**Wednesday, January 19, 2022** - Chapters 2 and 3:
Chapter 2 - The Communication Turn in Philosophy of Science; **and**
Chapter 3 - Scientific Communication and Codification.
Comments by:

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**Diana Lucio (Pontifical Xavierian Univ., Columbia).**

### Speaker 1 (17:02)

Hello again. You see Margaret Hendrix. But my nickname is Jamie Hendrix. Jimmy Hendrix. So you got emails from me today. We will be doing a slow read of chapter two and three of Ludz book, chapter two, The Communication Turning Philosophy of Science. And then chapter three, Scientific Communication and Codification. And our very first presenter today is Mark Shirony from University of Boras and Charles University of Technology. And if my information about you is correct, you're studying information studies. Yes. Mark, you should be able to share the screen.

### Speaker 2 (18:06)

Yes. Thank you all. I can start sharing the screen as usual.

### Speaker 1 (18:15)

And before as long as I have your attention. So then the other two presenters are Edmundo Balsamao from the University of Cumbrai in Portsugal, Stasa Milojevic of Cognitive Sciences, Indiana University, Bloomington. And then Diana said that she may be stuck in traffic so she may not be able to make it, but maybe she will. She is the last presenter. So either way, we are ready to go. And just as a reminder that the entire section is being recorded. So Marco.

### Speaker 2 (19:02) [Marco Scirone\

Thanks. Thank you so much. As you said, I'm a PhD student information studies. I'm doing a PhD project regarding the Bummet study, also beauty science. And I'm using my theory so short of science and of course also letters of the professor. So it's a wonderful experience to be attending these sessions. And of course even more grateful for the chance to also share my thoughts about this dance and provoking books book that basically I will discuss from my background, which is information science and philosophy. So I know there are people with very different backgrounds in the audience. So word of caution, I come from this perspective. So I will basically discuss those chapters from this perspective. And while rereading the chapters

and thinking about this presentation, I tried to consider ways to do justice to these two chapters. And I decided to focus on some central notes, some key teams that you will find that you find on this slide. And I will try to let emerge in my presentation. Of course, those two chapters are basically inching upon those key concepts. And in particular now in the context of the session, we can also try to put basically in evidence the role of rational expectation in empirical philosophy of science.

**Speaker 2 (21:16)**

These are rational expectations that are driving forces of communication. So I will try to talk about the empiricism in empirical philosophy of science presented in this book. The first question is what kind of empiricism do we find? And I believe the emphasis that professor presents for basically for us in the book and in particular in those two chapters. And I'm connecting also with the previous session is the horizon of meanings according to Russell and I would like to remind of the deep discussion basically regarding the difference between USA and Alpha chute in chapter one, which is useful because in distinction we can better understand the role of USA and the key concept of Supra individual intentionality that is key in those chapter. So as we have seen in the grounding basically logic intentionality most suitable for the analysis of the meaning of science, whilst the interest of shoots is the grounding in terms of life, words in terms of everyday life. So we have different interests intellectual interest in USA and shoots. And I really appreciate how this was evidentiate put in chapter one. But what we find here is the logic nature of intentionality as basically the condition for intentionality according to those tiers of Supra which it means that in your eyes of meanings some meanings are more meaningful than others.

**Speaker 2 (23:55)**

And what I mean by that some potential meanings are more probable, it can be actualized as future meanings. So we have potentiality and actualization of meanings in these in this horizon. Okay, so we have meetings that are more likely to be communicated, shared and also opposed by other meanings. So the perspective from the perspective of agents or actors becomes a perspective of communication in terms of this discursive knowledge. And the old discussion that we find in chapter three regarding Blue and the discussion and the dialogue between professional and theory is basically in my view to be understood in relation to the issue of asymmetries which make some meanings more probable. It's not symmetrical as Blue proposed, but we have here some kind of criticism that in my opinion is quite also similar to Pierre Bourdieu's criticism in his last book, The Last Lessons in College France. I found similar criticism of Blue and also in Bogier and I think this criticism are not unrelated to the issue of the weight of meetings. Some meanings weight more and in bibiometics and we have this issue of waiting, the weight of meaning reflect for instance the analysis of core publication core documents or from the semantic perspective the teams that are imagined in those discourses.

**Speaker 2 (26:29)**

I can also say that we have maybe even the possibility of expand from scientometrics also to waiting information retrieval, for instance the weights that are associated for instance documents where some meanings in documents weight more and those meanings that make the documents received or retrievable, for instance in Salt and in that kind of information tradition. And I think from the perspective of conceptual organization of scholarly fields we found very useful with the concept of rational expectation and beliefs. It can be symmetrical expectations are asymmetric they stimulate the reproduction of certain discourses and prevent the communication or meanings or post to existing rational expectations. So I think this is very important to take home all this discussion of rational expectations. And also here I've basically put in bold where we see probably more than anywhere else consideration of rationalized expectations. But when we talk about meanings and the weight, we need to know how to operationalize this, how to make the philosophy of science empirical and how to sustain the study of horizontal meanings with data or synthetic operationalization offer the chance of measurement of empirical operationalization and communication. At this level. The level of super intentionality is hierarchical I would say in the meaning.

**Speaker 2 (28:46)**

That reminds me of Michel Foucault's archaeology of knowledge which as we know became generality of power. It's because of specific knowledge and power precondition that some discourses, some discourse are possible such as the scientific discourse on illness, madness and so on and previous what I found very crucial and was chapter the use of the word symbolic value and the concept of sedimentation of meanings which basically determines what Vichar Fukuo calls the rarity not all meanings. All these courses are possible and we have fight between these courses as well. In FOCO, another reference and just here to present some connection, another reference I would say that it could be put here in a dialogue with a Lairdov could be for Bateson. The concept of escape is modernity. When the difference in communication become incompetencible, conflict is inevitable. So we know based on this is a level of individuals at the level of States but can be put at super individual level. From this perspective of discussive knowledge in terms of Schisma Jeanesy between paradigms. So I really appreciate the interpretation in terms of discussing knowledge of paradigm shifts can be interpreted in this way and also we have between meanings, expected meanings.

**Speaker 2 (30:54)**

We have this shift in scholarly fields and the emergency decline on meanings are based on of course this evolutionary and Christmas nature of concepts or theoretical constructs. And going towards I think the end of the presentation I call it to my biological Clark. I don't know if it corresponds to external time. I think I'm going towards the end we start to fully comprehend

something that is coming much later in the book the realistic ontology. So in other terms we have to look for the software, the software for the meanings to understand the effect of discursive systems on other discursive systems but also on other nondiscursive systems. So we have this almost structuralistic approach here and I will say I really loved basically the reference here to basically marks what happens in the passage from commodity male. We have the domain of material that takes over the material and we have the aliens consequence. In fact economics is one of those fields that for instance Jerry Photo called special science. The laws of those fields cannot be explained by the laws of physics. This is why open Jerry Photo the perspective of the mental domain not reducible to the physical domain.

**Speaker 2 (32:55)**

So I think even this is something that is going to be discussed much later in the book. Even now we can start reflecting upon the dualism that we see as underlying ontology in the book. With this, I will stop. Apart from some reference here, I will stop representation. I don't know if I've been too fast or if it's okay. And I would like maybe to ask you your reflection from in this regarding those words here. For instance, what we've been talking about, I've been talking about and I stopped sharing.

