Gilles Deleuze

Seminar on Apparatuses of Capture and War Machines, 1979-1980

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Part 1

On the other hand, … we'll soon… we'll soon have finished the first part of our work, right? So, I appeal to you very strongly, to a certain number of you, because, myself, I would conceive of the year-end, the second part… in the form of me making myself somewhat available to you, that is, doing separate things based on the state of some of your own work ... Whether this would consist of details ... for example, you can very well ask me ... according to your own work, to prepare a session on an author or on… a subject… All that, we would do very… disconnected things, eh? So, it's up to you to consider this.

So, there are already some people who have asked me to prepare… but, there, that seems bigger to me, that is, it is if… to prepare something that would be like a kind of… as a presentation on a very great philosopher, but a very difficult philosopher, named Leibniz. So, in fact, I could, unless there are… but… if you have some subjects that… about which you would like… -- it is up to me to say "I can" or "I cannot", obviously -- if you have topics or problems related to your own work, we can, eh, we can see. So, think about it for the next time and the time after that, unless there are already some ...

Or else… like… I think, but, here, that depends greatly on you as well, there are a certain number among you here who… who have been working with me for… a long time, for many years, and all that we've been doing for four or five years, I think that these are still some very diverse things, but these are things revolving around the same notions. So, it may be useful to go back to certain notions on which we have been working for several years. In the end, anything is possible; it's up to you to… You will tell me, either right now, or next time, or still at another time. Otherwise, I'll do something about Leibniz if there's no… special request.

A student: [*Inaudible*]

Deleuze: Lichtenberg? That's not enormous, right?

The student: [*Inaudible*]

Deleuze: Yes, but… what he's known for…

The student: [*Inaudible*] that enlightened me!

Deleuze: yeah, yeah, yeah… I can't. I don't know enough. Yeah, that's ...

Another student: [*Inaudible*] Jakob Böhme?

Deleuze: Yeah… I'm being careless because I can't see myself doing something about Böhme, I wouldn't be able to … yeah. I mean, you never know, yeah ... Yeah, yeah.

Another student: [*Inaudible*]

Deleuze: [Alois] Riegl, yes.[1] Yes, yes, yes, yes. But that, we will perhaps come back to this a little bit later ...

A student: [*Inaudible*]

Deleuze: Yes, yes! Oh well, yes. Yes, yes, yes, yes, yes… yes. That we can, yes, [Henri] Maldiney, yes.[2] Yes…

A student: [*Inaudible*]

Deleuze: Good! There we are. I would like you to continue to accept this convention on which we were working two weeks ago [*actually, three weeks*]: I'm trying ... We really forget where we have reached in our analysis of the State. And I'm making a very long parenthesis to ask: what exactly is an axiomatic? I am saying: this is a long parenthesis since an axiomatic has nothing to do with the problem of the State. An axiomatic is a certain type of system or discourse specific to ... mathematics. Fine. Just… just this point, don't forget that the hypothesis that causes us to pass through this detour is the hypothesis that it wouldn't be inaccurate -- I'm not going any further, that is, I'm weighing my words relatively, I'm using conditionals -- it would not be inaccurate to treat the so-called modern political situation as an axiomatic.

So… but… temporarily, let's forget this concern which links this topic to our subject. And we are considering for itself, for itself, the question: but what is an axiomatic? First of all because it can always be useful, but above all, because… it seems to me to pose a lot of problems even to be able to understand, not only what science is, but what we can call "a politics of science". And, the last time, I just chose an extremely simple example to try to make you feel what an axiomatic is. And I am recalling this example because, if you don't grasp it a bit… but… I am recalling it by outlining even more this example that I had already simplified myself; I am simplifying it even more by saying: here is an example of axiomatics. [*Pause*]

You define a purely functional relation between any elements whatsoever (*éléments quelconques*). Any elements whatsoever, what does that mean? It means: you do not specify the nature of the elements that you are considering; you determine a functional relation between any elements whatsoever. You're going to tell me: this is very weird, really. What does that mean?

Let's consider the symbolic form xRy. xRy, capital R is the functional relation between any two elements whatsoever, x and y. You will tell me: that really doesn't get us very far. You determine… -- we are leaving aside why you determine… how you determine… we will see that, later -- and I assume that we determine axioms, axioms which will correspond to the functional relation xRy, x Relation y. First axiom that you determine – I'm choosing only two, really, to keep this simple, right? --, $eRx = xRe = x$. $eRx = xRe = x$. There you are, you treat this proposition, this equation as an axiom, that is, as a first proposition which is not derived from any other.

Second axiom: $xRx' = x'Rx = e$. Good. Why is this a second axiom? Because this second proposition is not supposed to be able to be proved based on the first. It introduces something irreducibly new. If I find myself faced with a proposition that can be proved based on the axioms previously determined, I would say that this is not an axiom but a theorem. So, a set of axioms is a set of independent propositions which assume nothing else and from which the theorems will result.

I return to my two axioms. What is that? Well, an axiomatic refers… and this is the second essential notion -- the first essential notion is the idea of uniquely functional relation between any elements whatsoever -- the second fundamental notion of an axiomatic is that, as we had seen, of a model of realization. We will say that an axiomatic, as a set of functional relations between any elements whatsoever, refers to domains, to models of realization in which [the axiomatic] is realized. What does it mean that it's realized there? This means that, in these domains, in these models of realization, the any elements whatsoever take on a qualified nature. The any elements whatsoever take on a qualified nature. An axiomatic, therefore, if we created an axiomatic of the axiomatic, I believe that it would not be difficult to demonstrate -- this would be a theorem -- that an axiomatic necessarily includes several models of realization, if only possible or virtual models of realization, to the point that the notion of an axiomatic having only a single model of realization, model of realization, would be contradictory.

But, well… I am saying: an axiomatic has models of realization; let's again choose in the example, there, the minimum example that I have just used: the axiomatic that I have just defined with two axioms, with two axioms; by staying with, by staying with two axioms, this axiomatic has a first model of realization, which is what? Which is the domain ... -- or rather no, not the domain -- which is the addition, the addition of real numbers. In what? I reread my first axiom: there is an element e such that, for any element x, we have: $eRx = xRe = x$. In the case of addition of real numbers, this element e is zero. [*Pause*] You can indeed write 0 + addition of real numbers; that will give you, in the "addition of real numbers" model of realization, that will give you: $0 + x = x + 0 = x$. Try it for division, multiplication; it doesn't work like that. So, that allowed you to circumscribe the addition of real numbers. Second axiom: for every element x, there is an element x' such that $xRx' = x'Rx = e$. For the addition of real numbers, x' is the negative number, -x. [*Pause*] Fine.

But then why did we look for… an axiomatic? We looked for an axiomatic precisely because the addition of real numbers does not exhaust the functional relation. There will be, virtually or actually, there will be other models of realization. I had given another model of realization of this axiomatic with two axioms, namely the composition of displacements in space, in threedimensional Euclidean space, which, in itself, is a set entirely different from the addition of real numbers. And, this time, my first axiom will no longer be realized by $e = 0$, but in the case of the composition of displacements in space, my first axiom will be realized by: e equals what one calls, precisely, in this model of realization, “the identical displacement”, that is, the displacement which leaves each point of space fixed. And, for the second axiom, x’ will no longer be realized by the negative number, but by what is called, in this model of realization, in this second model of realization, by what is called "the inverse displacement".

Suddenly, if I redeveloped this example, it is for a very simple reason: it is that it seems to me that, starting from such a simplified example, one sees what there is that’s extraordinarily original in an axiomatic. I would say that it ... [*Deleuze does not finish*] You see that, in fact, the axiomatic in itself only encompasses functional relations between any elements whatsoever. You understand, our purpose is not to do math here; it's really to have this minimum that allows us to… to understand what they wanted to do, the… the people who created axiomatics. The axiomatic itself only encompasses that: functional relations between any elements whatsoever insofar as being random (*quelconques*). One doesn’t even have to ask what ... what an axiomatic is talking about: the question has no meaning since it [the axiomatic] is talking about any elements whatsoever, and it defines functional relations between these elements as such.

