Ladies and Gentlemen!

I am touched by the generosity of the organizers of this conference who not only invited me to come to your glorious city of Paris, but also gave me the honor of opening the Plenary sessions with my presentation. And I am impressed by the ingenuity of our organizers, who suggested to me the title of my presentation. They wanted me to address myself to "Ethics and Second-Order Cybernetics". To be honest, I would never have dared to propose such an outrageous title, but I must say that I am delighted that this title was chosen for me. Before I left California for Paris others asked me, full of envy, "What am I going to do in Paris? What will I talk about?" When I answered "I shall talk about Ethics and Second-order cybernetics" almost all of them looked at me in bewilderment and asked "What is second-order cybernetics?" as if there were no questions about ethics.

I am relieved when people ask me about second order cybernetics and not about ethics, because it is so much easier to talk about cybernetics than it is to talk about ethics. In fact, it is impossible to talk about ethics. But let me explain that later, and let me now say a few words about cybernetics, and, of course, about cybernetics of cybernetics, or second-order cybernetics.

As you all know, cybernetics arises when effectors, say, a motor, an engine, our muscles, etc., are connected to a sensory organ which, in turn, acts with its signals upon the effectors. It is this circular organization which sets cybernetic systems apart from others that are not so organized. Here is Norbert Wiener, who re-introduced the term "Cybernetics" into scientific discourse. He observed: The behaviour of such systems may be interpreted as directed to the attainment of a goal. That is, it looks so as if these systems pursued a purpose! That sounds very bizarre indeed!

But let me give you other paraphrases of what cybernetics is all about by invoking the spirit of women and men who rightly could be called the mamas and papas of cybernetic thought and action.

First, here is Margaret Mead, whose name is, I am sure, familiar to all of you. In one of her addresses to the American Society of Cybernetics she said: "As an anthropologist, I have been interested in the effects that the theories of Cybernetics have within our society, I am not referring to computers or to the electronic revolution as a whole, or to the end of dependence on script for knowledge, or to the way that dress has succeeded the mimeographing machine as a form of communication among the dissenting young." Let me repeat that: "I am not referring to the way that dress has succeeded the mimeographing machine as a form of communication among the dissenting young." And then she continues: "I specifically want to consider the significance of the set of cross-disciplinary ideas which we first called "feed-back" and then called "theological mechanisms" and then called it "cybernetics" - a form of cross-disciplinary thought which made it possible for members of many disciplines to communicate with each other easily in a language which all
could understand".

And here is the voice of her third husband, the epistemologist, anthropologist, cybernetician, and, as some say, the papa of family therapy, Gregory Bateson:

"Cybernetics is a branch of mathematics dealing with problems of control, recursiveness and information."

And here the organizational philosopher and managerial wizard Stafford Beer:

"Cybernetics is the science of effective organization."

And, finally, here the poetic reflection of "Mister Cybernetics", as we fondly call him, the cybernetician's cybernetician, Gordon Pask:

"Cybernetics is the science of defensible metaphors."

It seems that cybernetics is many different things to many different people, but this is because of the richness of its conceptual base. And this is, I believe, very good, other-wise cybernetics would become a somewhat boring exercise. However, all of those perspectives arise from one central theme, and that is that of circularity.

When, perhaps a half century ago, the fecundity of this concept was seen, it was sheer euphoria to philosophize, epistemologize, and theorize about its consequences, its ramification into various fields, and its unifying power. While this was going on, something strange evolved among the philosophers, the epistemologists and the theoreticians: they began to see themselves included in a larger circularity, maybe within the circularity of their family, or that of their society and culture, or being included in a circularity of even cosmic proportions. What appears to us today most natural to see and to think, was then not only hard to see, it was even not allowed to think!

Why?

Because it would violate the basic principle of scientific discourse which demands the separation of the observer from the observed. It is the principle of objectivity: The properties of the observer shall not enter the description of his observations.

I gave this principle here in its most brutal form, to demonstrate its non-sensicality: if the properties of the observer, namely, to observe and to describe, are eliminated, there is nothing left: no observation, no description.

However, there was a justification for adhering to this principle, and this justification was fear. Fear that paradoxes would arise when the observers were allowed to enter the universe of their observations. And you know the threat of paradoxes: to steal their way into a theory is like having the cloven-hoofed foot of the Devil stuck in the door of orthodoxy. Clearly, when cyberneticians were thinking of partnership in the circularity of observing and communicating, they were entering the forbidden land:

In the general case of circular closure A implies B; B implies C; and - O; Horror! - C implies A!"

