

#48S

Lila Recordings

Set 2: 10-11-06 to 12-11-06

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1 Hr 35 min

[Recording 48](#)

Y: ...or something that was found that was missing.

Punita: (acknowledges)

Y: Another one of my papers. (Laughs) So you can turn it on. And then after that we'll go to you.

B: (acknowledges)

Y: And then we can work on this (taps on board). This is a proposed reality behind phenomena. Here's the abstract.

A model of a proposed reality behind phenomena is outlined. In the model, metaphysical entities are interrelated in simple structures that function as a mechanism of quantum theory that causes reduction, resulting in those metaphysical entities being observed as generic physical particles. In some of the structures, elementary space and time are modeled. It may be possible to use this paradigm to deduce similar underlying metaphysical structures for all the essential constituents of our universe.

B: (acknowledges)

Y: I actually sent this paper to a philosophy of science journal.

B: (acknowledges)

Y: And they actually reviewed it.

Punita & B: (acknowledge)

Y: And two of the reviewers, well, one of the reviewers, thought it had possibilities. The other two said, "This is radical."

Punita: (laughs)

B: Why not? They're radical. (Everyone continues laughing).

Y: Well, I took that as a compliment.

Punita: (acknowledges)

Y: But that's not the way he meant it. He didn't mean it as a compliment. He thought it was radical and completely not professional because of that.

B: (saying something "(?) Something is radical!" at same time Yogeshwar is talking.)
1:58

Y: Anyway, I'm going to read a little more of it in the introduction.

In a colloquial understanding of quantum theory, a phenomenon is observed or measured or recorded if an effect is noted on a 'reference system'....

Y: That's in quotes...reference system.

B: (acknowledges)

...due to a discrete interaction from the observed system. In fact, what is actually noted is only the effect on the reference system. Therefore it can not be said whether the observed phenomena exist prior to being observed or whether the observed phenomena is only produced by the observation itself.

Y: Now, this is the opposite of what you were saying.

B: (acknowledges)

Y: You were saying...what did you call it? The contextual...

B: Contextual, yes. Properties of material objects.

Y: Yes. But I said quantum theory...

B: (acknowledges)

Y: ...doesn't do that. The observation registers something happening to the observation system.

B: Yes. This is correct.

Y: And concludes...

B: (acknowledges)

Y: They conclude that there was a contextual system that was the input into that.

B: Those are just the smart ones (everyone laughs) who... Otherwise they mix contextual...they confuse contextual for informational. This is what they do. And this is...

3:43

Y: They can't tell them apart.

B: Yes. They – Yes. Exactly.

Y: The dumb one. (Both laugh) Which is a lot of them.

B: (laughs)

Y: Even when the phenomena are considered to be produced by the observation, it is usually assumed there is some sort of physical system which interacts discretely with the reference system to produce that phenomena. Bohr, however, in the Copenhagen interpretation of quantum theory does not make the assumption that there is something physical that is the source of the phenomena.

Y: He just says, "I'm not going to say what it is..."

B: (acknowledges) Yes. No?

4:43

Y: ...I'll just pretend it...we're not talking about that."

He took this position because there is not, and apparently there cannot be, any observational or measured or recorded evidence of the existence of some physical object that causes the phenomena.

Y: Nobody's ever been able to prove that Bohr was wrong. They just assume there's a physical and go on from there. But no one – because all they're ever conscious of is phenomena; the subjective phenomena.

While scientists generally ignore this quantum theory detail and instead believe their assumption that there exists a physical observable thing that causes the phenomena, most of those close to quantum theory are concerned about having left unresolved the question as to whether or not there is a reality behind phenomena and, if there is such a reality, what kind of reality it might be. No doubt, from a physical theory point of view Bohr is completely correct in not speculating about what can not be observed. However...

B: (acknowledges)

...from the point of view of metaphysical theory one is tempted to wonder if there might not be some kind of reality that exists that causes the various phenomena to appear.

Y: And then I quote from Bohr's biographer, Foss

Bi: (acknowledges)

Y: H.J. Foss. Which I've quoted before,

...that the important point is not the terminology but the recognition that what complementarily allows us to say about the reality which lies behind the phenomena is that it has the characteristics of being able to produce different sorts of phenomena in different sorts of interaction. And the way these phenomena are described cannot be used to characterize the reality that causes them.

Y: Well, one more paragraph.

Every careful physicist defines physical reality as observed phenomena. Therefore, if there is a reality causing phenomena and if that reality cannot be observed, that reality would have to be metaphysical. That is, behind, beyond or other than the physical; which is the sense in which Plato used the word 'metaphysics'.

7:57

Such a metaphysical reality, though not observable, would really exist. Most scientists do not admit the possibility of any existence which is not observable. Nevertheless, for three quarters of a century this mystery about quantum theory has neither been resolved nor dismissed...

Y: It's closer to a whole century now.

...it's neither been resolved nor dismissed in spite of many efforts to do so. Then I ask two questions. Of what might this metaphysical reality consist? And how would it cause various phenomena?

Y: Then I...

B: (acknowledges)

Y: ...explain the model. Now, that was written to please professionals. And it actually got by the front door, for once.

B: (acknowledges)

Y: See, I made this big enough so they could read it. (Everyone laughs).

B: And not be strained.

Y: (laughs).

B: It's great; it's great. It's beautiful. Yes. And you distinguish between clever ones and the others. (She laughs.) You say the clever ones...

Y: ...the clever ones...

B: ...ask themselves the question, "What is behind the observable?"

Y: I have a few more things to share with you before you get away.

B: I am not and I don't intend to. (laughs)

Y: When I first began to use an epistemological approach or way of expressing the Lila Paradigm, I did this little study on knowledge.

B: (acknowledges).

Y: First, sources of knowledge:

1) The senses. Input internal to consciousness.

2) Another source of knowledge is reason. By conclusion or logical reasoning you can arrive at something that you consider is so. And

3) Belief. You just decide that something is so.

B: (acknowledges)

Y: Then I say, "What is it that has knowledge? That knows something? Is knowledge a state in itself? If so, a state of what? Does a book have knowledge?"