But then it's ... what makes this so important? Why is this interesting? Because the axiomatic really seems to me to be the only thing ... the only discourse that allows a direct comparison, a direct confrontation, a direct comparison between heterogeneous sets or domains insofar as being heterogeneous. These will be the same functional relations between any elements whatsoever that you will discover in the "addition of real numbers" set and in the "composition of ... er, composition of displacements in Euclidean space" set. I am asking: is there another method which we… There I am speaking quite positively about axiomatics, so for…, but we will see that… that… we will also see that there it has problems, right? But, for the moment, it's ... it's a pretty amazing method that by no means can be taken for granted. It gives us the means… and I don't see any other way, at first glance… at first sight… , at first glance, we do not see any other way to compare heterogeneous domains insofar as they are heterogeneous and to compare them directly, that is, without going through homogenization. There we have it. So, you would have to understand that, because otherwise… So, I am even quite willing to start all over again, if you do not understand, but… You’d have to [understand], because otherwise… Either you have to understand, or else you have to leave during this class time, because otherwise everything ... everything depends on that, right? There we are. So, think carefully… Do you understand?

Some students: [*Inaudible*]

Deleuze: Very good, great!

A student: [*She refers to the element e which is defined in Axiom 1, but also in Axiom 2, which seems to call into question the independence of the axioms of the axiomatic*]

Deleuze: It's not that they don’t have [independence]… Yes, in that sense, yes! Yes, yes. But one cannot be deduced from the other; this is what I call independence ... or what we call the independence of axioms. In other words, one is not a theorem that depends on the other. Fine.

So, if you have understood that, I immediately ask, because this is a subject that lingers in… a bit in everything… both in the history of all these things and also… which arises directly, and which, at the same time, never comes up, well at least among the authors that I have read, that does not seem to me ... it's not convincing, so all the more reason to say to yourself, to seize the opportunity, and ask yourself: Do we have the means to bring just an ... attempt at some precision in all this? We are always told: be careful, though, do not confuse logical formalization and axiomatization. So, even at the historical level, that occurred; it was at the same period that the great axiomatics are created with, among others, a very great mathematician named [David] Hilbert, and that a logical formalization is created which will receive the name of logistics, and for which another great logician and great mathematician directs and develops the matter all the way to… to an unequaled point, namely [Bertrand] Russell. And, you have only to read, even without ... even understanding very badly, you understand, one doesn't have to ... it's not necessary to understand everything, right? You just have to read a page from Russell and a page from Hilbert, [and] you can see that, literally, they're not the same world. Logical formalization is not at all the same as an axiomatic, as axiomatization.

And all I wanted to ask is: so, well, what's the difference? What's the difference? How does an axiomatic, as I have just tried to define it and as you have understood it so well, differ from a formalization? I would say, a formalization, here's what it is: it is the identification (*dégagement*) and the determination of formal relations between elements specified according to such or such a type. I am weighing every word, eh. At least you see, even before I explain myself, that it's not the same thing. "Functional relation" is opposed to "formal relation"; "any element whatsoever" of the axiomatic is opposed to "specified elements" of formalization. But then, if the elements are specified, that is, are defined as one thing or another, how is there formalization? And what are formal relations in their difference with functional relations?

This is where the notion of type comes into play in a fundamental way and has always been present in formalizations, although ... it is well known that the particular author of a theory called, in the field of logistics, "the theory of types", namely Russell himself, that is, that this theory was constituted late. That means that, in a way, it was being used before it was theorized. And the theory of types consists in determining as a condition under which one can state about propositions the distinction of: a plurality of types according to which propositions are likely to fit into each other. What, in fact, is the principle of the theory of types? Quite simply, it's this: a set does not contain itself as an element. [*Pause*]

What does this mean, "a set does not contain itself as an element"? It means something very, very simple. I am selecting an example given from Russell himself. Here is the proposition: "Napoleon has all the qualities which make a great general"; "Napoleon has all the qualities which make a great general", good. Russell finds that "having all the qualities that make a great general" can never be treated as one of the qualities necessary to make a great general. If you define… Or else, another example given by Russell, if you define "typical French", if you say "ah, that is a typical French person", "typical" is not one of the characteristics used to define a typical French person. In other words, "typical" and the characteristics that define a typical French person are not of the same type. [*Pause*]

Good. Let's give an example; so, I am preparing, there, … I am preparing my return to our problem. I tried to say that a certain State apparatus, what I called the archaic apparatus, in a certain way relied on the overcoding of farming communities. We saw in what sense this could be stated, in what sense it was debatable, etc. But consider this proposition: the archaic State apparatus overcodes farming communities. I would say, it's very simple there; if I make a very arbitrary application of the theory of types, I would say: this State apparatus cannot be an agricultural community. You follow me?

Why was the theory of types… why was it created and developed by Russell – here, I'm really stating the elementary principles, but it's a stupendous, stupendous… and very funny… theory. – Why did, why did Russell feel the need to formalize it? To find a solution to what were called the famous logical paradoxes. You know, paradoxes of the type "I'm lying", you see, eh? The proposition "I am lying", is it true or is it false? It's not hard to show that it's impossible for it to be true, it's impossible for it to be false. Russell's answer is quite simple: the proposition "I'm lying" is neither true nor false. In fact, if it is true, it is false, and if it is false, it is true, right? Good, anyway, you know that; it's in every ... every newspaper for amusement, right. But it really disturbed the logisticians, these things. Well then, Russell, Russell's answer is very simple: the proposition "I lie" is neither true nor false, because it is nonsense.

And I would like you to understand, there -- I am starting a parenthesis again within my parenthesis… -- it is not by chance that it is the English who found and who also so fully developed this… this concept of nonsense there, and who worked so much on it. And this is very important because… if you will, in concrete experience, for me, it seems to me that… one cannot do philosophy, besides, if one does not live this experience, but there is very few things true or false… it's not the true and the false that matter. That's never what has mattered. A moment for celebration occurs whenever we stumble upon a false proposition. A false proposition is very, very rare.

What is it that makes us all unhappy? Our common misfortune is never living within error, not at all ... not at all. It is that ... our common misfortune is that we do not stop either encountering or -- horror! -- ourselves broadcasting things that are pure and simple nonsense. But this is wonderful, I assure you; it's a day for celebration the day you say something false. That's not it, otherwise we say bullshit (*conneries*), and it's not the same, right, these are not errors, right? Stuff that doesn't make sense, really… Yeah, why not… We don't stop… ah, fine… This in the domain of "neither true nor false", it doesn't make sense. True and false is still what makes sense. But it's rare, rare, you know, that you even get to the possibility of true and false. Take an ordinary speech; we can't say, we can't even say, this is false. Take books. But there's an enormous number of books… We read that, but we really tell ourselves…, it's obvious that the question is not "is it true or false… What is the gentleman saying?" It's "does that make the least bit of sense?"

I have always been struck by the following problem, to connect with the problem of mathematicians. Mathematicians are not kids at school, eh… I mean: when mathematicians don't agree with each other, there isn't a single one who says to the other: you were wrong, what you are saying is false. I mean… and that's what bothered me a lot, me… I have the impression that the whole theory of truth… in classical philosophy has always been so problematic in categories of true and false, that they were always… childish, implausible, fictitious situations. In the classic theory of true and false, well, we are treated like children in school. There is always a teacher who can say to Toto: no, Toto, 2 and 2 is not 5.[3] And you will not tell me that this is what we die from. It is not because we say too often: 2 and 2 is 5. We die, there, from a much more…, a much more aggressive virus, namely the weight of our stupidity, and this is not the weight of our errors, not at all ... not at all ... It is the weight of all the things that we say and that we think and which have strictly, really, no sense. Hence the question "what is nonsense?" This is an infinitely more important and urgent question than the question "what is false? ". And, once again, the false just does not exist.

