristics like depression and cynicism are like frustration. You know how frustration works, right?

Frustration is when there's a deeply felt sense that there needs to be some change in the world that is building up energy to make the change but the path to the change can't actually be produced and the energy effectively feeds back on itself.

1:03:08 And that's the energy of frustration which eventually will either build to a release this way or it'll cut itself ant certain stores and then will lead to more like depression. Right? So that's a proposed like to put out there that we're in a moment a big part of what's going on is that we're all receiving the signal that we need to shift into this collective consciousness mode, this liminality mode, this group explore mode. We don't know how and we're largely stuck.

And so we're trying to figure out how to make that move at very macro level. Like there's lots and lots of adaptive stuff going on, not the least of which is the brokenness of our body mind, our bodies and our mind in relationship to just reality. Ideology overriding our signals, like and body cognition is way out of whack. And a big chunk, maybe even like 90% of the chunk of the problem that we're actually dealing with is the journey of simply restoring ourselves to that basic capacity. Once we get back to that basic capacity unlocking the 80% of people who are sitting in bullshit jobs back into a coherent collective intelligence that's operating in a group explorer mode has enough capacity to actually navigate us to the niche we want to get to.

1:04:21 So that's taking the problem. Of governance and say, okay, we can take a series of steps and think about how do we maybe find a way to work our path? How do we find the path to get us back to the location where we regenerate our ambient indigenous capacity to operate in this mode from which we should unlock a vastly larger capacity to think about these bigger problems.

1:04:48 Matthew:
Yeah, I mean, there's a lot there. I think I could go on quite the response, I think, in terms of time, though, I think, Daniel, you did want to bring in some live chat questions as well, or in terms of where do we want to go here? Because I could respond to that. There's a lot of really interesting points there. Or we could weave questions into that context, that frame.

Where do you want to go, Matthew?

1:05:17 Daniel:
With a direct response. Then we'll have a rapid question and answer that will take us just around the time that we agreed upon and feel free to depart as well. And then at the very end, I'll just make some reflections and connect it to active inference. So first Matthew, then question, and then feel free to stay or leave and there'll be a little active reflection.

1:05:41 Matthew:
Cool. Yeah. And in light of that, I was also really wanting to raise some of the active inference semantics and context in response to in response to Jordan's points. One interesting frame that I feel is interesting to observe that it hasn't saturated the culture, perhaps just given the memetics of when and where is introduced, but sort of like EO. Wilson and Edward Lumsden introduced something called dual inheritance theory 20 to 30 years ago.
I'm not sure if you encountered that. They had this book called Gene's, Mind and Culture and there's a lot of resonance with respect to the mechanisms. They did a lot of work with respect to the manner in which the kind of diversity of behavioral sensitivities, psychological psycho, memetic and cultural level sensitivities and behavior patterns have these kind of emergent feedback loops that essentially end up creating an emergent form radial parameterisation at the cultural level and the cultural dynamics.
1:06:55 These changes you're talking about at deeper levels of reality as they bubble up through and restructure the cultural manifestations and the sensitivities and behavior tendencies of this diversity of psychotypes. I guess you were saying how that actually, as a mechanism feeds back into and back down through all those other different layers of adaptive implication, selection transformation and sort of like this emergent cascade and then this essentially radial parameterisation which many people have struggled with in the past under the offices of the argument around downward causation.
That's a whole slightly different conversation. But I do think active inference is very interesting from the perspective, at least from my perspective. Some of the work I've been doing recently showing that in many ways, active coherence offers a one function in the category, the necessary category of transformational mappings between perception and action that do exist at this deeply fundamental level.
1:08:06 In terms of the sort of establishment of any causal closures, either of any non trivially, complex process, any cycle that's capable of observation and action based on perception, in relation to perception. And interestingly, I think that that does, by its very nature, in the way that it connects to itself, give rise to this bimodal topology, like through a particular kind of non orientability.
And so the reflexivity, when something comes back to you, has a different orientation. So you actually have an understanding of the relationship between past and present via the lens of duration because of the need to proceed, even then impose some transformation on the environment. Through that. I think we're just beginning to develop the capacity to work with those tools in a way that doesn't impose. That's more like surfing these adaptive waves.
1:09:07 That allows us to observe the way in which these transformations and perceptions are mapping onto actions and using that as a tool in a toolkit of explicitly and consciously designing network connections between these many different perceivers and actors. And their perceptual and action

