Speaker 1 (00:00)

Then we didn't know what was coming, but we knew that they were globally. The economy was facing significant challenges, unemployment, low growth. And you can feel this in Italy, that the story of Italy is full of excitement, exciting stories, but also worrying things happening at the regional level, particularly at Southern Italy then. So we were looking at how the Triple Helix actors work together to address this question about the enterprising States. And I suppose we could ask the extent to which Italy is an enterprising state. And then after that, we produced this paper from Prometheus in 2014. And again, issues about unraveling, what's going on in the world, what changes are societies of different kinds facing within us? You can see then the themes of foot looseness of high tech manufacturing and knowledge intensive services, and embeddedness the themes that are present in the Italian chapter. And this level geographical scale is prevalent throughout this chapter. So moving on to the specifics of this chapter, then he's got these three data sets. And what was really interesting is when he talked about 2015, he dismissed 20 08, 20 08 there's much to say, nothing much has happened.

Speaker 1 (01:35)

And I thought that was really interesting. Then he's got all this data and it was summarized in a sentence or two. But it was interesting that he got this crosssectional data. It's very important. It's not longitudinal, but he does take these variables and look at them throughout the looking at Italy. And it's got these issues, as I've already mentioned, about geographical scale and the issue of whether you should look at Italy is Northern, Southern and central. But the analysis suggests that you need to have Tuscany as part of the Northern part of Italy. And it makes much more sense to look at the country like that. And he also ends up with the policy application and the necessity of understanding what the data is saying in order to be able to produce policies that are specific to the needs of particular regions. But then those of us in Europe and use the European policy, even those in Britain, are still mindset this European policy with our own leveling up agenda in the UK. Okay, so he's looking at then the history of Italy, the cultural traditions, and I wasn't quite sure where he was going to go with this because he mentioned the second languages in these two regions.

Speaker 1 (03:02)

And then it turns out that these cultural differences, language differences have had a modular impact on synergy in the Northern regions. And he's looking at geographical scale and talking about how the Italian system is consistent with the two classification. And he's got all this data and then the problem about the industrial district. So when I first came into economic geography, it was all about the third Italy. It was all about Amelia Ramana, and everything was so exciting. But he did make there is this point about mythological, can't you say that making myths after small enterprise spatial system. And I think Luke's work actually touches on that. But maybe that could have been more fully developed. And I looked to see how Amelia Romana is doing, and it's not doing terribly well, which is interesting given that two other regions we're doing had positive scores rather than that was negative 3.8 or something like that. And so he's raising these really complex issues about statistical data and Admin units versus the reality of

innovation processes that don't match regional and national boundaries. And he talks about that when he talks about the service sector and the sectors that are delocalized because they're so international.

Speaker 1 (04:33)

So the kids, the knowledge intensive business services are all over Italy, but the knowledge intensive stuff, it is local and it makes it more vulnerable. And then there's also this interesting point about the choice of regions, setting regions and what kind of systems you would look at. And the function of regions is very different countries. So, for example, Italy compared to the UK, and we are seeing them about the Triple Helix model and how it operates in different ways in different parts of the country, the north versus the south, for example, and how the universities engage with the firms in those particular areas. And so what's interesting, the way the paper is structured is he gets the interesting questions at the end of the chapter rather than the beginning. So I find the second half of the paper really stimulating. The first half set the scene. But it was towards the end that he really got to grips with some of the more interesting questions about innovation systems and what the extent to which it's generated at various spatial scales. And this question about the regions carrying the function of their regional innovation organizer, some of the work that Henry Excavitz and colleagues have done, and then a point about the redundancy indicators of synergy.

Speaker 1 (06:08)

And then this is what he's given us, the historical perspective and the change in the role of the state, the solution to the region and what effect that has reduced in the R Amp D budget. It meant the Southern part of Italy was much more exposed. And it also showed them that even though EU Cohesion policy came in, the retreat of national policy was far greater than could be offset by EU Cohesion and structural funds. And we're seeing these two Italies and the divergence between the fortunes of the Northern part and the south. And he makes the point about a weak national innovation system, that the Triple Helix elements of University industry either nonexistent or they don't work or they're not organized. And I've not seen it quite so starkly presented as it is in this chapter, because I know colleagues Danielle Yaki, Buddy Bert, Becky is also in Italy, and we never had that kind of conversation about how it works in practice, because we just know people in universities and we know that they have links with industry, but I've not seen it quite boldly said about that said as in this chapter.

Speaker 1 (07:28)

So this is the methods he's talking about synergy and redundancy, and he's got these three dimensions. But it is interesting. The data doesn't cover agriculture, Fisher in pharmacy or public administration. And I don't know whether that matters in the scheme of things because where I sit in Oxford, the public sector is everywhere and it's hugely important part of the local economy. And I don't know whether there is that same missing element in the data that's presented here. So this is the results. And I'm sure my colleagues are going to talk more about the contribution to the region and the difference between national synergy and the region synergy. And you can see the strongest regions, for example, normally become

even stronger than national synergy over time. And it's the north that has this synergistic element to it that it's really important one third of national synergy when considered as one region rather than the sum of it from the individual parts. And again, this is the measurement issue to do with where synergy fits in synergy enhanced by focusing on high and medium fat manufacturing and then these two Metropolitan centers of innovation systems. Roman, Milan maybe it's my understanding of Italy is for my colleagues who work in Roman Milan rather than in to finish off really about the policy issues that are raised in this chapter are very interesting about need to understand boundaries and municipal, provincial, regional, national, supernatural, biceps and my combinations of analysis and indicators.

Speaker 1 (09:35)

I think that there's a lot to be learned from this, but I don't know how much this is mainstream. Other people will have greater knowledge of how these indicators collectively are used by policymakers in Italy, in other countries and within the EU. So I like the fact that analysis is historically informed, that he explained selection selectivity, illustrated synergies and the triple Helix model, although I think there should have been perhaps more emphasis on the triple Helix model as a consequence of what the data showed and the point I was making earlier about may or may not expect the results. And that's where I'm going to stop. Thank you.

(10:44)

Jamie.

Speaker 6 (10:46)

Yes, I was just going to ask, are there any clarifying questions or shall we move to our next presenter, which is Jerome Warren, if there are no questions? Dimmetry, did you raise a hand?

Speaker 2 (11:07)

Yes, thank you very much. Just a very quick question to Ellen, if you can comment a little bit about this notion of synergy, because I understand this is very much very special to Loot communication approach to region. And it's not a concept that we all understand the same way. For example, if you refer to synergies or policies in Brussels, you will get a completely different view. And I was wondering why, for example, this concept as Loot has measured it at regional level didn't really advance in mainstream regional policy, for example, as other concepts that we know have occupied center stage, as, for example, the concept of my specialization in our day. Thank you.

Speaker 1 (12:24)

Okay. Thank you. It's nice to see you, Dimitri. So my understanding of synergy is fairly limited. It's not one that I use on a day to day basis, as far as I understand it. It's the extent which some of two parts is greater than the whole. It's how different aspects reinforce each other. But I'm not sure whether that's the way

that he's using it in this concept in this particular context. I think somebody else might have to do it. And I find redundancy is also a difficult concept. I've asked my mathematician husband to explain that to me. What he suggested, that is when you've got two parts of, say, the triple Helix, doing the same thing was wasted in the process. And the way he's explained to me, redundancy is the opposite affinity. So the one you get more by putting together. And it seems when you have bits that are left over.

Speaker 3 (13:31)

I think this is very important and probably central to the whole book, really. So I wonder if we can return to this question, particularly after the free presentation. This is very important. That would be good.

Speaker 1 (13:49)

I need to learn.

Speaker 3 (13:52)

Yeah. These are very difficult things to understand. And load has a particular understanding. He's done his best to reveal his understanding in his book, and we've all got our own versions of it. And I think exposing that will be very good. Shall we move on? And then we'll come back to this. So, Jerome, are you ready?

Speaker 4 (14:29)

Yes, I'm ready. I was trying to find the way to unmute myself.

(14:32)

Okay.

Speaker 4 (14:33)

Can everyone see this? And maybe just to very quickly return to the question of the last gentleman. I forgot your name from Brussels for my opinion. I have a background in economics. I think one of the reasons that there is more of a focus on this type of synergy is just the sort of first mover advantage of the Ricardian notion of comparative advantage. I think that's what's sort of the cause of this lack of creativity. That's my opinion. But we can get to the discussion. So I have a bit of a conceptual discussion. I hope this is useful or interesting. I thought I would relate this chapter to some of my own research and also the concepts behind that research, as I've done a lot of that in Italy. So I thought this would be an opportunity to connect to some of these, in my opinion, very interesting ideas. So yes, my name is Jerome. I have recently been selected as the chair of the program of the Belgian Sovereign Wealth Fund at the Academy Royale de Bejik. And for that we're currently I'm still also a doctoral candidate at the University of Cologne. Just very quickly, background.

Speaker 4 (15:49)

I'm German, American, world one in public view. Who am I? I did a first bachelor's in actually a lot of humanities stuff in Alabama, New College, focusing on religious studies, philosophy, and also for a long time been interested in the topic of cooperation, read a lot of the sort of classical anarchist literature, people like Coputkin, Woodle, Phoka, No Chomsky, more modern take. And I became interested in economics, particularly after 2008 in the financial crisis, and I got a bachelor's in that. And my thesis here is on basically social preferences. It was published in 2015. I did a master's in political economy in a special program, Pluralistic Economics, and also wrote a thesis on cooperatives in Italy particularly, and continue this with my PhD. And now I'm working with the Academy of Reality Based. She's working on a sustainable theory of the firm. And that, by the way, there's a picture in ItalyA, but it doesn't really matter. So I'm glad that Helen did some introduction of chapter six because I don't spend a lot of time with the content, just very basic rudimentary introduction. And this is what I gather the main messages are, of course, as Just said, everyone has their own interpretation.