B: (acknowledges)

Y: Is a book in a state of knowledge? Well, I think it's in a state of information. Just go by the root meaning of the word information; it means 'in an organized manner'.

B: Uh huh. In for...

Y: In-for-ma-tion

B: In-for-ma.

Y: That's like the printing on that paper is in an organized manner. But it's not knowledge. It's not in a state – it doesn't know anything;

B: (acknowledges)

Y: ...the paper and the ink.

B: Uh huh.

Y: It is knowledge and intelligence. Yes.

12:04

Then I say, "If one decides something is so, which *is* so, one has true knowledge. And if one decides something is so, which is not so, one has false knowledge. If this is so, the decider is the source of the knowledge or belief; whether it's true or false." This is – goes back again to the decider.

12:32

B: Self-referential; huh. It is so?

Y: Hm?

B: Is it not self-referential, the decider?

Y: Yes. This is what you were talking about most of the morning.

B: Yes.

Y: The different examples of how it has to be something that is capable of self-reference. That it has to be nonphysical.

B: Yes, exactly.

Y: Cause physical can't do it.

B: Yes. In many ways it is proven.

Y: The senses always give partially false knowledge because perception excludes the individuality, or the 'who' quality of what is consciously perceived.

Now that's original, I think, to the Lila Paradigm. Even Berkeley didn't have that. When you realize that, everything...everything lights up. And everything is alive. A stone is alive...because it's made of us. Us that are capable of making decisions and being in a state of knowledge.

It is after the input of external patterns by way of the senses that a decision is made by the individual; that the pattern represents or does not represent something that exists.

It isn't the senses that decide whether it is correct or not.

B: (acknowledges).

Y: It is the decider that does that.

B: (acknowledges)

Y: And to do that he must have the power to decide.

It is this decision that is knowledge. The pattern of the knowledge determined by that sensory input only determines the content of what is known. Not the state of knowledge itself. The content is just what pattern it happens to be. But that *that* is so, is a matter of knowledge if you decide that something that is so is so. But if you decide that something is so that isn't so, even if you make a decision, all you have is false knowledge.

B: (acknowledges). And, it is after the process of logical reasoning that a decision is made by the individual as to whether something exists is so or not. The content of what is known is determined by the subject of the logical reasoning process. However, the state of knowledge itself is only determined by the fact of the decision itself. This is to say that knowledge, the state of an individual wherein that individual knows something, is not a matter of the grounds on which that knowledge is based. But is only dependent on the actuality of a decision as to whether or not for that individual that something actually exists or not. Knowledge then is just a decision made by one individual that something exists or not. That knowledge is belief. Knowledge is not data. Knowledge is only the state of an individual; and it is that

individual who has that knowledge who believes it is so.

Y: This is reinforced by all the philosophers and their...

17:13

who...or epistemologists where that belief – say you have a sensory input and you say, “I don’t believe it.” Are you in a state of knowledge? No. Even if the sensory’s inputs were based on something valid. And one time, and in my childhood home, we were having dinner. And we lived at an intersection of two major highways – Route 66 and Route 395. No stop signs on either side. And when people were coming home from work after having had a few drinks at a bar, almost every night there would be a collision. So we were having dinner, and our next door neighbor went out to look and saw that it was her child that had been hit and killed. But she just said, “No. No. No. No.” And she went on like that for days. Holding her head, saying, “No, no, no. It isn’t so.” Did she know that her child was dead? Debatable.

Knowledge is justified true belief? No. That’s wrong. The question is then, “What is a decision or a choice that an individual makes that something exists or not?” Knowing (quote)“How” is different from knowing “that”. This is a misuse of the concept of knowledge; that you know something about how to do something. True knowledge is close to intuitive knowledge. If it is the case that an individual can actually choose to accept another individual only if another individual actually exists, then there can only exist states of valid true knowledge and false knowledge and not a...

Y: The next page is lost. Oh, well. (laughs)

B: You should proceed.

Biljana and Yogeshwar (laugh)

Y: But you can see I did this study of my discussion with myself...

B: (acknowledges)

Y: ...about the subject of knowledge. And after I finished it, I decided to replace the word ‘accepts’ or ‘decides that something is’ with ‘originating a state of knowledge of that which does exist’. Like a nonphysical individual. So you see some history of where the Lila Paradigm came from. And here’s another short piece called, *Clarifying Aspects of the Subjective*.

The subjective realm involves a number of concepts roughly described by the following list of words: perception, consciousness, thinking, imagination, attention, memory, receiver, knowledge, known, knower, ego, self, soul, concepts, thoughts, thinkers, memories, data, mind, judgment, intention, doubts, images, states, attitudes, and subjectivity itself. For informal, non-technical communications and analysis, the multiple meanings that were just listed, the meanings of each of these words and their partial connotations are acceptable. However, for formal and technical analysis of the subjective realm, a single, basic, clear definition of each term is needed. For example, in the *Webster’s Unabridged Dictionary*, second edition, subjectivity has 6 definitions. 1) Quality of a subject. 2) A political subject. 3) Referring to the subject. 4) Personal views. The 5th definition is: the essential being which supports qualities or

attributes or relations – real or objective. And pertaining to or determined by the mind, ego or consciousness. And the 6th definition they give is concerned with the individual as contrasted with the physical or social. The basic meaning of subjective is, ‘the quality of having been done to; especially to an individual being’.

Y: So, if somebody hits me, I’m the subject (he makes sound of hitting himself) of that action. ‘Sub’ ‘Ject’ literally means, ‘to throw under’. Sub: under; and Ject: as in eject. (Biljana acknowledges).

By using only this basic definition of subjectivity, clear definitions of the rest of the aspects of the subjective realm are quickly analyzed. Applying the definition to understanding the word ‘perception’, we can immediately see that whatever perception is, it involves something being done to an individual being.

Y: So, I’m the subject of something that’s being done to my (Biljana acknowledges) perceptual system.