capacities in a way that can I don't want to say provably, but in a principled manner give rise to emergent systems that do have these properties built in endogenously and perhaps these signaling mechanisms. Built in endogenously in ways that can resonate with what you're talking about, which is the embodied sense that we have, intuitively or unconsciously that arises, but we don't necessarily have the language or the framework to explicitly talk about it. So sort of that emergent welling up of emotion or frustration or depression or enemy as you said, gets shunted into language and cultural symbols and representations that don't Bull close back on the sort of actuation capacities that we need to actuate or that we need to upregulate in this particular moment.

1:10:19 And I think active inference and other frameworks like it precisely because they take this perspective, epistemic perspective that says actually you don't get to directly observe the world. All you can do and the best you can do is take this humble process of trying the best you can to connect signals of perception to signals of action in relationship to preferences at a given time and the context in which they exist and build from there ground up. I think it's a leading candidate in the modes of phenomenologically shifting our perspective through new ways of operating and seeing the world through new paradigms, through new toolkits. So that's why I think I've been really interested in the active inference space and see it as something that's quite relevant to this entire conversation and in particular to your final remarks there.

1:11:16 Daniel:
All right, excellent, awesome. Thanks both for the dialogue. This is really great. So I will try to bring in many of the questions that were asked in the very active and energetic live chat we'll get pretty quick thoughts that will conclude the primary section of the stream and then if you want to stay or leave. But I'll just add a few more points because indeed the connection with active inference is very salient. Okay, so into the questions we go first from Charles Bloss. Hello, what are the primary patterns including values of wise exploration?

1:12:17 Jordan:
One was the one that you just noticed which is moving at the pace of wise collaboration. Meaning in this case I noticed that's a very complex question. I'll have to take a lot of time to think about it.

1:12:33 Matthew:
Yeah, questions raised, we raised the questions.

1:12:39 Daniel:
Here and explore it in the coming time.
But feel free to give a short response while you can.

1:12:44 Matthew:
For sure, I Dean, it's just interesting, I think there's a confidence there because one of the things that was coming to mind as I was taking the time to try to reflect on that was patience. Especially in light of all of the tendencies that shift us away from the capacity to take in sufficient information relation to cycle. On that there's a tendency to always want to, especially under pressure, under stress, to always

want to take perception and immediately map to action. Like for every cycle of perception, some sort of symmetric action because it field like you're at least doing something feels better than doing nothing. But there might be some minimal necessary amount of reflection you might need to cycle a number of times at a number of scales with a diversity of opinions before the capacity is built up in that collective intelligence or collective coherent structure, before any action that it takes externally can do anything other than make things worse.

1:13:53 And I think that that's a massive problem that we're confronting right now, because most of our tools are designed to map perception to some sort of extrinsic action almost instantaneously. And we haven't created the infrastructure that allows us to more deeply allow for complex emergent perception and mediated in the context of action at the sort of duration and depth required to meet the moment.

1:14:23 Daniel:
Great, so then a follow up comment and then a question. So Charles followed. Speaking of time, flagging an inquiry in regard to timekeeping and calendars and their specific numerics effects on humanity's psyche and cultures related to this patience. And Conor and Cairos next question from Nathan Curtis at what point in time, from instantiation does the established government lose its ability to be self referential and able to look in on itself to identify flaws?

1:15:04 Jordan:
I've had a general thought about this question. What I would say of course is that the answer is it depends the particulars matter and I think it's going to be something like three primary characteristics. One is going to actually have to do with what's called the shape or the topology of the underlying architecture. So and architecture like say liberalism has a decent number of designed failsafes very specifically consciously aware of this problem. And so it's more like a dissipative structure.
It has a higher capacity to actually live longer given a particular call it gradient, using the earliest language we were using.
The second, it's funny, you can basically identify three very straightforward principles. One is the amount of energy, the amount of information or potential that was enclosed in the initial design.
1:16:06 The second is the intelligence or elegance of design in terms of its actual ability to produce structure that most effectively navigates that dissipation into entropy. The third, and this is I think, a piece that we're running into a lot is something like a characteristic of bandwidth distinct from time. Meaning the proper measure is not chronological time chronos, but is something like relational interactions or loops of perception agency, something like that.
And so if I think of say, an UDR loop is a kind of a clock, that is the right clock.