Speaker 4 (17:10)

So I gathered that the main points are, among others, that regional development is not the same as regional development. So it depends on how one is defining it. What are the parameters emphasizing and also de emphasizing. So these Nas codes, I gather, Boot argues, are an insufficient grounds for distributing innovation funding based on the very particular historical quality of the regions. Yeah. And particularly these are coordinated by region, whereas regions don't explain or account for innovation. So Loot says that the administrative borders, which originated for historical and administrative reasons, should be examined critically in terms of their functionality for innovation, particularly in a knowledge based economy that is far more network than a political economy. So this conclusion, I guess, is the need for alternative parameters for innovation policy.

(18:06)

Yeah.

Speaker 4 (18:07)

And basically the subsystems, the major subsystems of Northern and Southern Italy, the Metzagorno. And yes, these administrative orders basically provide a poor basis of this. So my own research in Italy, I've traveled a lot in the south, particularly has revealed that Italians in the south, from self statements, have said that they're generally less community inclined, less trusting of government. And this, by the way, applies also to bureaucracy. So I studied, for instance, one community cooperative in Blind DC. They got me Blind DC, where they basically have had a lot of trouble convincing the local government to basically formally communicate with them and liaise with them. And so everything sort of happens under the table because the bureaucrats sort of prefer having no contracts. So this is a very particular cultural, I

would say, manifestation of some of these distinctions that you see in a very formal, abstract way on these graphs here. So maybe to connect this to my own research, again, I said it come from an economics perspective, how can it benefit? How can economics benefit from a triple Helix view? One thesis is that economics lacks an evolutionary perspective. Tossa and David, who was pictured here on the left, of course, smoking, making advertisements for cigarette cups, is suggested in an essay, I think, 1899, that economics is not an evolutionary science, which I think is still a very vital piece of literature and still very relevant for it to describe the economics discipline today.

Speaker 4 (19:43)

And it's my view that experimental or behavioral what's called behavioral economics think about Richard Taylor and Nudging and these types of things has improved upon this but lacks basically an overarching epistemic perspective. So that many, for instance, has said that or rather that he has observed that a cybernetic framing of interactions among systems with using feedback is a better tool actually in terms of pedagogy teaching Macroeconomics than is the sort of accounting cost accounting version of framing of it. So Loudestoff has suggested that a political economy features two opposing logic and it can be supplemented with the communications view. So just a quote from the beginning of the book actually. Whereas political economy can be explained in terms of two coordination mechanisms, market and governments, a knowledge based economy as a result of three configuration mechanisms interacting and operating upon one another, interactions among these three selection environments shape the triple Helix properties in very different ways from double Helix. And again, back to my interest in cooperation. How can that help? So Odipito has had some very interesting research come out in the last ten years from the Santa Fe Institute, originally at the London Mathematics Laboratory.

Speaker 4 (21:07)

And he and Alex Adam have actually have shown that cooperation is beneficial over a long time over the long term by reducing volatile outcomes. So this is just a very dry analytical framework that does not include anything like ethical values, just basically sharing pays out in the end and they notice basically a problem of initiating the cooperation, which is something that, for instance, the biologist Eduardo Wilson also confirmed or had confirmed his research. So you see this manifested in this top graph, the colored lines, the green is the non cooperative, the blue is the cooperative outcome where people share. And at the very initial left bottom hand of the graph, you see that the green actually dominates. So the very beginning of cooperation actually it is more costly to cooperate. So the problem of initiating cooperation is initiating this sort of or overcoming rather this sort of a short term decline in welfare for cooperators and then ensuring the longterm benefit. And I think that a triple Helix model can account for the incursion of new preferences and behaviors towards instructing new what Acura is in Metaxas call macro cultures and their idea is represented by the bottom graph where basically say here the beginning, two individuals sort of have a new I'm thinking of Arlo Guthrie's.

Speaker 4 (22:30)

What is it, Alice's? Restaurant, if two people are singing it, then they look at them like they're crazy. And if three people are singing it and so on, they're probably gay. And at the end you actually convince everyone, as Gandhi would say, I guess so in a very sort of folk way, representative. So I think that there's also a lot of potential in combining the Triple Helix framework with something that Lucia, Viguero and Joseph developed, the relational economics paradigm because they both emphasize relations among different logic and different actors. So again, do not go into the details of that. This is just a very cursory overview. And my sort of idea of manifesting this transformation, this relation is a cooperative end. Triple Helix in his book mentions that you can extend the Triple Helix to a quadruple or quintuple Helix and have, in addition to the regulatory, profit maximizing and novelty producing Logix other logics potentially. So I have just this idea I developed in my dissertation of viewing the cooperative principles by the International Cooperative Alliance as propensities language of Kalappa, and which basically are real forces that act on agents and institutions as well.

Speaker 4 (23:50)

They're taking this as given. And in the second step, I apply something that Robert Ivanovic, who's actually here today has termed process ecology. I go into this in a moment, and the key terms and concepts in that are total system capacity, the sort of throughput in the system, what he calls ascendancy the sort of the organized structures within the system and then overhead, which of course, if you think about it, are very similar to some of the concepts that Food actually developed in his book, things like the conditional entropy. And again, redundancy. And we've been talking about the synergy. So in the third step, I develop a causal model, or the third step would be developing a causal model using existing knowledge about how things in the world interact and relate. And of course, again supplementing this Triple Helix logic with additional logic. So just I did an example here with cooperation education as two logic. And of course on the top you see an autocatalytic feedback loop, which is very just general. And this is taken from Milano, which is, I think, the growth and development book. So here again you have the profit maximizing, regulatory, educational and cooperative logic.

Speaker 4 (25:06)

Just very quickly, what is processing College? I think it's worthwhile while mentioning it. It uses the concept of the allegory, which basically epistemologically relates to shifting from the Platonic to the Lesion school Hair Clitus, who is pictured here on the right by a Belgian master. Anyway, maybe one of you remembers who this is, this artist. So the eliatoric focuses a lot on things like indeterminacy and complex chance and is influenced by the thoughts of Elsa, who many of you I'm sure have heard of and read. So firstly, the operation is a quote from Rodanovic's newer book, The Third Window, The Openness. Sorry, the operation of any system is vulnerable to disruption by chance events is sort of the conclusion of that. And this also relates to a conclusion that in order to understand living systems, emphasis should shift away from fixed laws towards the description of processes. Secondly, autocatalysis, which involves non random processes which I described and also a lot of us described as propensities that react again non randomly to random events. So secondly, processes via mediation by other processors may be capable of influencing themselves. So relevant agencies and living systems

reside more with configurations of these propensities or processes than with explicit physical forces and or their intended objects.

Speaker 4 (26:37)

Thirdly, history is very important, again relating back to the conclusions of Otipitos and Adam non ergonomicity and asymmetry means we have to think differently about these systems. Those systems differ from one another according to their history, some of which is recorded in their material configurations, meaning that patterns and forms the living realm result from transactions between agonistic tendencies. Processes that are organized, that consist of organized activities, are continually being eroded by dissipative losses. While these tendencies oppose another in the near field, they are seen as mutually obligatory under a wider vision. So again, you might see the relation between this and the triple Helix frame. So how do I imagine this actually manifesting? I look at the case and the dissertation on a co op fund. I can use the Science, which is a cooperative development fund of the largest cooperative Federation in Italy, League of Co Op, which channels 3% of all the profits of all the associated cooperatives, which are, I think about 15,000, am I correct? Sorry about that. Someone else may actually know. I think it's about 15,000 cooperatives towards investment in development, factoring services, rescue plans, many different things. And I heard the note about that.

Speaker 4 (27:55)

Couldn't have left him. Actually, iteratively subdividing these helixes down into smaller units. I thought that was a good idea. And so taking this again, five this cooperative quintuple Helix with profit maximizing, novelty, production, education, cooperation and regulation, breaking it down into three, we have profit maximizing, cooperation and education. I look at the respective investment that co op fund makes an education, which includes, as I saw in their social report, 2 million a year, and calculate the total system throughput. And ascendancy for this, I don't have the actual math math here, but I come up with 10 million for that. And then taking the total system throughput, I calculate from actually the profits, which I calculated to be around €8.3 billion in 2018. Again, taking that from that, the ascendancy I get actually rather the ascendancy which relates to what is being used for education, I get 10 million. I'm subtracting the ascendancy from the overhead, from the capacity I get, the overhead, which represents unchallenged forces, can represent things like qualitative change or things like a potential energy in the system. And I have 1.5 million from that. You don't have to use these numbers.

Speaker 4 (29:21)

This is just a sort of a thought experiment that I did. And my conclusion is that a higher system throughput by for instance, doing what Piero Amerato has called for, increasing the 3% to 5% or even 8% or increasing the relative spending on education can actually unlock more UN channeled force from education. So that could go towards novelty production or one of these other logic. And my conclusion is the idea of a mission oriented economy that for instance, Mariana Makakata calls for as a solution towards the wicked problems of the present, which her quote things like climate catastrophe and

inequality require a mission oriented economy. And the example these missions could be the sustainable development goals of the UN. Other things I look at. For instance, they got Coop, whose former President who's also the Minister of labor in Italy suggested had an idea of community development but no examples. So I again and my partner took a trip to Akulia in the south of Italy and visited some of the about half a dozen of their community cooperatives which again were sort of live living examples of this interaction, these synergetic interactions of different logics which include again making a profit but also includes things like community development.