Perception is then a process and is not the final state that the process of perception has on the subject being done to. So limiting the word ‘perception’ to a process gives us a single meaning to perception which does not include the result of the perception process; the content of an individual’s being conscious. While the content of the individual consciousness is determined by the process of perception, either through the sense organs or the sense faculties of the environment or of images in one’s own mind, neither these contents or perceptual processes are consciousness itself.

Y: So the content of consciousness is not consciousness. You’re conscious of the content. (Biljana acknowledges). And most people who study consciousness do not make that distinction. (Biljana acknowledges). I’ll just read a little more.

Does a camera perceive as light patterns are registered on its photographic film? The answer is no. If the definition of perception suggested here – *of the process of doing something to an individual being* – is used, perception or observation is often conflated with the transfer across space and time of a pattern of particles. (See Claude Shannon.)

Y: He called this communication. (Biljana acknowledges). You know Claude Shannon?

B: Yes, very well.

Y: Ah, in your business.

B: (laughs) Genius.

Y: My mother also knew Claude Shannon in person.

B: Oh. Uh huh. I know he lived until ’93. But, great.

Y: And my mother died in ’65. (Biljana acknowledges). But Shannon differentiated between *communication* and *observation*. But nobody paid any attention to that part.

According to our definition, however, the state of an individual being must be the subject involved in perception...

Y: Meaning conscious perception.

...by such a transfer, not just a transfer of a set of objects. What is this individual being? We know by first person reports, and our own first person experience, that this individual being is one's self and can be in a state of consciousness or not. Before a full discussion of the self is taken up, we discuss what consciousness is itself.

Y: So, I do these little studies.

B: Uh huh. It's beautiful.

Y: And then here's *The Destruction of Consciousness*. I won't do that cause we're still working on that; (Biljana laughs) of how to express it. And here's one on the self. I won't go into that either. Well, I'll just read a little bit. (Biljana acknowledges; they both laugh).

If one sets out to analyze what one's self is, first one must establish what one is. That is, if one assumes that one is a human body then one is to set out to analyze that human body. However, if one assumes that one is a personality, then one sets out to analyze that personality, and so on. Epicurus, in 341, thought the soul was composed of atoms. And, that, knowledge resulted from contact with that soul by atoms from the outside. But if we take up the subject of *the aggregation of particles*, like he was saying...And a lot of people think that even...they think they're consciousness and they think that consciousness is a result of an aggregation of particles interacting with each other; a resonant circuit or something like that. (Biljana acknowledges). So S.E.* Brightman's definition is: a person is a complex unity of consciousness which identifies itself with it's past self, in memory, and determines itself by its freedom, its purposes and value seeking; private, yet communicating and potentially rational. **[Recording time 30:20]**

(Biljana laughs)

Y: That...Brightman said that in '28; 1928.

And Leibniz **[Recording time 30:32]** said, "All reality is composed of monads, psychic entities without remainder, and are centers of activity."

Y: At least he said it's without remainder. They're whole number.

All reality is made up or composed of, without remainder, these monads. And these monads are centers of activity.

Y: *Studies on the Subject of Self*. Ah, here. Did you make a copy of this for her?

Punita: Did I? Let's see.

Y: On the (?) [Recording time 31:40]; on alpha?

Punita: Ah, I don't know. I'd have to look at my...

Y: Well, if not...

Punita: I will.

Y: ...make one. OK.

Biljana: (she's handed something.) Oh. Thank you. (laughs)

Y: They put it in a big package.

B: Ah hah. Great. Thank you.

Y: OK. Now we take up.

B: It was very beautiful. It reminded me of other articles that I have read. Other works that I read written by you. For instance, that one of the most ancient questions of mankind was, *how to live?* Everyone wants to know how to live. And then, it is connected with dharma. Like, many people devoted their whole life in order to find answer to this question. And they come up to something and this something is that you should live in accordance what the reality really is. What the things really are. And in the extent to which you live with accordance of how things really are, in that extent you're happy, so to say; or you're manifested. This is the answer. You couldn't go with your head through the wall, for instance. (Yogeshwar acknowledges). You need a false statement...you made a false decision, as you say. You make a decision but this decision is not based on the reality. So it doesn't contribute to your welfare, to your happiness. And it is what the definition of dharma is. There are many, many, many layers of understanding. But still it is how things really are. This is dharma; how things really are. Claude Shannon. He's the author of *Theory of Information* and he's the author of this statement that, 'Information is...or entropy (?) [Recording time 34:32] – which is opposite of information (Yogeshwar acknowledges) of your known knowledge – is logarithm of one over P where P is the probability for an event to happen. So the information someone gives you about the event is reciprocal to the probability for that event to happen. (Yogeshwar acknowledges.) This is Claude Shannon.

Y: Now that could be used in your matrices (Biljana acknowledges.) because it says that entropy is when it's all zeros. (Biljana acknowledges). That's the maximum entropy because it's...

B: Yes. This is the maximum entropy.

Y: ...it's no information.

B: Yes. Exactly, exactly. I was thinking to find probability row by row. But it is better way to look at the whole matrix. I somehow had an idea – although vague and not

clarified – to somehow to do a mapping of the work of Baker's into matrices. (Yogeshwar acknowledges.). For instance, to find probability in how many ones could be in one row. And multiply by the number of how many ones could be in one column; or something like that. Yes, it could be used. And then the information is logarithm of the reciprocal value (?) **[Recording time 36:17]**.

Y: So the universe starts in a maximum state of entropy. No. The entropy is always increasing. So the information is being lost.

B: For a closed system. For a closed system.

Y: Yes.

B: It is for a closed system.

Y: Well, if we have everything that is, that's a closed system.

B: Yes. It was question asked by...

Y: But there's no transfer that way.

B: You know Schrödinger? Erwin Schrödinger who is quoted so frequently; he has written a book, *What is Life?*. (Yogeshwar acknowledges.) *What is Life?*

Y: I have it there.

B: Ah, you have it. Great. And in this book he asks, "How is it possible that entropy is bigger and bigger all the time. It increases, and still there is rejuvenation, revitalization, renewal of the life, life perpetuates it. How is it possible?" And he answers to himself. He says, "Well, I don't know. Maybe life operates as a simple pendulum. As a non – what is the word when you don't suppress something? Like a free pendulum with not resistance?"