1:16:55 Daniel:
Awesome.

1:16:57 Matthew:
That maps directly onto kind of what I was mentioning with respect to the active inference idea of duration as time, right? In the sense that that is precisely that cyclic relation in terms of perceiving the consequences of action as perception. And then internally, inside of whatever mechanism is perceiving

and acting at whatever scale we're talking about, that transformation is sort of this era of time that we perceive as the linear structure, that linear mapping. But the real time.

In a lot of ways, the systemic time is the path link through this causal structure that flows between the action of any given entity and the capacity to perceive feedback in terms of what those actions caused and how that allows in light of the contextualized relations that give meaning to the action, in light of the values that are ostensibly pursued. And so back to the question in terms of when is the system capable of or when does it become no longer capable of that kind of self reflection?

1:18:05 Well, I would say to the extent that cycle time, that capacity, that closure for being able to understand the causal affect of one's own actions in a contextualized meaning grounded frame to the extent that that is intercepted or broken right?

Or to the extent that it becomes no longer concerned with its own or COVID cystic is another way of putting it. So those would be conditions to the extent that it actually becomes so trapped in its own existing frame or its own assumptions of causality. So this would be active inference lab.

You have something along the lines of like an over.

The precision of its capacity to represent the world becomes far too precise with respect to the relationship between a very narrow subset of modalities and factors in the world exteroception and actions in the world, which is exactly what we were talking about earlier when we were talking about in Jordan's language, the decontextualization or like hyper contextualization.

1:19:17 And then that prevents you from being able to identify a very large percentage of the causal structure that might be relevant to whatever is threatening the coherence of your collective intelligence or your actual physically embodied metabolic systems or whatever. That may be.

1:19:40 Daniel:
Awesome. Nathan wrote if we want those representatives to embody a certain aspect of being in that position, how do we best select those people? What modalities can we use to select the best AI recommendation systems? Temperament and Character Inventory Test.

1:20:05 Matthew:
Personally, I'm fascinated by the possibilities of emergent identification of reputation like networks that take advantage of the information that exists in local relationships. We might notice that to the extent that we have elections at larger and larger scales, we lose that right. Like in your local elections, in a democratic election or a democratic electorate, if you're voting for sort of like a county chair or a governor or whatnot, you're much more likely to have relationships or at least some sort. Of socially contextualized understanding of who that person is and what the words that are coming out of their mouth actually mean in relationship to your embodied life. But the further you get away from that, the more you're dealing with abstractions and so the more energy has to be put into making those abstractions feel real to you.

1:21:09 And then you enter the world of television news and political news Cycles very myopically focused, hyper precise, a lot of energy and time put into those particular issues that get the most attention as opposed to those issues that tend to actually have a more embodied affect on an individual. So how do you actually take advantage of surface that emergent pattern of contextualized wisdom not just within democratic elections but at a much deeper level than we've ever considered before? Because

I think one requirement of meeting the level of complexity of the problems before us is representing a much greater degree of information. Without that information, that information being at many scales of our net emergent organism being the nation state, let's say for now without that information flow through the system, overwhelming the system. I think liquid democracy perspectives as a general category are quite interesting in terms of looking at them as sort of like graph finding or path finding algorithms of expertise that are mediated by local expertise or local relationships, local trust networks. 1:22:23 The trick with those is, I think, executing those in a way that is capture resistant. That doesn't necessarily make that doesn't turn the entire game of life into a game of politics. Such that we are all campaigning all the time to be perceived as the greatest expert in whatever domain without actually producing the action that would naturally give rise to those perceptions. It's a big problem. It's like aping the behavior that would lead to someone perceiving you as successful.

It's like the instagram model or instagram personality problem. It's like if you rent the jet plane and put on the facade and you wear the skin suit and have the persona it's increasingly difficult for a large percentage of people to divorce that from the real signal itself. So I think within liquid democracy patterns of sort of emergent stewardship or identification of people who might be able to solve problems with greater competence, that emerges as a problem. And then there's also the problem of response time.

1:23:25 So it's like, to some extent, the reason why we have central executives or the reason why we have individual representatives and place authority in the hands of single individuals is because there are particular kinds of events that require response that is at the scale of smaller time windows than is typically capable with processes that include large numbers of people.