**Speaker 1 (33:47)**

All right. Thank you very much, Marco. Are there any clarifying questions or shall we wait until the end of the presentation with further discussion? So the second presenter today is Edmundo Balsamio from the University of Coimbra. And his background is philosophy. So that will be very interesting because.

**Speaker 3 (34:30)**

Thank you, Margaret. Thank you also, Loet, for the opportunity of this presentation. I will follow Loet's argumentation in chapter two and three of his last book. So let me share my desktop here. It is okay for you.

**Speaker 1 (34:58)**

Yes.

**Speaker 3 (35:02)**

I will begin with the main arguments that are center of the chapters two and three sustains the social character of knowledge in detail in chapter three, but also already in chapter two. Commenting David Bloor’s  Sociology of Scientific Knowledge and the Sociological Strong program. This is the point of departure of the main argument of the chapter three. Starting with Blue's main thesis, the strong program is condensed in a formula. Knowledge for the sociologist is whatever men take to be knowledge as a general idea. The thesis is convincing, but

regarding scientific knowledge as knowledge submitted to tests and procedures of validation and justification in a community distributed in networks, the general formula requires further development and concretization. According to Leydesdorff, in deeper. The development of the sociological theory of scientific knowledge relies on the notion of the triple Helix, linking descriptions of cognition, agents, strategies and dissemination of texts to introduce the triple Helix hypothesis. He describes the evolution of perspectives in sociology of science from the monological approach mainly identified with the dualism subject object or man nature of the Cartesian tradition, to a biological understanding that stresses the discursive practice and social interactional, institutional and self organizing aspects of the communication of science in networks.

**Speaker 3 (37:04)**

In the book, the transition from the monological model to the dialogical was not scrutinized from a historical point of view, but only hypothesized. He begins his discussion of the communicative term in philosophy of science with the distinction between context of discovery and context of justification. He ascribes to Popper in The Logic of Scientific Discovery in chapter two. However, the distinction was not introduced by Popper but by Hans Reichenbach in Experience and Prediction from 30 Hates. In his book, Reichenbach was dealing with what he called rational reconstruction of knowledge according to the three tasks of epistemology, descriptive, critical, and advisory tasks. I quote from Haykenbox original distinction. The way, for instance, in which a mathematician publishes a new demonstration or a physicist is logical reasoning in the foundation of a new theory. Would almost correspond to our concept of rational reconstruction and the well known difference between the thinkers way of finding this theorem and his way of presenting it before public may illustrate the difference in question. I shall introduce the terms context of discovery and context of justification to Mark this distinction. Reichenbach. The distinction seems appropriate, but what needs to avoid the excessive separation of both domains, discovery and justification?

**Speaker 3 (38:58)**

The refraining of such abstract separation of the domains is even more important in a sociological approach. Also, Popper in The Logic of Scientific Discovery, alerted already for the inconveniences arising from the description of scientific statements exclusively based on empirical data, such as the protocol statements of logical positive is in Carnap and also Reichenbach. With no intervention of theoretical arguing across the first and second parts of the Logic of Scientific Discovery, Popper rejected the myth of induction and proposed his notion of the principle of falsification against the claims of Positivism with its principle of verification. Wittgenstein and Carnat versions in Leicester accounts of the interaction between the two context the context of discovery and the context of justification. A double movement bottom up and top down is envisage a circle of discovery and justification describes better what laisses of

means by a symbol cycle of cognitive claims and control over these claims, the movement from the level of deformation of variation and the next order control mechanism. Page 44. Here again the image of a movement bottom up and top down incurs in the risk of a mechanical overlapping of discovery and justification. In his account, heihan Mark's context of justification operates at a discursive level of the validation of knowledge obtained at the context of discovery, but this seems to entail the idea of a pre linguistic or presnetic formation of observation and induction, which should be avoided.

**Speaker 3 (41:10)**

The discursive level is embedded in communication and communicative strategies used by the participants instead of a monological validation of cognitive claims. Lut Microsoft refers dialogue as the new mode for generating, validating and reproducing knowledge. Science first is discursive knowledge, which means that it has a communicative dimension open to codification in socially shared symbols in a variety of ways. Communication of science occurs through written discourse and a variety of corpora such as letters, books and journals. Evolutionarily described in some notes of the second chapter of Microsoft's book. Before accepting the codes, it is important to refer that communication of science entails also networks. Networking in science communication is already noticeable in Europe across the correspondence of scientists and philosophers in the so called Republic of Letters from the 16th to the 18th century. Recent communication of science in periodicals, networks used for dissemination of knowledge, procedures or validations such as peer review and citations, can be seen as four major aspects in the assessment of the context of justification of cognitive claims of modern scientific discourse. Scientific context is a good example of a written code that can be measured and assessed according to absolute quantities, frequency, and power of dissemination in specific networks of related teams.

**Speaker 3 (43:25)**

The object of scientometrics is the description of self organizing patterns occurring in written communication of science in defined networks of scientific publications with the respective procedures of control. The destination of science in networks can be assessed by central metrics through the scrutiny of the distribution of citations. According to figure two to the account of modern scientific citation, the sociological notion of reputation as well as peer recognition are sociological concepts connected to motivation and the attainment of goals in scientific endeavors, which can be identified in the way citations of homework are targeted and expected. Leydesdorff refers to Luhmann’s theory of society as a validable analytic model for science, communication and stabilization of expectations regarding cognitive claims, which is essential in the context of justification. His description of Luhmann’s theory of society. In his description of Luhmann’s theory of society, one distinguishes between the levels of interactions, organizations and self organizations. The three levels are also present in the case of

communication of science, where one can identify agents, material process that stabilize and globalize cognitive claims paratitis in Kuhn's terminology. As I quote, the reproduction of communication is Anchorage, on the one hand in the layer of agents carrying the communications from below, but on the other hand, communications are selected from above at the super individual level with reference to next order structures such as the codes of communication emerging within the communicative networks as mental representations which span Horizons of meaning.

### Speaker 3 (45:47)

The so called nextorder structures are outcomes of selforganizing networks used for science dissemination and validation. In this aspect of the selforganizing networks, Leydesdorff refers to the work of Bruno Latour. He develops critical comments on hand and the sociology of translation with illustrations from the work of Latour and Michel Foucault in chapter three. Here he proposes a correction of Hunt according to his home view of a triple Helix made of cognitions texts and agents interacting but with relative autonomous meanings at each level in face of the others, restricting thus the value of a pan semiotic representation of reality and cognition. In the case of Latte works, Lizazorf insists in the relative autonomy of the dynamics of each level of the triple Helix is reflected in the following thesis. Different meanings can be expected on the basis of different groping rules. For example, one can distinguish between the meaning of the publication in cognitive terms at a level at the field level and in social terms at the level of the research group. Page 53 relying on Parsons and Bluemen theories of symbolically generalized media, peer review of text is regarded as a selective process that ends with the attribution of a cognitive social symbolic value to cognitive clients contain it in a submitted text.

### Speaker 3 (47:40)

I would add to this meanings in the reputation scale. The code was described by Lumen as truth, not truth, but Laddersorv prefers a heuristic approach as truth finding puzzlesolving. The form and evolution of the evaluation of texts entailing cognitive claims. Peer review is an example review our expectations and rationalized expectations occur in the communication of science instead of a process of interchange or beliefs of isolated scientists. Thank you.