And when mathematicians… Once again, except under extraordinarily abstract situations, the situation of a child at school, of the gentleman to whom I ask the time in the street, then, indeed, he can tell me something false, he can tell me "it's three o'clock" when it's half past two ... fine, that makes me miss the train, at the extreme, but ... Ah ... A politician in his speeches doesn't tell us false things; he undertakes a much more pernicious operation which is to spin nonsense to an unparalleled degree.

Fine… I am saying: when two mathematicians argue, it happens… science is constituted by polemics. It is in this sense, too, that science is politics. When two mathematicians argue, it is not the situation of a teacher compared to a child; it's not one saying to the other: ah, you thought 2 and 2 was 5. Oh, no. One says to the other or suggests: your thing is fine, but it's without any interest, that is, it has no sense. None ... At that moment, he is using very vague words; that indicates the state of the question and that this is what we should think about. What do we mean when we say, "but this proposition has absolutely no interest", "this proposition has no importance"? This is stuff revolving around meaning and nonsense. No sense, no importance, no interest.

What is the mathematical interest of a proposition? In thesis juries, for example, we see quite well guys that demonstrate… they demonstrate theorems, right? We can always invent theorems if we have a sufficient mathematical background. There we are, why not? No interest! We can always maintain propositions of a philosophical type, but they still must have an interest. What is the properly philosophical interest of a proposition? What is the properly mathematical interest of an equation? There are propositions lacking any interest, that is, lacking any sense. Fine.

So, you see where the theory of types was going; it consisted in saying: one of the forms -- in any case, here, I don't want to go too far -- one of the forms of nonsense, one of the forms that has no sense, so it's worse than false, it's what can be neither true nor false. It is when, in a proposition, one contaminates proposition elements of different types, that is, one constructs a set that contains itself as an element. When I say, "I lie", the proposition bears on itself, under conditions in which it could not bear on itself, so it is devoid of sense. So, at that point, it forcibly is neither true nor false since it doesn't make sense.

You see, I am coming back, then, to my simpler topic: what is a logical formalization? To take up my example again, I am saying the archaic State apparatus looms over or overcodes agricultural communities. So, it is of a different type from farming communities; it is not itself an agricultural community. I would say: the proposition "archaic State apparatus" is of a different type from the proposition “agricultural communities”, exactly as Russell told us: the proposition “Napoleon has all the qualities of a great general” is not of the same type as the proposition “so and so has the particular qualities of a great general”. I mean: formalization -- I am using my expression or the definition I proposed -- logical or logistical formalization is the determination of formal relations between specified elements according to the type of proposition that corresponds to them. [*Pause*] In this sense, formalization sets up a model to be realized. [*Pause*]

I am coming back -- but here, I am almost done with this… this… this… with this first point -- I am coming back to my definition of axiomatics: axiomatics determines uniquely functional relations between any elements whatsoever. [*Pause*] In other words, it proceeds more by the path of formalizations which fit into one another according to the types of propositions, but it ensures a kind of point of contact (*mise en contact*) of universal relations as such, between any elements whatsoever, universal relations with domains… with… of… fields, of the most heterogeneous domains of realization, whereas in the formalization, you always had to go through a homogenization at the level of the higher type. Type 1 sets could not be compared, from a formalization point of view, could only be compared to the extent that they were homogenized by a type 2 set. Type 2 sets could only be compared to the extent where they were homogenized by a type 3 set.

So, there it seems to me that this is very curious. We can clearly see the innovation in the axiomatic process. I would say that the axiomatic is precisely the functional relations that refer to models of realization. Formalization is the formal relations which constitute models to be realized. And, all that I tried to show the last time is that, in the case which concerns us -- here I am starting a parenthesis again -- is that, in the case which concerns us, one could say by hypothesis, but it has not yet been well justified, that unlike the archaic State, the modern State has ceased to be a model to be realized; it has become a model of realization in relation to an axiomatic. [*Pause*] Good. This is extremely difficult, all of that, but finally ... What?

A student: [*Inaudible*]

Deleuze: What is it?

A student: [*Inaudible*]

Deleuze: Oh yeah, well yeah ... as we'll come back to this, that doesn't matter. No, it's just… so, I would like… What?

A student: [*Inaudible*]

Deleuze: It's the formalization, oh well, yes… the formulation? Uh, yes, I was saying… Yes, I just tried to show, very quickly, that, if you will, the archaic State, what we called during all our previous research the archaic Empire, insofar as being an overcoding of community, in a way, it was a formalization. In this sense, it is indeed a model to be realized. [*Pause*] It’s a transcendent model, isn't it? As we have seen, modern states seem quite different. And how are they entirely different? It’s because, this time around, these are no longer models to be realized; these are models of realization. You see that the word "model" has completely changed its meaning, that is: these are the fields of realization in relation to a general axiomatic which is what? That we have tried to determine as being the axiomatic of capital. [*Pause*] But anyway, there, I'm getting ahead of what remains for us to do.

Georges Comtesse: In the example you gave earlier of a formal definition of the axiomatic, you [insist] on the model of realization. But, if you say that, in the model of realization, e =, for example 0, we must suppose that there is only one axiomatic, for example, Hilbert's, which precisely states the possibility of both zero and the successor of zero. So, another problem arises here. The model of realization of the formal definition of the axiomatic supposes an axiomatic which makes possible precisely the assignment of a series of integers [*nombres entiers*] to the model of realization as fulfilling the the formal definition. A problem exists with the axiomatic.

Deleuze: In my opinion, sorry, it seems to me that there are two points in what you're saying. On the one hand, there is the requirement of, precisely, what axiomaticians call not, in fact, a formalization, but a meta-mathematics; the requirement that you're stating would be fulfilled by a meta-mathematics,. And, on the other hand, in the very correct example that you yourself provide, it seems to me that the need to define the successor belongs rather and itself constitutes an axiom, an axiom which intervenes starting from the axiomatic of integers.

Comtesse: That's it. That is, before saying that … [*Inaudible*]

Deleuze: Yes, you need an axiom of succession. [*Comtesse continues to speak as does Deleuze, with barely audible remarks*] I agree completely with that. Completely agree with that. An axiom is required, yes.

Comtesse: We need several axioms… [*Inaudible*]

Deleuze: Okay.

Comtesse: At least four axioms.

Deleuze: Okay, yeah, okay. Oh okay!

Comtesse: The important thing about Hilbert is that, unlike all classical philosophy, all the classical philosophers, Descartes, Leibniz and all the others and even before, who believed that the series of integers was natural, it has to be founded axiomatically. We cannot be sure that if 0 is a number like, for example, as in Hilbert's first axiomatic statement, we have a successor of 0. That is, the possibility of a successor must be axiomatically founded.

Deleuze: Yes, yes, yes.

Comtesse: This is one of the biggest problems in axiomatics. But it can have a role at another level: [the level] of conjugation in capitalism from the most heterogeneous flows.

Deleuze: Oh yes! Yes, yes! Ah, I see what you ... mean, yeah. You, you would give ... that's possible, yes. I'm just saying that everyone understood, I think, that in the very example I cited, remaining with two axioms didn't mean at all that the axiomatic that I was… defining there… that it was enough, was itself consistent, right? Comtesse's remark, namely that this presupposes other axioms, that's ... that's certain. And you ... oh yes, you ... you replaced the story there of an axiom of successibility because you think that there will be a particular use of it at the level of ... at the level of a theory… of capital? It is possible, yes. It's possible.

Comtesse: [They] are completely obsessed by the idea that a successor to zero is required and that zero is a number. The whole controversy is to say ... for example, Frege in *The Foundations of Arithmetics,* if we think that zero is a number, we cannot show a successor of zero, except to insist on this ...

Deleuze: Yeah, yeah

Comtesse: … on this unbelievable nonsense in mathematics, that for there to be a successor to zero, you have to state that zero equals one.

Deleuze: Yeah ... yes, yes, yes, okay. Yes, yes. I totally agree. [*Pause*] Well, then, we'll find that again, at the level of the succession, right, you will say, yes, good. There we are. Have you understood? [*To the students*] Shall I continue or ... shall we stop? Do you want … have you had enough?

Claire Parnet: No, no, let's continue.