Speaker 4 (30:45)

So I see these living manifestations of these synergies. So they began in 1991 with the Valedi Cabriller, which actually was in Imelia, Romania in the middle of nowhere and culminated in the first formal community cooperative based on the first regional law of community cooperation in 2014. Again as an example of sort of the mutual reinforcement of government regulating with sort of a cooperative logic as well as this logic of creating a profit because this project was actually involved in Netanyano with putting solar panels on the roofs of the homes of citizens rather than putting them somewhere in a farm outside of the town, destroying the ambience there. And again at present there are almost 200 community cooperatives in Italy. The rate is going upwards quite quickly. The latest legislation is in Atoariche or Sutirro, actually developed in January of this year with colleagues of mine in Trento as well, including Kalapazaga. And so there are lots of other examples of this type of synergistic interaction with Logix. I look at another example in my dissertation of circles. It's an alternative currency in Berlin Smart, which is a new cooperative that started in Belgium actually for freelancers, which are trying to include sort of an internal market for services, which I think could be a great manifestation of this sort of cooperative synergistic logic.

Speaker 4 (32:15)

And the question for me and for my future work at the Academy Royale de Bejik is how does one integrate these types of logics into firm cost accounting, which I think would be a very interesting approach to again translating some of these very important missions downwards into firm activity. So these are the works that I've cited in addition to Lewis book which I don't mention here. So that's it.

Speaker 3 (32:42)

Thanks, Ray. It's really great to have Bob Lanovich here. So I'm hoping that, Bob, we can pick your brains about some of this stuff as well, because obviously that's all work has been very influential.

Speaker 7 (32:58)

Thank you, Mark.

Speaker 3 (33:01)

Okay, so we now have a slight change because, Richard, you're going to talk about chapter five, is that right?

Speaker 5 (33:17)

It was more the transition from five to six.

Speaker 3 (33:20)

Let's do it. Yeah, that's right.

(33:22)

Okay.

Speaker 9 (33:22)

Thank you.

Speaker 5 (33:23)

Okay. So should I start?

Speaker 3 (33:26)

Yeah, sure.

(33:28)

Okay.

Speaker 3 (33:29)

Sorry. I should ask, are there any questions for Jerome? Just points of clarification, really, rather than questions will save the questions until later. No. Okay.

(33:43)

Richard.

Speaker 5 (33:48)

Everybody can see the slides.

Speaker 3 (33:51)

Yeah, but I'm sure we will.

Speaker 5 (33:53)

It should be up now. Is that correct?

Speaker 6 (33:56)

No.

Speaker 5 (33:57)

No.

Speaker 4 (33:58)

All right.

Speaker 5 (33:59)

Let's go back to screen share. Let me try again. Okay.

Speaker 6 (34:08)

Yes.

Speaker 5 (34:09)

You should see a pretty picture. And let me start with the how's that now we have it?

Speaker 6 (34:23)

Yes, we do.

Speaker 5 (34:25)

Okay. So I'm going to take this from a slightly different area because I wasn't quite satisfied with last meetings in terms of the transition from five into six, because we were talking about the issue of generalizability of the concept. I think the second point was how it's useful. And what I wanted to do is I didn't feel satisfied about how we address the issue of generalizability, which is why I offered to come in

there and form more of a bridge between it. I want to put aside the question of usefulness, and I want to talk about the claim of generalizability, but from a CUNY perspective. And what I mean by that was Kune's fundamental assumption that researchers tend to form a very small communities, only about 100 people. One of the nice things about that is when you have a community of just 100 people, trust starts to be part of that. So cooperative behavior tends to rely on small community behavior, small communities forming. And if there's about 100 people in the community, and if there's about 10 million researchers around the world, which is a reasonable estimate, you should have about 100,000 communities.

Speaker 5 (35:42)

So the question then isn't whether the triple Helix is generalizable. The question is what research community does this triple Helix come from and what research community has adopted it in which research communities looked at it and say, I only part of it because generalizability is a matter of whether it's accepted or rejected by a particular community. And to do that, I'm going to take all of the documents in the Scopus database. It's about 50 million that includes cited books and do very sophisticated community detection algorithms that look at who sites, whom to come up with 100,000 document clusters that's each 100,000 docs there. Then you use some very computational linguistic techniques to get an idea of what's the words that are used to characterize each community. And you link communities that are similar, that are next to each other because they have a shared common language. You put it on a visualization and this is essentially all science. Physics is dark purple. Computer science is light purple. Some people can jokingly call it physics light. This is engineering. This is blue is chemistry. Green, of course, is environment. Earth Sciences are Brown. Your medical areas are red.

Speaker 5 (37:02)

Brain research comes up here in yellow. Your humanities is in the center area. I'm sorry, the social Sciences are in the center area and the humanities are over in here. So the first question is let's look at the triple Helix and ask ourselves where was it cited? Which communities rely on this, that site, this particular area, and it's in the social Sciences. This shouldn't surprise anybody in the largest community, which I'm going to have just number for now, will understand their identities later on. That's 1000 sites were by people in this community publishing articles in this community that cite the original 2000 article. The next one you've got here is community 172. It goes down to 280 and then it drops down really small. So we're only going to look at the first two because these are the communities that most likely are the sources of the article. And the first one there 639 is on academic entrepreneurship, entrepreneurial universities, technology transfer. In just one year, this community is producing 470 papers, 469 papers. Now we also look at import and export activity. So an import is let's say you write an article, that's one of the 669 papers.

Speaker 5 (38:20)

Most of your references belong to the papers that were previously assigned to the community. So you're assigned to that community, but you had four references that belong to another community. That means

you at least four or more. That means you're building on that community, you're importing an idea from that other community and that other community is exporting it. Now, the number of exports and imports are exactly the same because everyone's a link. If you look at the share of activity over all of science, imports and exports in production should be exactly the same because it's just a share number. And that should be flat over time. When you see them depart from flatness and on top of each other, it tells you something qualitatively about the community. You can see the production is in black, you can see the input. The importing of ideas is higher than production, which means it's an open community is looking for ideas all the time. And since the community has been around for a while, a lot of people listen to it. Okay, that's one of the communities. And I understand this is where Escorts has done a lot of publications in this area.

Speaker 5 (39:34)

The other one is in regional innovation system. And we just heard from our first speaker about the regional innovation systems and industrial districts, industrial clusters, and again, 400 papers, very, very healthy in general, production has been going down lately. It used to import a lot that's dropping, but it's been very influential. Well, these are communities that one could say are aligned with the original concept. Now let's look at the question of what communities will adopt or not adopt it. And to do that, we're going to start with a review of science and technology studies by Ben Martin. About ten years ago. He identified 155 documents that represented the knowledge base of studies and science at technology. This is a very influential article. He's an influential author and it was a very rigorous, intelligent way of doing it. And the question is where were these hundred and 55 documents? Where sure, 639 there. That makes sense. But you have a huge number down here that's closer to humanities. You've got two of them on this purplish island over here. You've got one up in here. And the question is they're distant from each other. There are distances and that distances may mean that the very nature that they speak a different language in terms of using different words, different concepts, different disciplinary perspectives, they may not be accepted.

Speaker 5 (41:08)

So let's look at the purple island. That's the Island I live on. It was using a triple helix. I love it. The idea because it had an innovative academic, Derek Desolo Price, who kind of when it was formed in the who came up with a lot of important ideas looking at in this case the ISI databases. Eugene Garfield is the one who started ISSI. He was the commercial actor who had to figure out how to keep this company alive. And they got public funding at NSF. And that synergy between those three actors working well actually was critical to formation of this community back in the 1980s. What did it talk about? Well, these are the impact factors, location counts, Eigenfactors basically uses Webercience, Scopus, non dimensions, PubMed, anything and tells you it kind of evaluates individuals and researchers and labs and nations and all that kind of stuff. It's interesting to look at this area because notice how little import of ideas this community has. That means it doesn't tend to listen to others. That's just, I would say one interpretation of that data. It's becoming having more influence afterwards. So that's an interesting community.

Speaker 5 (42:38)

And the answer of whether it's accepted by accept Loot's ideas will be obvious after the next one. The second one is also Derek the solar Price. And here he was looking at how research evolves and he was looking at what's called the research front, which is the most recent publications and their most recent links to one another. The commercial actor, one of the major ones is the commercial side of a group at the University of Leiden called CWTS. The funders are almost always hidden and you rarely see any articles. This is the area that I publish, except for instead of Price, we rely on Tune. We take the same data instead of a research firm. We talk about research communities and I have not been allowed to talk about who funds my research until about three years ago. It was the first time a funder said yes, you can actually talk about that. What do we talk about? The intellectual structure of field using words and citations been growing relatively expected relationship between imports and production. And there's been a significant export of ideas in the last five years, mostly based on visualization techniques that anybody can use to do a better job of understanding the history of their particular field of research.

