Gilles Deleuze

Seminar on Leibniz: Philosophy and the Creation of Concepts

Lecture 03, 29 April 1980

Translation and supplementary additions from transcript completed from the YouTube video,[1] Charles J. Stivale[2]

Part 1

So, today, our task is to look at some amusing and recreative, but also quite delicate, things. So, I need to have your complete attention for an extended period. First, I have just learned that one of you would like to ask a question on something. So, what is this little question?

A student: The question is when became known, at the end of the 19th century, infinitesimal calculus becomes known in France and in Europe in a general way, a certain number of objections were raised which related to this, that this calculation admittedly made it possible to solve in a simpler way a certain number of geometry problems, for example, to find the tangent of certain curves, the parabola, for example, but that this calculus was very suspicious because it made a certain [*inaudible word*] and quantity, it had no geometric existence and had only a virtual existence. To which the partisans of infinitesimal calculus, Leibniz supporters, the people like [*two indistinct names*] answer that what matters, it is not the quantity dx which was effectively an evanescent quantity (*quantité évanouissante*) with respect to x, or dy with respect to y, but what mattered was the relation of dy to dx. So, the question I would like to ask is: do you see a relationship between this way of looking at a relation that involves unqualified variables, abstract variables? Did you say three months ago about axiomatization and differential calculus as resting on a function, that is, a functional relation which equally bears not on variables, but on relations between variables which in these relations are not qualified [*indistinct words*]. Is this clear?

Deleuze: The question is very clear, very clear. [*Pause*]

The student: If you like, I have the answer.

Deleuze: Ah, fine! [*Laughter*] Ah, fine! Ah, fine! So then, go ahead and answer first. [*Pause*] I have feeling that it won't be the same as mine. We could answer simultaneously, each with a sentence, as you like, as you like. [*Pause*] So, you can answer so no one can say your answer isn't correct. So, you go ahead.

The student: The answer is that I would say that, to a certain extent, yes, but what intervenes with what you have called axiomatic [*indistinct words*], something intervenes which does not intervene in infinitesimal calculus [*indistinct words*], which will be the identification or fusion of two things, the condition and the function, and which operate independently at the end of the 18th century, that for several authors [*indistinct words*], for two authors, [*indistinct words*], that status of the function as condition for Kant, despite what he says about there being as many categories as there are judgments in understanding (*l'entendement*), and on the other hand, for Cuvier, the conception of function or the set of [*indistinct words*] as a condition for the existence of an element. That is to say, contrary to what has been said, Cuvier never believed that, never said that there are four planes in [*indistinct words*]; he always said that there is an abstract plane, this diversity between four modes [*indistinct words*], and this abstract plane is what is said about the function, unlike another plane that was [*indistinct words*] around the same time by other [*indistinct words*]. [4: 00] To me, it seems that there is something missing in infinitesimal calculus for that really to be a functional axiomatic, for that really to bear on variables [*indistinct words*], on relations between variables, this something that is missing being the fusion of [*sneezing blocks words*] as in transcendental philosophy, the function as unity [*indistinct words*], on the condition of experience. For this experience to be possible, for this experience to be possible, one must admit that there is this transcendental aspect which is defined by [*indistinct words*] and by a table of functions. [*Pause*] Is that clear?

Deleuze: Very clear, very clear, very clear. But your answer seems to me much broader than the question, because your answer consists in creating a very complex or mixed up concept of functions. On the concept of function itself, it's very difficult because in your answer, you have at once a logical function of judgment in the Kantian manner, a certain biological function in the manner of Cuvier and the Naturalists, and with implicitly adding the underlying mathematical function. So that creates a very odd concept.

The student: [*Inaudible answer*]

Deleuze: Why not? Why not? [*Deleuze says this in a doubtful tone*] …

The student: [*Several inaudible words*]

Deleuze: As for the question itself, I would say this. [*Pause*] You understand, it seems to me that one cannot say that at the end of the seventeenth century and in the eighteenth century, there were people for whom differential calculus is something artificial and others for whom it represents, in the general sense of representing, something real. We cannot say that because the division, it seems to me, is not there. It isn't there; I am choosing a simple example, someone who believes, leaving this entirely vague, someone who really believes in differential calculus like Leibniz. Leibniz never stopped saying that differential calculus is pure artifice, that it's a symbolic system. So, on this point, everyone is in strict agreement. Where the disagreement begins is in understanding what a symbolic system is, but as for the irreducibility – this, I attempted to say at the last meeting – as for the irreducibility of differential signs to any mathematical reality, that is, to geometrical, arithmetical and algebraic reality, everyone agrees.

Where a difference arises is when some people think that, henceforth, differential calculus is only a convention, a rather suspect one, and others think that its artificial character in relation to mathematical reality, on the contrary, allows it to be adequate to certain aspects of physical reality. Agreed?

The student: That really has some very important consequences because, here … [*The comments are rather difficult to quote precisely; in general, the student indicates that Leibniz's perspective* *in the end, over two centuries, blocked the possibility of thinking of the concept of the infinite in a more open way than according to infinitesimal calculus. The student cites several examples and models from a more current perspective in mathematics*.]

Deleuze: One can imagine what Leibniz would say if he heard that, because Leibniz never – I am also stating a detail that seems to be a pure fact – Leibniz never thought that his infinitesimal analysis, his differential calculus, as he conceived them, sufficed to exhaust the domain of the infinite such as he, Leibniz, conceived it. For example, even at the level of calculus, there's what Leibniz calls – we will consider this a bit today -- calculus of the minimum and of the maximum which does not at all depend on differential calculus. So, differential calculus for Leibniz corresponds to a certain order of infinity. When you demand an qualitative infinity or the possibility of a qualitative infinity by saying the Leibniz shut the door on such an analysis, that seems to be entirely incorrect, this since if it is true that a qualitative infinity cannot be grasped, in fact, by differential calculus, Leibniz is, on the other hand, so conscious of it that he initiates other modes of calculus relative to other orders of infinity. And a second comment that seems to be to be purely a fact, what eliminated this direction of the qualitative infinity, or even simply of actual infinity stated baldly, Leibniz wasn't the one who blocked it off. According to the very examples that you cited, [Spinoza's] "Letter to Meyer", the history of the cone and the circle, the history of everything that could be called the history of the minimum and maximum, in all this history, what blocked this direction, for its own benefit and more, was the Kantian revolution. This was what imposed a certain conception of the indefinite and directed the most absolute critique of actual infinity. This was Kant's fault, what you are saying; this is not at all Leibniz's fault.

The student: [*Inaudible*]

Deleuze: … for the reason that has just been stated, the diabolical character of differential calculus. How can an artifice, how can a convention at the same time be what will allow us to penetrate the secrets of nature itself?

The student: [*Inaudible*]

Deleuze: Obviously not! Obviously not!

The student: [*Inaudible*]

Deleuze: You understand, it seems to me, one has to, in order to understand these problems, once again, it's not that I feel myself in such disagreement with what you are saying; it's that this immediately acquired a very, how to say this, a very abstract dimension, what you are saying. It seems to me that this is correct, not wrong, what you are saying. But we cannot understand this if we do not see at the same time what practical problem this underlies. So, when you ask the question, "what would [Girard] Desargues have said?", a geometrist-mathematician who therefore preceded Leibniz, and who precedes the discovery of differential calculus, what would Desargues have said? First of all, differential calculus.

And historically, I expect this kind of question because there is no moment when there is no differential calculus and then the moment when it appears. When there isn't…

The student: [*He interrupts Deleuze; inaudible*]

Deleuze: When there is no differential calculus, they have a calculus that is used for the same thing, without the symbolic perfection, and that has existed since the Greeks.

The student: [*He continues to make comments while interrupting Deleuze; Deleuze answers him with a very low voice, but the student continues*] … found the tangent of the parabola according to the Leibniz method, but I am persuaded that for Desargues, Pascal or [Philippe de] Lahire, it might have been possible to solve the same problem according to the Greek method by describing relations… [*Inaudible*]

Deleuze: No. [*Pause*] No. [*Pause*]. No. No, no, no. [*The student continues, but Deleuze interrupts him*] With what method? Listen, you are in the process of saying nonsense [*n'importe quoi*]. The geometry problems are very simple. You have two types of problem in the end, at this period, whether it's in the Middle Ages, or with the Greeks. There are two kinds of problems, the problems in which it's a question of finding so-called straight lines and so-called rectilinear surfaces. Classical geometry and algebra were sufficient. You have problems and you get the necessary equations; this is what is called, Leibniz speaks of this, if you will, it's Euclidean geometry. Euclid, Apollonius, an entire direction of geometry. Geometry never stopped being found, already with the Greeks, then in the Middle Ages, also because that gets more and more complicated, confronting a type of problem of another sort: it's when one must find and determine curves and curvilinear surfaces. Where all geometrists are in agreement is in the fact that classical methods of geometry and algebra no longer sufficed.

So, the Greeks, already who are going to deal with these problems, have to invent a special method; this is what has been maintained under the name of the method by exhaustion, this method of exhaustion that enables the determination of curves and curvilinear surfaces in so far as they yield equations of variable degrees, and infinite at the extreme, an infinity of varying degrees in the equation. It's those problems that are going to make necessary and inspire the discovery of differential calculus and the way in which differential calculus takes up where the old method by exhaustion left off. If you already connect a mathematical system, a mathematical symbolism to a theory, if you don't connect it to the problem for which it is created, then at that point, you can no longer understand anything. That's why I insist enormously on the following point: differential calculus makes sense only if you have and if you place yourself before an equation in which the terms are raised to different powers. It is not a question of… If you didn't have equations whose terms are of different powers, of the x squared y, if you don't have that, then it's nonsensical to speak of differential calculus. It's not even a question of this symbolism being created; that would be non-sensical, that would be non-sensical.