Y: No friction?

B: No friction, yes. "With the non-frictioned pendulum" is his answer. And then Prigogine, in his book, *Chaos Out of Order*, he says, "Well, I always suspected that also the opposite is true. That through friction, actually, life appears. That the manner in which life operates is not as Schrödinger assumed, like a frictionless pendulum, but on the contrary. That through friction life expresses itself." And in this context he introduces a left handed God. He says, "God is left handed." Because asymmetry creates a creation. Asymmetry produces creation. The symmetry somehow frozen. It is frozen. It is futile. It doesn't produce creation. But he goes to the extreme and he says, "In universe you have so much disorder. That out of this disorder as a (?) **[Recording time 39:36]** product, you have order. So, it is so..."

Y: Yes, you get bodies...

B: You have bodies and umbrellas...

Y: Galaxies...

B: Galaxies.

Y: Everything...

B: He says, "Bodies raising umbrellas." (Both laugh.)

Y: Umbrellas (laughs)

B: And actually I, I – I hesitate between two subjects. Whether I wanted to say more about *Order out of Chaos* (Yogeshwar acknowledges.) which is - and to present...shortly to repeat just with one sentence what I have said about the different scenarios leading to chaos. But then to say something new which is about the stability. And I was frequently thinking about this question of stability of systems. And how it could apply, if not to basic presentation of Lila – which is pure and which is self sufficient and is beautiful – but rather to the systems when we introduced space and time in elementary units. How this...how to connect this question of 'the question of stability of systems', somehow. Or maybe later I present something...I have been inspired by your articles. Although, this is something in psychology. Something Jim Leonard did. I'll show it to you. But it was beautiful. It was really very beautiful. All the articles are so profound really.

Now, this *Order out of Chaos*...I have mentioned at one point that there are three scenarios leading to chaos. One is doubling of the periods. Which we have explained with these pictures with circling around a fixed point which leads either to one attractor or to two attractors or four, and so on and so on, until we reach Lambda C or the edge of chaos. Whenever we have recursion we have possibility of reaching this point which is edge of chaos. (Yogeshwar acknowledges.) This was one scenario. The other was of intermittencies. And the third one is the quasi-periodic scenario. (Y: Hmm). In this one, if you remember, we had a period...which could be recognized, for instance, in our crossovers. In our crossovers, if they are presented not in two dimensional plane as we usually do, but in phase plane. Which is another way of presenting trajectories of movement introduced by Henri Poincare; which is observing, actually, the projection of the representative point moving through curve. And then, for instance, for the recursions we might have something like this quasi-periodic movement. And now, whether this curve will be periodical, whether it will repeat itself fully, or in this case we have quasi-periodic movements, it will always move and instance further than the first time (Yogeshwar acknowledges.), then an instance further than the first time; and it never repeats itself and then it is stable. So, although infinite, it is finite. Maybe here is connection to Lila also. Because the number of nonphysical individuals is finite but the interactions, or the states of affairs, could be infinite.

Y: You would think that it would have to repeat to be stable. But this is...

B: Yes. Great point. And now I'll show you. Yes, it is great point. This is why *Theory of Chaos* was so popular. And this is actually the hidden dialectics of *Theory of Chaos*. Because we have...this is what we mean when we say, 'order out of chaos' and, 'chaos out of order'. For instance, here in this **(?)**[Recording time 45:00]

periods we have a very orderly written equation which is so simple, simpler could not be. It is not possible to (Yogeshwar acknowledges.) to invent something more simple than this one. XN plus one is $XN+1$ minus XN . And still at one value of the parameter, we have chaos. So, out of order we have chaos; and the other way around. Out of chaos we have order because we get an orderly pattern, a somehow recognizable pattern, out of infinite movements – infinite tiny errors, so to say, going astray from the original path. And now this is how, actually, the movement of celestial bodies is described. They are stable due to the fact – for instance, the moon goes around the earth and together with the earth around the sun. And in order these three body system (the earth, the moon, and the sun) to be stable we should always have a little...

Y: Precession?

B: ...a little – what is when we have somehow not fully fitting of the curves but a little **discriminant (?) [Recording time 46:53]**, a little...

Y: Delta.

B: A little delta, yes. So, if the curves repeats itself fully then an affect of reinforced oscillation is introduced into the system and the body could become unstable, it relieves the trajectory and goes into infinity. So when we have order, we have chaos. Because, then we introduced instability into the picture. And when does it happen? Now I'm coming to the point I wanted to present. It happens when the ratio of the diameter of the bigger circuit – for instance, the trajectory of the earth – divided by the diameter of the smaller circuit, this is like Torus **(?) [Recording time 48:00]**, and we intersect it with a plane. And we got a circle. And the diameter of the smaller circle is a whole number. When this ratio, the bigger diameter over the smaller diameter is an integer, then we have the fully fitting of the trajectories, one over other. And then we have instability, and the whole system falls apart. (Yogeshwar acknowledges.) And now the question arises whether we have...in universe we have many systems like this one. All the planetary systems, all the solar systems are based on this movement. And also in subatomic world we have also a movement like this one. So the question arises whether in order the universe to be stable, to be sustained, to remain as such, whether we have enough irrational numbers. Because we need irrational numbers, irrational ratio of the diameter of the movement along the larger circuit over the diameter of the movement around the smaller circuit. So the question arises whether we have enough irrational numbers in order for the universe to be stable. (Y: Hmm.) (Biljana laughs). Because, if we, for instance, have come into the situation not to have more irrational numbers, then the stability of the universe is in question. So the question was asked whether the set of irrational numbers is infinite and this was connected, associated with the question of the stability of the universe. And now, there is a Cantor's proof that, "No, no worry," as they say in Australia. No worries...

Y: "No worries mate."

B: No worries. The universe will survive due to the fact that actually we have infinite...that the set of irrational numbers is infinite. There is a Cantor's proof that the set of irrational numbers is infinite. So we could not run out of numbers in order to

sustain the stability of the universe. (Yogeshwar acknowledges.) And there is a Cantor's proof with...