Speaker 5 (44:03)

Now whether would these two communities adopt loot? Well, I'd have to kind of point. It would be kind of obvious because Lute publishes a tremendous amount on this particular island and I think it was nine years ago he got the Derek To Solo Price award for his contributions to the communities that are on this purple island. That tends to look at how to utilize bibliometric data. Now let's look at some of the other ones where I don't think he's going to be necessarily ideas generalizable because of the nature of the community. The first is the largest one, which is late. I don't know too much about who is any commercial actor there and I don't know who funds it. Would be interesting if you all know to share that with me, but 300 papers. Look how little imports have been going on. Highly influential. Is it likely that they would import an idea that's distant from them? Probably not, especially once they're formatted is more about there are many actors and it tends to look at each actor has its own rights, including the machinery in the lab has the rights and the muscles that you collect when you're doing muscle farming.

Speaker 5 (45:19)

Have rights and they all should be at the table in negotiating the rights of what should be done, not criticizing that. It is actually a very intriguing conceptual way of thinking about things, but it does not have to do with communication, collaboration. The other one is up there where it's looking at a different issue. And this is science policy interfaces much more from a political science perspective. Here you get the this is a more open area. Notice that it does import a lot. It does have good influence in there. Here you'll see the kind of article that says, look, if you try and do an analysis of bibliometric analysis to try and get an answer to climate change will actually create more gridlock in the system because once it's polarized politically, both sides will just take the same thing and either say to prove their point or it's false data. So it doesn't help, it doesn't come up with answers. This idea of a rational solution says no, that's not what happens when you have a polarized system. People are no longer looking for a cooperative solution. And again, this perspective has a very valid perspective, especially when we look at a lot of these issues.

Speaker 5 (46:42)

So in summary, and I wanted to do this quickly because chapter five to me had more to do with looking at the triple Helix from the point of view of this island over here that deals with science metrics. When you get to chapter six and you look at the measurements, it's all around just the academic entrepreneurship over the year, but the regional innovation that is over in this area, this general area deals with innovation, and then you get more into the economic areas over in here. But this is an area that very much relies on a more evolutionary Samplitarian view that is just a common language and a common framework that takes history and account. If this overall circle represents the kind of what could be pulled on for science and technology studies, there is a political science point of view and the gridlock and the polarization that's pointed out in here, there's a representation from the humanities that says what is community life really like, not just in the lab, which is a very small unit of analysis, not just in a profession like engineers, but what you and I do as researchers in terms of the small groups of people we tend to talk to.

Speaker 5 (48:09)

Some of those communities, I would suggest, are actually quite abusive, and some of those are very collaborative, and you can actually see them sometimes in the reviews of Journal papers. There are certain journals I don't like to submit to because the reviews are unbelievably caustic and the other ones, the reviews are helpful, which is very interesting in terms of what that means in terms of the actual nature, the humanity of community life, which is more I'd likely be impressed by here. And then Jerome pointed out the one that was missed, I think, over here, which is education. One of the major issues is in science education and how we do that. It was missed in the initial quantitative studies of science and technology. There isn't an emphasis on science education being in the United States, where I think we suffer from not emphasizing science education. It is an important issue in terms of the overall issue. So Lud has a home here. He has another home over here in these communities. There's a nice little study about experts distinguishing between hedgehogs and Foxes. And a Hedgehog is defined as someone who is an expert in one area.

Speaker 5 (49:25)

To me, they have a home in one community. A Fox is the one who likes to travel, Luke likes to travel. And that I really important because being able to go from here and go from there and then use the language in here to contribute to the communities in that area is quite laudable. And I think I'll stop there for questions. Any questions?

Speaker 3 (49:52)

Okay, so any points for clarification from Richard, first of all? And then we'll start the general questions. I can't see anybody. Sorry, Jerry.

Speaker 5 (50:10)

Yeah.

Speaker 8 (50:12)

The issue for me is I'm a bit uncertain about what the roots of your notion of generalizability is, given the Latin roots of the word and what it might imply in terms of the map you draw.

Speaker 5 (50:33)

It's a really good question, Jerry. I struggled with that to me, and this is my own interpretation. To me, when someone claims it's something that's generalizable, that means it's applicable in many different areas, broadly applicable. But when you're dealing with a world where what you claim to be applicable is not accepted as applicable, is it really been generalizable? And so from almost a social construction point of view, it's the social groups that decide whether something is generalizable, not the claim of the person who is sending a message. I think it is just a different perspective on it. So I wanted to look at it from that point of view, not of what the claims in the book are, but whether or not it is accepted or is likely to be accepted, and it's expected to be accepted by others. So grant that point. Does that answer your question, Jerry?

Speaker 8 (51:37)

Well, it further deepens the mystery about what you mean. It seems to be a concept of the triple Helix, that is, shall we say, independent of Semiosis. That is purely, how do you put it, a Newtonian sort of analysis of data.

Speaker 5 (52:09)

I'd have to think about your question.

Speaker 6 (52:13)

Let me down offer the following. What I could not help but notice was Richard, at least that's what I think he did. Richard is showing what one does with the concept. And so I think the intermediary is that he points out all these communities, they read the paper and they could do something with it, so they did something with it. And the result was citations in papers that became data points that showed up on the graph so that it's closely connected, I would say, with doing something. And of course, it brings up the question of a human being, and what does it mean, a human being doing something. So it really doesn't get into the philosophy of the mind. Since you brought up Newtonian mechanics, it's stimulating the mind, it's capturing the imagination. And then we could say if we want to be functional, we say there is a problem that is in need of solving, and people have a feeling that it is helping solve the problem or a problem that they're trying to articulate. Does that make sense? Does that get close or is that far away, Richard, of what you were thinking about?

Speaker 5 (53:41)

I'd rather see whether jury thinks it's closer because Jerry is the one with the question. I get fascinated with the use of language and how language is used. If you look at the previous two speakers and who they cited in terms of what they build upon, it's part of our language, and it's part of the way we communicate. And you could consider Newtonian and that I happened to take little atoms called citations and attribute them to that. But I'm not really care about the Newtonian interpretation. I'm more interested in that flow of ideas and how that is affected over time and how that affects people and how it affects community life. And that's just my own personal interest. So I don't know if I can answer your question.

Speaker 3 (54:37)

Jerry, because I'm not quite clear where can I just maybe interrupt and just perhaps try to sort of situate ourselves after these three talks? Because I think we've had three really fascinating talks, all of which are now raising some really profound questions about the language that we're using, the terminology that we're using, the techniques that we're using. So we have questions about synergy redundancy ascendancy, which is something that features in Bosworth. We've got Bob Lavich with us as well, talked about that, and the sort of deeper questions about community and communication and agency, I guess, is sort of sitting behind the scenes there as well. I think the other thing is that amongst ourselves now, we have a number of real people who are part of this discussion, who contributed major contributions to this discussion. So we've got Klaus, we've got Engar, who did really fundamental work on the redundancy of the calculations. And as I said, we've got other people, Lucio also, who's made really powerful contributions to this debate. We're living this we may be staring at a bit of plastic in front of us, but we're actually living this and doing it in time.

Speaker 5 (56:19)

I think.

Speaker 3 (56:19)

Richard, I wonder if I can throw your question to Helen, actually, first of all, because Helen has taken these calculations and some of these ideas, and I suppose, Helen, the question is how is it useful? Sorry.

Speaker 1 (56:41)

Yes, it's interesting observation. I'm just thinking back to the previous speaker and not so much the calculations, but how different groups use the triple Helix concept and how there isn't a common understanding. So a few years ago, I was involved in a European Union project called Health Ties, and it was led by Medics, and they were insisting that they were going to use the triple Helix framework to talk about how each of the regions it was the Netherlands, Spain, UK, Switzerland, how wealth was going to be generated by utilizing the basic medical and medical capacity in those regions. And it was all about the triple Helix model, but they never referenced Henry and Luke, but it became part of Poland. So I don't

know whether these ideas are prevalent in policy making communities in Italy. So if Italian policymakers read the chapter on Italy, would it make sense to them? Would they see it as an issue of optical Helix that needs to be addressed, to harness the skills of the universities to work with industry and for the government to support the development of synergies between them? That's where I'm coming from. It's struggling the different kinds of understanding of the triple Helix concept in different geographical contexts.

Speaker 1 (58:22)

So I'm quite sure that the people in the Netherlands had very different interpretations of what was going on in the heels compared to the people I was working with at Oxford University.

Speaker 3 (58:34)

So I'm not sure if they have a question. But then did they have different understandings of what it meant to act effectively, to create synergy?

Speaker 1 (58:45)

Absolutely. Because their political systems in the UK, it's top down loads and loads of government money. Oxford University very powerful actor, but in the Netherlands and Spain, it was much more of a regional system. And the universities were not as research intensive and they were much more applied. So a lot more money was spent on organizing science, parks and the technology transfer. Well, one of the arguments about Oxford is we shouldn't discount the H indices of the academics is because people in the industry also read academic papers and they're part of those communities. So there's a tendency to dismiss the research universities. They're just doing these five steps. But that's not necessarily the case. But those academics that were publishing, gaining lots of money were different set of actors compared to the Netherlands and Spain.

(59:48)

Yeah.

Speaker 4 (59:49)

I guess I just couldn't resist fighting on this sort of crossfire on the notion of Newtonianism in Richard's Graphic. That was, I guess, one of the questions I guess, that I was pondering in my own mind in terms of understanding Richard and I were talking about these relations there on the graph, and I guess maybe just to throw maybe a provocative question from the other side than Jerry, is this a Newtonian viewpoint? As I understand it, Newtonian viewpoint would be more described by a mechanical view of maybe the relations between objects. What do you mean by Newtonian? I would see this as if I understand Richard's Graphic correctly, as one way to represent the relations among different scientific communities. And if that is the case, is it a dynamic representation? Is it one that includes a form of feedback? Is it one that

incorporates time? Is this a static representation of citations? Is it one that includes sort of the history of citations? Maybe that also relates to Lucille's criticism from the last time we met. I don't know if any of these questions make any sense.