And it's very fine to consider the theory that corresponds to a symbolism, or is implied by a symbolism, but you must also completely consider the practice. What practice? When you refer to Desargues, it's obvious that what does Desargues need and in relation to what? In fact, he already needs a symbolism that he is required to create. It's because the method of exhaustion is not adequate for him. This is precisely for problems of stone carving, in general, problems of rounding off, problems of vaulting, how to make a vault from these? There is an entire practice there. And infinitesimal analysis, one can't understand anything if one doesn't see that precisely – this is why I am insisting enormously on this point – that all physical equations are by nature differential equations. A physical phenomenon can only be studied, and here, Leibniz will be very firm, you understand, because Leibniz's entire topic will be: Descartes only had geometry and algebra, and what Descartes himself had invented under the name of analytical geometry, but however far he went in that invention, it gave him at most the means to grasp figures and movement, and yet, figures and movement, of a rectilinear kind.

And with the aggregate of natural phenomena being, after all, phenomena of the curvilinear type, that doesn't work at all. Descartes remained stuck on figures and movement. Leibniz will translate: it's the same thing to say that nature proceeds in a curvilinear manner or to say that, beyond figures and movement, there is something, namely, the domain of forces, and on the very level of the laws of movement, Leibniz is going to change everything, thanks precisely to differential calculus. When he eventually says – we will see this later – when he says that what is conserved is not mv, not mass and velocity, but it's mv2, to understand nothing but that when this topic is discovered, the only difference in the formula being the extension of v to the second power. This is made possible by differential calculus because differential calculus allows the comparison of powers and of rejects [*rejets*]. So, that that point, one must not even say, why didn't Descartes see that what was conserved was mv2? Why did he believe that it was mv? Obviously, Descartes didn't have the technical means to say mv2. It wasn't possible. From the point of view of language, both of geometry and of arithmetic and of algebra, mv2 is pure and simple non-sense.

So, today, everything changes. With what we know in science today, we can always explain that what is conserved is mv2 without appealing to any infinitesimal analysis. That happens in high school texts, but to prove it, and for the formula to make any sense, for the formula to be anything other than non-sense, an entire apparatus of differential calculus is required. But, then, there we are. Fine.

Georges Comtesse: [*Inaudible intervention, from* 20 :45-23 :20] [*At the beginning, Deleuze tells him:* Ah, right, I forgot that.]

Deleuze: Listen, why not? Why not? But I kind of have to make the same demand that I made earlier. While you create a very interesting theoretical framework, you need to acknowledge that it's a fact, in the domain of differential calculus and the axiomatic, the fact on which I need to insist, on an historical fact, which is this: differential calculus and the axiomatic certainly have a point of encounter, but this is one of perfect exclusion. I mean that, historically, what's called, what certain historians of mathematics call the rigorous status of differential calculus arises quite belatedly. The rigorous status of differential calculus, what does that mean? It means that everything that is convention or at least, everything, no, let's say, let's keep the very vague word "convention," is expelled from differential calculus. And what is convention even for Leibniz, what is artifice in differential calculus? What artifice is, is an entire aggregate of things: the idea of a becoming, the idea of a limit of becoming, the idea of a tendency to approach the limit, all these are considered by mathematicians to be absolutely metaphysical notions. The idea that there is a quantitative becoming, the idea that there is a limit of this becoming, the idea that an infinity of small quantities tends toward the limit, all these are considered as absolutely impure notions, thus as really non-axiomatic or non-axiomatizable.

So, from the start, I tell myself, whether in Leibniz's work or in Newton's and the work of his successors, the idea of differential calculus is inseparable and not separated from a set of notions judged not to be rigorous or scientific, and they themselves are quite prepared to recognize it. So, what happened? It happens that at the end of the nineteenth and the start of the twentieth century, differential calculus or infinitesimal analysis is said to receive a rigorously scientific status, but at what price? We hunt for any reference to the idea of infinity; we hunt for any reference to the idea of limit; we hunt for any reference to the idea of tendency toward the limit. Who does that? That is, an interpretation and a rather strange status of calculus will be given because it stops operating with ordinary quantities, and its interpretation will be purely ordinal. Henceforth, that becomes a mode of exploring the finite, the finite as such. The entire interpretation of calculus is changed. It's a great mathematician, [Karl] Weierstrass, who did that, but it came rather late, to the point that, in an axiomatic then… He creates an axiomatic of calculus, but at what price? He transforms it completely. To the point that, today, when we do differential calculus, there is no reference to the notions of infinity, of limit and of tendency of approaching the limit, no longer any reference to those things. There is a static interpretation. There is no longer any dynamism in differential calculus, but a static and ordinal interpretation of calculus. This is Weierstrass's great victory, a static and ordinal interpretation of calculus. For those who might be interested in this, you'll find there is a book that, at the end, includes appendices, there's an entire appendix at the back of the book, on the way in which current interpretation of differential calculus does without any reference to notions of infinity or of the infinitely small. This is [Jules] Vuillemin's book, *La philosophie de l'algèbre*.[3]

So, it seems to me that his fact is very important for us because it must certainly show us that the differential relations… -- Moreover, here, even before the axiomatization, all mathematicians agreed in saying that differential calculus, interpreted as a method for exploring the infinite, was an impure convention. And once again, I never stop saying this, Leibniz was the first to say that, but only, we still have to know then what the symbolic value is. But, from the point of view and in the new sense that the axiomatic gives to the symbolic, if this whole domain, this whole impure domain is expelled, I can then really say, the axiomatic, axiomatic relations and differential relations, well no. They absolutely have to… I recall a mathematician from the 19th century, for example, who again says, this is an expression that… He says, yes, differential calculus has always been a Gothic hypothesis, a Gothic hypothesis. There is no greater insult for a mathematician, a Gothic hypothesis, and on this point, until calculus receives… [*Deleuze does not finish the sentence*][4]

And in this sense, I am saying, there is an opposition, there is an opposition between differential relations such as they are interpreted at the end of the 19th century, and the requirements of an axiomatic. So, that does not prevent, in fact… why? Because infinity has completely changed its sense, its nature, and in the end, calculus is completely expelled. So, what you are saying is quite possible, but on the condition, almost that you manage to show, it seems to me, that point on which rests the opposition between an aggregate of axiomatic relations and differential relations.

So, I indeed, indeed, I just have here a vague idea, but finally… If you will, it seems to me that a differential relation of the type dy over dx is such that one extracts it from x and y. Fine. At the same time, dy is nothing in relation to y, it's an infinitely small quantity; dx is nothing in relation to x, it's an infinitely small quantity in relation to x. On the other hand, dy over dx is something, but it is something completely different from y over x. For example, if y over x – as you stated it very well – if y over x designates a curve, dy over dx designates a tangent. And what's more, it's not just any tangent. Fine.

I would say therefore that the differential relation is such that it no longer signifies anything concrete, it signifies nothing concrete in relation to what it's derived from, that is, in relation to x and to y, but it signifies something else concrete (*autre chose de concret*), and that is how it assures passage to the limits. It assures something else concrete, namely a z.

The previous student: [*Inaudible*]

Deleuze: Certainly not. Oh, don't complicate things. I am not saying that this is necessarily [*indistinct word*]. [*Pause*] Understand? It's exactly as if I said that differential calculus is completely abstract in relation to a determination of the type a over b, but on the other hand, it determines a c. Whereas the axiomatic relation, no. The axiomatic relation is completely formal from all points of view, from all points of view. If it is formal in relation to a and b, it does not determine a c that would be concrete for it. So, it doesn't assure a passage at all. This would be the whole classical opposition between genesis and structure. The axiomatic is really the structure common to a plurality of domains, a structure common to a multiplicity of domains. Differential calculus, in the old style… [*Deleuze is interrupted*]

The student: [*Inaudible; Deleuze answers while he speaks:* Agreed, agreed.]

Deleuze: … a bit like, but the difference is more important than the similarity, it seems to me. [*Pause*] Fine, so let's go on. [*Pause*]

Well then, well then, well then, the last time, you perhaps recall, we were considering my second topic heading, and this second heading dealt with "Substance, World, and Compossibility." And we had seen the first part of this great heading. And in the first part, I tried to say, what does Leibniz call infinite analysis? And the answer was this – our answer, but we did a lot of searching – our answer was this: infinite analysis concerns this or else it fulfills the following condition: it appears to the extent that continuity and small differences or vanishing differences are substituted for identity. It's when we proceed by continuity and vanishing differences that analysis becomes properly infinite analysis. So, we tried to explain why, and I won't go back over that.

And I arrive at the second aspect of the question; henceforth, notice, there would be infinite analysis and there would be material for infinite analysis when I find myself faced with a domain that is no longer directly governed by the identical, by identity, but a domain that is governed by continuity and vanishing differences. We reach a relatively clear answer.

Hence the second aspect of the problem: what is compossibility? What does it mean for two things to be compossible or non-compossible? And there, we indeed see what that problem is connected to. Yet again, Leibniz tells us that Adam non-sinner, an Adam who might not have sinned, is possible in itself, but not compossible with the existing world. So, he makes a claim for a relation of compossibility that he invents, and you sense that it's entirely linked to the idea of infinite analysis. Fine, but one would have to prove this, one would have to… Why? Where is the problem? The problem is that the incompossible, at first glance, cannot be the contradictory; it is not the same thing as the contradictory. [*Pause*] In fact, and however, and however, it's complicated because, once again, you maintain the example. Adam non-sinner is incompossible with the existing world; another world would be required. Fine. I see only three possible solutions; if we say that, I only see three possible solutions for trying to characterize the notion of incompossibility.

First solution: we'll say that, one way or another, incompossibility has to imply a kind of logical contradiction. In a pinch, you'll grant me that, it's necessary, yes, that means a contradiction would have to exist finally between Adam non-sinner and the existing world. [*Pause*] Can we indeed follow this path? Yes, at first glance, you can still grant me this, you can still grant me this, a contradiction would exist between Adam non-sinner and the existing world, only we could identify this contradiction only to infinity; it would be an infinite contradiction. Whereas there is a finite contradiction between circle and square, there is only an infinite contradiction between Adam non-sinner and the world. We can still say that.