Punita: That's a relief.

B: Huh?

Punita: It's a relief.

B: It's a relief, yes. (Both laugh). And now this proof is very similar to the one I presented for...when I was presenting Penrose's proof of impossibility to solve the **[Recording time 51:10] (?)** tenth Hilbert's problem which is in (Yogeshwar acknowledges.) his book, *Shadows of the Mind*. And this is based on this Cantor's reasoning. For instance, we suppose the opposite which is *reductio ad absurdum* in Latin. (Punita acknowledges.) This procedure is called *reductio ad absurdum*. We go with our reasoning until we reach something which is absurd and then we say, "OK, this was not correct from the beginning." (Yogeshwar acknowledges.) So this is this procedure, '*reductio ad absurdum*'. So, for instance, we suppose that we...that the set of irrational numbers is finite. That somehow the list is finite. So, for instance, we could do the normalization and we could just look at the numbers from zero to one. For instance – and we make our list of all the *real* numbers. Actually it is easier to see with the real numbers. The reasoning is the same. But it's easier for the real numbers. For instance, we have a set of real numbers which is finite, and this is all that exists. We suppose that there are no real numbers outside our list. Our list is complete. So, for instance, 0.1111111 is one such number. Pi to 10 to minus 1 is another such number. We have 0.314159236(?) **[Recording time 53:04] pardon, 6 3**; and so on, and so on. Then we have E which is 0.2718281828 and so on. Then the Coupling Constants, 0.137 and so on, and so on. Or, simply 0.222222. And we suppose that the list is complete. But now we, just the same as we were doing in Penrose's proof, we – I neglect these zeros – we choose the first number from the first row, which is one. We choose the second number from the second row; the third number from the third row and so on; the fourth number from the fourth row; the fifth number from the fifth row. And then we increase these numbers by one. For instance, then we have the sequence 22253 and so on. And now, if we ask the question whether this sequence of numbers which is 0.22253 could be found in our list, which is suppose to be complete, or not. And we conclude, no, this number is not...it couldn't be the same as the first number because it differs in the first digit. We increased the digit by one. Then it couldn't be the same with the second number because in the second number we increase the second digit by one. So it couldn't be (Yogeshwar acknowledges.) **neither (?) [Recording time 54:52]** the second number. It couldn't be the third. It couldn't be the fourth, and so on. So we conclude that this number is new; that our list, although we claimed it to be complete, it couldn't be complete at all. So we have at least one number which is outside the list. So, if we add this to the list, then once again by **(?diagonal) [Recording time 55:17]** method we prove that there is still another one which is new, and so on and so on. So the list of the irrational numbers is infinite.

Punita: But how do you know that new number is irrational?

B: Because you could proceed this procedure until infinity.

Punita: But, I know you generate a new number here and that is not in the list. But how do you know that isn't a rational number? It could be a rational number.

B: First I corrected myself. I said, 'real numbers'. (Punita acknowledges.) But still, I'll tell you about irrational numbers. There is another proof. I corrected myself. Actually it is given for the real numbers.

Punita: OK.

B: For the real numbers. But still, if you suppose this is infinite then also the sequence of numbers is infinite (Punita acknowledges.) which makes it irrational. (Punita acknowledges.) There is another proof. I'll give you then this other proof because...

Punita: No, that's sufficient. I just didn't understand that point.

B: Ah hah, yes. In this, another proof, for instance, you have – just shortly – you have this distance – it is also Cantor's. We have distance from zero to one. Then octagonal to this one, we put another segment which is also one. And then, if we find the diagonal, the diagonal is square of two. If this is A and 8 (?) [Recording time 57:08], the diagonal is A square of 2. So this is square of 2, which is irrational. And now, if we, for instance, extract this one from square of 2, square of 2 is 1.41 and so on, and so on. Now, 1 minus square of 2 is also irrational. It will be 0.412 and so on towards infinity. So, if we put down this...the rest of the segment, which is 1 minus square of 2, here on the reference segment from zero to one, we have at least one irrational number. But then I could proceed this procedure *ad infinitum*. (Punita acknowledges.) I could, for instance, declare this to be the new segment and then I raise another line and find another square of...square of 2 multiplied by this segment, which is X , for instance, and then proceed in the same way. Extract one; then put this down; then here I have another irrational number. And I could do this *ad infinitum*. So this is a proof that between zero and one we have infinite number of irrational numbers.

Y: Assuming continuity.

B: Assuming continuity. (Punita acknowledges.) And this is where comes into picture Cantor's belief, which was that the universe is based on...it has continuous nature.

Y: Yes.

B: As opposed to Kronecker who was...they lived in same time. And Kronecker was very famous mathematician in power at that time. And he was always opposing Cantor. (Yogeshwar and Biljana laugh.) Cantor was very sensitive and he died in a mental hospital actually. (Yogeshwar acknowledges.). He couldn't bear...he was not strong enough to bear these attacks. He was too sensitive. And his mind was always in infinity in the...

Y: Yes. When I read a book on that in high school (Biljana acknowledges.) on Cantor's work, I thought, after I began to understand what he was driving at...I said,

“If I believed this were true, I would go crazy too.” (Everyone laughs.) So, I just said, “Well, that’s interesting math...”

B: Be careful.

Y: ...but that’s all. It doesn’t reflect reality.” (Biljana acknowledges.) And I don’t think it does. There are continuums in the illusion. (Biljana acknowledges.) And this is a good study of it. So that if there were, then this would be so. I’m still a little worried about Claude Shannon, though; and this.

B: Uh huh. Claude Shannon could be introduced somehow.

Y: Because if we put a symbol for entropy – E, they usually use big E for entropy. And it is the opposite (?) **[Recording time 60:58]** information.

B: Yes. Minus.

Y: So you get minus log one over the probability.

B: Maybe this is not directly so. Because we shall have logarithm of pi then; logarithm of p.

Y: It should be the inverse. Not the negative.