Speaker 3 (01:01:13)

Also, I guess Bob Loniwan would also be very interested if I can let Richard answer you and then Bob no.

Speaker 5 (01:01:22)

Let Bob go first.

Speaker 3 (01:01:23)

All right.

Speaker 7 (01:01:25)

Okay. Thank you very much. Just to follow up on Jerome's point, I see your analysis is very non Newtonian because I'm very interested in networks and graphs. And the thinking is process thinking. It's not Newtonian thinking, which is objects moving according to eternal laws and whatnot first of all. And then secondly, it's heterogeneous rather than homogeneous. People don't realize how much physics depends on homogeneity. It's all hidden in the language and whatnot. But it really does. And once you get out of that, you're in a non Newtonian world. So I won't say more, except that this is the sort of work I've built my career on, and I consider it very processed thinking.

Speaker 5 (01:02:10)

Thank you. Thank you, Bob, because very much I'll build on that. In defense of Jerry's comment of Newtonian, one of the problems is that the people advocating this, Kuhn and Derek of Solar Price were physicists, and they approached this for almost at least priced it from a Newtonian perspective. And that was a flaw. And in my mind, Kune, I don't think, approached this from a physics mentality because he was too much involved in communities and how they differ, and he could never answer the question about paradigms. Well, maybe it's evolution, maybe it's this he spent a lifetime searching for, trying to figure out the diversity of what's actually going on as far as never being satisfied, which to me is a worthwhile endeavor in life as opposed to being sure. And we represent everything in there. So a lot of the science and metrics to me has gotten a bad name because the people that they select to be the head of them are physicists who tend to have a Newtonian view, and then they present a Newtonian view, and then people assume that it's Newtonian when the diversity is what's really interesting, it's the failure of the people doing science and metrics to point out the diversity and diversity of life and the qualitative nature and bring that forward.

Speaker 5 (01:03:48)

So that's our failure. So he's right, I think, in actually making that criticism because we have not done that. But it's not the way I think. I agree with you. I just don't think that.

Speaker 8 (01:04:04)

I'd like to clarify what I meant here because it's clearly a different notion of what a Newtonianism that I was talking about. Newton wrote very clearly about his view of how to do mathematics. And this was first you do analysis and then you do synthesis, and in the analysis, you isolate out, presumably he would use this language. The purpose of doing analysis is to find some symbols that have meaning for you, and then when you do the synthesis, you put those symbols together into a mathematical pattern forming system of symbols. And this is what I meant by Symbiosis in how you interpret the pattern forming characteristics of the symbols that you're using. And your map there from that perspective appeared to me to be quite a Newtonian process of first disassembling the X number of references into you said 100,000 communities, and then tried to put them back together in some form and create a narrative which you found persuasive about how society works. And that was basis of the Semiosis part of it. What connection do you see there in this form of analysis that is meaningful?

Speaker 5 (01:05:36)

So the answer that more has to do with the history of development is of these work. This was mostly developed by the intelligence community for finding out what other nations are doing and research that are part of what to expect in intelligence. And it comes out also in intelligence, technical intelligence and business. Every client that I walked into, I guarantee you they are all highly skeptical that you can actually characterize actual communities in this fashion. And every single time the scientists who actually are on the bench or top ones, you look at their own communities and they flip out, they get emotionally involved. I know that person. I know that person. You've captured it. You spent decades trying to get a measurement technique that actually captures what people who are scientists. And I'm talking Hans Thomas at Bell Labs, I'm talking top researchers around the world. This is where we've had to test this over and over and over again for 25, 30 years. So I would just recommend that you suspend disbelief and I'd be happy to show you different ones and you could judge for yourself. They're not relevant. They're not. But when I tested this and first looked at it, it was based on the reaction of researchers that I knew when I was doing my PhD and their ability to say that really captures the world I live in.

Speaker 5 (01:07:08)

How do we improve that?

Speaker 8 (01:07:10)

Okay, let me make a short response. I wanted to speak out first because Bob Ulanovitz and I are old friends. We go way back. We did a review of Bob's book, The Third Window, and I had the same

questions and reviewed the book there. This was a particular view of Newtonianism that he uses to get around various problems and particularly to invoke graph theory and his view of mutual information theory to try and draw some very hard scientific conclusions. And so I'll stop there. I just wanted to clarify my position before he spoke. So I'm looking forward to what Bob had to say.

Speaker 5 (01:08:03)

Yeah.

Speaker 3 (01:08:04)

I want to ask Bob, particularly in the context of Jerome's alluding to Ascendancy. So Bob, I mean, you probably know what Lotus said about mutual redundancy and mutual information. You have a slightly different view, I suspect.

Speaker 7 (01:08:20)

Yeah. I just want to say there is Newton the person and his ideas, and there is Newtonianism the community that took some of the highest ideas and created a philosophy and methodology out of it. And I think Gerry is speaking towards Newton the person. I have been criticized in The Third Window for the same reason that Jerry mentioned that I neglected Newtonian the person, and I just concentrated on the Newtonian community. So I accept that criticism. It's been made before. And just the clarification, I suppose. And I think that Jerome and he can speak for himself, is probably talking about the Newtonian community mindset.

Speaker 3 (01:09:08)

Okay, Jerome, can you say something? Just go over this territory over Ascendancy and how you understand Ascendancy and how that relates to Lotes ideas around mutual information synergy, particularly synergy. I think this question, this first question which demetrials after Helen's presentation, that is very important for us to try and get the grips with. So Jerome, if you can say something about that, particularly the Ascendancy measure.

Speaker 4 (01:09:44)

Well, just for a small bit of background, again, my main interest in these ideas and concepts is to develop a framework for economic research, organizational research that is more dynamic and that is more apt to deal with. Basically in reality, I'll say very cheekily then the neoclassical model that I think has seen its end in terms of its relevance as a paradigm. Maybe I'm wrong there, but in that regard, I think the concept of ascendancy is very useful in terms of translating into quantitative change or rather to ideate in that regard, again, I come from a humanities background, sort of stealthily snuck into economics. And in recent weeks I've been reading back again a lot of Hegel and Hegel I find very fascinating writer in particular in his focus on exactly these interactions between quantitative change, growth and qualitative

change, things like development. And I think in this regard, even in terms of the psychology, I think especially if you're talking about human beings, human agents collectivities of humans, they don't operate the same way that a frequentist statistical model would be able to capture. And in that regard, you have to find some new methodologies and also epistemologies to actually represent, discuss, analyze, interpret if possible predict behavior.

Speaker 4 (01:11:30)

I'm very skeptical on the last part, but I think in this regard ascendancy is a very interesting concept that can sort of disentangle some of the again, these qualitative aspects of change that are not captured again from organizational economics perspective by focus on things like GDP. So if you have a complex system and has many different elements that are interdependent and the question of the structure of that system, how it is organized is very important. In a nutshell, that's how I would see the relevant.

Speaker 3 (01:12:02)

So we are then in the realm of Shannon information theory, because Bob, I think I'm right. Shannon information is central to your notion of Ascendancy. Can you say something about that? And I know you've been critical with Shannon too.

Speaker 7 (01:12:20)

I'm sorry, was that me?

Speaker 3 (01:12:21)

Yes, Mark.

Speaker 7 (01:12:23)

Oh, yes. Okay. I'll just say one thing to add on to Jerome's comments is that ascendancy deals with distributed causality. Okay. Because most of our thinking comes around bilateral causality. A causes B causes C or concatenation. But once you get the ascendant dynamics going, the feedback dynamics, the causality is distributed over the entire web or the entire AutoCAD analytics set, as Stu Calvin calls it. And this is a way of quantifying this distributed causality. I don't know. I don't want to take up a whole lot of time. I'll just leave it at that.

Speaker 3 (01:13:11)

Okay. That's time to lazy.

Speaker 4 (01:13:17)

If I can just add one comment, you asked me how to relate that to Loot's notion of synergy. Yeah, I'm just at the very beginning of my exposure to Loot's ideas. And I'm probably not the best person to ask in this regard, but just on a very general level. I think that again, coming from an economics perspective which puts competition at the focus of the analysis, I think this notion of synergy is a very useful framing tool to discuss very relevant behavior and again, organizational elements against economies that are just as if not more relevant for economic behavior than just pure competition. So we have shared mental models. We share even physical space, infrastructure, these types of things. And I think again, Luke's focus on the communications level refers to particularly to this former level of shared mental models. How are we viewing the world? Richard talked about some of this in his discussion. And in that regard, I think it's a very useful framing of a lot of different disciplines, especially the human Sciences, which I think in my opinion, again, I'm coming from an economic discipline or perspective, but I think these sort of claims and these sort of approaches are very useful in all the human Sciences, from biology in as far as it relates to human or social behavior, all the way to political science, anthropology and so on.

Speaker 4 (01:14:49)

So again, this idea Gregory Bates and as well introduced looking at complex interdependent payment systems generally and not looking at them from a sort of a feudal. This is my domain. I'm the sociologist, get out and so on.

Speaker 3 (01:15:09)

So is this econometric two point of view? Is this how you see it?

Speaker 4 (01:15:17)

I have never been a big fan of econometrics. I always liked Janice Fairfax's phrase that his epitaph that econometrics is economic. What did he say? It's astrology.