A student: Why is it the Anglo-Saxons who discovered [that] ... [*Inaudible*]

Deleuze: Well, why is it the English who have ...? Ah well, they didn't ... No, the axiomatic, they never liked it very much, the English. You know, we find here ... for me, my dream that ... because -- it is not my personal dream -- I tell myself: there is this path in Nietzsche which has never been taken up again, because it is a very dangerous path; one would have to be Nietzsche to… to succeed in things like that, this kind of typology of nations. Why is a particular problem linked to such ... to a particular country? Eh? It's very clear in philosophy, but it is also very clear in mathematics, all that, it is very clear ... Why does a particular country provide ...? It's very odd when Nietzsche starts raving about the English mind, the German mind, the French mind, all that. So, why is it the English who ... for whom the matter ... a problem, it's never ... it is never abstract? I believe theorems are abstract, right, but concrete things in thought, real events in thought, are never abstract. That doesn't mean that this is historical either; it would be necessary to invent quite different categories. But why are the problems signed? … [*Interruption of the recording*] [46: 08]

Part 2

Deleuze: It's curious, nonetheless… Well… is…? I am indeed saying that it is insanely dangerous, that is, we risk falling into the worst platitudes ... of ... by saying: but ... we would have to have the method to speak well about this. So, the English, why is it the formalization, the logistics that fascinated them, and why did they have geniuses on this topic, incredible geniuses? That seems obvious to me; in all fields, then, we should think about the vocation of England for thinking nonsense, for thinking about the problem of sense and nonsense. The English have always been guys who have said… finally, I will sum up. One of their philosophical contributions is… they're quite… they're quite funny, eh, the English. We always say: oh pfff… they don't go far, it's… They have a good laugh instead; they laugh at French philosophy, German philosophy, all that. They say, that's good, but what does all that mean? What does it mean? What does the question "what does that mean?" mean? For the English, we can see very well, they say: oh, these are people who talk to us about the true and the false; only, here it is… they only forget one little thing; once again, it's that the true and the false assume that what one is saying already makes sense; what interests us is: under what conditions does something ... does a proposition make sense?

So, it is in all fields that the English have been perpetually drawn to the question of sense and nonsense. Take their literature: Why is nonsense a driving aspect, that runs through English literature from beginning to end? When you find a page of nonsense, why is it that you know it's English or American? Or Jewish? -- Although Jewish nonsense is not the same thing, but anyway… generally it will not be difficult at that moment to show that it is rather… Except precisely Lichtenberg, him… there are always… little exceptions like that -- But why is English thought, American thought penetrated by this problem of sense and nonsense? Whereas the French, they have always been very heavy, very clumsy, in the question of sense and nonsense. No matter how hard they try ... No matter how hard they try to be light, it hardly works, eh. It hardly works, next to English nonsense, if you think… even in the cinema, if you think of… so, both Americans and Jews… the Marx [brothers], fine, the Marx [brothers] as an art of nonsense….

Fine. Whether it's in literature, from Lewis Carroll to [Edward] Lear to… the whole tradition of nonsense, fine: is it by chance, I am saying, that their philosophers do the same in philosophy? That is, Russell is indeed a sort of great Lewis Carroll of philosophy. Good. So, there are mysteries that escape us… Good… why? Oh, there would be… there would be things to discover, ah yes. At that point one would have to, indeed, well ... come to a clear definition of what nonsense is. Suddenly we might understand why this particularly interests the English and why the French have always missed out, that the Germans are still something else, something else, it's not… [*Deleuze does not complete this*] Yeah, well, fine.

So, there you have it; I would like to make a second remark. There we have my first remark on the axiomatic. I would like to make a second remark on the axiomatic because it will, I believe, be very useful to us later. From everything we have just said, one might think an axiomatic is like a kind of automaticity process (*procédé d'automaticité*) in mathematical discourse. It is like a sort of construction of a spiritual automaton -- "spiritual automaton" being a famous expression in philosophy -- or, ultimately, even more, real automation.[4] Literally, these are the rules of a speech in which you don't know what you are talking about, since you are stating relations between any elements whatsoever about which you do not specify the nature. Not only do you not need to know what you are talking about, but it is recommended that you do not know what you are talking about.

So, fine, one can have this impression that -- and it has been said quite often -- the axiomatic tends and even proposes to expel not only all images in favor of a pure symbolism, but all the resources of the in… of intuition, of construction to replace it with the enunciation of the set of axioms. [*Pause*] And, in fact, one only has to look to see quite well. I mean, at the point we have reached, we can see quite clearly that the axiomatic is inseparable from a type of experimentation, undoubtedly from a very particular type of experimentation, but impossible to define in fact the axiomatic as the expulsion of experimentation; it is rather the constitution of an entirely new mode of experimentation. For I am insisting on this, nothing tells me in advance, if I undertake the axiomatic, nothing tells me in advance which axioms I must choose, and to what extent my axiomatic will be consistent or not, non-contradictory, to what extent it will be saturated or not. I remind you that an axiom is said to be saturated when I cannot add an axiom to the previous ones without the set becoming contradictory. So there can be contradictions in an axiomatic and contradictions which, if necessary, are not visible immediately, can only be seen at the level of the theorems that I deduce from it, but, even more, at what point my axiomatic is saturated?

All that is really ... there is an inventiveness in axiomatics. Before speaking badly of the axiomatic, I believe that we must… we must indicate what is rather extraordinary in… in this adventure of the axiomatic. Very difficult to… there is a kind of… yes, of invention, of creation of axioms. There, then, I completely take up again what Comtesse just said. If you propose an axiomatization of arithmetic, well… yes, you will need some [inventiveness] and then to what extent will it be contradictory or not, when will it be saturated? Now, what does this kind of thing consist of ...? So, it's not at all a thing where… a mechanism would replace, right? I believe that it is, in fact, a mode of experimentation which is itself ... subject to failures, to successes. Ultimately, I would say the same as for formalization; there are axiomatics which have no sense, which have no interest. So, fine… [*Pause*]

As a result, one cannot form from the axiomatic the idea of ... of a kind of constitution of infallible automatic knowledge. I insist on this because, in our comparison that we will make later, in a while, between the axiomatic and politics, we can no longer maintain as an objection the idea that, in politics, we make mistakes all the time, if in axiomatics as well ... So, that is not the question. If I try to define the word, the level of the axiomatic, what will I say? So, I return to the four categories that we have ... that we sketched out. The categories that we have outlined, I would say that, in the end, we should only identify three of them and indicate for convenience that we are not confusing these three concepts.

The first concept is: topical conjunctions between flows. You remember: what we were calling "topical conjunctions between flows" is in the case where flows are decoded. These are the forms in which the movement of flows is as if stopped, tied off, in a particular form or another, and it is the whole domain, as we have seen, that we called the "domain of personal dependencies". So, there were topical conjunctions.

With capitalism, in our previous analysis, we thought we were getting into a very different element. It was no longer…. It was no longer a question of topical conjunctions between flows; it was a question of a generalized conjugation of decoded flows. [*Pause*] And, at that point, there were no longer relations of personal dependence between subjects; there was in the end only one subjectivity, as we have seen: the subjectivity of capital. But we had defined capitalism precisely as the formation of this generalized conjugation which was distinguished from topical conjunctions.

Our question now could be: Isn't there something else yet? Pure hypothesis, right, because there, I ... I ... this is just to have my terminological references. I would say: yes, there might still be something else, and that's the connections of flows, the connections of flows which would not refer… which would be reduced neither to topical conjunctions, nor to a generalized conjugation. Why? Why would there be a need for this notion?

That's what I meant with the experimental nature of axiomatics; it's that axiomatics is still a way of stopping flows, in this case the flows of science. This is one more way to stop. Why? It seems to me that this is striking in the history of mathematics, or in the history of physics, since physics has been very axiomatized. The axiomatic always worked like a kind of stopping point (*arrêt*) ... like a kind of stop, there. It's in this way that I said, "politics of science", where it is a question of saying to people, "ah no, one must ... Do not go any further, because ...", "Do not go any further". Literally, a bit of order needs to be introduced into these flows of scientificity, these flows of mathematics, these flows of physics, etc. It… it flees everywhere, it leaks everywhere, all that, wherever you go, wherever you go. I'm saying that axiomatics, at the start of the 20th century, in the first half of the 20th century, in mathematics, but also in physics, worked as a means of blocking, of stopping.