Certain texts by Leibniz move in this direction. But, yet again, we know already that we have to be careful about the levels of Leibniz's texts. In fact, everything we said previously implied that compossibility and incompossibility are truly an original relation, irreducible to identity and contradiction. Contradictory identity. Furthermore, we saw that infinite analysis, in accordance with our first part, we saw that infinite analysis was not an analysis that discovered the identical as a result of an infinite series of steps. In fact, the whole outcome the last time was that, far from discovering the identical at the end of a series, at the end of an infinite series – already, that means nothing; it's non-sense -- at the limit of an infinite series of steps, far from proceeding in this way, infinite analysis substituted the point of view of continuity for that of identity. So, it's another domain than the identity/contradiction domain.

Another solution – but then, I will state this rapidly because certain of Leibniz's texts suggest it as well -- it's that all this is beyond our understanding because our understanding is finite, and henceforth, compossibility, this time, would be an original relation, but we could not know what its roots are. The roots of this relationship would elude us. The basis of this relationship would elude us. Fine. Of course, neither of the two directions can satisfy us. So, it's very simple. We demand a specificity of the relation of compossibility and incompossibility, a proper nature for this relation, which is linked at the same time to the nature of the infinite analysis, that is, to all that we have seen previously on the continuous and vanishing differences.

And I wonder -- and this is where I wanted to start from – we wonder which way to go? What is he going to provide us with? But it gets interesting, he invents a new type of relation, the compossible and the incompossible. It gets very rich because he can ... you see, henceforth, the whole range of objections, criticisms that he can give himself in relation to earlier philosophies.

He said, oh yes, the others, what did they grasp? Some of them believed that everything was necessary; others saw that there was the possible and the necessary; but Leibniz says, I am bringing you a new domain. There is not solely the possible, the necessary and the real. There is the compossible and the incompossible. He was attempting to cover an entire region of being.

Discovering that, for a philosopher what does that mean? That implies at least that he is not satisfied to tell us, I don't know where that comes from. He can say it without a text, ah well yes, that's beyond our understanding; he can say this as if in passing. But he indeed has to take this on once and for all. So there, what bothers me is that… Here is the hypothesis that I'd like to suggest: that, on one hand, Leibniz is a busy man because he writes in all directions, all over the place, he does not publish at all or very little during his life. Leibniz has everything there, all the elements, all the material, all the details to give a relatively precise answer to this problem. Necessarily so since he's the one who invented it, so it's him who has the solution. So, what happened for him not to have put all of it together? What's the cause of that?

Here's the hypothesis I'd like to suggest; I am stating it, I'm trying to hurry it up because we have to proceed in proper order given that, once again, this story is so delicate and amusing. I think that what will provide an answer to this problem, at once about infinite analysis and about compossibility, is a very curious theory that Leibniz was no doubt, perhaps, the first to introduce into philosophy, that we could call the theory of singularities. For Leibniz's work, the theory of singularities, which is scattered, which is everywhere – I cannot cite a single book where it's doesn't exist… it's everywhere, it's everywhere -- one even risks reading pages by Leibniz without seeing that one is fully in the midst of it, that's how discreet he is or how much he inhabits it at certain moments.

The theory of singularities appears to me to have two poles for Leibniz, and one would have to say that it's a mathematical-psychological theory, hence, you see, our purpose today, our work today that would be, if I try to enumerate fully, that would be: what is a singularity on the mathematical level? What is this strange notion, singularity, singularity for mathematicians? [*Pause*] And what does Leibniz manage to create in all this? What does he create in all that? Is it true that he creates the first great theory of singularities in mathematics? Second question: what is then that's something absolutely new, the Leibnizian psychological theory of singularities, of psychological singularities? [*Pause*]

And the last question – so that gives us three questions for today, that's a lot – the last question: to what extent does the mathematical-psychological theory of singularities, as sketched out by Leibniz, help us answer the question: what is the compossible, what is the incompossible, and definitively, what is infinite analysis? [*Pause*] There we are. Well then, that's all that I'd like for us to do.

For, in fact then, I begin with the first point. What is this mathematical notion of singularity? And what makes it interesting, and why did it disappear? It seems to me, it's too bad… we'd have to see; it's often like that at times in philosophy: there is something that emerges at one moment and will be abandoned. It seems to me that this is the very beautiful case of a theory that was really more than outlined by Leibniz, and then there was no follow-up, as if there was a chance there, and then… Is there a way today to come back to it? Wouldn't it be interesting for us, and why would that be interesting?

I am saying here that I am still divided about two things in philosophy: the idea that philosophy does not require a special kind of knowledge, that really, in this sense, anyone is open to philosophy, and at the same time, that one can do philosophy only if one is sensitive to a certain terminology of philosophy, and that you can always create it -- good terminology is by nature always created, but you cannot create it by doing just anything. That's why, in my view, what does not exists, although apparently that exists, a dictionary of philosophy would be a very, very important thing – I believe that it's very difficult to create philosophy if you don't know what terms like these are: categories, concept, idea, a priori, a posteriori, exactly like one cannot do mathematics if one does not know what a, b, x, y, etc., variables, constants, equations are; there is a minimum. And I notice that, perpetually, logic… But don't be concerned; at the same time, you can learn it bit by bit. It's just that you will not create philosophy if you do not attach importance to those points.

Singular, where does that come from? The singular has always existed in a certain logical vocabulary. Only, in what sort of relation is the singular? That's already interesting; that's something for you to consider. "Singular" designates through difference from and, at the same time, in relation to "universal." Why do I feel compelled to say that? Because there is another pair of notions, there is a doublet, there are a couple of notions, it's "particular" that is stated with reference to what? Which is stated in relation to "general." If you confuse everything, you will employ "particular" and "singular" as equivalent, "general" and "universal" as equivalent. At that point, it's not bad, it's not bad, it's not difficult, all that, but one must reflect on the singular and the universal. These are in relation with each other; the particular and the general are in relation. What is a judgment of singularity? It's not the same thing as a judgment called particular, nor the same thing as a judgment called general.

There we have it, generally, no matter; I am not developing this because that's not what concerns me. I am only saying, formally, "singular" was thought, in classical logic, with reference to "universal." And that does not necessarily exhaust a notion: when mathematicians use the expression "singularity," with what do they place it into relation? Here, we must be guided by words… [*Interruption of the recording*] [46:39]

Part 2

[*Text furnished by Web Deleuze*]: There is indeed a philosophical etymology, or even a philosophical philology. "Singular" in mathematics is distinct from or opposed to] "regular." The singular is what is outside the rule. Fine, we don't seem to be saying much of anything. There is another pair of notions used by mathematicians, and here, in contrast to what I just said, but for some obvious reasons, I am going to confuse them: it's "remarkable" and "ordinary." [*Pause*] You have "singular"-"regular", "remarkable"-"ordinary". These are not entirely the same thing since mathematicians tell us that there are remarkable singularities and singularities that aren't remarkable. But for us, out of convenience, grant me that because Leibniz does not yet make this distinction between the non-remarkable singular and the remarkable singular. Leibniz uses "singular," "remarkable," and "notable" as equivalents, such that when you find the word "notable" in Leibniz in a text, even quite rapid, tell yourself that necessarily there's a wink, that it does not at all mean "well-known". When he says something is "notable", he enlarges, he literally enlarges the word with an unusual meaning. You will ask me, why doesn't he warn us? If he warned us from the start, this style would not exist; warning is not what concerns him. When he talks about a notable perception, tell yourself that he is in the process of saying something.

What interest does this have for us? You have to understand this: it's that mathematics already represents a turning point in relation to logic. The mathematical use of the concept "singularity" orients singularity in relation to the ordinary or the regular, and no longer in relation to the universal. We are invited to distinguish what is singular and what is ordinary or regular. What interest does this have for us? Understand, if someone tells me one day, suppose someone – we might wonder, who could say that? – but suppose someone tells me: philosophy isn't doing too well because the theory of truth in thought has always been wrong. We've always been wrong because, above all, we've always asked what in thought was true, what was false. And, you know, suppose there is this anonymous voice, filtered through my own, that's not what matters; in thought, it's not the true and the false that matter, it's the singular and the ordinary.

What is singular, what is remarkable, what is notable in a thought? Or what is ordinary, and what does it mean that there would be something ordinary? I think of someone who had nothing to do with mathematics, who came much later, who was called Kierkegaard and who, much later, would say that philosophy has always ignored the importance of a category, that of the interesting! What is the interesting? [*Pause*] Suddenly, it's perhaps not true that philosophy ignored it. There is at least a philosophical-mathematical concept of singularity that perhaps has something interesting to tell us about the concept of "interesting." Fine, it's precisely that.

This great mathematical discovery is that singularity is no longer thought in relation to the universal, but is thought, rather, in relation to the ordinary or to the regular. The singular is what exceeds the ordinary and the regular. You will tell me, that does not go very far. Yes, it does. Saying this already takes us a great distance since saying it indicates that, henceforth, we wish to make singularity into a philosophical concept, even if it means finding reasons to do so in a favorable domain, namely mathematics.

And in which case does mathematics speak to us of the singular and the ordinary? [*Pause*] The answer is simple, immediately – I am saying some very, very simple things on purpose -- concerning certain points plotted on a curve. Not necessarily on a curve, we will see later, but notably, concerning certain points plotted on a curve or placed onto a curve, or else, let's say, generally concerning any figure. A figure can be said quite naturally, I believe that it's necessary, but one can say that a figure includes singular points and others that are regular or ordinary. Why a figure? Because a figure is something determined! So the singular and the ordinary would belong to the determination, and indeed, that would be interesting! You see that by dint of saying nothing and marking time, we make a lot of progress. Why not define determination in general? It's very difficult to define determination in general. I tell myself, hey, can't we define determination in general by saying that it's a combination of singular and ordinary, and every determination would be like that? Fine, perhaps, right?

But then, in what… We are going very, very slowly. I take a very simple figure: a square. [*Pause*] Your very legitimate requirement would be to ask me: what are the singular points of a square? Not difficult, there are four singular points in a square, there are four. [*Pause*] You see, the four vertices a, b, c, d. [*Pause*] Fine, we are going to try to define a notion, to define singularity, but we remain with examples so that, really… Here, we are making a childish inquiry; I insist on this: we are talking mathematics, but we don't know a word of it. We only know that a square has four sides, so there are four singular points that I can call, to use a more complicated term, that are the *extremum, extremum.* There are four *extremum*. – You are going to see why; I am acting like a clown in saying this because I need this term; you are going to see why -- These points are those marking precisely that a straight line is finite (*finie*), and that another begins, with a different orientation, at 90 degrees. What will the ordinary points be? This will be the infinity of points that compose each side of the square; but the four extremities will be what are called singular points. [*Pause*] All ok? Fine.