Speaker 3 (01:15:29)

I'm sure he's quite rude. I mean, the common metrics doesn't have a particularly good track record. Can information theory help us to get out of this or are we barking at the wrong tree?

(01:15:49)

Okay.

Speaker 7 (01:15:51)

If I may add very quickly, in his doctor Zarmite, which Jerem sent me, he makes a good point that that I had made before and that's that economics is essentially centered on competition. It came out of the

British mindset and whatnot. But competition is secondary. You cannot have competition without mutualism at another level or the same level.

(01:16:16)

Okay.

Speaker 7 (01:16:16)

Simply impossible to frame and we need to recognize that point and to look at the source of causality, which oftentimes is mutualism and not competition. Competition, yes, it's true. It's a valid dynamic and it changes everything, but it's derivative.

Speaker 3 (01:16:41)

Can I ask specific question then? Is it evolutionary in the sense that we all are made of the same stuff and we probably have all come from the same origin?

Speaker 7 (01:16:53)

Yeah. I've just finished a book that will be coming out, but it's more on the intersection of religion and science. But I really do feel that mutuality is the basis from, from the big Bang onward, that mutualities would try. I'm not the first one that said that Bertrand Russell talked about. Okay. I call it centripetality, the idea that this auto catalysis draws things into its own orbit and he said that that was the driver of all evolution, not competition, it creates competition but it is essential, it is primary.

Speaker 3 (01:17:40)

Okay. So does it come down to cells?

Speaker 7 (01:17:44)

Come down to cells, you mean biological cells? No, I see it in the whole course of cosmology up to biology and so forth. Yeah, I would say no it doesn't just stop itself. That's what I would say.

Speaker 3 (01:18:04)

All right.

(01:18:05)

Okay.

Speaker 7 (01:18:06)

Because it's there in physical systems. I mean you have thunderstorms and Hurricanes that have this centrifugality as well.

Speaker 3 (01:18:15)

Okay.

Speaker 4 (01:18:16)

I think there's really for me I think Eduardo Wilson's research on this topic, especially his later research is very interesting. He sort of distanced himself with some of his earlier thesis on inclusive fitness and I think that was a positive development and his later write he has an article he did with some younger scholars I guess in 2010 in Nature where he talks about the five levels of evolution of social evolution and the evolution of sociality which I think is what Bob was just getting at this notion of mutualism as essential and I think that you see in nature you do see I'm not a biologist, I have a lot of interest in biology grid quite a bit and I think you do see a trend towards development of these types of what Wilson calls pre adaptation. So these don't just involve genetics and I don't think it's always reducible to the cell. I think this is a problem. I see a lot in my own dismal of economics of trying to reduce things down to their most microfoundation is what it's called and I don't think this is always the best and I don't think it's useful necessarily and generally I think one should stay at the level that is most relevant to the analysis and I think Richard's Graph shows this as well.

Speaker 4 (01:19:38)

You don't always have to include the education element, you don't have to always have to include this or that but I think these pre adaptations are quite essential for the development of the stable entities that we call societies. We wouldn't be able to be having this conversation if we didn't have some element of trust that goes back generations and generations that gave us the ability to study in monasteries and develop mathematics that went into computers and these types of things and I think that requires a lot of mutualism trust reciprocity and a lot of these values and again I think these are very essential to wards building these synergies and not just talking about some kind of game theoretical model where people agents are trying to maximize something.

Speaker 3 (01:20:28)

You'Re muted so class, can you mute yourself?

Speaker 9 (01:20:35)

It's interesting that you talk about mutualism, that is communication and I think in that case, I fully agree with Load that communication is a central part with the triple Helix model. That's another issue I was

actually enthused about this map of Italy that showed that most innovation is in the Northern part and in the Southern parts. Italy, there's very little. I have traveled both areas. It's also a language issue. For example, in Northern part there's much more influence between Italy, Austria, France, Switzerland, Germany. There's much more interaction. Different ideas come to play, whereas in the Southern part is somewhat geographically more isolated. So I'm not really opposed to the triple Helix, but this is a little bit of a simplification. I think contact is important. That comes back to my own interest in two ways. Let me first say something about citations. That is, I think, also very interesting because citations are technically one Journal, one author citizen, another one. It's inherently a binary relationship, and it doesn't really show very much about what maybe you call synergy or higher order relationship. Once it allows this point of view, it's not impossible to quote that differently.

Speaker 9 (01:22:21)

Also, Besides two other then he is probably likely to make kind of a triangular relationship. But the citation itself is strictly binary and that one cannot easily come to the issue of collaboration, etc. Etc. On. And then it comes down to my personal interest, and that is actually conversation, interdisciplinary cooperation, et cetera, et cetera. And I have some slides and I would like to share them if I may, and that would be this year. I hope that works. Just a minute. I cannot get that too easily. I don't know how to get that. Well, I don't know. I hate it.

Speaker 3 (01:23:32)

Maybe you can email them to either Jamie or myself and then we can show the slides and you can just do it.

Speaker 9 (01:23:38)

I have it now. Just a minute. Where do I get the screen on?

Speaker 3 (01:23:44)

There should be a button. Share green button.

Speaker 9 (01:23:50)

I have done this and I highlighted the screen that I wanted. But do you see it?

Speaker 3 (01:24:03)

Okay.

Speaker 9 (01:24:05)

I wanted to say something. This has to do with all the measurements and the whole argument. I think when you think of interdisciplinary collaboration, they are productive by bringing different kinds of people together that have no inherent same discourse connection. But et cetera, actually what cybernetics is often avoided. There's a positive feedback, maybe that things are expanded, the vocabulary comes to be, et cetera, et cetera. And then the next thing is that is the issue of how that is reduced to a new product point is actually this is typically evolutionary process, but it's not one that can be easily measured. Now here's kind of just a check reducing negative. It avoids actually explosive kind of situations where things run berserk. But actually conversations are just in between. That in fact, interdisciplinary collaborations are to some extent extending existing things. And there's a positive feedback, but it's confined by a natural limitation of understandability respect for each other, et cetera, et cetera. So I think when you think of morphogenesis or synergy, that actually happens to be there. Now, my question, my problem is actually the measurement of it. I can easily observe many occasions of that nature, but I think when you think of measurement and that is chapter seven, and I made last time already comment that I think information theory has its weaknesses, and I want to point that out.

Speaker 9 (01:26:17)

Now, on the left side, I have just a diagram of three dimensions. You can call it triple, whatever. And if the distribution, the frequency distribution is somewhat like this here, there's no binary relationship. It's all tertiary, it's all triple. That means any two relationship doesn't mean anything but the combination of all three. That is what in information theory, the third order type of information matters, Q measure, let's call it T, one, two, three. But that is on the left side at top, on the right side. It's just the opposite. This is an example where there is no relationship between it in three ways, it's only between two. And that means actually the information theoretically, the relationship between three is zero. And now comes to the one that is actually much more interesting. And at the lower left corner, when you have relationships, final relationships, if you want citations or whatever, and if they are very strong, they can over determine the relationship of the whole. And at that point the information theoretical matter becomes negative. It means that the three binary relationships are over the churning the whole. And by calculus, by information calculus that the word always focuses on, you have to compensate and you have to lose something in order to get the sum.

Speaker 9 (01:28:16)

So that means actually a negative measure of this. Q or the T, one to three indicates there is not much in it. The binary relationship determines the whole. And so I think that it's a very interesting phenomenon at that point. The information here is, is adding and subtracting quantities will not work. This is what my criticism was last time and there were any chapter four. It is an artifact. It is not a probability that is measured. It is an artifact of the calculations. So I think when you have such a situation, to me, the interesting part of when you have a relationship like on the left of figure seven, when binary relationships are very strong and determined, the whole and there's nothing, no tertiary relationship, that's what I call redundancy. That means some of the you could almost drop one of the final relationships out and you still get the same kind of thing. That is what I call redundancy. Lurt has a different notion of it, and I want it

just to be making sure that it's not confused. From my point of view, redundancy means that you say you use more capacity than you have to.

Speaker 9 (01:29:46)

That means you duplicate something, et cetera. Et cetera. So I think there is a danger of taking the information theoretical artifact and taking that as a measurement. Now Lurk has lots of tables of the various organizations and they're all negative. I mean, the tertiary manner are all negative. And he claims this to be evidence of the synergy between three. And it's just the opposite. I think that the point of view or information theory the point of view. I think that is not sustainable. Getting rid of the measurement issue. I am really very much interested, as I mentioned in the issue of collaboration and what does it mean? And holding, for example, positive feedback in check by natural human quality. And you will have to still understand it, you have to still be with it, et cetera, et cetera. But that is not measurable. This is called morphogenesis by Martiana or you can call it synergy, but this is not measured by the information theory. So that's what I wanted to mention.

Speaker 3 (01:31:20)

Thank you. That's incredibly useful. If you look at our social problems in many ways they are connected to the fact that the ways that we measure social life, particularly econometric techniques and so on, are not very good. And I think one of the interesting questions is that the search for better metrics must be an important thing to do. What would you do given what you've just shown us? And given that there's so many intangible aspects of human communication as you describe in conversation, there's so much physiological, so much friendship in our bodies, we feel it in our hearts. What would you do?

Speaker 9 (01:32:06)

Well, first of all, I don't know what you mean by doing in terms of measurements.

Speaker 3 (01:32:12)

You're asking, well, how do we organize? How do we organize ourselves effectively to be viable? I mean, measurement gives us at least some way of codifying some practices, some ways of organizing ourselves, doesn't it?