Well, here is the proposition ... here is the hypothesis that I would offer in the second place, in this second ... in this second remark: it is that, when flows are decoded, for example, flows of science, well ... they escape their topical conjunctions. But aren't they yet moving beyond? Generalized conjugation, generalized conjugation of flows, this is still a way of blocking them, of saying: no, ... For example, imagine, when did the axiomatics of physics have its major, major role? It was when, really, I believe, scientists themselves began to get worried by and about the ways and paths that so-called indeterminist physics was taking. And, at that point, there was a real need for some reorganizing. Everything unfolds as if not only scientists had told each other -- there were also scholars, but not only scholars -- it was as if ... scholars and powers, the powers that were in charge of the politics of science, had told themselves: but anyway, what are these… what are these flows of knowledge which are more and more decoded, which… where are we going? What is this stuff? And [there was] a sort of reorganization which consisted in reconciling what is roughly called indeterminism with determinism. A great French physicist had a fundamental role there, namely [Louis de] Broglie, in this sort of reorganization, and the axiomatics of physics, for example in France, took place starting with Broglie's students. It was really like saying: but indeterminist physics is dragging us into some stuff… [*He doesn't finish*]

That's exactly what I was saying, if you remember, concerning the famous story ... of NASA, flows of capital, flows of capital, flows of capitalism that are all ready to go to the moon, but , there, there is nevertheless a State to say: ah no, no, no! One mustn't … One mustn't go too far. A little reterritorialization has to occur. Ah… And so, we tie it off, we seal it. The axiomatic is a bit like that; it operates a general conjugation of flows which prevents them, I would say, which prevents them from going too far, that is, from connecting with vectors of flight. It operates… how to put it, yes, I can't find any better terms: it operates as a kind of symbolic reterritorialization.

And, in math, it's the same; axiomatics in math really has to do with ... I'm thinking, for example, of the kind of flight of geometries in all directions. And now that didn't work out, right, through the axiomatic; it continues to flow, to slip away… everywhere. The situation of current mathematics, it is ... it is all the same ... very, very curious, when you hear mathematicians talking ... these ... these situations where, really, mathematical knowledge has completely fragmented, where there is a mathematician in Japan who understands what the… what a mathematician is doing in Germany… And then there you go, and then the others… good… This kind of situation where really the flows of knowledge, there, are… are extraordinarily fleeing. Fine. The axiomatic is ... I repeat, the axiomatic is a kind of restructuring, structuring, symbolic re-territorialization.

You see in what sense I would distinguish, therefore, between three concepts: topical or qualified conjunctions between flows; generalized flow conjugations; and something more: connections, that is, what pushes flows even further, what makes them escape the axiomatic itself and what puts them into relation with vectors of flight. So, it is in this sense: isn't there something other than the axiomatic that we could call the connectors type? And I think -- and this is the last remark I would like to make concerning this math story -- I think there has always been something very, very curious in mathematics, and it is about this that I would like to speak to complete his math story because that will continue being useful for us in our parallel with… politics.

At the same period as the formation of the first great axiomatics, to which Comtesse alluded earlier, along with Hilbert and others, coincided a mathematical movement which seems to me of very, very great interest. And there, oddly, to return -- we always find the same problems -- to return to our story: why was the center of this mathematical movement located in the Netherlands? It's curious; there would be… reasons… we would need to find reasons… for that. And a very bizarre, very important school of great mathematicians who called themselves intuitionists, intuitionism or constructivism, constructionism, arose in reaction against the axiomatic. Note well: this is all the more interesting as there were also aesthetic movements that claimed to be constructivist. Fine.

I don't know if there were any possible relationships… I don't know. These mathematicians, I am naming them for… if, by chance, you heard about them in a book… I am naming the principal ones, it was: [L.E.J.] Brouwer, B-r-o-u-w-e-r; [Arend] Heyting, H-e-y-t-i-n-g; [George FC] Griss, G-r-i-s-s, and in France, a very, very curious mathematician, who wrote a lot, who was called [Georges] Bouligand, B-o-u-l-i-g-a-n-d and one of his best books -- but that can only be found, I believe, in a library - is called The Decline… *The Decline of Mathematico-Logical Absolutes* [*Le déclin des absolus mathématico-logiques*].[5] And they were opposed to the axiomatic, I believe, in two simultaneous ways.

On the one hand, they were going in reverse (*en retrait*), because they demanded conditions of construction in space. But, on the other hand and at the same time -- in that sense they were really going in reverse (*en retrait*) -- but in other aspects of their work and their thinking, they were far ahead which, of course, is important to us. They could be both at the same time. As if they had demanded that, literally, mathematical flows go even further, exceed the limits of axiomatics, in particular they had a way of calling into question principles that axiomatics retained, in particular the so-called principle of excluded third, according to which a proposition is true or false, and what they opposed to the axiomatic was -- and there it is very useful for us; I am not saying why yet -- it was what they themselves called, well some of them called, what some of them called a calculus of problems, a calculus of problems and, indeed, when we see what they call a calculus of problems -- notably the mathematician Griss did a lot of calculating of problems in the sense…, there was also a Russian in there… There was a French couple… hey! I recollect something: there was a French couple of mathematicians-physicists, students of Broglie, which represented a kind of epistemological domestic scene [*Laughter*] because the husband was one of the best axiomaticians and the wife was an intuitionist, [*Laughter*] and they had a lot, a lot of talent,… they got divorced, eh, [*Laughter*] but hey…

A student: [*Inaudible*]

Deleuze: [Jean-Louis] Destouches, Destouches, and Paulette [Destouches-] Février yes, yes, yes. She, she was making presentations on calculating problems ... and he was doing axiomatics ... absolutely ...

But, what interests me, therefore… -- this couple is nonetheless… is still very important, because they surely lived a kind of duality of inspiration… -- what interests me is how we can already, in our hypothesis, without specifying anything yet, ask the question: is there not, even beyond the generalized conjugation such that an axiomatic operates, isn't there something else which is of the "connection with particular vectors" type that goes beyond the axiomatic, that is, a calculus of problems as opposed to a determination of axioms? And what would a calculus of problems be as opposed to a determination of axioms? You feel that this is our only chance in politics, if our comparison is founded with the axiomatic. How to get out of an axiomatic?

And if I look into the history of science, into the history of mathematics, I just want to note for the record three cases that seem essential to me in which we would find something of this duality, the opposition of scientific currents, opposition… First case. First case: the opposition of two essential scientific currents in Greek geometry -- I am selecting a distant example -- the opposition of two very important scientific currents in Greek geometry -- if… I am summarizing, it's just… there, really for the record that… and to be able to use it later -- you have a conception of Greek geometry which is very simple, which proceeds by: definitions, axioms, postulates, theorems, proofs, corollaries. This conception of geometry finds its truly royal form with the geometer Euclid. [*Pause*] Do not mix everything up; I am not saying at all that this is already axiomatic. I'm saying it's a deductive system. It is certainly not axiomatic yet, but it is a system that one could call an "axiom-theorem system". [*Pause*]

How to define it, this very general deductive system? I would say that this deductive system consists in defining essences in order to deduce the necessary properties from them. It goes entirely from "essences" to "necessary properties". For example, the Platonic conception not only of mathematics, but more particularly of geometry, is a conception of this type: we go from essences to necessary properties, and this is the definition of deduction, of an ideal deductive science.

And then there is another much more ... bizarre current, from the time of the Greeks. This is a current that is no longer theorematic -- you see I can call the first conception a theorematic conception of mathematics, and it culminates, again, with Euclid -- the other conception is a problematic conception. The essential element of this conception is no longer the category of theorem, theorem to be demonstrated; this is the category of problem to be solved.