### Speaker 1 (48:26)

Right. Are there any clarifying questions? And if not, we go to Stasa Milojevic from Indiana University and please.

### Speaker 4 (48:47)

Thank you. Jamie. I did not prepare the slides, so I will just talk about these two chapters. I'm listed as cognitive scientists and I our cognitive science individual. I am affiliated with that. But actually I come from information science, so I'm primarily an information scientist and the focus

of my research is quantitative science studies. So my reading of this text and my comments on it would be from the perspective of quantitative science studies researcher and how what is presented is these two chapters can really help move that field forward. So that's the framework of my reading of this book. And I apologize that I ignored the guidance. I maybe should have read it closer. So I hope you can bear with what I have to say. What I find in chapter two most valuable in a way is this movement from entities or nouns or objects such as individual or structure or text or even context to really mechanisms or processes or verbs. Right. So the movement is from nouns to verbs and discourse here could be considered as a verb. It is considered as a way of actually bridging what might have been divide in science studies individuals, focusing on the one hand, what has been mentioned in the previous presentation, context of discovery, which is focused mostly on individuals and bottom up and context of justification on the other hand, which is more top down and discourse in a way is considered by load or proposed by load as a way to bridge these two things that were considered separate throughout the history of science studies and actually come up with a richer set of concepts, most of them focused on processes and actions which can then help move the field forward.

### Speaker 4 (51:47)

He makes a distinction at the very beginning between text and context and the individuals and said that text, why it has been focused on is not necessarily so useful because it does not allow for understanding the codes of the communication and as a way forward. As was already mentioned, he proposes to focus on discourse as a way to study communicative nature. Now he claims that the back claim is not novel. That is something that scientists themselves have proposed going back to Galileo. What I found a very useful way of moving with his discussion on how this focus on discursive knowledge historically in the scientific revolution really was pivotal for changing the communication and control structures in Sciences at the above individual level. And I think that he's claimed that the modern Sciences are discursive and mediated and that the mediation of knowledge production by scientific literature was historically made possible after the invention of some of the communication technologies I think is very important. He does talk about different entities that we can focus on which is words or text and reference and discusses their selectivity. But I think actually I'll go again to the processes which I believe are more important and one of them that he particularly focuses on is the process of selection which is important and the role of this referencing networks which he conceived as this discourse of environment is really to select.

### Speaker 4 (53:55)

And this selection is really important for the evolutionary perspective, for the understanding of scientific communication. Of course selection is just one mechanism. A very important other mechanism is variation. And later on in this chapter he does talk about variation as well when he brings in Lumen's view but also better perceived in the context of Simon's here. But Simon's

theory of complex systems where in the mechanisms of the dynamics of communication we should focus on three things, which is interaction or this variation that we'll talk about which is at the level of globalization. So again I find these three mechanisms very enlightening in terms of what could be focus on the potential studies of science as different mechanisms or dynamics. And throughout both of these chapter he does bring again a lot of words that have to do with dynamics and processes and moves away from structures and individual entities. He also cares about the empirical component and the empirical component requires not just observation by measurement but also measurement and he raises the importance and the question of measurement. He may not discuss that explicitly but for example when he talks about words and co words being less stable and references more stable of word discursive in a way he suggests the type of entities that could be measured or followed in their interactions and the outcomes that they would produce.

**Speaker 4 (56:28)**

So to conclude my discussion on the second chapter I think the key here is introducing discourse as this way to mediate between context of the discovery and context of justification and that is in a way possible and that can also allow focusing on discourses can allow movement outside of Sciences as well because these courses can allow exchanges. Again it's this flows, it's the mechanisms, these exchanges within science but between disciplines which are these higher order entities? Right. These are structures but it can also help mediate between science and society which is something that is increasingly becoming important. Of course it was important his science studies before but I think we are visiting that. So the power of discourse lies in that he also then finds this focus on discourse to understand processes such as selection or repeated selection of the knowledge flame stabilization or coding and meta stabilization in the global next level order because he's focusing on different levels of order. But he offers then a way to empirically study this if we focus on communication as an operation right? So he says we should move from social network which finds what he says his stability in human and institutional agency is curious of communication on the ground and by no means he's saying we shouldn't do that.

**Speaker 4 (58:35)**

He himself has done that. And in the next chapter he actually discusses how we can project and how we can understand. But he says the more fruitful way, in a way could be if we focus on communication rather than a way to operationalize the action or something that disappears. And what this can produce empirically and this is something that he has done throughout the time is these maps, and most of the times maps are identified with structures. But what has done throughout his research in here is that we can use maps to understand again the dynamics or the changes of various dimensions of the Sciences in the particular details. So he's again focusing on evolution and dynamics. In the next chapter he proposes that there are historically,

again that we can focus on three types of entities or their social, textual and cognitive, and that they each may have their own dynamic, but actually there is which he calls subdynamics and that subdynamics is functioning, but they also select upon each other. So there is a larger lever dynamics of what he calls when these structures can merge in the triple Helix way that he has described in other places.

**Speaker 4 (01:00:21)**

He does start this chapter with sociology of scientific knowledge and the definition put forward by bluer on what knowledge is, which is what people believe is knowledge. And he then goes on to discuss true and false knowledge. And I think the key piece here which was mentioned in the previous discussion was this issue of justification and justification of the knowledge occurs. It can occur bottom up right when the individual is testing hypotheses or measuring things. But justification also occurs at a later stages where text is produced and shared with the community through the refereeing process. And afterwards, once this text is part of the archive, which is something that talks about this as well, that the text goes from being offered as a knowledge claim to shifting to the archival record, which has again different histories and meanings, that in that instance what becomes important to understand is this different processes or different justification that occur. What I really appreciate in this chapter is his call that we or people who study science should move away. And these are very unproductive dimensions when we talk about cognitive versus social or internal versus external, right? So he strongly argues against pursuing those.

**Speaker 4 (01:02:16)**

And everything he puts forward in these two chapters in a way is a way to move away from those, but towards more unified way of dealing with those. So I'll conclude with what I found to be a call from this action, which is that in advancing science studies we should have a shift from historical observations to what he calls specified expectations. And that is a crucial shift, I think, in what he also argues, where cybernetics here can play a really useful role rather than the system theory, is that it can offer a way to construct completely novel concepts that have not been studied so far. And that what I see is Louis quote here is the crucial step here would be not so much to take the measurements and not necessarily to go for the grand period science, but really utilizing these different like enhancing the theoretical perspective, but not in the very simplistic, inductive deductive, but really as a way to raise new questions and interpret the results in this very different context of raising and cybernetics can offer new possibilities of having new constructs that can help move to novel questions in science, of science, probably not in Cybernatics itself, and therefore is something that should be pursued by this community.

**Speaker 4 (01:04:15)**

Thank you.

**Speaker 1 (01:04:17)**

All right. Thank you, Stasa. Diana Lucio got stuck in a traffic accident, so she won't be here. But before we start, so we can basically jump at once in the discussion. But first, perhaps if anyone has any clarifying questions for Stasa, or perhaps those questions could be used to start the discussion.

**Speaker 5 (01:04:46)**

I think maybe go into a discussion.

**Speaker 1 (01:04:48)**

Yeah. If you will take over the facilitation.