[Here's a] question: How many singular points do you give to a cube? [*Pause*] I see your vexed amazement! [*Laughter*] [*Someone responds, inaudibly*] There we are! Very good! – I am disappointed; I was hoping you'd tell me twelve! [*Laughter*] -- There are eight singular points in a cube. There we are, if you have already understood that, you've understood a great deal. That is what we call singular points in the most elementary geometry: points that mark the extremity of a straight line. You sense that this is only a start.

I would therefore oppose singular points and ordinary points. [*Pause*] An effort: A curve. [*Pause*] Ah, good, a curve, a rectilinear figure – here is my question, and through it, we come back to a comments made earlier, about what was said in the introduction – a rectilinear figure, perhaps, we'd have to reflect, but perhaps can I say a rectilinear figure that singular points are necessarily the *extremum*? Maybe not; you'll have to see; let us assume that at first sight, I can say something like that. For a curve, it's ruined. Let's take the simplest example: an arc of a circle -- There, I've had enough of the blackboard, so here I will just draw figures in the air; you can follow me fine -- I make an arc of a circle, like that; so, that depends on where I would place the ordinate, concave, as you wish, concave or convex. Underneath, I make a second arc, convex if the other is concave, concave if the other is convex. You see? You see, right? [*Laughter*] Both meet one another at a point. Underneath I trace a straight line that, in accordance with the order of things – I'll drag myself to the blackboard I you wish, but it's really a pain -- I call the ordinate. I am tracing the ordinate. [*Deleuze turns to the blackboard*] I draw my lines perpendicular to the ordinate, you see. … [*Pause while Deleuze moves to the board; laughter from students*] There's no chalk! There's no chalk! … Oh, là, là… [*Pause*]

So, I'm writing it very small, eh? I'm happy to make a drawing, but on condition that [*inaudible because of the voices*] [*Pause*] It's not bad, eh? [Deleuze draws while commenting] A-B, X-Y, you see? Understood? A-B there, X-Y there, there, there, there. [*Pause*] A-B, A-B, A-B, in relation -- follow me closely -- A-B, where is it? It's at the encounter point between the two circles meet, the two arcs on the ordinate. A-B, this is the longest segment in relation to this arc, and it is the shortest in relation to the other. [*Pause*] Understand? Excellent. [*Pause*] Second point: this is the shortest or the longest, as you wish. It all depends on whether you took the concave arc or the convex arc. [*Pause*] Second characteristic: this is the only one that is unique, this is the only segment that is unique. It's simple, you can't say that, but it's interesting.

Here I have to indicate, just so I won't appear to be wasting your time, that this is Leibniz's example, in a text with the exquisite title, "Tentamen anagogicum",[5] a tiny little work seven pages which is a master work, and which means in Latin "analogical essays."

So, I am saying two things: Segment ab thus has two characteristics: it's the only segment raised from the ordinate to be unique. Each of the others has, as Leibniz says, a double, its little twin, he even says this. In fact, xy has its mirror, its image in x'y', and you can get closer through vanishing differences of ab, there is only ab that remains unique, without twin. Second point: ab can also be considered a maximum or a minimum, [*Pause*] maximum in relation to one of the arcs of the circle, minimum in relation to the other. Ouf, you've understood it all. I'd say that ab is a singularity.

Why have I introduced this example? To complicate matters a bit. I have introduced the example of the simplest curve: an arc of a circle. In what way have I complicated this a bit? Because what I showed was that a singular point is not necessarily connected, is not limited to the *extremum*. It can very well be in the middle, and in that case, it is in the middle. And it's either a minimum or a maximum, or both at once. Hence the importance, perhaps you sense this, of a calculus that Leibniz will contribute to extending quite far, that he will call calculus of, in Latin as well, of *maximis* and of *minimis*, calculus of maximums and minimums, and then still today, this calculus has an immense importance, for example, in phenomena of symmetry, in physical and optical phenomena. In optical phenomena, calculus of maximums and minimums has a very, very great importance. I would say there we have a singular point; my point A is a singular point; all the others are ordinary or regular. They are ordinary and regular in two ways: [*Pause*] first, they are below the maximum and above the minimum, and second, they exist doubly. Thus, we can clarify somewhat this notion of ordinary. It's another case. I started off from the square, there, and we are in arcs of the circle. It's another case; it's a singularity of another case.

A new effort: take a complex curve. A complex curve will be what? Here as well, this does not have to concern very, very difficult things. What will we call singularities? It has singularities; a complex curve is defined by its singularities. What are the singularities of a complex curve, in simplest terms? In simplest terms, these are neighboring points of which – hey, this is excellent! By saying some very simple and some very dim things, you understand? We are in the process of gathering lots of things as regards construction of a mathematico-philosophical concept – neighborhood, a singular point has a neighborhood. No matter how little you are familiar with mathematics, you know that the notion of neighborhood is very different from contiguity, is a key notion, for example, in the whole extremely rich domain of mathematics, namely, of topology, and it's the notion of singularity that is able to help us understand what neighborhood is. Thus, in the neighborhood of a singularity, something changes, that is, the curve grows, or it decreases. [*Pause*] A curve has moments… You see, I am not creating the drawing; [the curve] grows or it decreases. These points of growth or decrease; I will call them singularities. The ordinary is what? It's the series, that which is between – you see, we're making progress – the ordinary is what is between two singularities; that goes from the neighborhood of one singularity the neighborhood of another singularity, of the ordinary or the regular. This seems essential to me.

Understand? This domain is completely, in relation to classical philosophy, completely … fine. I've already said too much about it; I will take advantage in order to say, suddenly, why? Henceforth, we grasp some of these relations, some very strange nuptials: isn't "classical" philosophy's fate relatively linked, and inversely, to geometry, arithmetic, and classical algebra, that is, to rectilinear figures? You will tell me that rectilinear figures already include singular points, agreed, but understand, once I discovered and constructed the mathematical notion of singularity, I can say that it was already there in the simplest rectilinear figures. Never would the simplest rectilinear figures have given me a consistent occasion, a real necessity to construct the notion of singularity. It's simply on the level of complex curves that this becomes necessary. Once I found it on the level of complex curves, now there, yes, I back up and can say: ah, it was already an arc of a circle, it was already in a simple figure like the rectilinear square, but before you couldn't.

The student in math [*from the start of the session*]: [*Brief inaudible comment*]

Deleuze [*in a rasping voice*] … Spare me (*Pitié*)… My God… He broke me since… [*Laughter*] You know, speaking is a fragile thing; speaking is a fragile thing. [*Pause; Deleuze's voice is almost at the level of a whisper; the class is extremely silent*] Yes, in the end, one might as well answer that with the method of exhaustion and apply the method of exhaustion which was a pre-differential method. [*Pause*] No, it's… I don't know any more.

The student: [*Inaudible; he tries to continue speaking but Deleuze stops him, yelling at him*]

Deleuze [*yelling*]: Ah, spare me, spare me, spare me. [*Pitié, pitié, pitié*] Ah, no, listen, I'll let you talk for an hour when you want, but not now… Oh, là, là… This is a hole [in memory] [*Pause while Deleuze seems to regroup himself somewhat; someone says something to him, and he answers*] Ah, no, ah, no, it's what's in my head…

Fine, listen. I will read to you a small, late text by a well-known mathematician named [Henri] Poincaré that deals extensively with this topic of the theory of singularities that will be developed during the entire eighteenth and nineteenth centuries. In scientific works, since there are two kinds of undertaking by Poincaré, logical and philosophical projects, and mathematical ones since he is above all a mathematician, there is an essay by Poincaré on differential equations. I am reading just a part of it because his essay addresses the kinds of singular points in a curve referring to a function or to a differential equation. He tells us that there are four kinds of singular points, four kinds of singular points; they're very important, the names he will attribute to them: first, crests [*cols*], crests, a geographical term, crest. These are points through which two curves defined by the equation pass, and only two. Here, the differential equation is such that, in the neighborhood of this point, the equation is going to define or going to cause two curves and only two to pass; the crest, through which pass two curves defined by the equation, and solely two. That's one kind of singularity.

The second type of singularity: knots, knots, in which an infinity of curves defined by the equation come to intersect. The third type of singularity: thresholds [*foyers*], around which these curves turn while drawing closer to them in the form of a spiral. [*Pause*] Finally, the fourth type of singularity: centers, around which curves appear in the form of a closed circle, centers around which curves appear in the form of a closed circle. And Poincaré explains in the sequel to the essay that, according to him, one great merit of mathematics is to have pushed the theory of singularities into relationship with the theory of functions or of differential equations.

Why do I quote this example from Poincaré? It's because already, you could find equivalent notions in Leibniz's works. Here an already very curious terrain appears, with crests, thresholds, centers, truly like a kind, we don't know what to say, a kind of astrology of mathematical geography. I am presenting this example because, you see that we went from the simplest to the most complex; I mean, on the level of a simple square, of a rectilinear figure, singularities were *extremum*; on the level of a simple curve, you have singularities that are even easier to determine, for which the principle of determination was easy. The singularity was the unique case that had no twin, or else was the case in which the maximum and minimum were identified. There you have more and more complex singularities when you move into more complex curves. Therefore, it's as if the domain of singularities is infinite, strictly speaking.

What is the formula going to be? Here I request that we go quickly because you will see how this is constructed. I am returning to the topic from earlier. As long as you are dealing with problems considered as rectilinear, that is, in which it's a question of determining right angles or rectilinear surfaces, you don't need differential calculus. You need differential calculus when you find yourself faced with the task of determining curves and curvilinear surfaces. What does that mean? This is not by chance. It's that the singularity – it's the only thing that I am saying about differential calculus -- in what way is the singularity linked to differential calculus? It's that the singular point is the point in the neighborhood of which the differential relation dy/dx changes its sign. For example: vertex, vertex relative to a curve before it decreases, before it descends, so you will say that the differential relation changes its sign. It changes its sign at this spot, but to what extent? Here, it's very well explained in all the textbooks: to the extent that it becomes equal; in the neighborhood of this point, it becomes equal to zero or to infinity. It's the theme of the minimum and of the maximum that you again find there. No matter.