You will tell me, and you would be right: but, in the first conception, there are already problems. Answer: yes, there are problems, but problems which are closely subordinate to the theorems. Of course, the two are intermixed, but that's not an argument, that. There is a primacy of theorems over problems. Moreover, to solve a problem, in the first conception, is always to relate it to theorems which allow them to be solved. And, in Euclid, there are many problems, but the solution to the problems is but one and proceeds through the determination of the theorems which will make this solution possible. This is the "theorem" category that wins out over the "problem" category.

But there are some very bizarre geometricians. So, you already sense, those who know a little Greek history… or the history of Platonism, you must think that, perhaps, they are linked, for example, to currents that are known as the Sophists, that they are linked to… to people all the more bizarre since we have lost the texts, but we can… well… [*Inaudible*] well… It's a *problematist* current. And how does the problem differ from the theorem? I am saying, the theorem is not difficult; you go from ... -- well, it is not difficult ... -- you go from an essence to the properties which necessarily follow from it. To create theorems (*Théorématiser*) is to determine the properties that follow from an essence. You define the essence of the circle, and you deduce its necessary properties. I seem to be saying it's easy; it's not easy, of course. On this point, you subordinate all the problems to your theorems. The others do not proceed in that way.

What is the difference between a problem and a theorem? It's that a problem is not of the *essence* type; it is of the *event* type, something happening, or of the *operation* type. You cause something extrinsice to be subjected to a figure; you cause it to be subjected to a painful operation, an ablation, an addition, a squaring, a cubing (*cubature*), a whole surgery of the figure. It is no longer a question at all of looking for the properties which result from essences; it is a question of looking for the metamorphoses which are linked to events. Yes, that seems to me to be a perfect expression, perfect, very clear. That's the "problem" category.

Well, ok, I'm going to cut, here, I'm going to cut an angle into my triangle; what's going to happen? So there, I'm going act so that ... a plane cuts a cone at an angle there. What's going to happen? Good, that's a very, very curious way of thinking. It is an event thinking (*pensée événement*) and no longer an essence thinking (*pensée essence*) at all. Events of a special type will be properly mathematical events. We will oppose geometric essences, ev… properly geometric events. Fine. And there too, you understand, one must harden, one must not harden too much in any case. Of course, in that sense, you will also find theorems, but this time around, theorems will be entirely subordinate to problems.

And I believe that, in Greek geometry, there was a kind of very intense struggle and, finally, there was a victory. The "problem" tendency would have been ... completely, so it ... it has the equivalent of Euclid, that's what we know, for example, of Archimedes' geometry. Good, this is the great Euclid-Archimedes opposition. [*Pause*] These are truly events of geometry as opposed to geometric essences. There you have my first case. You see that here, I can say: a problematist conception was already opposed to the theorematic conception among the Greeks.

Second example: from the 17th [century] to the 19th, from the 17th to the 19th, we agree with ... many authors, historians; they agree in considering that some -- not just one – some conceptions of geometry arise from which we can date so-called "modern" geometry. And along what path does that occur? That occurs along a double pathway. I am trying to define the first path, the reinforcement of a symbolic power, the reinforcement of a symbolic power, that is, to go beyond intuition or representation in space towards a symbolic power. Of what is that the pathway? This is the pathway of algebra. This is the pathway of analytical geometry, and that will open itself onto the whole future of mathematics. But in the 17th century, it was above all the development of algebra and analytical geometry. So there, you see, spatial representation, that is, intuition, is taken over onto the side of the affirmation or the development of symbolic power, yeah, algebra and analysis.

But, at the same time, another current ... if I'm trying to locate names, this is, for example, Descartes. This is very much the pathway of Cartesian geometry, hence the role of Descartes in analytical geometry. And then, among the successors of Descartes: the tendency to make analytical geometry into a completed model for the whole of geometry. But there are also forms of resistance, and paradoxically a whole other coexisting pathway emerges. And this completely different pathway has some strange names and above all ... some strange names because these are rather strange men who introduce it. I am naming one we talked about… back in… I don't know, many years ago… a very, very weird geometrician named [Girard] Desargues, D-e-s-a-r-g-u-e-s, who wrote very little, but whom everyone considers to have been fundamental for the development of modern geometry. So, there is… there is… an old book from the 19th century: *Les Oeuvres de Desargues* [The works of Desargues] and all the adventures of his life. He had all kinds of misfortunes; he was condemned everywhere, in Parliament, he had a trial in parliament… all that. Good.[6]

If I create, if I try to create the lineage… he was greatly interested in… very oddly, he was in contact with stonemasons. You see why, in this second conception, [contact] with stonemasons and stone cutting is quite important? Why? Because stone cutting really belongs to the "what's going on?" type. Obviously, stone cutting is problematic. This is obvious. Rounding, cutting, this is the domain of ... not properties that arise from an essence, but, as was often said in the language of the era, [the domain] of affects or events that transform a figure. [*Pause*] One of Desargues's texts is called, has a marvelous title, a very, very "Lewis Carroll" title even, "Draft of an essay on the events that are determined by the encounter of a cone with a plane" [*Brouillon d'une atteinte aux événements que déterminent la rencontre d'un cône avec un plan*].[7] You see there is the thing: encounter, attacking events. You can sense that this is not Cartesian language here; this ... that langue is part of another tradition. This is the language of the problematist current. Fine, the importance of Desargues is fundamentally recognized not only by Descartes in this, who is quite correct, who in several letters says that Desargues is ... he is a formidable geometrician. But here, this is no longer merely a recognition, this is almost a disciple, but a disciple who ... who ... will surpass the master; this is on Pascal's path. And it is on the path of

Pascalian mathematics and no longer in Descartes's approach that we find the Desarguian generation, the generation following Desargues.

Long after ... -- ah ... Pascal as well, this is a situation ... this is a very bizarre situation in science ... -- long after, you have a famous name as the creator of so-called "descriptive" geometry, it's [Gaspard] Monge. And Monge does not cease formulating a theory that he himself calls, in his language, "a theory of particular affects", and he distinguishes the particular affects of bodies from general properties. And it's in this way, when he deals with physics, it is very important, since he treats phenomena, for example, electrical phenomena as particular affects of bodies in distinction from general determinations of figures of the "space and movement" type. In any case: Monge's descriptive geometry. And Monge, what is this? This is a very, very weird current, because Monge is ... well ... he's fully a scholar, but he's a scholar who is not of the same tradition as the other current. He refers to a character… to a type of character that we talked about, here, in the year … I don't know which one, when we were considering that, namely the engineer, the military engineer, the military engineer's science. This is a very, very strange thing.

And then, so in the line, ... there is really a ... a continuity here, if we try to establish continuities ... there is a continuity, it seems to me, Desargues - Pascal - Monge, and then in fourth case, perhaps one of the greatest -- he has his little street in Paris -- [Jean-Victor] Poncelet, Poncelet who is a great military engineer, but above all, above all, the inventor of so-called projective geometry -- projective, this is problematist; pro-blem equals pro-jection. Literally, it's… it's… it's the same word, one in Latin, the other in Greek – Poncelet's projective geometry, which has a great axiom, which is based on a so-called axiom "of continuity".

And there too, to stick to examples as stupid as the one I chose for the axiomatic, what is the axiom of continuity from Poncelet, in projective geometry? You see ... a circle or an arc, eh, you draw a ... line that intersects the arc at two points, right? These are two real points. You make it move up. The moment comes when there is only one real point. You will continue to tell yourself, you will continue to say: there are two points, but, simply, one is fictitious, or one is imaginary. You move it up again. The line comes out of the circle and no longer intersects ... and no longer intersects anything: you will continue to say that there are two fictitious points; you will have established a series of continuity between heterogeneous cases, namely: three heterogeneous cases, the case where your line actually intersects the circle at two points, the case where your line is a tangent, and, a third case, the case where your line is outside the circle. You will tell me: what is the point of introducing these imaginary points? Ah, yes indeed, I won't tell you, because you must sense that this has a colossal interest, from the point of view of geometry, that it results in a new conception of geometry.