Speaker 9 (01:32:28)

Let me also say my history. I'm a designer. Designers are never interested in what is in the description rather than creating something new. And one of the things is, I would ask, is it part of the system that already knows? And it usually is not. I mean, any innovation is different. And when you measure that, you usually start with a finite set of existing alternatives, like in the information theory, the maximum information theory, information or maximum uncertainty. And then you pass it down. And where it comes from, this is not working unless you do it in retrospect. In retrospect, once you have all the innovations in

place, then you have a new space and then you can ask from there what is left over. How do we come to that? To me, I think we have to find a way of accounting for higher order interactions if you want higher order connections, not just three, but many more. And actually I have done some work on that long time ago on extending information. But I have not applied it?

Speaker 3 (01:33:48)

No, but I think this is Luke's motivation, I think is what he's trying to reach towards. And we might disagree on the particular path that he's taken, all the techniques, but I think the goal seems important. But Jerome, you've had your hand up. And Jamie as well.

Speaker 6 (01:34:10)

I'll start since I wanted to comment directly on clouds. The cloud doesn't say what the hub needs to be distributed is that the intersect. There is something we haven't talked about that really makes all the difference, and that is the theory of language usage. And actually to get back to Richard, that's something that cool also kind of ended up focusing on. And that is really so extremely important whether we think of language as being descriptive or whether we acknowledge a lot of other functions. And Klaus and that's where I'm going to stop. He made a presentation in which he identified four different theories of language use it. And now we can agree with the five or six. But the bottom line of class is to say each one of us has a theory of language uses that we're actually using, and we need to be upfront before we start arguing about whatever it is that we want to do that we need to have a little five minutes in the conversation to kind of say, this is how I'm working with language. And how are you working with language? Sorry. What I will do is I will contact Claus and see whether that presentation is available.

Speaker 3 (01:35:40)

I'm just looking for it now. I'll put a link in the chat.

Speaker 6 (01:35:44)

Yeah.

Speaker 3 (01:35:45)

Jerome, do you want to say something?

(01:35:48)

Yeah.

Speaker 4 (01:35:49)

I think that there's a whole another dimension that we haven't really emphasized. Maybe that isn't so much emphasized in Newt's book. There is the issue of measuring. There's the issue of representing relations. But then there's also the issue we are also sort of all part of a system. We are also living human beings. And so the question really, I think before you even ask, is it measurable or what measures is relevant is what's the goal? And I think in that sense because we all live in a social system and even science false social dynamics, there is a question that relates to some of the central thesis of my dissertation. These are questions of accountability, things of like discourse ethics, what Taber Must calls discourse ethics. And here I think it is very relevant to incorporate, include, emphasize things like what Cornelius Custodiates calls the civic imaginary. Going back to the graphic I represented with the macro cultures, it is important to inculcate, if one wants what Pop art called an open society, free discourse, and so on, to inculcate certain values in individuals such that there can be an accountability, that systems can sort of self perpetuate, if you will.

Speaker 4 (01:37:22)

And so I think that things like democracy, things like accountability, inclusion and equity are very significant in terms of organizing. You asked the question earlier, how do we organize these systems? How do we organize ourselves in terms as scientists? How do we organize societies? I think these are essential questions that cannot be evaded.

Speaker 9 (01:37:46)

Well, I fully agree with that. But the issue is that of language, the language that you speak to everyone else, the language that you adopt and act and do something with it. So that's kind of my interest in many other dimensions. This is very difficult because JB mentioned the four theories of use. Not every one of them is incorporating the speaker. And so that's one reason why I think one has to move towards a theory that includes the speaker in some form and measurement is something that typically excludes the speaker because we have a number and there's some are outside the speaker.

Speaker 3 (01:38:39)

I mean, we're sort of scourging around Nicholas Lumen, who is such a central figure in lots work. Where do you see the potential difficulties or deficiencies there? Because I'm guessing you do see some potential difficulties with luminous work on communication.

Speaker 9 (01:39:02)

I have acoustic difficulties getting your full sentences.

Speaker 3 (01:39:07)

Sorry, can you hear me? I was just saying that Nicholas Lumen is a key figure here for Load particularly. And where do you see the deficiencies or potential problems with Lumen's approach and Loads affected? It operationalized. Lumen using Shannon.

Speaker 9 (01:39:34)

Lumen has one great inside family, borrowing from auto voices and doing something with it. But I think he is not in some ways has overcome him. But I think the notion of measurement gets him back to being an outsider. That is something that I'm a little bit uncertain about. I think to me again, conversation on a larger scale, interdisciplinary cooperation, that is to be a key element and it can be on an individual level, like for example, the Macy's conferences and cybernetics to me, excellent example of different people coming together and creating something that has not been there before. And it's not explainable from my generalization along the linear way. But also look at that and I think it goes in the right direction. Looking at the collaboration on different kind of lines of division.

Speaker 3 (01:40:55)

I just want to clarify. So you're saying that you think that Load has in some ways gone beyond overcome some of the problems in Dooman, but his retreat to measurement approach has introduced a new property.

Speaker 9 (01:41:15)

He says that himself that he has overcome. Yes, but I think he's stuck with this measurement issue. That is my problem with him.

Speaker 3 (01:41:29)

No, that's very interesting. So Jamie, sorry.

Speaker 6 (01:41:32)

Yes. I don't know how many people are into making these distinctions, but when you bring up Lumen, I think Husserl and huseral is about making distinctions and then as far as I can understand it, and that relates back to class. There are actually four different manners in which phenomenology is being pursued. This one I want to call descriptive phenomenology, and I'm thinking here mostly of Merlot Ponti. Then there is performative phenomenology there's. Heidegger more then we have like the existential manner Sartre, but we also have a phenomenology of the communication of communication. And there is actually a discipline called communicology to really say we're different from communication with communication, to emphasize the phenomenology of communication and not the phenomenology that acknowledges the other, really put the other on the table. So to say, since you bring up Lumen, this is like a way of complementing or enriching Lumen as to kind of say that he hasn't properly included the order or he has reduced the order into the same, like that everything is a variation of the same. And so I'm curious

how much a question has come up in the thinking when you talk about measurements or information theory and maybe it's the wrong time to ask this question, say that again.

Speaker 3 (01:43:27)

Who are you asking?

Speaker 6 (01:43:31)

Actually, I was thinking of you because you brought up Lumen. Then of course I'm thinking also of Bob, since he also is doing phenomenology and non clouds. But I'm also thinking of Lucio, but it's more open ended since you brought up Lumen and Loot, because I think that Loot is actually struggling with this communication issues also. But I can just wait until some other time. Another question might be easier.

Speaker 8 (01:44:13)

Could I speak to that directly?

(01:44:16)

No. Yeah.

Speaker 8 (01:44:19)

But I want to sort of twist the direction of the comment towards cloud because cloud has introduced the notion of something about how the individual is in the language as they use it. And he sees this in some sense or another, I take it as a source of innovation and of novelty and hence of some notion of creativity. And in his terms, not morphostasis, but morphogenesis. If I gather what he's commenting on correctly and he has not given me a sharp distinction that I can really understand what he's talking about here. And this goes back to I think it's either Aristotle or one of the other Greeks who said when I use the word horse, a horse doesn't come out of my mouth. So the meaning that the word is attached to the meaning is unclear on how Crow sees the individual in the language that they're using. And I can accept all sorts of variations in the notion of languaging and that sort of thing. But once the word or symbol is on paper or leaves my mouth, it sort of takes on an independent lifestyle of its own. And that is what is unclear about how Klaus is using his language.

Speaker 8 (01:46:06)

Can you clarify things, Klaus?

Speaker 9 (01:46:08)

No. This requires an hour of talk. But I can tell you that in a nutshell, the one notion that you for example, just in this example, this is what abstract, Objectivist, notion. There is a world outside there and there is a word that refers to it, and these are totally separate entities. That is just one way of using it. And yet when we talk about rain or my own house. There is a house and there's a word, and indeed, none of that comes out of my mouth if I open it. But there are other ways. For example. Well, I don't want to get into it, but there are at least three more different users, and one of which that I'm particularly interested in is a more constructivist notion. Normally, I see a social scientist also taking accountability, being accountable for the theory that they are proposing, and in that sense means that the theories that social science is proposing, they ought to re enter the system of conversation of those that are being described, and they will make some sort of changes or not, will be opposed or not, and that scientists is part of the system that he shapes, in fact, by theories.

Speaker 9 (01:47:40)

I think that's a different kind of notion than issue of whether the horse comes out of your mouth.

Speaker 8 (01:47:47)

But then I will return back to my original comment about the mapping, and that is, does your view of language within this context really eliminate the possibility of Semiosis as a constructionist? I want to do?

Speaker 9 (01:48:05)

Well, I could give you so many examples of mapping and language. Let me give you one. Someone wrote a dissertation on religion in India, and she went into England, the colonial power that for the first time Chartered everything that was known in India. And it turns out that the British are very good in keeping books, and they decided they would have to know what kind of people they have until they went from village to village and asked them who you are, et cetera, among others. One question, what is your religion? What are the answers? Many of them said, I'm a blacksmith. Religion was not an issue. There were so many different religions in different villages. There was never any antagonism, there was never any problem. But once the British made the maps and published it, then suddenly the villagers were all next door. They are Muslims, and over there they are Hebrews, whatever. And that created the current situation that everyone fights for its own territory, whatever. Maps and language have very much something to do with each other precisely when people live it or be part of it.