I just want to say, here is the aggregate. This whole aggregate that I've just tried to present with this aggravating outpouring consists in saying: look at the kind of relationship that we have between singular and ordinary, such that you are going to define the singular as a function of curvilinear problems in relation to differential calculus, and in this tension or this opposition between singular point and ordinary point, or singular point and regular point. That's it, let's say, this is what mathematicians provide us with as basic material, and yet again if it is true that in certain cases, in the simplest cases, the singular is the extremity, in other simple cases, it's the maximum or the minimum or even both at once. Singularities there develop more and more complex relations on the level of more and more complex curves.

There we are, let's assume that there is nothing else; I retain the following formula: a singularity is a point in the neighborhood of which – this is, almost, yes, what one must retain – a singularity plotted or moved onto a curve, or determined on a curve, is point in the neighborhood of which the differential relation changes its sign, and the singularity, the singular point's characteristic is to extend itself (*se prolonger*) over the whole series of ordinary points that depend on it all the way to the neighborhood of the subsequent singularity. So, I maintain that the theory of singularities is inseparable from a theory or an activity or a technique of extension.[6] So, understand, this is going to create a great step forward for us.

Wouldn't these be henceforth a possible definition, or elements for a possible definition of continuity? It wouldn't be easy to define continuity especially in relation with points. I'd say that continuity or the continuous – I'm saying this casually, to have… -- continuity or the continuous is the extension of a remarkable point onto a series of ordinaries, of a singular point onto a series of ordinaries, all the way into the neighborhood of the subsequent singularity. Suddenly I'm very pleased! I'm extremely pleased because, at last, I have a kind of definition, even if it doesn't satisfy us, even if we're forced to revise it, I have an initial hypothetical definition of what the continuous is. And notice that it's all the more bizarre since, in order to reach this definition of the continuous, I used what apparently introduces a discontinuity, notably a singularity in which something changes. And rather than being the opposite, it's the discontinuity that provides me with this approximate definition. As long as I can extend a singularity, it's continuous. Good, so here we are. That's all for the mathematical domain.

I pass to the other domain because, while pretending that there is no relation, and you certainly sense that for Leibniz, things don't work that way, that there are obviously relations between the two domains. This time, it's the psychological domain. [*Pause*] And Leibniz tells us, in the end, he tells us something already very odd. He says, well yes, everyone, we all know that we have perceptions, that for example, I see red, it's qualitative, I see red; I hear the sound of sea, a theme that returns constantly in his works, I hear the sound of the sea; seated on the beach, I hear the sound of the sea. And then, I see red, and there we are, all that, and these are perceptions. Moreover, he says, we should reserve a special name for them, we'll see why, because they are conscious. This is perception endowed with consciousness, perception endowed with consciousness, that is, perception perceived as such by an "I"; we call it apperception, like a-perceiving (*apercevoir*). For, in fact, this is *perception* that I perceive. So, let's reserve a special name for it, apperception; apperception signifies a conscious perception.

And Leibniz tells us the following, which at first glance nonetheless seem very strange, very… One tells oneself, why not, but why? There really have to – and again, this is the cry, so this is the cry that animates the concept -- henceforth there really have to be unconscious perceptions that we don't perceive. These unconscious perceptions that we do not perceive will be called "small perceptions", small perception; we don't perceive them. You understand that this is very important because these are unconscious perceptions. Why is this necessary? Why necessary?

Oddly, Leibniz will give us two reasons; and these are two reasons, you see, that goes so much without saying, but I would like to do the same thing here, to state for singularities some things so obvious that… Sometimes in texts, he gives them together, but in fact, there are two reasons: it's that we perceive our apperceptions, our conscious perceptions, these are always global. What we perceive is always a whole, whether this whole is relative, whether it is changing. What we grasp through conscious perception is relative totalities. And it is really necessary that parts exist since there is a whole, and that's a line of reasoning that Leibniz constantly follows: there has to be something simple if there is something composite; he raises this into a grand principle; and still, it doesn't go without saying; do you understand what he means? He means that there is no indefinite, and that goes so little without saying that it implies the actual infinite. There has to be something simple since there is something composite. There are people who will think that everything is composite to infinity, and they will be partisans of the indefinite, but for other reasons, Leibniz thinks that the infinite is actual, so he indeed has to say that. Henceforth, we have to, since we perceive the global noise of the waves when we are seated on the beach, we have to have small perceptions of each wave, as he says in summary form, and moreover, of each drop, each drop of water. You will ask me, why? It's a kind of logical requirement, and we shall see what he means.

The same line of reasoning, and here I insist, on the level of the whole and the parts, he pursues it on the level, this time, not by invoking a principle of totality, but a principle of causality: what we perceive is always an effect, so there have to be causes. These causes themselves have to be perceived; otherwise the effect would not be perceived. In this case, the tiny drops are no longer the parts that make up the wave, nor the waves the parts that make up the sea, but they intervene as causes that produce an effect. You will tell me that there is no great difference here, but let me point out simply that in all of Leibniz's texts, there are always two distinct arguments that he is perpetually trying to make coexist: an argument based on causality and an argument based on parts, not the same thing. A cause-effect relation and part-whole relation. These cannot at all be entirely the same; we are going to see the problems. Fine.

So, this is how our conscious perceptions bathe in a flow of small perceptions, of unconscious small perceptions. What can that mean? On one hand, this has to be this way, this has to be this way logically, in accordance with the requirement of principles, but the great moments occur when experience comes to confirm the requirement of great principles. When the coincidence, the very beautiful coincidence of principles and experience occurs, philosophy knows its moment of happiness, even if it's personally the misfortune of the philosopher. And at that moment, the philosopher says: everything is fine, as it should be. So it is necessary for experience to show me that under certain conditions of disorganization in my consciousness, small perceptions force open the door of my consciousness and invade me. When my consciousness relaxes, I am thus invaded by small perceptions that do not become for all that conscious perceptions; they do not become apperceptions since they only invade my consciousness when my consciousness is disorganized.

At that moment, a flow of small perceptions invades me, unconscious small perceptions. It's not that they stop being unconscious, but it's me who ceases being conscious. But I live them, there is an unconscious lived experience. I do not represent them, I do not perceive them, but they are there, they swarm in these cases. I receive a huge blow on the head: dizziness is an example that recurs constantly in Leibniz's work. I get dizzy, I faint, and a flow of small unconscious perceptions arrives: a buzz, a buzz in my head. These texts by Leibniz, obviously, refer to texts that they cannot be aware of, but it's rather the reverse. Rousseau knew Leibniz, Rousseau who will undergo the cruel experience of fainting after having received a huge blow, and he relates his recovery – it's the same thing, fainting or emerging from fainting -- and the swarming of small perceptions. It's a very famous text by Rousseau in *The Reveries of a Solitary Stroller,* which is the return to consciousness, so this kind of swarming there, something like an itching of small perceptions. Fine.

Leibniz says “dizziness”, fine; let’s look, let’s look, we’re looking for what is called, or what some called at the end of the 19th century, experiences of thought. Experiences of thought, we don’t even need to pursue this, thank God; we know what it’s like, so through thought, we look for the kind of experience that corresponds to the principle: fainting. Leibniz goes much further; he asks himself: wouldn’t that be death? So, that will pose problems for theology. Leibniz’s hypothesis is that death would be that, death, that is, it would be the state of a living person who would not cease living; that is, death would be catalepsy, straight out of Edgar Poe, [*Laughter*] one is simply reduced to small perceptions.

And yet again, understand well, it’s not that they invade my consciousness, but it’s my consciousness that is extended, that loses all of its own power, that becomes diluted because it loses self-consciousness, but very strangely it becomes an infinitely tiny consciousness of small unconscious perceptions. This would be death. Very good, that it then; you cannot think… One mustn’t be contrary; one must agree, but that creates a load of problems. In other words, death is nothing other than an envelopment, perceptions cease being developed into conscious perceptions, they are enveloped into an infinity of small perceptions. Or yet again, he says, sleep without dreaming; sleep without dreaming is this kind, there are lots of small perceptions. Fine. Let’s continue some examples.

Do we have to say that only about perception? No. And there, once again, appears Leibniz’s genius. There is a Leibnizian psychology, a psychology with Leibniz’s name on it. That was one of the first great theories of the unconscious notably. I have already said almost enough about it for you to understand the difference and extent to which it’s a conception of the unconscious that has absolutely nothing to do with Freud’s. All this to say, to say to Freud’s great advantage, how much innovation one finds in Freud: it’s obviously not the hypothesis of an unconscious that has been proposed by very numerous authors, but it’s the way in which Freud conceived the unconscious. It’s obviously not at all the same way in which Leibniz conceives the unconscious. And, in the lineage from Freud, some very strange phenomena will be found, returning to a Leibnizian conception, but I will talk about that later.

Before we reach that point, understand that he simply cannot say that about perception since, in fact, according to Leibniz, the soul has two fundamental faculties: conscious apperception which is therefore composed of small unconscious perceptions, and what he calls "appetition", appetite, desire. And we are composed of desires and perceptions. And appetition is conscious appetite. If perceptions are made, if global perceptions are made up of an infinity of small perceptions, appetitions or gross appetites as is said, gross appetites are made up of an infinity of small appetitions. And appetitions are vectors corresponding to small perceptions, and that becomes a very strange unconscious with all these small appetitions and these small perceptions, the drop of the sea to which the droplet corresponds, to which a small appetition corresponds for someone who is thirsty. And when I say, "my God, I’m thirsty, I’m thirsty," when I say that, what am I doing? I grossly express a global outcome; ah, I grossly express a global outcome. And when I say, “I am hungry, I am hungry”, I grossly express a global outcome; a global outcome of what? Of thousands of small perceptions working within me, and thousands of small appetitions that crisscross me. Ah, you will ask, how is that? What does that mean?