So that's another attention in terms of needing to solve that without falling back into sort of the central executive idea. But those are just sort of the cluster of thoughts that come to my mind when that question arises.

1:24:00 Jordan:

The first thing that come up for me is that I would profoundly caution that principle of asymmetry that I'm reasonably confident that the right way to do this is to almost perfectly invert our current way of doing things in our habits and intuitions meaning a radical regeneration of actual real relationality and orientation of sovereignty ie. Choice making authority and power to the lower level more intimate locations is profoundly the right way of doing things. And so that most people for the most of the time, most of their choices are actually being governed by high context dynamics. And then on top of that substrate you then can actually relatively easily build a construct that allows kind of a distributed Cincinnati where when it is in fact very important to identify individuals of extremely unique capacity to deal with very specific problems that agent available within even a vaguely large local environment. 1:25:05 You can press them into it.

But the point is that they're so deeply connected 80% of the time into and Attial lived context with all the different strong bond, high feedback loop, high context, high subtlety that the culture into the instagram model thing doesn't really have. It's obvious that that's a really bad idea. If you have people who are living almost entirely in virtual lives where there's really nothing real in their lives, they don't actually have real friends, they don't have real territory, they don't have real relationships with, even like their. Parents or their siblings, then it's very difficult for them to notice that the instagram

influencer thing is terrible because they don't really have something other than that that is qualitatively distinct. But if they're actually living a truly healthy life with all kinds of good positive things happening then you can pop into this other role, notice that you really don't want to live there, do your job and get the hell back into a nurturing environment.

I should mention, by the way, it's not clear to me that we can actually get from here to there outside of catastrophe.

1:26:11 The navigation of that particular path, at the very least is a serious, serious, serious job, clearly well beyond the capacities of anything that we have right now. So it would be kind of a trophic cascade of a series of upgraded capacities that get us to the point where we have that capacity and that's reluctant.

1:26:30 Matthew:

I think we've talked a little bit about this or exchanged a little bit about this on Twitter in terms of one of those constraints. And when you're talking I just kind of wanted to get your take on this, one of those issues with respect to potentially walking that adaptive valley, right, or trying to balance upon that adaptive bridge line between our current local maximum and perhaps some sort of foothold on a larger fitness landscape.

Or higher point on that fitness landscape is this idea of national capacity in relation to the geopolitical structure of the rest of the world because we're operating not brain evolution.

If we delegate responsibility, this transformation that brings agency outside of that central locus of coherence that is now, this behemoth the leviathan of the state with its primary focus, let's say, or at least it's Ostensible reason for being.

1:27:32 As the maintenance of the integrity and the boundaries of the entity called the United States or whatever the nation might be at that scale. As soon as that sort of starts to falter, it's also perceived by other agents on the landscape as opportunity. And then, interestingly enough, is it possible to maintain that transformative traversal in light of whatever pressures are added on top of our already great list of pressures by other geopolitical actors. And I suspect that's at least one possible reason why you think that a transformation like this will have to be forced out of sort of terrific cascade collapse or cascading collapses.

I'd be interested to hear your take on that.

1:28:24 Jordan:

Yeah, that's great. Just popped in my head with this notion of pyramids. So by hypothesis, let's say that the American empire is one giant peacock tail and so we're going to lose it. But the good news is we can, we can afford it.

In fact, we're better off without it. And so, yes, I think you're right. And it's funny, it's almost like expanding to fill a niche where we found ourselves in this odd circumstance of being first one of two superpowers and then being an actual Global hegemon for the very first time in human history. And we expanded to fill that niche, meaning we sort of depleted all of our excess capacity until we unconsciously and arbitrarily sort of deployed the Global hegemon game all the way out to the edge, right? And then we're sort of pushing at the absolute limits of our control capacity, by the way, in the context of all these other things we've been talking about, like local entropy and parasitism, et cetera,

and all the niches that open up in that interior.

And I would simply propose that we're already past that point. So one might argue that any kind of change in behavior comes with the cost of having to give up the benefit of being a Global hedge fund. 1:29:32 And maybe you don't want to do that. That's kind of a Tainter pivot point. If you're familiar with that point in the Marco, I think that dies in cats, that we're right now in the process of a forced catscade down from that position into some new multipolarity.