If I try to summarize here, at this level, the example becomes very simple… Yes, it becomes… I would say: in both cases, as well in the conception, in the first conception as in the second conception, that is, on the path of Descartes's analytical geometry or on the path of constructive projective geometry, Monge, Poncelet, Desargues, and so on, in both cases you go beyond ... -- otherwise there would be no science -- in both cases, you go beyond the conditions of spatial representation, that is, you go beyond simple intuition. This is common to both. This is the way in which both are scientific.

But, in one case, you move beyond spatial representation or intuition toward an increasingly consistent power of abstraction, or toward symbolic power. In the other case, I would say, it's a entirely different -- you'll understand -- you move beyond this toward a trans-intuition, that is, you develop a kind of ... space between cases. In one case, I would say, you create a conjugation; in the other case, you create a connection. [*Pause*] You're raising yourself into some kind of… what? A trans-spatial intuition or trans-intuition. You do not go beyond space toward a symbolic power; you are creating connectors of space. You unfold a space common to the three cases: the line that intersects, the tangent line, the line outside the circle.

I would say that my second example overlaps my first one: I will call, if you will, "deductive" or "theorematic" conception the conception which goes beyond the spatial representation towards the power of abstr ... towards the symbolic power, and I will call "problematic" the Desargues, Pascal, Monge… Poncelet's conception which goes beyond the spatial representation towards a trans-intuition or a trans-spatial intuition. And, that the two intermix ... It's possible that at some level, the two intermix, but every time, there are tensions.

I am choosing only one example because I remember it: there is that… Poncelet has a whole polemic precisely with a descendant… and a creator, but a descendant of analytical geometry, a guy who… developed the analysis to a much more advanced level… and… and who… and who is his contemporary, a mathematician named [Augustin-Louis] Cauchy. And the kind of Cauchy-Poncelet tension renews, if you will, under completely different conditions historically, renews the same opposition as the one we have just seen among the Greeks, between a Euclidean current and an Archimedean current. Fine.

I am saying: [here's] a third example in modern mathematics. First path: the formation of an axiomatic power, [*Pause*] an axiomatic power which consists in going beyond spatial representation towards a more and more, how to say, abstract symbolism ... in the sense of a symbolism of any elements whatsoever; and, on the other hand, the problematist or intuitionist current of which people have wrongly -- you see what I mean -- people have wrongly created a conception of it, when that occurs, because I believe that there are math historians who present things in that way, as if my second current here was just regression. But, in fact, it is not at all a current which simply claims the rights of spatial representation and which says "ah well no…" The anti-axiomaticians are often presented as people who simply say: ah, but we cannot do without spatial representation and the axiomatic is wrong. And I don't think this is at all the case. They are much more… the second current is… it is as interesting as the first one; it's not at all… attempting to say: ah, spatial representation must be maintained. It goes beyond spatial representation no less than the other [current]. Archimedes goes beyond spatial representation, but he does so through a method of limits or of exhaustion, that is, metamorphoses of figures and passages to the limit. Poncelet does so with his axiom of continuity. It's weird, by the way, that we call it an "axiom of continuity", "axiom". We should remove the word "axiom"; it's obviously not an axiom of continuity, it's a condition of ... it's a condition of problems, right? It's not an axiom at all ... You can treat it like an axiom, at that point, it's an intersection (*un mixte*), it's a mixture. You see, therefore, I would say: it does not exceed the conditions of spatial representation any less than the others, but, instead of going beyond it towards a symbolism, ultimately a symbolism of the object… [*Interruption of the recording*] [1: 32: 23]

Part 3

… They will establish a continuity between the three discontinuous cases; for example, in the case of Poncelet, you see, the line which intersects the circle, the tangent line, the line outside the circle. So, between these three cases, they cause to flow, or they cause a kind of common line to pass through, a fictitious line… good. But, in this current, it is not the power of the symbol; it is the fiction of an in-between (*entre-deux*). [*Pause*]

So if I summarize, I would say: we are entitled from here on to consider, not yet of course, but to consider better our hypothesis that three concepts must be distinguished: once again, that of topical conjunctions, that of generalized conjugations, and that of connections, connections, at the extreme, I would call it almost creative connections, or anticipatory connections. This will be a different world, anticipatory connections, and they would not proceed via the axiomatic: they would proceed by a calculus of prob ... problems.

Hence the importance that, in the so-called intuitionist or constructionist school, the importance in this school, of ... [*Pause*] what they call precisely a calculus of problems. The book by Bouligand that I was quoting, *The Decline of Mathematical-logical Absolutes*, the thesis, the whole thesis is this, with some very rich, very varied examples: that there would be in mathematics two irreducible elements, one that Bouligand calls "element of the global synthesis", and the other that he calls "the problem element". And undoubtedly, he shows that a problem can be solved only by the categories of the global synthesis, but conversely, he shows, that the cat ... the categories of the global synthesis can only proceed, can only function thanks to germs of problematic elements acting like kinds of crystals therein, acting like viruses therein.[8]

And I believe that, when he analyzes -- this is the strength of this book -- when he analyzes some very concrete cases, even if we do not understand, there are some that we understand, so… he shows very well, he gathers this tradition very well, he doesn't talk at all about the problems that… I have considered historically, but… he's like… the state… of the first half of the 20th century, he is a very, very good representative of this mathematics of events, that is, of this problematist mathematics. There was once a whole ... a whole current of math teachers, anti-axiomati ... anti-axiomaticians, who were trying to create a teaching program of ... [*He does not finish this*]. Basically, we can say the axiomatic won in the contemporary mathematics teaching program, even in the small classes… It is sometimes formal logic, it is sometimes… formalization, sometimes the axiomatic which has won, if you open a math book at even the sixth, fifth, fourth levels.[9]

And there was a whole [anti-axiomatic] current that said: no, no, we must not go in that direction. You have to go, you have to go into a really problematic conception, namely, on the contrary, cause everything to shift, to create mathematics programs above all based not on axioms. It's very funny, I don't know if… if… you would have to have little brothers or…, but well, many of you have seen these books… and then, after all, I'm stupid… you are not my age… so yourselves you are… you may have been… taught with this extremely axiomatized method, in geometry and in… and in arithmetic. In fact, they start off with set theory… I'm not saying this is wrong at all: it's… it's… it feels weird… Myself, I'm from a generation in which it was neither one nor the other. So, that wasn't any better, right? It was something else, it was really the old pedagogy.

But, these teachers that I am thinking of, these mathematics teachers, entirely from high school, they were very good mathematicians, but they demanded a completely different conception: that's what interests me, which was really the construction of problems, because they would say: it is only at the level of the problems that we can invite the students into a kind of activity without it becoming a pure and simple mess, namely, we have them build a problem, and at that point, hey, wouldn't everything come together? Because not every problem has ... what? I mean -- to tie everything together…, all these scattered remarks -- a problem, a problem what? You will never say about a problem that it is true or false. What is true or false is a solution, it is a proof. It's the proof of a theorem. A problem is not true or false. Well, yes there is: we can see what we call a false problem, it is ... it is a problem where there is a mistake. It happens in academic exams (*concours*) all the time; someone creates false problems. Yes, false problems. Ah, there is a mistake, there is a missing piece of data, so this is a false problem. But, otherwise, a problem is neither true nor false as a problem.

Only there you have it, a problem either makes sense or it doesn't. There are problems that just don't make sense. And, then again, that is entirely the same as bullshit (*connerie*). Stupidity perpetually consists in posing problems that make no sense. And there, this is not the domain of the true and the false, it is the domain of sense and nonsense. As a result, we would find our [previous] stories. Okay, so, making mathematical events emerge, that's a different conception than axiomatization, or on the contrary, in axiomatization, we cause the flow of necessary properties starting from a system of axioms. There you go, so I'll again consider, to conclude, briefly… What time is it?

A student: [*Inaudible*]

Deleuze: What? Twelve twenty, my god! You can't take it anymore! [*Laughter*]. It was… Okay, so I'll finish really quickly. I am saying… well, what is the…? At the point where we are, we have at least… made this long, long parenthesis, which brings us to what? So, I am really coming back to my question about the State and politics since that's where I would like to finish this first series of studies this year.