**Speaker 5 (01:04:52)**

Okay. I'm kind of glad there isn't a fourth talk because my head is full right now. We've had three really wonderful talks and a lot of territory covered from the sort of the sociological overlaps with Bourdieu and Bateson and Cybernetics through to some very penetrating critique from Edmundo, which I've got a lot of questions about. To start, particularly strong focus on the empirical dimensions of this need to be empirical, sort of the emphasis on Herbert Simon, particularly, it seems to me. Who wants to start? I can start if nobody wants.

**Speaker 6 (01:05:52)**

To work.

**Speaker 5 (01:05:53)**

All right.

**Speaker 1 (01:05:54)**

If up electronic hand, and it's very bunch.

**Speaker 5 (01:05:58)**

Yes, we have got an electronic hand. Richard, you kick it off.

**Speaker 6 (01:06:07)**

Mark, I'm even more underwater than you are. A lot of these phrases are new to me. So I'm going to actually raise a question to the group, which I'd love to have people at least think about because I'm more in the practical world of using this stuff. And in the practical world, you think about the expectations of the three actors, the academics, the for-profit companies and the government. The one thing that I see is the most interesting that distinguishes between them is what secrets they hold, what they don't say, especially if we talk about the evolution of science

and price and weapons development. And you don't talk about that stuff as if you're a physicist. That's what Brocaden Labs was all about. And if you're a company, of course, you don't talk about it. And even if you're an individual researcher, if it's going to affect your reputation, somebody's going to scoop you. You don't talk about it and you steal information from others like Watson Encrypted to figure out they're double Helix. So to what extent is the theory that we're talking about address not as what is communicated, but what is kept secret and how come we never studied secrecy?

**Speaker 6 (01:07:27)**

So let's just raise that and all ignore it. But I just always wondered about that.

**Speaker 5 (01:07:33)**

Well, I think that's a wonderful question. I'm going to throw that to Edmundo. First of all, you have to unmute yourself.

**Speaker 3 (01:07:47)**

I'm afraid I didn't understand very well the question, especially if the question relates to my summary of book, in particular chapters two and three. I can infer that you were talking about what is not said in cognitive claims of science.

**Speaker 6 (01:08:20)**

Yeah. The assumption that I hear usually in science is this open communication and the form of communication and the problems in communicating and the encoding. What I don't tend to hear about is what is suppressed and for intentionality reasons, for expectations reasons. If you're thinking of this is what is said is based on the intentions of the actor. What is not said and kept secret is part of that. And I was curious if any of the theories that you are much more familiar with the Nick address be able to predict what is not said or explain what is not said and why? Because I look at Price in Kuhn, and Kunh, to me is all about open stuff and he doesn't believe in secrets. And it's about self organizing, community. And Price, it's all about the elite. They get together in the little smoke filled room and they talk about what it is and they don't tell anybody else. And their students work on it. There's just such a clear night and day between those two people in terms of that openness or secrecy that I've seen in their work. And I don't know how that plays out in the theories of discourse that you're all talking about.

**Speaker 6 (01:09:27)**

So that's more of my not understanding how it could answer that question.

**(01:09:32)**

Yes.

**Speaker 3 (01:09:33)**

That is particularly related to the questions of power in science communication, which were stressed by Latour's description of scientific negotiations in the formation of networks of science communication. But I didn't read that dimension in chapter two or three of Loet's book. But it is really a very important issue, the issue of the power relations in negotiation, in the negotiation of the cognitive claims of scientific texts, for instance.

**Speaker 5 (01:10:22)**

Okay, Marco, do you want to say something? Oh, so sorry, Stasa, you put your hand up.

**Speaker 4 (01:10:28)**

Yeah, it's Marco one, but actually it's okay to meet. Sorry, I didn't bring that up, Richard. But actually Loet talks about that when he critiques given his fracturation because according to that, we cannot study them empirically. But Loet says that actually what these courses can do, and that's where the expectations become important, that when we study these structures, discourse structures, it's not only what we observe but what we expect to observe. And he brings in the importance of missing things. Right. So bird structural holes and other things. So I think key here and what he claims is the power of discourse is not so much in just what's observable and what's measured and what the structures that we see are, but putting that in the context of the expectation or possible expected structures and then what is there and what's not there and going deeper and trying to understand these structural holes and those could be secrets, it could be emissions and then people usually looked at the structural holes as possibilities or what could be discovered next. But actually it could be suppressed ideas. Right. It could be things that are not just, oh, these are the opportunities and we can go and explore them.

**Speaker 4 (01:11:55)**

And I think I agree with you, this is in science study, completely understudied and underdeveloped focus on what's missing. I hope that's useful.

**Speaker 5 (01:12:05)**

That's great. Marco, do you want to say something?

**Speaker 2 (01:12:07)**

Yes, maybe. Actually you mentioned suppressed ideas and talking about silence and the suppress. My mind goes to psych analysis and Baton was keen on cybernetics, but also the background in psych analysis. And he talks a lot about silence in genesis. When there are conflicts, what is not said is what the other tried to figure out and becomes a monster, that instead of creating the Union, exacerbates the conflict. So I think there could be, I don't know if

it could be a way to see those structures, what is not done in terms probably unconsciously in general, in terms of dynamics of discourse, what is not said. And I would say if we have to take this psychoanalytic perspective out of context and put it, of course, in this sense study context, you can say the same way. As Beston said, silence creates sickness in science. All these pay walls and the secrecy is not really helpful for the community, for the development of science.

**Speaker 5 (01:13:41)**

How do you see it not being held? I mean, I know it's an obvious point, but what's the mechanism whereby it causes pathology?

**Speaker 2 (01:13:50)**

Yes, I think it could be basically the mechanism. I don't know. I just also launched back to the audience. But it could be in terms of expectation, the incremental side of science. Now we see that it's not really discourse that gets built and built on. Yes.

**Speaker 5 (01:14:18)**

Is it because it puts us in a double bind of some sort? Perspective?

**Speaker 2 (01:14:24)**

Yes.

**(01:14:26)**

Okay.

**Speaker 5 (01:14:31)**

Obviously absence is a very critical and central part of load's work. It's really tied up with the sort of analytical ideas about redundancy. But it's interesting. Nothing is such a difficult thing to get hold of. Edmundo, can I ask you what is lost in the gap between the context of discovery and the context of justification? Where are the absences between those?

**Speaker 3 (01:15:28)**

There was a logical positivistic description of both contexts. Reichenbach describes both contexts from a logical positivistic point of view. The context of discovery is mainly an observational context which is connected with the inductive logic. We observe facts and we generalize some properties from these facts. And a second level occurs when these observed facts are entailed in discourse which must be justified with logical argumentation in statements, statements which are validated through true truth and false functions in the logical of the binary codification of truth and falsity truth and false binary options. And this second context, which is the context of justification, is discursive structural, but it is very difficult to understand how to connect the argumentation the space of reasons with the context of the formation of

observations, which is the context of discovery. We can see how it starts from the context of discovery to the context of justification, but not from the justification to observation, as if the observation is always the point of departure of science in general. From the point of view of Copper, it is completely different because there is no observation completely immune regarding argumentation and theory, and this is already present in the logic of scientific discovery.

**Speaker 5 (01:18:16)**

I suspect we could this could go on. Jamie, I know you got your hand up, so do you want to.