Speaker 4 (01:49:48)

Can I make some comments?

Speaker 3 (01:49:50)

Go ahead.

Speaker 4 (01:49:52)

I find this discussion very fascinating. I just had a bit of a debate with someone on Twitter the other day who introduced me to Goldner, who wrote an article in 1962 called Antiminator. I'm not sure how many are aware of it, critiquing the claim of value freeness of Max Weber in his Fishena Sutz. And I find that an interesting contribution related to this debate around the utility of measuring or not measuring or inclusion or exclusion of agents and even scientists as agents within scientific discourse. How I gather and maybe to return back to Lut's book in one of the very first sections of the book, chapter one talking about this notion of about Fi heights, how I interpret Newt's notion of what he's getting at is this idea, again, of the utility of science in translating, I guess what I was getting at earlier, of course, things like qualitative change or transformations, whether those be sort of technical innovations or others into language games, I guess in the language of kinstein that things like regulatory agencies and government can understand. So I see there's a very pragmatic approach to interpreting science and translating between different domains.

Speaker 4 (01:51:26)

So we do have governments. All of us do. Wherever we live. They do have a certain framework. You're thinking of your bureaucrats in the Kafka esquense. And Goldner talks about what he calls an academic truth as being the motivating factor that promulgated Labour's decision for height. If you're living in a very volatile social discourse where you have Socialists on the one hand, you have monarchists on the other, there has to be some kind of a consensus as to the parameters of scientific discourse. And so you do have this sort of, I guess a boxing ring of incompatible views. And so some form of measurement, I guess, might then assist even rhetorically in supporting certain things. I was just thinking about climate change and the urgency of that and overcoming things like the lobbies of the oil and gas industry. Just as an example, one can then use things like a Triple Helix approach, perhaps even incorrectly mathematically to represent the critical issues involved. I'm getting a little tired myself. Maybe I didn't say that correctly.

Speaker 3 (01:52:58)

I think we have actually been going for quite some time, so maybe we should look at that stopping. Can I ask Dimitri? Because, Demetri, you asked this very powerful question after Helen's presentation. If I ask you first of all, do you now understand what synergy is? And maybe to ask then Helen to summarize her thoughts about the presentation, followed by Jerome, Richard as well.

Speaker 7 (01:53:35)

Thank you.

Speaker 2 (01:53:36)

I think the discussion was extendedly, interesting, but frankly a little bit beyond my own academic experience. And I'm a planner by training, so I'm not a communications specialist and not really into Symbiotics. I came to the Triple Helix through Henry Escobis and LUT letters. I'm a member of the association, and I find fascinating how LUT has introduced his ideas for innovation, for example. And I still am not very clear how all these analysis would really help policy makers to understand better how to proceed with some kind of synthesis, because it's all very fine to come to very analytical concepts, which of course, if you are more specialized, are more accessible. But I was wondering how we could probably better penetrate the ideas of loop, because while you were talking, I went back to the book and I was reading again a few excess of the chapters that we are contemplating. And still I could say I would find some of the Lut's ideas a little bit more clear. Than the discussion that we had this afternoon. But again, I cannot say I'm a specialist in this question. I'm a little bit diagnostic about the arcane of the communication aspects that you have raised.

Speaker 2 (01:55:37)

So again, it's a very interesting concept, but I still believe we can make this discussion a little bit more synthetic in terms of helping the three parts of Triple Helix come together. Because one of the main issues with Triple Helix is that at some point it remains without real communication charge between the three. This is a tragedy, I think.

Speaker 5 (01:56:13)

Thank you.

Speaker 3 (01:56:14)

Okay, so probably the answer is no then. Do you have a better understanding of synergy?

Speaker 1 (01:56:24)

I think I need to meet you on this because I thought your question Mark to the other contributors about measurement issues and why they're important and where we go forward, I think that's absolutely crucial, but I didn't really understand any better what synergy and redundancy are following this discussion. I appreciate this Chance's presentation made lots of sense and I understand some of it a bit better, but there seems to be two dialogues going on here. There's the one that maybe I feel more sympathetic to dementia's point of view about what it means in practice, the series, how you apply them, and then the more abstract discussion about measurement issues. So I find it fascinating seeing the interchange between the different parts of this discussion. Yeah, I thought I was on a different planet half the time too, but that's where I'm coming from. But I'm really interested in what's going on here. So thank you, Mark.

Speaker 3 (01:57:41)

Well, thanks. Thank you. Jeray summarizing thoughts, really, we're asking.

Speaker 4 (01:57:57)

Well, I guess this all shows how vital discourse is discourse based ethics. And I guess it is always important when one is discussing or doing anything, making decisions collectively to first establish certain ground rules and then decide in accordance with those ground rules. And I guess that that's a process. And my own experience in writing this dissertation the past year and a half has been that there is a great need for this type of interdisciplinary that isn't just a word, but rather that develops certain practices that develop certain mutual understandings. And whether one uses Shannon information theory or one is coming from maybe a biology background, whatever background one is coming from, as long as one is studying human interactions and one is living in the world, I think there's a lot of important problems today that require different minds coming together from different domains, whether it is government, industry. I myself work a lot with cooperatives and I think they deserve a lot more attention. And so I think it's really a question of the process of getting to where one is able to then activate these interactions. So that's all I will say.

Speaker 3 (01:59:30)

Thank you, Richard.

Speaker 5 (01:59:35)

Let's limit to the synergy question because I like that one.

Speaker 3 (01:59:38)

Okay.

Speaker 5 (01:59:38)

It's a good question because that was your essential one. I appreciate you going back to that. I tend to look at synergy from the point of view of cooperation. I liked Luke's original way of characterizing it because having co authors on the paper tends to me that they did do some kind of cooperation and how they belong to different groups. I don't know what redundancy would mean in that concept, but the concept of more evidence of cooperation amongst disparate groups to me is a good working definition of synergy. I appreciated Klaus's concrete examples, because that's usually what I do when I test a new measurement, as I actually use concrete examples to see what they are. And I haven't done it yet. So that is a really good one. So I need a couple of your slides on that one, because whether it actually measures synergy or not is a real question. The concept behind it, I think is useful, whether or not it actually measured it or not. I have to prove it to myself by getting into the actual data and see whether it makes sense. The final one, which is I want to comment to Classmate is that the map is not the territory and the map actually can create more abuse in the system.

Speaker 5 (02:01:02)

The example that he used for India was extremely good, and it worries me greatly about any time you try and create more an objectification of something that is so difficult to objectify and it's inherently conflictual that some groups will then use it to justify actions, and then they use that to impose a belief that has nothing to do with what the original maps did. So maps have that danger because they are used as a way of exercising power inappropriately. And for that I'm glad you brought that up. I share that concern. At the same time, curiosity still gets to me. Thank you.

Speaker 3 (02:01:52)

Well, I hope curiosity gets to all of us. This has been really wonderful, as always. Actually, thank you so much to all of you for coming, particularly those of you who haven't come before, please come back, because this is wonderful because unlike many sort of cybernetic discussions, to have something to focus on, to have a text to really focus on, and something that's so comprehensive really focuses our minds as well. So I think it's really great. And lot, as some of you know, is getting ready to operate.

Speaker 5 (02:02:41)

Mark, he just froze. I think everybody else is still alive.

Speaker 4 (02:02:50)

Maybe just to continue the thought of Mark, those people who are here for the first time, maybe just would be useful to share email addresses so the hosts can put you on the mailing list. Jamie is still here, I guess.

Speaker 9 (02:03:03)

Well, may I? Just from my point of view, synergy to me is something that is extends in complexity, the parts that make it like, for example, in a social organization, when you come as a little worker for tightening screws or assembly lines. But there is always something bigger than the collaboration produces and I think as a scientist we ought to be not outside that system. We should see each other as part of the system and contributing to it and making innovations if you want in our own concepts that are useful to society as a whole and take responsibility for that. And I think when we deal with quantification that is a big issue. When we deal with, for example measuring temperature for environmental issues that is one thing that everyone can understand or many of them can understand but if you deal with individual classifications of people then you introduce stereotypes and that is something we have to learn to avoid and so I think we have to be really taking a more active role creating synergy and not supporting systems of description that only preserve the status quo or if you want the ruling elites or whatever.

Speaker 9 (02:04:37)

And that I think to me is a very important part.

Speaker 6 (02:04:43)

All right, so we have Mark back with us and I was going to say we have ten minutes over time. This is the first but that is very good news because that means there was a lot to be discussed so now I'm giving it back to you, Mark for the close.

Speaker 4 (02:05:07)

Okay.

Speaker 3 (02:05:08)

Good news. Thank you so much. Again next time.

Speaker 6 (02:05:17)

Yeah, and one last comment. So there is a mailing list Cogitata it hasn't been used a lot but that's a place where the discussion can be continued and I hope to see you there.

Speaker 3 (02:05:33)

All right. And I don't know what you had because Louis is not well at the moment. He's getting ready for an operation and I think sure we'd like to wish him all the best for Swift recovery.

Speaker 4 (02:05:46)

Thank you.

Speaker 3 (02:05:47)

See you next time.

Speaker 5 (02:05:49)

Thank you very much.

Speaker 3 (02:05:50)

Okay. Bye bye.

Speaker 7 (02:05:53)

Thank you very much.

Speaker 2 (02:05:54)

Bye bye.

Speaker 3 (02:05:55)

Thank you.

Speaker 9 (02:05:56)

Bye.

Speaker 5 (02:05:58)

Thanks for coming.