Well, there we are. My question has become a little more precise; it's: what is our interest, if we try to treat the current situation as an axiomatic, under the conditions that I have just stated: the axiomatic is not at all a mechanical knowledge, it is not at all a gimmick without experimentation, it is not at all an infallible method, it is not… But the givens of the current situation like entering into an axiomatic, what happens?

In this case, how are the political problems considered? What does that mean, to treat the current situation as an axiomatic? This means two things: both that we would have reasons to assimilate capitalism to an axiomatic, and also that we would have reasons… I mean, to assimilate -- first point -- to assimilate to… capitalism to an axiomatic, I don't have to do it anymore, because I believe that's what we have done previously. All our definitions of capitalism consisted in saying: yes, capitalism arises when the topical conjunctions are overwhelmed, in favor of a generalized conjugation, in favor of a generalized conjugation of two flows: the flow of wealth, become independent, the flow of labor become "free", free in quotes since… [*He does not finish*] And it is this conjugation or encounters of decoded flows that constitutes capital as subjectivity.

So, fine, we have reasons to consider capitalism as a social axiomatic. The immediate consequence is that political problems are only considered very partially within the framework of countries and States, that political problems immediately are considered, fundamentally, always -- without there being any kind of fundamental reflection; on the contrary, it happens by itself -- are immediately considered in a global framework, right, in the framework of a global system, to the point that it is very, very difficult to talk about what is happening in a country without taking into account -- and once again, this does not imply any special knowledge – without taking into account the entirety of a global situation that distributes data. Third point: this comes down to saying, States and countries are ultimately analogous, let’s say, to models of realization in relation to the axiomatic of capital. [*Pause*]

And finally, [*Pause*] as a last point, we obviously find that this situation is quite… hopeless for us. At least it would be only if we made the axiomatic, precisely, into the idea of a kind of infallible power. Fortunately, we took our precautions. There are plenty of things that escape through the mesh of an axiomatic; there are plenty of things that get the hell out, there are plenty of things that ... that don’t allow themselves to be axiomatized, and that continue to flow through the mesh of the axiomatic, and that's what we are calling the world of connections or the calculus of problems-events, events as irreducible to the axiomatic order at the same time that they never cease being produced within this order.

The question would therefore be: do we have anything to console ourselves with in this? And what would be the problems, or events, what would be the connections that are working the global axiomatics currently, in such a way that, here and there, there might be sources of hope? An urgent problem for us, right? Good. [*Pause*] And I recall – in this way, I’ll land exactly at the point where I would like us to start the next time -- I recall that, in fact, if I return to the mathematical topic of axiomatics ... Here we are: we find ourselves facing a certain number of problems linked to an axiomatic.[10]

So here, the axiomatic-world situation comparison is only valid if we discover something similar to the aggregate of these problems, at the level of the world situation. I would say: the first problem is that, in an axiomatic, of one being able to add up to a certain point and, up to a certain point, to withdraw axioms. This is the problem of addition and withdrawal. A comparison of the axiomatic with the world situation is only valid if we are able to discover at work, in action, this process of adding and withdrawing axioms at the level of capitalism. Is there really an addition and a withdrawal of axioms? Axioms of capital? A first problem.

A second problem, I would say: it is no longer that of addition and subtraction, of withdrawal and addition; it is one of saturation. An axiomatic is said to be saturated when, precisely, nothing more can be added to it. And, in my opinion, although it is not necessarily evident, if there is an author who has treated, who has been able to show us how capitalism works as an axiomatic, it is Marx. And it’s Marx not just anywhere; it’s Marx in a very beautiful, very important chapter of *Capital*, which is the chapter on the downward trend in the rate of profit.[11] And Marx's thesis, which we'll have occasion to look at -- but I would like some of you to consider and reconsider it between now and next week -- Marx's thesis, basically, is that capitalism never stops confronting limits -- there is the idea of limits of capital, at every moment – never stops confronting limits, but that these limits are immanent to it.

This is a very complex thesis, very beautiful but very complex one. You see, it is made of several propositions that are interlinked: capitalism never stops confronting limits; second: these limits are fundamentally, essentially immanent to it; third point: as a result, it does not stop colliding into them, and, at the same time, shifting them, that is, pushing them further… and, further on, it will collide with them again, it will push them more, shift them further. It is this thesis of limits as immanent and not external obstacles, which would make them absolute limits; in other words, it is [capitalism] that creates its own limits, and that therefore collides with them, and that shifts them. This fundamental thesis, I believe, poses the problem of the saturation of what one might call: the saturation of the system at a particular moment or another.

Third, third problem: States and countries ... States and countries, nation-States, can in a way be seen as models for realizing this axiomatic of capital. [*Pause*] In that sense, what is the status of models of realization? What is the measure of their independence from the world situation, in relation to the axiomatic itself? What is the measure of their dependence, etc.? This is another problem, besides the one of saturation of the system.

Fourth… I don't know… yes? Four, is that four? Little four ... Four, yeah. Oh well, we'll see later, right? There are too many, right? There are too many, but fine…. We'll start there the next time. So, try to re-read ... this chapter of Marx, ok? [*End of the session*] [1: 48: 57]

Notes

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[1] Deleuze considers Alois Riegl during the Painting seminar, 12 May 1981.

[2] Deleuze refers to texts by Henri Maldiney on Cézanne during two sessions on Spinoza, 13 January and 31 March 1981 (the latter also being the first session of the Painting seminar).

[3] "Toto" is a name for a stock character in French discourse, a generic child as well as the butt of "Toto jokes" (*blagues de Toto*).

[4] Deleuze attributes this term, "spiritual automaton", to Spinoza during the session on continuous variation, January 24, 1978. He returns to the term in several other sessions: in the first session in the short Leibniz seminar that follows this seminar on the State apparatus, April 15, 1980; and in five sessions during the fourth seminar on cinema and philosophy: October 30, 1984; November 6, 1984; January 8, 1985; April 23, 1985; and June 4, 1985.

[5] Georges Bouligand et Jean Desgranges, *Le déclin des absolus mathématico-logiques* (Paris : SEDES, 1949). See *A Thousand Plateaus*, p. 570, note 61.

[6] On Girard Desargues and his works as well as on conical sections, see the second Leibniz seminar, specifically the session of November 18, 1986, and March 3, 1987, as well as *The Fold. Leibniz and the Baroque*, pp. 20-22 (*Le Pli,* pp. 28-30). Regarding the text *Les Oeuvres de Desargues,* several modern reeditions exist of this text; it was originally edited by Noël Germinal Poudra, published in 1864. See also *A Thousand Plateaus,* p. 365.

[7] The title seems to be slightly different from the one that Deleuze cites: *Brouillon Project d'une atteinte aux evenemens du rencontre d'une cone avec un plan* [Rough draft for an essay on the results of taking plan sections of a cone]. See the study by Jan P. Hogendijk, "Desargues' *Brouillon Project* and the Conics of Apollonius", *Centaurus* vol. 34 (1991), pp. 1-43, http://www.jphogendijk.nl/publ/Desargues2.pdf.

[8] Besides the reference cited above (note 5), Deleuze and Guattari refer to Bouligand in connection with the intuitionist school (*A Thousand Plateaus*, p. 554, note 21) and in connection with Bergson and the dualism of two mathematical elements, the “problem” and “global synthesis” (*A Thousand Plateaus,* p. 556, note 40).
[9] Roughly seventh, eighth and nine grades in American high schools; year 7, year 8 and year 9 in UK comprehensive schools.
[10] As is evident in the preceding session, on the axiomatic and its four problems outlined by Deleuze, see plateau 13 (on the apparatus of capture), Proposition XIII. “Axiomatics and the present-day situation”, *A Thousand Plateaus.* pp. 460-473 (*Mille plateaux*, pp. 575-590).
[11] In all likelihood, this is text in from *Capital,* book III, part III, chapters 13-15. See *A Thousand Plateaus,* p. 567, note 32.