**Speaker 1 (01:18:23)**

Yes, I wanted to comment or respond. Follow up to Edmundo. So first, Edmundo, you're totally correct that it was Rajin Buck who really hammered out that distinction and was not proper. But what I would like to Rajima was responding to a very intensive debate at Friggin had about anti psychologism. And so the distinction between those two contexts was made to kind of work through that debate. And so Papa also was working with that debate, but he kind of went in the other direction. And what it was really about is if we take a psychologistic approach, that means that we start our models of knowledge with what is happening in our head, that we have the problem, that we have 7.9 billion different heads. So which one is the superior one that has a true knowledge, so we don't have any way of deciding. And so Popper actually developed a model based on Karl Buehller who indirectly influenced her persignment, but in a way that has not really been explored properly. That is really about the initial distinctions by which we work. And that is I get from his settle that he said we need to think about those distinctions and that step of deciding on the distinctions that happens before the computation and it's completely separate from the computation.

**Speaker 1 (01:20:09)**

And I think that Loet is moving and it's alerting us that we need to think about the initial distinctions by which we are working. That he extends George Spencer Brown's model. That is Spencer Brown. He's excellent by pointing out that the initial distinct is important, but he doesn't go far enough with putting it towards So to say.

**(01:20:41)**

Yeah.

**Speaker 5 (01:20:43)**

If you want to ask a question, put your hand up. Jerry's made a very interesting comment in the chat, Jerry. I just wonder if you want to talk through that. I think that's very important.

**Speaker 7 (01:21:00)**

No, I really don't have anything to add beyond what I said.

**Speaker 5 (01:21:03)**

Okay.

**Speaker 7 (01:21:03)**

Well, other than to add to Jamie's point that she just made, and that is the role of initial distinctions in controlling the future discourse within that context of those initial distinctions. And here the very crisp example is a distinction between the chemical Sciences and the physical Sciences, where the initial distinction within the chemical Sciences and here I include all the biological Sciences. The initial distinction is always grounded on observations of nature, where physical theory, by its very nature never depends on observations. It is always in the mathematical terms which are abstractions and beliefs of the individual and not beliefs of the community.

**Speaker 5 (01:22:03)**

I was struck by the intrinsic incompleteness of discursive communication. I mean, if it wasn't intrinsically incomplete, it wouldn't work, would it?

**Speaker 7 (01:22:19)**

That's an interesting question. That's an interesting question. Loet seems to think it works very fine and the speakers more or less confirmed Lpet' suspicions.

**Speaker 5 (01:22:36)**

Okay. Anybody want to comment on that?

**Speaker 7 (01:22:52)**

I will add a further comment to dig myself a deeper hole, if you would. That is, if you look at cybernetics not as either first order or second order cybernetics as something that is not hierarchically structured. In other words, if you do not address the relationships between analysis and synthesis in the sense that Newton used the notion of analysis and synthesis and in the role of if you would concretizing tooth functions, then you don't run into this exactly the same problem because you're working with different symbol systems.

**(01:23:46)**

Yeah.

**Speaker 5 (01:23:49)**

I mean, the cybernetic connection is so important. I wonder the references that you made, Marco, particularly to Bogia, I mean, Bourdieu was obviously influenced by Tolcott Parsons. He

has that kind of cybernetic heritage. But one of the things that is powerful in cybernetics is it has this ability to make transdisciplinary connections and in some ways curb the incursion of jargon from the social Sciences, which sometimes gets in the way. Do you see the cybernetic perspective as being useful in that way? And I mean, that seems to be something very much that Lotes contributed in the book.

**Speaker 2 (01:24:46)**

Yes, definitely. And I think the idea is to find the commonalities between different fields, which is also something that the antagonist Botier is more interesting than the struggles between fields. But also in social science, there is this need of a common language to cite Galileo going back to even in social science. Now we have this, of course, for instance, in sustainability, working on sustainability side. So we have those issues, something more and more creation, more and more disciplinary fields. And I think the idea was also there in the general system theory as well. To find commonalities now more than ever, probably we need the common languages in common vocabulary and terminology across science field and social science and also for instance, this is why we've seen engagement towards to put together quantitative and quantitative study of science as well, try to combine those different approaches and people like based on that has done lots of work in different fields, even the natural science and so on. It could be something to look up and consider in this regard.

**Speaker 5 (01:26:48)**

Yeah. I'm just wondering, one of the criticisms of cybernetics and I think it's a criticism that Lot is very alive to is that it can tend to these monistic descriptions, these monistic frameworks that sort of in a sense it becomes almost a religion. And I think one of the key points that I think Stata has raised is this empirical dualistic focus. I just wonder if you could say a little bit more about how you see Herbert Simon playing out in this. Really, I put you on the spot.

**(01:27:37)**

Sorry.

**Speaker 4 (01:27:44)**

Let me think a bit more. Sorry.

**Speaker 5 (01:27:47)**

All right. We'll come back to you.

**Speaker 4 (01:27:52)**

But if somebody else has already answered, they can, they can try it.

**Speaker 5 (01:27:59)**

My question is really about this, the importance of empiricism, the importance of the conversation with nature or the ongoing conversation with nature. And it's a dynamic all the way through.

**Speaker 4 (01:28:17)**

It is a dynamic. And that's at least my reading of what Loet s is trying to do with this book. It's completely parallel so his chapter two, by adding communicative terms to philosophy of science, he's adding empirical and what is being empirical here. What we should focus our lens on is science. Right. Empirically, but where the power of things I think is and maybe it's on time, but it is if you think about this more of a systems approach or complexity or complex systems approach and control where it's self organizing in a way. So yes, the whole goal is to control these systems. But on the other hand, the systems are constantly and that's what Will says. These systems are not refined in nature. So that's where he criticizes at their network, the arena. Right. Because he does say that what is happening in this and it's nature like bringing nature here is bringing science. Right. Or text or it's the words that we use to describe this. And what Lucy is saying, that these things are also evolving and changing all the time. And individuals are posting claims that are historically also put in the context and they are changing and then they are building these superstructures that are also themselves changing.

**Speaker 4 (01:29:59)**

And then again, Blue doesn't talk about that specifically in terms of how these multilayers actually or the sun dynamics talk about. But I think what is very important for the empirical study is focusing on dynamics rather than structure and thinking about what types of dynamics are useful and important. And is there a way. So I think going after the truth is if we and I think truth and falsity knowledge is not so useful as justification and justification I view more broadly than just in philosophical and logical sense, like is this argument logically sound and justified? But more justification in science goes, do you have empirical justifications for your claims? Right. Or is it within the realm of logic? So I want to expand or at least invite those of you who think more in this realm of justification being within the realm of logic, of discovery, to justification being as justification for data that is being collected, justification for the particular types of measurements, justification of choices and selections of different codes, justifications by the referees and these interconnectedness and how all of that could be followed as process or dynamics and what could be empirical ways to shift that.

**Speaker 4 (01:31:31)**

So that's for me and I'm not sure whether it's Simon, but that's how I read Boots.