I'll jump again across the centuries. In the beginning of the twentieth century, a great, great Spanish biologist fell into oblivion; his name was [Ramon] Turro [y Darder]. He wrote a book translated in French with the title: *The Origins of Knowledge*,[7] translated into French in 1914, and this book is extraordinary. Turro was greatly involved with considering hunger – how is this name pronounced in Spanish; it's written T-u-r-r-o… How?... Anyway, I don't know -- Turro said that when we say "I am hungry" – in my view, in my view, really, Turro's background was entirely in biology; I don't think that he read Leibniz; in any case, Turro isn't… and this is all the more interesting because his texts could have been signed [Leibniz]… and it's great when, without any direct influence, there is across a distance of centuries a page, and we might say, hey, we might say, what is someone's actuality, meaning that two centuries later, someone writes a book in an entirely different domain, and we say, my God, it's signed Leibniz, it's Leibniz who has visited us, who has reawakened there, really, it's strange --.

For Turro said that when one says, "I am hungry," it's not going well there, because it's really a global outcome, what he called a global sensation. Since, in the end, he says, he uses these concepts: global hunger and small specific hungers. He said that hunger as a global phenomenon is an effect, a statistical effect. What is… [*Interruption of the recording*] [93:12] [*The BNF recording omits the whole text of the following paragraph; we benefit from the text furnished by Web Deleuze*]

Part 3

[What is] hunger composed of as a global substance? Of thousands of tiny hungers: salt hunger, protein substance hunger, grease hunger, mineral salts hunger, etc. . . . When I say, "I'm hungry," I am literally undertaking, says Turro, the integral or the integration of these thousands of small specific hungers. The small differentials are differentials of conscious perception; conscious perception is the integration of small perceptions. Fine. You see that the thousand small appetitions are the thousand specific hungers. And Turro continues since there is still something strange on the animal level: how does an animal know what it has to have? The animal sees sensible qualities, it leaps forward and eats it, they all eat small qualities. The cow eats green, not grass, although it does not eat just any green since it recognizes the grass green and only eats grass green. The carnivore does not eat proteins, it eats something it saw, without seeing the proteins. The problem of instinct on the simplest level is: how does one explain that animals eat more or less anything that suits them? In fact, animals eat during a meal the quantity of fat, of salt, of proteins necessary for the balance of their internal milieu. And their internal milieu is what? It's the milieu of all the small perceptions and small appetitions. What a strange communication between consciousness and the unconscious. Each species eats more or less what it needs, except for tragic or comic errors that enemies of instinct always invoke: cats, for example, who go eat precisely what will poison them, but quite rarely. That's what the problem of instinct is. [*Return to BNF recording*]

This Leibnizian psychology invokes small appetitions that invest small perceptions; the small appetition makes the psychic investment of the small perception, and what world does that create? We never cease passing from one small perception to another, even without knowing it. Our consciousness remains there at global perceptions and gross appetites, "I am hungry," but when I say, "I am hungry," in fact, there are all sorts of passages, metamorphoses. My little salt hunger that passes into another little hunger, a little protein hunger; a little protein hunger that passes into a little fat hunger, or everything mixed up, quite heterogeneously. And children who are dirt eaters, what do you think of that? By what miracle do they eat dirt when they need the vitamin that the earth contains? There we have the problem of instinct. It's odd. These are monsters, we could say about children who eat dirt; yes indeed, they are monsters! But God even made monsters in harmony. There we are, there we are.

So then, what is the status of psychic unconscious life? It happened that Leibniz encountered the thinking – I don't think that they met because the other one was dying – the thinking of an English philosopher, named [John] Locke, and Locke had written a book called *An Essay Concerning Human Understanding*. Leibniz had been very interested in Locke, especially when he discovered that Locke was wrong in everything. [*Laughter*] And he had fun preparing a huge book that he called *New Essays on Human Understanding* in which, chapter by chapter, he reviewed and showed that Locke was an idiot. He was wrong, but still it was a great critique of Locke. And then he didn't publish it because it was quite honest for him, he had a very moral reaction, because Locke had died in the meantime. He told himself, to publish anyway – notice, I am saying this because, today, things don't work that way anymore [*Laughter*] – to publish a book against some guy who is either ill or dead, who just dies, that's not good, there's something awful in that. So, he had a huge book; his huge book was completely finished, and he put it aside, he didn't publish it, he wasn't afflicted by it, he still sent it to some friends, [*Laughter*] you just can't be perfect, right?

And I mention all this because Locke, in his best pages, constructs a concept for which I will use the English word, because I'm constrained and force to do so -- and as a result, you aren't going to understand what the concept is – it's the concept of "uneasiness." [*Pause*] That's not bad… [*One student, then another repeat the word to the others*] He has a Pakistan accent so it's not any better than mine… "Uneasy", "uneasy" … "Uneasy", what is that? And Leibniz is very clever here because he say "uneasy", which means, to summarize, it's unease (*malaise*), a state of unease, it's unease, being ill at ease. And "uneasiness", it's a state of unease. And Locke tries to explain that it's the great principle of psychic life. You see that it's very interesting. Why is this interesting? Because this removes us from the banalities about the search for pleasure or for happiness. Locke says something; he says, generally, well yes, the search for pleasure, that someone seeks his pleasure, it's quite possible to seek one's pleasure, one's happiness, it's something else. Perhaps it's possible, but that's not all; there is a kind of anxiety (*inquiétude*) for a living person, anxiety. This is an anxiety, you see, it's not distress either. He doesn't say it's distress. Anxiety is a concept. He proposes the psychological concept of anxiety. One is neither thirsting for pleasure, nor for happiness, nor distressed; that's not it, no. He seems to feel that that's not it. He thinks that we are, above all, anxious. We can't sit still, we move around.

And in a wonderful text Leibniz says, you see, that we can always try to translate this concept, but Leibniz says, there is something, no, finally, it's very difficult to translate because that works well in English, this word works well in English, and an Englishman immediately sees what it is. Ah, I would say it's someone who can't sit still. For us, we'd say that someone is nervous, nervous, that's what "uneasy" would be. Good, that's possible, what does that mean? You see how he borrows the concept from Locke and he is going to transform it: this unease of the living, what is it? It's not at all the unhappiness of the living person. Rather, it's when he is immobile, when he has his conscious perception well framed, it all swarms: small perceptions and small appetites, small appetitions invest the fluid small perceptions, fluid perceptions and fluid appetites ceaselessly move, and that's it. So, of course, if there is a God, and Leibniz is persuaded that God exists, this uneasiness is so little a kind of unhappiness that it is just the same as the tendency to develop the maximum perception. And the development of the maximum perception will define a kind of psychic continuity. We again find the great theme of continuity, that is, an indefinite progress of consciousness. [*Pause*]

So, he combines that, simply, how is unhappiness possible? There can always be unfortunate encounters. He says, it's like when a stone is likely to fall: it is likely to fall along a path that is the right path, for example, and then it can meet a rock that crumbles it or splits it apart. It's really an accident connected to the law of the greatest slope. That doesn't prevent the law of the greatest slope from being the best. We can see what he means.

So, there we have an unconscious defined by small perceptions, and small perceptions are at once infinitely small perceptions and the differentials of conscious perception. And small appetites are at once unconscious appetites and differentials of conscious appetition. You see? There is a genesis of psychic life starting from differentials of consciousness. Hence the Leibnizian unconscious is the set of differentials of consciousness. It's the infinite totality of differentials of consciousness. There is a genesis of consciousness. So, I am saying, this is an unconscious. The idea of differentials of consciousness is fundamental: the drop of water and the appetite for the drop of water, specific small hungers, the world of fainting. All of that makes for a very odd world.

I am going to open a very quick parenthesis. So, what, that unconscious, that unconscious, you will find it in philosophy; it has a very long history in philosophy. Overall, we can say that in fact, it's the discovery and the theorizing of a properly differential unconscious. You see that this unconscious has many links – this is why I was saying a psycho-mathematical domain – it has many links to infinitesimal analysis. Just as there are differentials for a curve, there are differentials for consciousness. The two domains, the psychic domain and the mathematical domain, project symbols. [*Pause*] So, fine, I am saying, if I look for the lineage – in my view, whatever they are, there are always predecessors -- but it's Leibniz who proposed this great idea, the first great theory of this differential unconscious, and from there it never stopped. That will not stop; there is a very long tradition of this differential conception of the unconscious based on small perceptions and small appetitions. It culminates notably in a very great author who, strangely, has always been poorly understood in France, from whom we've only retained some very rudimentary things, namely a very strange German post-Romantic named [Gustav] Fechner who is a disciple of Leibniz and who developed the conception of differential unconscious.

I am saying, we say, well then, Freud, "what was Freud's contribution?", it's obviously a non-sense. It's obvious that the unconscious was already a very well-constructed notion before Freud. But what is also obvious is that Freud broke with this conception of the differential unconscious. And why? If I am trying to state this quite superficially, it's not that, for Freud, there were no unconscious perceptions, [but] there were also unconscious perceptions, there are also unconscious desires. You recall that for Freud, there is the idea both that representation can be unconscious, and in another sense, affect also can be unconscious. That corresponds to perception and appetition.

But Freud's innovation is that he conceived the unconscious in a relation -- and here, I am saying something very elementary to underscore a huge, huge difference -- he conceived of the unconscious in a conflictual or oppositional relationship with consciousness, and not in a differential relationship. This is completely different from conceiving of an unconscious that expresses differentials of consciousness or conceiving of an unconscious that expresses a force that is opposed to consciousness and that enters into conflict with it. In other words, for Leibniz, there is a relationship between consciousness and the unconscious, a relation of difference to vanishing differences, whereas for Freud, there is a relation of opposition of forces. I could say, in fact, that the unconscious attracts representations, it tears them from consciousness, and it's really like two forces like that [*Deleuze makes a gesture of opposition*]. I could say that, philosophically, Freud depends on Kant and Hegel, that's obvious. Those who explicitly oriented the unconscious, and who explicitly oriented it in the direction of a conflict of will, and no longer of differential of perception, were from the school of Schopenhauer that Freud knew very well and that descended from Kant. So, there is no basis for not safeguarding Freud's complete originality, except that in fact, Freud received his preparation in certain philosophical theories of the unconscious, but certainly not in the Leibnizian strain; it would be a Schopenhauerian strain. But anyway, there we are.