And that can be and I suspect we've probably gotten the order of like three to five, maybe seven more years for that to kind of land all the way down. Very clearly that that's where we are. But I would say we're past the top of that point. So it's a downhill roll from there. And much like this notion of bullshit jobs or the demoralization cynicism of being stuck, we might find ourselves demoralized by being unrooted from being Global hedge fund.

But we might also recognize that that was actually never a thing that ever that we really, really aspired to be and could have been or should have been. More importantly, could have been. It was doomed in from the very beginning. And that we're right now being forcibly liberated from a highly dysfunctional exploration, which then, if you sort of shrink the scope back down to a much smaller scope may actually produce.

1:30:43 A large enough, large depth of time and control capacity to afford us, called the Generation and Generation and a Half to reestablish a more generative governance infrastructure.

So that's an interesting possibility at least. It's a nice story.

1:31:03 Matthew:

Wow, we're going to live a path associated with that. At least it's not that path. Something interesting. Okay.

1:31:11 Daniel:

To ask a few more questions, just feel free to make sure.

1:31:14 Jordan:

I have to be very careful with timing because my wife can be coming back with my four year old and I have an immediate responsibility. So we can we can go. But be mindful.

I may literally hit the red button to be gone.

1:31:25 Daniel:

Sounds good. Please depart as family demands. So just I'll read a few more questions and then again, I'll just stay after to give a few reflections. So what is a good example of a major expanded decontextualization that we live in that exists in the culture now?

1:31:48 Jordan:

Expanded? I didn't understand that.

1:31:49 Daniel:

A major expanded decontextualization, maybe a broad scale. Okay.

1:31:57 Matthew:
It might be like a synthesis of the two ways that we were talking about this and maybe in terms of expanded decontextualization in the sense of the tendency to see the world maladaptively through a lens that has grown so large that we can see nothing else.

1:32:18 Jordan:
Perhaps the COVID policy COVID policy is a great example of exactly that. We built a medical and health care what is it called, public health infrastructure pulling forward decontextualizing. A very large number of aspects of embodied, embedded humans and effective. What that did is that put a series of knobs in the cybernetic control structure. That when a real problem came up that has extreme systemic complexity.
The way we ended up dealing with it is we started pulling these knobs as opposed to address the underlying systemic complexity. We were like, okay, lockdown. Why lockdown? Well, lockdown may be an optimal strategy if you think that you can shut down the spreading of a virus and are completely ignoring all the other systemic consequences of lockdown. For example, it was kind of like.

1:33:11 Matthew:
You agent over with the army. You have philosophy. Except that the control board we had was extremely low resolution and even contraindicated by our own past advice in many ways. But it was at hand and so we pulled the levers, even though there were plenty of us who were saying, perhaps treating this as a giant light switch is not wise makeup and to.

1:33:34 Jordan:
Comma from orbit isn't always the best play.

1:33:36 Matthew:
Yeah. And I would also just extend that point into the fact that beginning to reflect on that as a society is also showing us that there are a number of other decontextualization or sort of like frame lock issues that we have that have built quite a lot of inertia around them, especially around the domain of what we call science, or what is now parodied as science or scientism, which is like the more serious conversation that's been going on since the advent of essentially early postmodern philosophy. And in the van sort of phenomenology like usurl and Husserl's questioning of sort of the paradigmatic and nature of science as a way of seeing the world that can displace all other ways of seeing the world if we're not careful. And the tendency of that to because it has provided such again, this is sort of this question of exploration finding capacity and then that capacity becoming so powerful that it puts people into habitual mode and that habitual mode becomes a fallback if other levels of social or psychological or even mythopoetic coherence break down.
1:34:57 So to the extent that people lose other frames for perceiving reality, perhaps for interpreting their phenomenological meaning, which is what the mythopoetic frame has provided for so long, to the extent that breaks down, sometimes for good reason.
I mean, again, there was a lot of corruption in the church and in religion and there was a lot of, I would

say, decay in the sort of interpretive frames presented to upcoming generations. I mean, I was one of those people raised Catholic, initially left the church, became essentially antithesis for quite some period of time before beginning to realize only through evolutionary education and looking at sort of the game theoretic lens in terms of deep history, that there was something there, there was a there there, and that it wasn't necessarily something we could jettison. But many people have I think many people were in that same position. And being in that position have jettison in that frame, falling back upon the purely scientific frame, but not themselves doing science being associated with the process.