**Speaker 5 (01:31:36)**

That's a wonderful account, though. Where do you see cybernetics is in a peculiar relation to this, I think, because on the one hand, cybernetics is a practical subject. It began with people doing experiments with machines and looking at biological systems and asking very profound questions about nature. And I think I know there are quite a lot of second order people here, but one of the including loads, of course. But one of the issues that was with second order cybernetics was a distress of observation and a kind of a more difficult relationship with science. Where do you see this sitting? Because I think this is so important, because there are I hope maybe I've understood that.

**Speaker 4 (01:32:31)**

I think I do. So I think in a way and maybe I'm interpreting glue completely, like how I want and I don't know. But for me it's not the observations. And I think that's what also claims. But sometimes people equate science with observation. Right, that we need observation, but in a way that's almost simplistic. If I observe the clouds, I can never get to Maxwell equation. There is no way I can observe clouds like for 100 years. I will never see forces. I will never see elements. Observation cannot lead to abstraction directly. And Georgia is right that physics is about abstraction. But it wasn't always about abstraction. Actually in the 15th century it wasn't. It was the same as it was qualitative. It was asking completely different questions which were more based on observation, not by mathematical abstraction, because mathematics was a different world. It was the world separate from the physical world. And the power of social Russian was actually realizing that we can combine the abstract world of mathematics, which existed in a separate world. Speaking of popular world of mathematics and physical world could be combined and they can allow us then abstraction.

**Speaker 4 (01:33:57)**

And that's why I think Luther is not for observations as such, but what he calls specifications of expectations, which is developing of concepts that can then lead. So it's not embracing induction. You had theory and then like it's theory relatedness. No, he said what we need is actually spelling out these specifications or expectations to have guided observations. I mean, that's at least my reading on what he proposes we can do.

**Speaker 7 (01:34:28)**

Thank you very much for that very clear exposition on your philosophy of science. Mine is almost orthogonal to it. Almost orthogonal. Not perfectly, but close enough. Okay, so first of all, the relationship between the symbol system used for the initial point of departure in the discussions of science determines what the expectations are. Now, the initial conditions you described for clouds and the meaning of clouds in relationship to mathematics. I agree with you'll never get there just by looking at clouds on the other side. If you start with a chemical table of elements, the atomic numbers, each of these is directly a direct consequence of an

aceton observations. So the point of chemical mathematics starts with observations, empirical observations that are common across all natural languages. And so the expectations that come from atomic numbers and compositions of atomic numbers and additions of atomic numbers are common basis for the basis of science, the biological Sciences. And so this is the dichotomy that exists between the chemical Sciences and the physical Sciences. And it's important to keep that dichotomy very distinct if you want to talk about the role of mathematics in the Sciences.

**(01:36:15)**

Larry.

**Speaker 9 (01:36:19)**

Yeah, I'll take a third point of view. I say that all of science begins with desires, motivations.

**Speaker 4 (01:36:34)**

Okay. I found this on the web for Call of Science that begins with desires. Check it out.

**(01:36:42)**

Sure.

**Speaker 9 (01:36:45)**

But starts with the desires and motivations. And this goes to Richard's initial question. I think that's what's left on set. And until we come to grips with what we want out of science and acknowledge it, the kind of communication we can have with each other as we move forward to something better than what we have now, this lies there with nowhere to go.

**Speaker 5 (01:37:16)**

Okay. That's very interesting and powerful. I think Mary, part of me thinks actually the thing that's unsaid is capitalism, but perhaps I won't say that.

**Speaker 6 (01:37:28)**

Well, actually, let me build on that. It's not just desires. Let's remember the earliest chapter in Luke's book was neomarxism. And possibly replacing the money labor money with money, knowledge, money link or flipping it around and putting the knowledge on the two ends and putting the money in the middle. It's actually then related to those issues and the way Neo-marxiss looks at knowledge and the way I would say neo-Schumpetarians look at knowledge, which to me is the kind of more alternative perspective you tend to see in the United States. There's an interesting for me, it is about intentions, because if your intention is really that joy of discovery, you operate totally differently. If your intention has more to do with fear and wanting to get an advantage over someone else, it's a totally different world. So thank you for pointing

that out for me. The joy of research is what drives it not the observation of an X or that's just not what drive to me the motivation behind it.

**Speaker 9 (01:38:58)**

It's also the desire for funding.

**Speaker 6 (01:39:05)**

That is a matter of security. Life security when I have security. So are you interested in security? Are you interested in just interacting with people to even go back to Mcclons? Is it power? Is it affiliation? Is it achievement? That's a way in which one could frame it what those motivations are to me, the unsafe issue that is missing in a lot of that. But it's critical to what I've seen in Luke when he talks about the three actors because they have fundamentally different emotional motivations almost behind them. That's where it's linking. Because to me, the true academic is more interested in that achievement motivation the Corporation is interested in. I'd say it's supposed to be achievement. Sorry. But anyway, you could follow that through yourself. I can't quite figure it out myself right now. Sorry.

**Speaker 5 (01:40:09)**

Okay. So Jamie and then Caroline.

**Speaker 1 (01:40:15)**

Yes. I wanted to respond publicly to a comment that I received privately because I think it's very important to respond. I'm not going to name the individual the who dominate. Someone said that, excuse me, do not gazillion of system theories that claim that their system theory is important. So the implication, what is so special about loot theory is like one among other theories. And if we use probability theory, what's the probability that loot is more interesting than any other. So I mean, to resolve that issue upfront, this will come out of a tradition that puts the emphasis on the senses, the pinking versus the ceiling. And so the five senses. And so there is this discourse. Did the pinking pump first add the logic or is it the senses and going back and forth? And so what is happening at the same time? But somehow some people are completely blind to it. It's also a community of people that are saying and the discursive process is what about them? That is important as the senses because and that goes back to Aristotle, who said, unless you agree on the meaning of a word, I mean, you can't have an intelligent conversation.

**Speaker 1 (01:41:44)**

So you have to kind of stick to a particular meaning. Once you decide on it, you cannot in the middle of the conversation, change the meaning without telling to anyone. So that there are Aristotles of non contradiction and love excluded middle. So the discursive processes, where are they? And so Loet is kind of trying to create a space for us to logically investigate what

these discursive processes are doing in our discourse since written or symbolic language was invented probably 5000 years ago. And the popular language calls it reading or interpreting on designing or writing. But there is something going on in this discussive process that we need to come to terms with and to just kind of put it in a slightly bigger context. In the 80s and 1990s when I was doing my PhD, just what I called I don't know what they called it construction or post modernism, but there were actually scholars who were looking at the role of reading and writing, and there was a very intensive debate on how to incorporate these distinctions. And for some strange reason that this was died out. And I kind of accused the computational theory of the mind is like setting up humans as information processing being and robots, and the robot doesn't read and write a robot as a central processor.

**Speaker 1 (01:43:37)**

So it's all about the thinking and computing and printer and a scanner and a microphone and speakers. They're all treated secondary to the thinking. And so we need a model of discourse where the discursive processes are taken as seriously as the thinking. And so I think that is the significance of Loet's work that is kind of orienting us like a big cruise ship in the ocean, and it's changed direction and it's going very slowly, but it is a change in the discourse, I guess. So that's my response to the individual who kind of thought that maybe Loet  is interesting, but really not interesting. Yeah, I think he's very interesting. Work is important.

**(01:44:28)**

Ok.

**Speaker 5 (01:44:28)**

I think it's not an oil tanker, it's a Platilla, which is even more difficult to turn around. Caroline.