So, to finish with this finally, because… I would like to say this: fine, we have this outline. Our conscious perception is composed of an infinity of small perceptions. Our conscious appetite is composed of an infinity of small appetites. What does that mean? But this is completely different. Leibniz is in the process of preparing a very strange operation; we have an urge to protest; and if we didn't hold ourselves back, we would protest immediately. We could say to him, well fine, perception has causes, for example, my perception of green, or of any color, that implies all sorts of physical vibrations. And these physical vibrations are not themselves perceived. Even though there might be an infinity of elementary causes in a conscious perception, by what right does Leibniz conclude from this that these elementary causes are themselves objects of infinitely small perceptions? Why? And what does he mean when he says that our conscious perception is composed of an infinity of small perceptions, exactly like perception of the sound of the sea is composed of the perception of every drop of water? It's still… yes.

And well, if you look at his texts closely, it's very odd because these texts say two different things, one of which is manifestly expressed like that, by simplification and the other expresses Leibniz's true thought. In fact, I am coming back to my topic. You can organize these texts, the aggregate of Leibniz's texts on small perception, into two headings: some are under the part-whole heading, and in that case, it means that conscious perception is always perception of a whole, this perception of a whole assuming not only infinitely small parts, but assuming that these infinitely small parts are perceived. [*Pause*] Hence the formula: conscious perception is made of small perceptions, and I am saying that, in this case, "is made of" is the same as "to be composed of", "to be composed of", and Leibniz expresses himself in this way quite often.

I select a text that I'll quote, like that, but there are a lot of them [*Pause; Deleuze looks through the text*]: "Otherwise we would not sense the whole at all" -- If there were not all these small perceptions, we would have no consciousness at all. I am not making this up here; he only says that – "The organs of sense operate a totalization of small perceptions." The eye, for example, is what contracts, what totalizes an infinity of small vibrations, and henceforth composes with these tiny vibrations a global quality that I call green, or that I call red, or what I call… Here the text is clear, it's a question of the whole-parts relationship.

But when Leibniz really wants to say… And understand, this isn't a way of being suspicious. When Leibniz wants to move rapidly, when he wants to make himself understood quickly, he has every interest in speaking like that, but when he really wants to explain things, -- here, yes, this would be the opposition between making himself understood and explicating – when he wants to make himself understood, he says that; when he really wants to explicate, he says something else, he says that conscious perception is derived from small perceptions. It's not the same thing, "is composed of" and "is derived from". In one case, you have the Whole-Parts relationship, in the other, you have a relationship of a completely different nature.

So, what different nature? The relation of derivation: that refers us to infinitesimal analysis, what we call a derivative. That also brings us back to infinitesimal calculus: conscious perception derives from the infinity of small perceptions. At that point, I would no longer say that the organs of sense totalize. Notice that the mathematical notion of integral links the two: the integral is what derives from, and the integral is also what operates an integration, a kind of totalization, but precisely, this is a very special kind of totalization; it's not a totalization through additions; it's a very special type of totalization. So here, this gets interesting. We can say without risk of error that although Leibniz doesn't indicate it, it's even the second texts that have the final word. When Leibniz tells us, there is something that conscious perception is composed of small perceptions, this is not his true thinking. We have every reason to say this; I just explained this. On the contrary, his true thinking is that conscious perception derives from small perceptions. What does "derive from" mean?

Well, you recall the text that I just read about the whole. Here is an completely different text by Leibniz: "Otherwise" – this was "otherwise", we wouldn't perceive the whole – this is a different text: [*Pause; Deleuze looks in the text while humming*] "Perception of light or of color that we perceive" -- that is, conscious perception – "is composed of a quantity of small perceptions that we do not perceive, and a noise that we do not perceive but to which we give no attention becomes a-perceptible" -- i.e. passes into the state of conscious perception – "becomes a-perceptible through a tiny addition or augmentation."

Ahhh… you understand? Here, we take this literally: he doesn't say "through a totalization"; [*Pause*] we no longer pass from small perceptions into conscious perception via totalization as the first version of the text suggested; we pass from small perceptions into global conscious perception via a tiny addition. We realize, suddenly, we thought we understood, and now we no longer understand a thing. A tiny addition is the addition of a small perception; so, we pass from small perceptions into global conscious perception via a small perception? [*Pause; Deleuze gives an exasperates sigh*] We tell ourselves that this isn't right. [*Another exasperated sigh*] Suddenly, we tend to fall back on the other version of the text, at least that one was clearer. It was clearer, but it was insufficient. Sufficient texts are sufficient, but we no longer understand anything in them.

A wonderful situation, except if we recall or if we chance to encounter an adjoining text in which Leibniz tells us: "We must consider that we think a quantity of things all at once – it seems, for him, -- "we have to consider that we that we think a quantity of things all at once, but we pay attention only to thoughts that are the most distinguished". Fine, you will tell me, so… and so… [*Pause; Deleuze looks in the text*] and so… we continue, and we come upon another little fragment.

« For what is remarkable must be composed of parts that are not remarkable" – aahh – "For what is remarkable must be composed of parts that are not remarkable" -- there, Leibniz is in the process of mixing up everything, but on purpose, on purpose. Excellent! We who are no longer innocent, we can situate the word "remarkable", and we know that each time – once again, I am certain that I'm correct – each time that he uses "notable", "remarkable", "distinguished", it's in a very technical sense, and at the same time, he creates a muddle everywhere, understand? He accomplished a diabolical master stroke. For the very idea that there is something clear and distinct, ever since Descartes, was an idea that circulated all over. Leibniz slides in his little "distinguished" in the preceding text: "but we pay attention only to thoughts that are the most distinguished". He might have said, we pay attention only to the clear and to the distinct; he didn't say that; he said: "we pay attention only to thoughts that are the most distinguished". Understand "the distinguished", "the notable", "the remarkable", "the singular", there we are.

So, what does that mean? "We pass from small unconscious perceptions to global conscious perception through a tiny addition", well yes, obviously. This is not just any tiny addition. That would be stupid if he meant through addition, through an equally unconscious perception, equally small perception. However, if he means something else, then he contradicts himself. For he can not say, in fact, we pass into conscious perception through the addition of a perception that would itself be conscious. So, what does he mean? He means that your small perceptions form a series of ordinaries or a series called regular: all the tiny drops of water, elementary perceptions, infinitesimal perceptions.

How do you pass into the global perception of the sound of the sea? First answer, if I summarize everything; first answer: via globalization-totalization. Commentator's answer, that is, you and me: fine, it's easy to say, easy to say, it's fine. So, myself, I would never think of raising an objection to you. I cannot say that doesn't work. You have to like an author just enough to know that he's not mistaken, that if he speaks like that, he has the right to proceed quickly.

Second answer: I pass via a tiny addition. This cannot be the addition of an ordinary or regular small perception, nor can it be the addition of a conscious perception since at that point, consciousness would be presupposed. The answer is that I reach a neighborhood of a remarkable point, so I do not operate a totalization, but rather a singularization. This is through singularization. It's when the series of tiny perceived drops of water approaches or enters into the neighborhood of a singular point, a remarkable point, that perception becomes conscious. It's a completely different vision because at that moment, all objections, a great part of the objections made to the idea of a differential unconscious falls away. But you will ask me, what does that mean? That doesn't mean anything. What does that mean? [*Pause*] There we are, have you understood? [*Pause*] Yes, what does that mean? It seems that we are not getting out of this, and at the same time, we are already out; it's the simplest thing. What does that mean?

So, here arrive the texts by Leibniz that appear the most complete. You recall what we are bringing with us from the start, in fact, the idea that with small elements, this is a manner of speaking because what is differential are not elements, and here, you are fully correct to remind us of this earlier; but we can express it in this way through commodity, and it's simpler to say this. In fact, what is differential in relations? What is differential is not dx in relation to an x, because dx in relation to an x is nothing. What is differential is not a dy in relation to a y because dy in relation to a y is nothing. What is differential is, and what works within the infinitely small, is dy over dx, it's the relation.

But what relation? You recall that on the level of singular points, the differential relation changes its sign. That's excellent! Leibniz is in the process of impregnating Freud without knowing it. On the level of the singularity, there are increases or decreases, the differential relation changes it sign, that is, the sign is inverted. In this case of perception, which is the differential relation? Why is it that these are not elements, but indeed relations? What we must see is that, in fact, what determines a relation is precisely a relationship between physical elements and my body. So, you have dy-dx. It's the relation of physical excitation to my biological body. That's the differential relation of perception. So, we will no longer say, at that level, you understand, we can no longer speak exactly of small perceptions. We will speak of the differential relation between physical excitation and the biological [*Pause*] state by assimilating it frankly to dy over dx, it matters little, by frankly assimilating it to dy over dx.

And perception becomes conscious when the differential relation corresponds to a singularity, that is, changes its sign. In other words, for example, when excitation gets sufficiently closer, [*Pause*] I would say that, literally to make like Leibniz – he wouldn't say this -- it's the molecule of water closest to my body that is going to define the minute increase through which the infinity of small perceptions becomes conscious perception. It's no longer a relation of whole-parts at all; it's a relation of derivation. It's the differential relation between that which excites and my biological body that is going to permit the definition of the singularity's neighborhood. Notice in which sense Leibniz could say that inversions of signs, that is, passages from consciousness to the unconscious and from the unconscious to consciousness, the inversions of signs refer to a differential unconscious and not to an unconscious of opposition.

Think about when I alluded to Freud's posterity, in Jung, for example, with the great Freud-Jung rupture, I am not at all saying that's all there is in Jung because it's such a mixture, Jung, but Jung has an entire Leibnizian side, and besides, Jung knows Leibniz well, and what he reintroduces, to Freud's greatest anger -- and it's in this that Freud judges that Jung absolutely betrayed psychoanalysis -- is an unconscious of the differential type. And he owes that to whom? He owes it to the tradition of German Romanticism; the unconscious of the German Romantics is closely linked also to the unconscious of Leibniz.