1:36:01 Therefore falling into a dogma and being willing to trust the high priests, therefore creating an incentive for high priests who are mouthing the words and playing the game of politics as opposed to really committed to the continued process of discovery and transformation and representation that we know of science and getting ourselves into that whole situation.

And we're still a very live conversation. We're still trying to figure this out. And what is the relationship between science? Can you have a scientific exploration of mythopoetic constructs? I think that's a really fascinating possible field that also active coherence would have a lot to say in terms of the emergent structure of collective behavior.

That's sort of the same kind of questions, like really digging into and beginning to examine the kind of questions you were talking about earlier with respect to what it means for different people to have different traits, tendencies, the perception, personality traits, what that ontology looks like you're saying maybe seven to 40 psychotypes or something like that.

1:37:02 What the dynamics of that as an emergence system actually look like in terms of their feedback and parameterization on the underlying structure and evolution of our society and how mythopolitic structures and scientific perspectives change those perceptions and interaction with one another and dynamic feedback mechanisms with one another, or dynamics feedback correlation with one another. I mean, these are all questions for the next 50 years, right? I mean, very important ones, I would say.

1:37:25 Jordan:
Yeah, so I'd like for this.
We're listening. I like the fact that you were actually, in describing a decontextualized, can't remember the structure, but describing the structure, you also were articulating where a lot of the failure conditions emerge and how we find ourselves, like this systemic shift. But you don't notice that you're actually moving from science into politics or moving from science into theology into politics. And because you don't even notice it's, a thing that could happen is not a risk that you're even contemplating in your behavior. So you're finding yourself on that trajectory.

Maybe the mother of all actually metaphor being where we are, like, nearing the end of something, the short answer to the question is kind of everything. So everywhere you look is a hypertrophy example of extended decontextualization. So the problem is actually being aware of what the opposite might look like. But maybe the mother of all is education, the education system. I would say that the current education system decontextualizes humans, developing humans so radically as to deprive them of probably something between 70 and 90% of developmental needs, which produces probably a net yield of probably a 99% reduction in total human capacity.

1:38:44 And many of the things that Matthew was just bringing up, like the embodied facility, not just not just the cognitive scientific awareness. Of the particular psychotypes and the relationships but

actually building actual facility in navigating that properly how you individual navigate the world and how you can be in right relationship with distinct other kinds of humans in collaborative spaces. Like, that's actually really hard. And it's not the kind of thing that's easy to learn when you're 50, right? It's the proper thing to be learning between the ages of like four and twelve and then deployed effectively in particular kinds of contexts between say twelve and 20.

Sorry, I'm doing the same thing. I'm pointing out the things we don't even notice that we have lost by virtue of becoming hyper, hyper focused on a very particular set of optimization characteristics. And also education, as I think a very big example of the basic problem.

1:39:41 Matthew:
I think that form of education, to the extent that we can do that, we can also begin to see, in light of what you're saying with respect to it's, almost everything at this point, a key element of that almost everything is the economic domain in which this plays out. You could consider that sort of like a hypertrophic exploitation of supernormal stimuli, right?

What is a supernormal stimuli? These stimuli that we have that are essentially we've discovered as part of this reflective process of discovery in the domain of science. We've discovered particular ways of tapping into evolved perception action loops that are unbounded in their sensitivity. It's very hard to identify upper bound for how the extent to which you can advertise self undermining food products or ways of spending your time if in the moment those produce some sort of extremely positive or extremely some high salience positive affect experience like eating sugar or getting that dopamine release from the anticipation of acknowledgement of one's perspective online or these types of economic threads that we have created are specifically the profit maximization thread.

1:41:07 I think this is often put on the shoulders of the word capitalism as a pointer to some sort of hand wavy, like there's something going on here and it's capitalism.

But I think at a deeper level what we're pointing to here is the fact that because of this very long lineage of frames that we have chosen and in many ways like adapted to live within as a function of past adaptive challenges we now live inside this maximal representation of those ideas in a way that is no longer sustainable. So like profit maximization as a myopic focus leading to identifying those narrow set of dimensions that are most in line with that narrow metric over the sort of corporate function and then actually successfully tapping into evolved aspects of human psychology perception that are unbounded. It was a search function and eventually it was going to come to rest on like probing the human experience in mind until it found those parts that literally would not you got to go.