**Speaker 1 (01:44:36)**

All right. Yeah.

**Speaker 8 (01:44:37)**

I wanted to join the discussion about intention of the individual. My reading of Loops work would suggest that the intention of the individual is really has really no bearing or very little bearing on the nature of the communication, the discourse, that the individual may have all kinds of different intentions to gain reputation, to get raised, to please their grandparent, make them proud. For every scientific input, there may be a whole range or dozens of intentions on the part of the individual, and yet none of them have very much to do at all with the nature of the contribution to the discourse and then the usefulness of the input to the continuing dynamism of the community. So somebody may be personally interested in seeing if they can get the next grant, and it may influence what they choose to do, but it doesn't influence whether or not the

input to the discussion is useful to the discourse, the community, the dynamism of the communication itself. So I would say that the search for the intention of the individual is really a useless search if what we're trying to do is understand the dynamism of discourse rather than where does it all come from if it's stuck in the head of an individual person without being communicated?

**Speaker 8 (01:46:17)**

You know, it's basically not science. And ultimately the network, which I noticed in the chat people were talking about network as metaphor, but in fact, network is structured is an actual structured system. It's not a metaphor. It's actually how the system operates. And the network chooses. The network becomes right at first, maybe the individual creates the network, but then ultimately the network informs back to the individual how to communicate to it. So the other thing I wanted to comment on, I commented on it just slightly in the chat, and that is like whether or not we're talking about truth or search for truth. And I would suggest that I think in the time that I've talked to Luke, I've never heard him use the word truth or to say that something was true. Right. You can say that the system is at a certain point at a certain time and in first some kinds of meaning and dynamism about that. But I would say that the idea that we're searching for truth in any way, again, is a misreading of what the you know, what Loet's work is about my own interpretation.

**Speaker 5 (01:47:36)**

Thank you, Larry.

**Speaker 9 (01:47:42)**

Just a response behind the intentions of the individual. They're also the ways of thinking that are built into our culture, built into what drives our desires and intentions as individuals without us even knowing it. And I just can't separate that from what we find useful. I think I agree that maybe the idea of usefulness is the alternative to truth, but what's useful depends on what we want and what it's useful for. I'm willing to give up the idea of the value of the desires of the individual, but not of the group of which that individual support.

**Speaker 5 (01:48:49)**

There is this tussle, and I suppose it's a tussle within systems theory cybernetics between an agent focus, a focus on the agent, and a focus on the system of communication that they inhabit. And there are got obviously two views as the Luhmann's n view, which would say your feelings are constructed within the system in which you're in. And there's a much more sort of psychological agenda focused view which you find a little bit in Bateson, really, or quite a lot, perhaps. Jerome, you got your hand up.

**(01:49:26)**

Yeah.

**Speaker 10 (01:49:27)**

I was actually going to make a point on what you just said, Mark, which I've sort of been lurking here a bit. I didn't want to interject because I came in late. So maybe some of the points I made have already been made to this question that Margaret, I guess brought in with the question of the relevance of Lutz work. I would certainly support the argument that it is quite relevant in general, this notion of the importance of communication, looking at the framework of second order cybernetics, the impact that things like communication actually have on practice and even having this sort of dual simultaneous focus on both agents as well as what we say, how we say it, and how it impacts. What I particularly find interesting is this connection with vapors there at fly height, which is alluded to in the very first chapter. And just the fact that this is defining logic for many governments today. Somebody mentioned grant applications. If you want to do science, you actually have to sort of go through the various labyrinths of justification. You have this logic of justification also, which today is very bureaucratic. And I think as this is the case, I think we can agree an understanding of not only the history of scientific reasoning, but also, again, the impact of these various logic is very important.

**Speaker 10 (01:51:11)**

And I just have an image here which maybe you can see, maybe you can't, which is from a book by Robert Ulanowicz a very much influenced by cybernetics. And he uses his image to refer to what he calls superfasium, which this is a great vine in his garden, which grew at some point, and you see the central sort of the mother vine at some point died off and it was replaced by these two other connecting vines. So at some point this could be a metaphor for science, that at some point we lost the connection. And it's important again to look at this dynamic interaction between historical facts and these logics of justification. Maybe I'm just sort of rambling. I don't know if this makes sense.

**Speaker 5 (01:52:01)**

That's a useful mention of vodka. Rich. I think, Richard, you're muted.

**Speaker 6 (01:52:15)**

All right. So you just brought up the issue about grants and in the context of individualism and do individuals matter? And I'd like to just point out, building also on what Larry mentioned, that is the culture that matters. What I suppose I find quite surprising is that the debate in science seems to be more between two philosophies of individualism. When I look in Europe versus the United States versus China, where that concept of the individuals versus almost an autocratic or a community, one is just fundamentally different. And the science system, as I see it evolving is fundamentally different. So I do agree that the individual may not matter individually, but I do

think acting within the societal one individualism is admired in the United States are granting funding system, which you think about what drives science. A lot of the times it is money because we talk money, knowledge money is very much based on a kind of a competition, survival of the fittest, more traditional capitalism. The funding system in Europe, I think is quite different in that regard because it's much more of a sense of what we kind of agreed to do in negotiated environment.

**Speaker 6 (01:53:49)**

And the funding system in China, I think is quite different. And to understand the evolution of science and how it evolves, it's not just a matter of discourse, it is a matter of funding. And that's why I picked up on the money knowledge money thing that starts out with, I think discourse tells you a lot about what are the games that are played behind the scenes, to be able to access money, to do research in those areas that don't require any money, operate totally different in mathematicians can work it out with a pencil. They don't need a lot of stuff. You're a physicist, you do.

**Speaker 5 (01:54:39)**

Okay. I'm just going to turn to the questions in the chat because I've been ignoring the chat and I'm sorry about that. So Igor had a question about relation between ego and the development of language or a narrow language. You want to say something about that? Igor, I can't hear you a second ago.

**(01:55:18)**

Now.

**Speaker 11 (01:55:18)**

It's fine. Perfect. Okay. Well, the question was set like half an hour ago.

**Speaker 5 (01:55:24)**

Yeah.

**Speaker 11 (01:55:24)**

I'm sorry. For the conversation sake, maybe it would not be proper to go back there, but yeah, let's maybe follow up. I was intrigued by the research presentation of research money, and Luckily I come from Europe, but this is different. You actually can do research for the research and your basic needs are even if you don't do research for a year or two, you usually still have your paychecks and you're secure and you don't get fired. That's nice because you can apply for the products which you really want to participate in. This is basically this gives you fun in research, deciding who you would like to work with. How would you like to develop the concept

so that it is mature when you go there? A second ago, another interesting question came to me, and that was basically how much the communication channels do affect the way we understand communication, because at a certain point, the new communication channels which we are experiencing right now was there for us to communicate. Right now, these communication panels are going into the option to basically monitor, observe the communication. So you can use communication. You can study communication, really see the behavior of participants and try to analyze that.

**Speaker 11 (01:57:32)**

We are recording that. Are we recording that? Okay. In this case, yes, you can use that to analyze our behavior. The question is how are we going to develop the governance of that? Because our communication channels are not there only to communicate, but they are there also to observe, measure, analyze communication of individuals. And that's kind of scary for me. Sorry. Yeah.

**Speaker 5 (01:58:13)**

Why is that scary?