B: Actually, what they have for information is something like...the whole story is – this is the extract. This is true, of course, but this is limited. The full picture, for instance, is like a sum of P, which is probability, by logarithm of one over P1; or P2 logarithm of one over P2; or P3 logarithm over P3. For instance, in telecommunications, where we have complex networks as we have in our picture once we introduce elementary units of time and space, this is used. And it...I believe the origin of this π^{2N} , which is for the inflection point, is in this line of thinking, maybe because it is referring to complex...

Y: So as the apparency of time goes on, information is increasing. Is that right? And...

B: Entropy you mean.

Y: Entropy is increasing. The information is getting less as time goes on.

B: Ah...there is something else here (Both laugh.)

Y: It’s that something else I want to hear about.

B: This something else is similar automata **[Recording time 63:18]**. This is to answer this question of Schrödinger, “How is it possible that entropy is always increasing and still we have life, we have revitalization?”

Y: Yes.

B: So, this similar automata – which is how for instance processes on similar level somehow operate – is based on Conway’s, John Conway’s *Game of Life*. (Yogeshwar acknowledges.) When we have just like we have. For instance, we have ones and zeros; individual which is in a state of direct knowledge or not – or a state of no knowledge. And then there is a transition. This could be, for instance, two dimensional or three dimensional. (Yogeshwar acknowledges.) And there is a law for transition, even. And then, although you begin with random – I’ll show you one program of a student of mine, here in my computer. For instance, we have random. This is random. It is totally random which might be a state of affairs in Lila, for instance. But we will now... **[Recording time 64:54]** would introduce something outside. And I introduce some rules. For instance, rule one might say: If one black cell is surrounded by more than 5 black cells, then this black remains black. If not, then it becomes white. (Yogeshwar acknowledges.) All zeros and ones; which is the same. Or some other rules. For instance, in John Conway’s *Game of Life* the rules are, “If, for instance, a cell is surrounded by more than – there is a number – more than 5 or more than 3 white cells, then it dies out of isolation. It feels all isolated then it dies, it disappears. (Yogeshwar acknowledges,). And the other way around. If there are too many black cells around there, then it suffocates. Then it dies out of too many inhabitants (Yogeshwar acknowledges.) in one place. So the rules are somehow imitating the situation in real life, or on the level of cells and tissues. But what happens? What happens is although the initial situation is fully random, although it is fully random, then step by step, step by step, step by step, we recognize, we start recognizing orderly patterns. So all the way, (?) **[Recording time 66:40]** due to entropy...

Y: Due to the rule.

B: Due to the rule. Yes, yes, they advance **[Recording time 66:44]** due to the rule. Great.

Y: So there’s an underlying rule that increases the organization. And that organizing rule or those rules must be the boundary conditions or the assumptions. Because as we have more and more arrows (Biljana acknowledges.) in the Lila Paradigm...

B: What is the mechanism that puts order?

Y: Order?

B: I mean we still go towards...there is an evolution; there is a pattern of evolution.

Y: Yes.

B: Finally it **[Recording time 67:40]**...

Y: So what I’m thinking is that the edge of chaos would progress and move (Biljana acknowledges.) so that there’s more tolerance of what seems to be chaos. A person such as yourself can stand more chaos than a dumb person. A dumb person goes, “Ahhhhhhh, I can’t do it!” Where you go, “I’ll just put up with this and we’ll work it this way, this way, until we finally get some order out of this.” So there’s a difference between the individuals that enables them to tolerate more chaos. Well, I think that

at a...we're on the edge of chaos as all the individuals that exist. When they develop some form of life, of order, (Biljana acknowledges.) that enables them to move a little bit more and tolerate more chaos. (Biljana acknowledges.). And that, that keeps progressing until they become complete order. So if someone accepted everyone, for him everything would be exactly what it is; be complete order.

B: Yes, yes. Complete order.

Y: And we don't have any formulas for that. We don't have any equations. Because they, in this...

B: Similar automata.

Y: If they keep running this does it get more and more orderly or does it go through a cycle and then die off?

B: Ah hah! There are, depending on the...

Y: on the rules

B...initial pattern and the rules – for instance, they could stabilize themselves into a circle or a clock. (Yogeshwar acknowledges.) Producing in orderly bits of time produces figures or small arrangements. (Yogeshwar acknowledges.) And even...

Y: So it depends...

B: It depends. But the...

Y: ...on the boundary conditions and the assumptions.

B: Yes. Initial density of agents. (Yogeshwar acknowledges.) For instance, somehow there are islands. There could form islands. So two of them get separated (Yogeshwar acknowledges.) and we have...at the final instant we have islands.

Y: (?) **[Recording time 70:36]**

B: Or the other way around. They might...we might begin with islands and they somehow...

Y: Merge.

B: ...merge.

Y: Like galaxies.

B: Yes. Like galaxies. And they're, so...

Y: I'm just thinking if we could see what the assumptions of the Lila Paradigm lead to what consequence. Whether that things would finally just freeze up or would it keep evolving (Biljana acknowledges.) or what.

B: Yes.

Y: So that would be a project that could be done.

B: Yes, yes. It is very beautiful. Or for a certain arrangement, maybe. For certain arrangements.

Y: For a certain arrangement.

B: For certain arrangements.

Y: To start with.

B: Yes. which means something.

Y: Yes. That's where we are now.

B: Yes. There are some mechanisms with not on the basic level of nonphysical individuals and states of knowledge but when consciousness is involved, which moves these configurations towards further progress to a fully enlightened universe, for instance. There are mechanisms which – but on the...not on the – on the higher levels of illusion.

Y: Say this evolved and evolved and evolved; the Lila game.

B: Yes.

Y: It evolved and evolved and then maybe at a certain point, it will recycle. Now, (Biljana acknowledges.) some of the Hindu's say that (Biljana acknowledges.) you go through the disillusion (Biljana acknowledges.) of the universe. And this will all fall apart (Biljana acknowledges.) and then start over again.

B: But we should find... at least for simulation, we should find the rules.

Y: Yes. You just have to change the statement of the assumptions into rules. Then it could be programmed, assimilated. OK. That answers my question. You got anything else?