1:42:16 Jordan:
I got to go guys. Sorry.

1:42:18 Daniel:
Indeed.

1:42:18 Matthew:
Jordan, great talk.

1:42:20 Daniel:
Thank you.

1:42:24 Matthew:
Yeah, that economic threat is another threat to pull on. But that was a great conversation in.

1:42:31 Daniel:
This in the active over time, I just want to run through a few hits that I wrote down from this great convo and just plant some seeds for how maybe we can continue 35.2 or in the future. All right, so in the very beginning, there was a discussion of something like a meta theory among the three of coon with respect to science, hayek with respect to business, and Tainter with respect to politics. And we can even see that meta theory as the prototypical perception, cognition, action or ecoevo divo loop.
So you spoke to the transformational mapping between perception and action, which is basically what cognition is. We just say it's everything between that map between perception and action and hence active inference as a prototypical framework for not solving but framing some of these contexts.

1:43:28 Matthew:
Then there's a structured way of mapping those exteroception onto available actions and then identifying I mean, interestingly enough, one of the most essential aspects of the framework is that capacity to switch between the development or, like, reduction of variational free energy in the moment. Understanding whether my representation of Parsing reality and action and what I'm doing is actually in line with the causal structure of my local environment versus this explore exploit, future oriented frame of reference in light of when is it? Time to actually search out some disruption or some entropy so that that entropy injection into my locally ossified frame can open me up again to navigating that adaptive landscape and introducing new maps between perception and action that can facilitate my continued adaptation.

1:44:20 Daniel:
Awesome. So I wanted to actually go to the free energy with we had the earliest epoch of human collaboration, which Jordan characterized as sort of an unconscious. And that is a lot like type one thinking in the type one, type two system. And it's a lot like variational free energy. It's just this real time unfolding Bull goes downhill modality type two thinking, second stage civilization, as per Jordan. And expected free energy is where we actually have the double edged sword of the rollout and anticipation. And we've seen simulations in Ant IMF where a tiny proportion of hypothesized negative outcomes, even if they're totally avoidable drive, rumination and anxiety and high variance estimates. And then the question is, is there a third epoch, is there a third mode that uses attention to modulate the balance or the reliance between the variational and the expected free energy?
1:45:23 And to what extent is that attentional modulation implicit tacit onboard, not automatable? And to what extent could that kind of wisdom be reflected in our externalized niche?
And that connects to the question of automation and transparency around our information architectures, Communications and our infrastructure. And I thought at first a sort of infrastructural incompleteness or instability theorem. Like, even if you get all of layer one automated, then of course, layer two has

not been automated. So there's always the hyper prior and also that Min two opponent processing thinking with ten segregated architecture, compression and tension. Could we have systems where instead of just trying to, oh, we want this object hanging here, we'll just put a pillar underneath it, and then we'll put a pillar underneath that.

Like, are we going to compress all the way down or could we have a harmonic mode that involved compression and tension and that's how it stayed flying?

1:46:32 Then just go ahead. And then I have two last points.

1:46:37 Matthew:

I'd go either way. But yeah, there's a lot of resonance here with some of the things I'm working on literally right now in terms of attention to attempting to work with active inference.

Like I was saying earlier, as that cognitive mapping, that mapping, you can look at it also as a category theoretic mapping within a category a set of morphisms right between this sort of space of perception and the space of action. And you can then also in that sense, integrate that into a larger hypothesis around the topology of emergence and then develop that as a toolkit. Which is interesting because inactive inference through the lens of active inference, in theory, everything can active inference lab and then it leads to this sort of recursive hierarchical structure. But following thinkers such as like Robert Ronen in terms of his and like Vashevsky in relational biology and bringing in theories of a temporal causal structure that basically can contextualize the temporal unfolding of entailments, you can actually use those understandings to take active inference as a tool and weave it into larger fabrics like you're talking about.

1:47:59 And those fabric connections, they are related to active inference, but they're not necessarily active inference itself.