**Speaker 11 (01:58:15)**

Well, I don't know. I would like to keep some kind of my Privacy somewhere.

**Speaker 5 (01:58:23)**

Yeah. Obviously there's a big concern, but.

**Speaker 11 (01:58:29)**

There are different methods. Richard just mentioned the American way, the Chinese way, European way. I know per se that in Europe we are dealing a lot with that, how to regulate this kind of monitoring, what to do. And those are things which have never been done before. So that's where cybernetics may come in as a science of communication and control.

**Speaker 5 (01:59:08)**

In a negative way, you mean?

**Speaker 11 (01:59:10)**

Well, it can be used in a negative way. Absolutely. But I would go to the positive one if possible.

**Speaker 5 (01:59:17)**

Okay.

**Speaker 11 (01:59:18)**

I would like to be.

**Speaker 5 (01:59:24)**

Double edged sword cybernetics, I think, Jamie.

**Speaker 1 (01:59:32)**

It was also in response to Richard. So I wish that Jason, he may not be behind his computer because he could give you the first person experience of the Chinese view but since Jason is not here, I'm just giving my two cent, whatever the reward. So I think when we talk about the difference, I'm from Belgium originally. So when we talk about the difference between Europe, the US and China, we're actually talking about the institutions and how much attention is paid to institutions. And my effort is done to keep them strong. And now we can say there is a different attitude. Like in the United States, there are some people that deliberately are destroying a variety of institutions because they know it's to their advantage. And now people can say that this is a conspiracy theory, but it's really an attempt to say we really need to pay attention to those institutions and how they interact. So then I go to number two, the way you brought up the question of money. So now what is money? That's very important when you throw the word around. And so one way in which it came up is the connection with our.

**Speaker 1 (02:00:53)**

So there is an argument like both around. The reason all these billionaires want to be billionaires is because of the force billionaire list that ranks every year who has the most money. And so this is coming from an economist Designment that says that money is a measurement of hours. So the one with the most money is the most powerful man in the world. And so it is an obsession with our money. Instead of just taking that as a fact, I think it's important to say so what does that mean at the personal level? And here we go back to Marco's presentation. This is actually about control, a desire for control. These people who want more and more money. I mean, maybe it's a disease, but you can also very plainly say maybe there is an anxiety. And to kind of build that anxiety, there's a desire to control whatever is like uncertain. And so in that way money becomes important because we all want certainty and we all are in denial of the fact that we never will have certainty about the future. And that brings us to a second dimension of a discussion of money and the topic of inflation.

**Speaker 1 (02:02:10)**

But inflation is telling us that actually we need to look at the value of a dollar. And when we talk about value, there is an interesting theory that say actually what we're really trying to measure, our value is our time and our attitude towards our time. It evolves over the life certain experience. So when we are young, we think we have endless amounts of time. When we're old, we recognize this more fine and then some people value it more than others. And that is the

whole healthcare industry. That's about a desire to live a year longer and to just have people around us instead of them dying prematurely. So a question that we need to think about the relation with time and that cybernetics can be very useful to kind of see and model these feedback loops. I think you need to dig and we all need to dig much deeper beyond the money to understand what drives us.

**Speaker 5 (02:03:28)**

Dig beyond the money. It's good advice. I was thinking that perhaps it's a good time to sort of close off, but I could turn to the three speakers as a way of doing that, really. So I was going to, I don't know, Marco Stasa and Edmundo, as we've ended up talking about power and money, I know that there's a famous paper that Batesen wrote that you probably know where he talked about power and said that power was basically a myth. Where does that fit?

**Speaker 2 (02:04:16)**

I guess that's a very big question, the dynamics of power and the nondiscursive system as well. We have talked about discourses, but those discourses have effect, and there are always these issues with funding and the infrastructure as well around, of course, science and how science is communicated. So I think that I have lots of thoughts after this discussion. I think we have gone from we started with knowledge and discourse and we ended up with power. And if I can say something about the book as well, I'm really happy that we see here and there those issues into chapter one, but even later on in the book. So I think this is why there are lots of tears. But give us some tools as well to think around even those complicated issues such as power.

**Speaker 5 (02:05:35)**

Thank you. Stasher, what did you gain from all of this?

**Speaker 4 (02:05:40)**

This was very illuminating and I actually speaking of maybe money and power. I want to think about that. It's not directly in this discourse, I would say, but again, empiricist in me. So I apologize for those of you who are not empiricist. I think my empiricism is speaking out, but I'm thinking in a way that can we use the discourse to try and see what's happening with money? Because aren't the things that are being most discussed about, like aren't the things that we see most in the network, things that are somehow making it there? And they may be supported not necessarily by money. Right. But they should be in certain Sciences. This is who has resources, this is who is putting things out. So again, can we find certain indicators out of the discourse of money? And I think money is there, but it's well hidden and it's in second order. And I agree it's something that's both external and internal to the system, like money is what's feeding the system. So if you think about closed and open system, science is an open system and what's coming in are people and money. It's embedded in other institutions.

**Speaker 4 (02:06:56)**

I think this course, it cannot answer all of that, but I think it could be useful also for following power, especially power more than money, but maybe indirectly money as well. So thank you all.

**Speaker 5 (02:07:08)**

Thank you that's very interesting and quite a project, Edmund, though.

**Speaker 3 (02:07:13)**

Yes. I also do believe that power is a myth, mainly because taken as a substantive, as a name, designing an entity, there is no power at all without relations. So we need to evaluate the field of forces where we are to describe power. So without the field of forces, there is no power as an entity in the world, I would say.

**Speaker 5 (02:07:48)**

Which is very close to what Bateson argues, actually. Yes. Thank you, everybody so much. This has been a really rich the intellectual depth of the presentations and of the conversation I think has been really wonderful this evening or wherever you are. It's probably morning for some of you, but thank you ever so much. Jamie. When's the next session?

**Speaker 1 (02:08:17)**

It's simply following a rule and the rule is the third Wednesday of every month and we settled on 05:00 P.m. Central European time and we send out variations of the same email. They have the Zoom link. The Zoom link is not changing. It's always the same one. And there is also a link to a website that convert times because unfortunately not every time zone changes as we think it changes. So it's occasionally important to double check that and also as a reminder. So, yes, if everything equal, we would love it if you all could the ones that are going to present use PowerPoint slide or any other type of artifacts because it will help people to follow the discussion better. And also it would be wonderful if you could send out at least a day in advance or even half an hour in advance because some people can look at it while preparing for the discussion and making hope. And Mark, I'll give it back to you.

**Speaker 5 (02:09:38)**

Okay. I'm not such a big sticker for PowerPoint. Sometimes I find people hide behind PowerPoints. But anyway and who's presenting next time?

**Speaker 1 (02:09:56)**

Well, let me go and take a look. Once the recordings are processed, they will be put online and then you can look at them. And if you have not signed up to the Google group, please do so as

soon as possible because it makes it easier to follow the discussion next time, February 16 from the University of Moscow. And Larry Richard, who is with us here. And it will be chapter four, Towards a Calculus of Redundancy.

**Speaker 5 (02:10:45)**

Okay. That's really wonderful. So I look forward to seeing you all next time and enjoy the rest of your day. Evening, morning, whatever it is. Thank you very much. Bye bye.

**Speaker 2 (02:10:58)**

Thank you. Bye.