B: About this Jim Leonard. But I don't know if it is something (?) **[Recording time 73:24]**. Jim Leonard...

Y: I'll be right back...

B: Yes, OK.

Y: ...about Leonard. (Everyone laughs.)

Punita: You know, on the Game of Lila simulation there. Like, one of the rules – and I've brought this up before – is a rule for preferential attachment (Biljana

acknowledges.) and quantifying it. (Biljana acknowledges.). When an individual makes a decision (Biljana acknowledges.) to accept another (Biljana acknowledges.)...there's a preference.

B: Ah, yes. I remember. There is a preference.

Punita: But it has to be quantified somehow. (Biljana acknowledges.) Like, what probability does it increase as opposed to (?) **[Recording time 74:05]**. And it's obviously not much.

B: Uh huh. We could...for instance, if we agree that this is so, even though maybe the probability does not prove it to be so, we might introduce. But it will be our intervention, you know. Like...

Punita: Well, no. You know, Yogeshwar has said like if there's a...if we have A, B, C, (Biljana acknowledges.) that A is more likely to attach to C than to X. (Biljana says exactly what Punita is saying – starting with 'more likely...' – at the same time Punita is talking) **[Recording time 74:30]**.

But, it's relatively small; but it does occur. And it may be more depending on how involved C is in a complex network. You know, like one of the things (Biljana acknowledges.) we talk about, the Jacob's ladder of the body and the chakras, that's an individual. (Biljana acknowledges.). Well, accepting that individual gets one a lot of connections. And that's part of the process of sadhana. There is a preferential connection there. It's not just randomly done. But it's a matter of how do we describe that and quantify it, so that we can run a simulation that will give us, move the distribution from the (?) **[Recording time 75:22]** over to the...

B: Power.

Punita: Power, yeah. So that's one of our rules in the Lila game that have to be quantified somehow.

B: Yes, yes. You could quantify it (?) **[Recording time 75:40]**. You could say – (Yogeshwar returns.) Ah...

Y: Leonard. (Biljana laughs.)

B: Yes, Leonard. He is doing some techniques for Self. For instance, maybe not realization but for improvement of – for instance, for dis-creating negative patterns in your mind, and so on. And he gives some rules. For instance, he says as you said in your articles: All that surrounds us is lighten up, it is lit, it is...it glows. (?) **(they all talk at the same time) [Recording time 76:24]**.

B: It is alive.

Y: ...with life, yes.

B: It glows with inner light, with magnificent; it's wonderful. It's the wonder of life. So everything that exists is magical – is all-pervaded with this magic, with this

magnificence, with this light, but we're not able to see it. And people, human beings, they want...there are two rules they proceed (?) **[Recording time 77:02]**, for instance. They want to be right – on an ego level or whatever you name it. First, they want to be right. This is one. And second, they want to be content. So this is like two drives that make them function in their lives. But they are not content because they do not see the beauty. They are not able to see the beauty which pervades all that exists; the magnificence. So they are not content. But because they want to be right – which is the second rule – they accuse. They accuse the others. They say, “You did this to me, and you did this to me,” because they are discontent, they are not content; they are not able to see the beauty. But they want to be right, so they accuse. And once they start accusing, they fall further down. Because now they are even less content and even less capable of seeing the beauty, of recognizing the beauty in everything that exists in the other human being and so on. And so they go further, further and further down. And then he gives techniques how to overcome this. But also he gives rules. He gives strict rules; definitions.

For instance, he says, “Time is an illusion,” which is correct.

And emotions are also illusion. But there is a strict connection. We could associate emotions with time. And how to do this?

He says, “For instance, sorrow is...we could associate sorrow with the past.”

Because really we are sad, for instance, we feel somehow deceived because the present moment will pass and the people we know will pass away, or so on and so on. We die alone; we are born alone and so on. But the sorrow is always associated with the past. (Yogeshwar acknowledges.). Then, the future. Then we have fear, which is also a negative emotion. We have fear. But fear is always associated with future. They are both illusion. Time is illusion and illusions are illusion, but they are associated sorrow with past, fear with future. Because we fear that something might happen to us. (Yogeshwar acknowledges.). Maybe we could get hurt or we could lose someone we love, and so on. So fear is associated with future and sorrow with past; and so on and so on.

Actually, always the resistance to accept things as they really are creates the problem. So our resistance to past, creates sorrow. Our resistance to future, creates fear. Our resistance to become open and show up our emotions create boredom – if I am translating right, this. Once you open up to the boredom, then emotion appears. For instance, when you sit in coffee house with your friends and no one opens up to express their feelings, all of a sudden they are all bored. The conversation (?) **[Recording time 81:03]** get bored. But once they accept the boredom without resistance, then the emotion appears. Then the emotion appears and they open up; and so on.

And for the loneliness – we all feel lonely, for instance – now I'll come back later on to this. But once these emotions get integrated in our conscious being...when we recognize and accept them without resistance then they get integrated to our conscious being. Then they become something else which is positive on a certain level. For instance, if we accept our sorrow from the past without resistance then it becomes gratefulness. For instance, I'm sad that I have lost my mother but now I am

grateful that I had such a wonderful person to be my mother. (Yogeshwar acknowledges.). So the sorrow, integrated sorrow becomes gratefulness. Integrated fear becomes joy for life. When you accept your fear from future without resistance, then it is integrated into your conscious being and then you have joy for life. For instance, in these 'luna' parks...in these parks when we have...these amusement parks (Punita acknowledges.), in these amusement parks, in these roller coasters (Punita acknowledges.) you feel fear, a great fear. But then people who come out, they are all laughing. (Punita acknowledges.). They laugh. So fear is connected – so integrated fear is laugh, is joy for life...integrated fear. And finally, integrated loneliness. For the one who has fully integrated his inner most feeling of loneliness, he becomes a leader. He is leader and then other people come to him. For instance – maybe bad example – Fidel Castro. He is clearly a leader. No one ask – you don't perceive him as a lonely person. You never ask whether he has wife or children or mother or father. He is Fidel Castro for you. He is a leader. So he has integrated his feeling of loneliness. This is...