Although you could then take a meta step outside of that and say we can apply the principles to the entire system. But there's this role of understanding novel closures, of observing of reflexivity. And that reflexivity, I think is really like the approach I described as the approach I'm taking to introduce a different kind of reflexivity and a kind that I believe is consonant with multiscale arbitrarily complex emergence into the world of active inference. But experimenting with how to stitch active inference together into itself I think is a very the entire field is new and exploratory, but even amongst that, it's that the sort of periphery in the edge of exploration.

1:48:50 Daniel:

Indeed. And just these last two points, belief Jorge was mentioned and active inference helps us with the composability legibility and simulation evolution analytics on different systems, physical cyber, physical cognitive unknown, et cetera. So if we're doing brikoulage on the edges now we have the glue or the sticky tape or whatever it is. And then last point was on the peacocks and pyramids. It's not so simple as just an adaptive buffer, even throwing pletropy.

So the consequences on different phenotypes aside because it becomes integrated as the kind of thing I am. And so, yes, it's like the eraser is the capacity of the pencil, but we don't rub our erasers all the way down. We're not always on our last life in the video game. And a symbol that on one hand the energy could have been diverted to some other purpose.

1:49:59 That symbol can actually become an introduction at even the mythopoetic level and therefore

actually lose its capacity to be an adaptive buffer at one level and become a pivotal player at another level.

1:50:22 Matthew:
I think that is also related to that evidence scram problem, particularly with respect to the abstraction of that buffer as well. Right. So if you abstract the buffer as well, the buffer is, in theory, a signal of underlying quality of behavior to accumulate and accrete resources over and above the requisite level of short term consumption or metabolic need. Right. That's the evolutionary instinct we have for sort of appreciating someone who has, quote unquote, gathered wealth, at least by means that were constructive or generative.
But then to the extent that that becomes associated with identity and then you look at the signals as that wealth manifests in a particular culture, as the proxy measurement for the underlying phenomenon, then you can start to get into the manipulation of those signals. If someone understands and observes others behaving as if the signals were the process of production of that capacity for wealth, the capacity for production of generating wealth or useful.
1:51:23 Byproducts then you can see again this emergent parasitism element dropping in there because people will try to middleman that process and say, if I can get you to treat me as if I am that person, maybe I can get access to whatever associated privileges come alongside that. Yeah, 100%. That's that identity association and all of the games that it opens up are essentially central.
What your gain to what we're talking about? What we were talking about?

1:51:52 Daniel:
Awesome. And a closing thought. The discussion made me think of a July 4 Fireworks for information. What does it look like when the weaponry is turned into livingry and when there can be a symbolic ritual around the utilization of that dual function technology within the boundaries across those levels?

1:52:27 Matthew:
Yeah, we're in a beautiful time for that right now. I think so much of the emerging technology, the generative technologies out there, especially under the offices of AI or ML, the capacity to use that generative toolkit and its ability to allow people to a much broader swath of people to produce potentially resonant artistic and cultural artifacts that are pointers to something they find unique or interesting or insightful that might then spread if it aligns with a given moment or need. And that's particularly fascinating to me as a catalyst for increasing our capacity to think collectively transcending just the verbal domain and bringing in other sensory modalities aligned with the word I. Dean that's the funny thing about these LLMs, right?
Like, they're large language models. And language can act as that fabric, as that language, as the neural network itself, as the computational network between these other sensory apparatus, and the ability to produce artifacts that bring people into forms of alignment or phenomenological resonance that just would not have otherwise existed.
1:53:49 Now, there are potential downsides to this as well, just like anything. But I'm very excited about that because I look at, you know, the all of the art that I've seen, this new generative artwork, it is, like, you know, very much informational, fireworks. Right?

People are able to take five ideas that they heard today. You could go, you know, based on this podcast, you could basically say, like, take any subsection of that, produce a series of generative artworks, and then associate that lineage or series of generative art with this as a network, a visual network that could be a dynamic placeholder that could attract attention automatically from the potential network that resonates with that artwork. Right. And tap into the latent space of this conversation that none of us hold explicitly in our heads, but we're all pointing to it based on our words and our conversations and the kind of things we're trying to talk about here. Like, there is a latent space representation possible. So, yeah, I think we're in fascinating times for that and using that as a tool constructively and wisely. 1:54:51 I'm looking forward to seeing that part of this unfold.

1:54:55 Daniel:
Thank you, Matthew. Thank you to Jordan. Till next time.

1:55:00 Matthew:
Thanks, All. Always a pleasure.