So see, I was able to provide a rigorous meaning to Leibniz's very statement: we pass from small perceptions to unconscious perception through addition of something notable, that is, when the series of ordinaries reaches the neighborhood of the following singularity, such that psychic life, just like the mathematical curve, will be subject to a law which is that of the composition of the continuous. And why is the continuous the object of a composition? There is composition of the continuous since the continuous is a product: the product of the act by which a singularity is extended into the neighborhood of another singularity. And that this works not only upon the universe of the mathematical symbol, but also upon the universe of perception, of consciousness, and of the unconscious, and from this point onward, we have but one question: what are the compossible and incompossible? These derive directly from all this. [*Pause*] What time is it? [*Inaudible answer*] Fine, so I will end on this. There we are. Can you go on some more? Because if you are done, it would be better to stop… You can? Well, I don't know what you're feeling… [*ce que vous avez…*]

There we are, we possess the formula for compossibility, we possess it. Suppose that I say this: you have a singularity. Now I can say: you take the simplest case; I return to my example of the square with its four singularities. You take a singularity, [*Pause*] and you trace… you take a singularity, this singular point, it's a point; you take it as the center of a circle. Are you following me? I am no longer doing the drawing. You take is as the center of a circle. Which circle? All the way into the neighborhood of the other singularity. In other words, you take [point] A, you take large A, in the square ABCD, you take large A as center of a circle that stops within the periphery in the neighborhood of singularity B. [With] B, you do the same thing: you take, you trace a circle that stops in the neighborhood of the singularity A and you trace another circle that stops in the neighborhood of singularity C. You see, these circles intersect. [*Pause*]

So, you go on like that constructing, from one singularity to the next, what you will be able to call a continuity. The simplest case of a continuity is a straight line, but there is also precisely a continuity of non-straight lines. Into what? You see, you have your system of circles that intersect, you will say that there is continuity when [*Pause*] the values of two ordinary series, those of A to B, those of B to A, coincide. When there is a coincidence of values of two ordinary series encompassed in the two circles, you have a continuity. So, you can construct a continuity made from continuity. You can construct a continuity of continuity. The square would be a continuity of continuity. If the series of ordinaries that derive from singularities diverge, then you have a discontinuity. Fine, that becomes quite simple.

You will say that a world is constituted by a continuity of continuity, first definition. A world is constituted by a continuity of continuity, it's the composition of the continuous. A discontinuity is defined when the series of ordinaries or regulars deriving from two points diverge. Third definition: the existing world is the best? Why? Because it's the world that assures the maximum of continuity. Fourth definition: what is the compossible? An aggregate of composed continuities. Final definition: what is the incompossible? When the series diverge, when you can no longer compose the continuity of this world with the continuity of this other world. Divergence in the series of ordinaries that depend on singularities: at that moment, it can no longer belong to the same world.

You have a law of composition of the continuous that is, really, I'm returning here, psycho-mathematical. Why isn't that evident? Why is all this exploration of the unconscious necessary? Why isn't that evident? Because, yet again, God is perverse. God's perversity lies in having chosen the world that implicates the maximum of continuity – you see, calculus of the maximum – he/she chose the world and caused to pass into being, into existence the world that implied the maximum of continuity. Only, here we are, he composed the chosen world in this form, only he/she dispersed the continuities since these are continuities of continuities. God dispersed them.

What does that mean? It seems that there are, says Leibniz, in our world, it seems that there are discontinuities, leaps, ruptures as he says with an admirable term, it seems that there are musical descents (*chutes de musique*), there are musical descents. But in fact, there are none. It's simply that, for example, it seems there is a gap… or to some among us, it seems – on the contrary, there are certain people to whom it seems there is not – but to some among us, it seems that there is a gap between man and animal, a rupture. This is necessary because God, with his/her extreme malice, conceived of the world to be chosen in the form of the maximum of continuity, so there are all sorts of intermediary degrees between animal and man, but God held back from making these visible to us. If the need arose, God placed them on other planets of our world. Why? Because finally, it was good, it was good for us to be able to believe in the excellence of our domination of nature. If we had seen all the transitions between the worst animal and us, we would have been less vain.

So, this vanity is still quite good because it allows man to establish his power over nature. In the end, it's not a perversity of God; it's that God never ceased breaking continuities that God had constructed. Why? In order to introduce variety in the chosen world, in order to hide the whole system of tiny differences, of vanishing differences. So, God proposed to our sensory organs and to our feeble thinking, presented on the contrary a very divided world. We spend our time saying that animals have no soul, as Descartes would say, or else that they do not speak, or else all of that. But not at all, not at all: there are all sorts of transitions, there are always all sorts of tiny differences, etc.

So, you see, the definition at which we've arrived, and where I want to stop, here we grasp something, a specific relation that is compossibility or incompossibility. I would say yet again that compossibility is when series of ordinaries converge, series of regular points that derive from two singularities and when their values coincide, otherwise there is discontinuity. In one case, you have the definition of compossibility, in the other case, the definition of incompossibility. Question, once again: why did God choose this world rather than another, when another was possible? Leibniz's answer which, in my view, becomes splendid: it's because it is the world that mathematically implicates the maximum of continuity, and it's uniquely in this sense that it is the best, that is the best of possible worlds.

There we are, finally, I'd just like you to retain this: everything is constructed around what? If you will, that's what a concept is; it becomes very, very… You see? A concept is always a complex. A concept is always something very complex. We can situate our session today under the sign of the concept of singularity. And the concept of singularity has all sorts of languages that intersect within it. A concept is always, literally, polyvocal; it is necessarily polyvocal since you can grasp the concept of singularity only through a minimum of mathematical apparatuses: singular points in opposition to ordinary or regular points, on the level of thought experiences of a psychological type: what is dizziness, what is a murmur, what is a hum, etc. [*Pause*] And on the level of philosophy as concept, in Leibniz's case, the construction of this relation of compossibility.

And the three will have to… It's not a mathematical philosophy, no more than mathematics becomes philosophy, but in a philosophical concept, there are all sorts of different orders that necessarily symbolize. And already here, I would say, it's true for any philosophical concept that it is a philosophical concept that it has a philosophical heading, it has a mathematical heading, and it has a heading for an experience of thought. And it's true of all concepts, it's true for all.

So, I believe that it was a great day for philosophy when someone brought this odd couple to general attention, and that's what I call a creation in philosophy. I call it this "odd couple"; I mean, well yes, when Leibniz proposed this topic – you know, the singular, there precisely is the act of creation -- when Leibniz tells us, you know, the singular, think about this well, there is no reason for you simply to oppose it to the universal. It's much more interesting if you listen a bit to what mathematicians say, who for their own reasons think, on the contrary, of "singular" not in relation to "universal," but in relation to "ordinary" or "regular." So, Leibniz isn't doing mathematics at that point.

I would say that his inspiration is mathematical, and he goes on to create a philosophical theory, notably a whole conception of truth that is radically new since it's going to consist in saying: don't pay too much attention to the matter of true and false; you don't ask in your thinking what is true and what is false, because what is true and what is false in your thinking always results from something that is much deeper. What matters in thinking is what is remarkable, these are remarkable points and ordinary points. Both are necessary: if you only have singular points in thinking, you have no method of extension, it's worthless; if you have only ordinary points, it's in your interest to think something else, it's all the same, all that. And the more you believe yourself [to be] remarkable (special), the less you think of remarkable points, necessarily, necessarily.

In other words, the thought of the singular is the most modest thought in the world. It's there that the thinker necessarily becomes modest, because the thinker is the extension onto the series of ordinaries, and thought itself explodes in the element of singularity, and the element of singularity is the concept. There we are. [*End of session*] [2:17:37]

Notes

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[1] Cf. https://www.youtube.com/watch?v=7baZ7Qlp_2Y&t=194s [Verified June 28, 2023]

[2] We have to indicate that this translation is based on a transcript that we have completely transformed from the text that has been available for some twenty years on Web Deleuze, since we have scrupulously followed here, without edits or unforeseen omissions, the audio recording available on several platforms (YouTube, Web Deleuze, Paris 8, and here on The Deleuze Seminars). We have therefore expanded the text of this second session on Leibniz by approximately *forty minutes*, that is, in addition to the approximate equivalent of about ninety minutes contained on the earlier transcript. We have benefitted, however, from Web Deleuze's alternate transcription in order to fill in two specific gaps that occurred when the recording was interrupted for cassette changes, at the end of parts 1 and 2.

[3] Jules Vuillemin's, *La philosophie de l'algèbre* (Paris: PUF, 1960, 1962).

[4] Deleuze refers to "a mathematician from the 19th century" who considers differential analysis as "a Gothic hypothesis" two other occasions in the seminars: Spinoza and the Velocity of Thought, session 10, 10 February

1981; and Foucault, session 14, 4 March 1986. For a possible identity of this mathematician, see the Spinoza reference: given the flow and substance of the paragraph in which this reference arises -- where Deleuze discusses how mathematicians came to assert that the founding of infinitesimal calculus need not depend on an hypothesis of the infinitely small – this eminent “mathematician from the 19th century” who provides infinitesimal calculus with “its definitive status” may well be none other than Karl Weierstrass whom Deleuze identifies at the end of this very paragraph. See also Deleuze, *Sur Spinoza*, ed. David Lapoujade (Paris: Minuit, 2024), p. 363.

[5] The complete title is "Tentamen Anagogicum. Anagogical Essay on Research into Causes." See https://fr.wikisource.org/wiki/Essai_anagogique_dans_la_recherche_des_causes, for an image Leibniz’s drawing within this small work.

[6] Deleuze will develop these reflections on perception, tiny perceptions, and differentials in chapter 7 of *The Fold. Leibniz and the Baroque*, cf. pp. 85-99; *Le Pli*, pp. 113-132.

[7] Ramon Turro y Darder, *Les origines de la connaissance* (1914 ; Paris : Hachette Livre-BNF, 2018).