Y: OK. Why were we talking about this? Why did this come up?

B: I got this idea by listening to your articles. (Yogeshwar acknowledges.). As something reminds me, reminded me.

Y: OK.

B: About this magnificence because in this way you are increasing your capacity to perceive the beauty in the world. To perceive this – You begin your article with this statement, "That everything is lit up, everything is" – One of those articles, (Yogeshwar acknowledges.) one of the introductory statements was...sentences was, 'that everything that surrounds us is lighten up', somehow.

Punita: Self luminous.

B: Self luminous; self luminous. Uh huh.

Y: OK. Thank you.

B: Thank you.

Y: I really appreciate your sharing your vast knowledge of this (?) **[Recording time 84:50]**. But let's go over our project on these diagrams. We worked on *Self* for awhile. And then there's different suggestions here. But – did you have one on matter?

Punita: No. I just did that one as a sample.

Y: This one. (Taps finger on board.)

B: Yeah. Just to see if you thought it had any merit before pursuing it in-depth.

Y: I have read it. This is a suggestion on the one on matter. That this be pulled down here – *A is consciousness of a physical particle* – and moved down underneath *A's*

state of enlightenment which is what we're doing. We're defining what he's conscious of there. Then instead of *this*, there is this description, 'That this ellipse is A's direct knowledge of B compared with A's consciousness of a physical particle'.

Punita: But isn't that...

Y: Hmm?

Punita: Isn't that what it says at the bottom right now? 'A's direct knowledge of B compared to it's...'

Y: Yes. It's just been moved up.

Punita: OK.

Y: And, then it says, 'A is conscious of a physical particle and A *knows* that the particle is based on B. So we have then B ●. B ● is not in time or space and has no qualities.' This is Darshana's suggestion. And that that replace all of this.

Punita: OK.

Y: And that's her suggestion. And this is your suggestion on the subject of time. I don't want to get a confusion going here. It's like working with two things at once. But, didn't we...on Self, didn't we come up with some suggestions about it?

Punita: Well, I incorporated those into the new diagram – which I handed out this morning. And I...

Y: Yes, but then we talked about it for a half hour.

Punita: Uh huh. Yes, and some of those...

Y: ...are incorporated in this?

Punita: Into *that*.

Y: But not into the *Self* itself?

Punita: No, because of the difficulty with the self enlightenment that we put into it. But it applies equally so here; into the *Self* diagram.

Y: Well, I think what we'll do...you take the suggestion that she has there (Punita acknowledges.) and type it up, and I'll take a look at this one more carefully. And redo the *Self* one according to the way you're doing it on the *Time* one. And I think we're at the point where I'm going to have to just say, "Let's do it such and such a way." (Punita acknowledges.) That I don't think...unless somebody has something specific to explain, so that I understand what their point is. And I'll have to study (Taps his finger on the board.) them together and we'll settle this before she gets away. (Punita acknowledges.)

Punita: The one thing that...I have a question as to whether we should try to bring out in these diagrams is 'consciousness' as separate from 'the contents of consciousness'.

Y: Well, that's a good way to put it.

Punita: And I was debating whether to try to improve that in that diagram. And I didn't. But...

Y: I think that would make me happy.

Punita: Yes. And – But it's because I think there's...there are two different...

Y: Consciousness is a state that could apply to jillions of contents.

Punita: That's right.

Y: So the content **[Recording time 90:45]** is just an example of contents here.

Punita: But, like in self enlightenment one is conscious and there is no content, no gross content.

Y: No gross contents, yes. (Laughs) But there is content. It's conscious of something.

Punita: Yes, but it's of a very subtle nature.

Y: Yes.

Punita: Whereas, most – Yes, well, when we're talking with...I'll go back to the 'typical reader'. They will always think of consciousness in terms of gross content.

Y: Well, I think I'm going to have to go back to explaining *Matter* first, (Punita acknowledges.) and then *Self*.

Punita: Uh huh. Yeah, I went to *Time* because it was a little simpler...

Y: (?) **[Recording time 91:40]**

Punita: Well, just because it was simpler than *Matter*. But the same things apply.

Y: It's simpler to you. It's not to me. (Punita laughs.)

Punita: OK. It's simpler to draw. Good (?) **[Recording time 91:50]** (All laugh.) Less boxes and things.

B: You have actually same number of boxes here and here. You see? One trapezoid, one trapezoid. One, one, one ellipse, one ellipse. (Laughs).

Punita: Oh, that's *Matter*. No, I was thinking in terms of *Space*. No, I'm sorry. But, uh

– Yes, *Matter*.

B: I'm joking.

Punita: Well, no. That's a good point. I was confused. So it's a matter of...again, I go back to: What are we trying to describe?

Y: Yes. Which are the states of consciousness and their interactions with the knowledge states. And in principle, the result. In principle. The content is almost incidental. Once they catch on.

Punita: Yeah. But...yeah; once they catch on.

Y: We have to have a content though.

Punita: Yeah. And I think clearly to show how the content arises from the states of consciousness. And...

Y: Which arise from...

Punita: And the states of knowledge. (Yogeshwar acknowledges.) Because both factors...isn't true that both factors contribute to the content of the consciousness?

Y: Yes. I think that's a good approach.

Punita: And that's what I'm trying to – I was trying to take a step in that direction.

Y: Yeah. Take a step in that direction. Then I'll take a longer view of it. (Punita acknowledges.) And see if we can settle something down. And see if she has any objections, and Darshana has any objections.

Punita: OK. Yeah.

Y: OK. That's it for today.

Punita: Thank you.

B: Thank you.

B: (talking to Punita) They're beautiful.

Punita: Yeah, the – I'll show you the one – tomorrow; the new version. I think it's heading in the right direction.

Y: It's coming along nicely, I think. It's not a work in trouble. It's a work that's resolving.

Punita: Yeah. Good, I'm glad. 'Because I feel that way. I'm glad that I'm not just deluded. (All laugh.) Wouldn't be the first time. OK. We're done?

Y: That's what the whisky said in the glass. (All laugh). "I'm deluded."