Or in the reflexive case! A implies B; and O! Shock! - B implies A!

And now Devil's cloven-hoofed foot in its purest form, in the form of self-reference: A implies A! -Outrage!-

I would like to invite you now to come with me into the land where it is not forbidden, but where one is even encouraged to speak about oneself (what else can one do anyway?).

This turn from looking at things out there to looking at looking itself, arose - I think - from significant advances in neurophysiology and neuropsychiatry. It appeared that one could now dare to ask the question of how the brain works: one could dare to write a theory of the brain. It may be argued that over the centuries since Aristotle, physicians and philosophers again and again developed theories of the brain. So, what's new about the efforts of today's cyberneticians?

What is new is the profound insight that it needs a brain to write a theory of the brain. From this follows that a theory of the brain, that has any
aspirations for completeness, has to account for the writing of this theory. And even more fascinating, the writer of this theory has to account for her- or himself. Translated onto the domain of cybernetics: the cybernetician, by entering his own domain, has to account for his own activity; cybernetics becomes cybernetics of cybernetics, or second-order cybernetics.

Ladies and Gentlemen

This perception represents a fundamental change not only in the way we conduct science, but also how we perceive of teaching, of learning, of the therapeutic process, of organizational management, and so on and so forth; and - I would say - of how we perceive relationships in our daily life.

One may see this fundamental epistemo-logical change if one considers oneself first to be an independent observer who watches the world go by; or if one considers oneself to be a participant actor in the drama of mutual interaction, of the give and take in the circularity of human relations.

In the first case, because of my independence, I can tell others how to think and to act; "Thou shalt...", "Thou shalt not...": This is the origin of moral codes.

In the second case, because of my interdependence, I can only tell to myself how to think and to act; "I shall...", "I shall not...": This is the origin of ethics.

This was the easy part of my presentation. Now comes the difficult part: I am supposed to reflect about ethics.

How to go about this? Where to begin?

In my search for a beginning I came across the lovely poem by Eveline Rey and Bernard Prieur that embellishes the first page of our program. Let me read to you the first few lines:

"You just said Ethics? Soon whispers grow into rumour. Roses show nothing but thorns. The topic may be burning, it's also up to date".

Let me begin with the thorns, and I hope a rose will emerge.

The thorns I begin with are Ludwig Wittgenstein's reflections upon ethics in his Tractatus Logico-Philosophicus. If I were to provide a title for this tractatus, I would call it Tractatus Ethico-Philosophicus. However, I am not going to defend this choice, I would rather tell you what prompts me to refer to Wittgenstein's reflections in order to present my own.

I am referring to point Number 6 in his Tractatus where he discusses the general form of propositions. Almost at the end of this discussion he turns to the problem of values in the world and their expression in propositions. In his famous point Number 6.421 he comes to a conclusion which I will read to you in the original German:

"Es ist klar, dass sich Ethik nicht aussprechen laesst".

I wish I would know a French translation. I only know two English translations which are both incorrect. Therefore I will give you my translation into English, with my conviction that the simultaneous translators will do a superb job of giving Wittgenstein's point in French. Here is my English version of 6.421: "It is clear that ethics cannot be articulated".

Now you understand why I said before: "My beginning will be thorns". Here is an International Congress on Ethics, and the first speaker says something to the effect that it is impossible to speak about ethics. But please be patient for a moment. I quoted Wittgenstein's thesis in isolation, therefore it is not yet clear what he wanted to say. Fortunately, the next point 6.422, which I will read in a moment, provides a larger context for 6.421. To prepare you for what you are going to hear, you should remember that Wittgenstein was a Viennese. So am I. Therefore there is a kind of underground understanding which I sense, you Parisians will share with us Viennese. Let me try.

Here is now point 6.422 in the English translation by Pears and McGuiness:

"When an ethical law of the form "Thou shalt..." is laid down, one's first thought is "And what if I do not do it?"
When I read this, my first thought was that not everybody will share that first thought with Wittgenstein. I think here speaks his cultural background.

Let me continue with Wittgenstein:

"It is clear, however, that ethics has nothing to do with punishment and reward in the usual sense of the terms. Nevertheless, there must indeed be some kind of ethical reward and punishment, but they must reside in the action itself."

"They must reside in the action itself!"

You may remember, we came across such self-referential notions earlier with the example "A implies A" and its recursive relatives of second-order cybernetics. Can we take a hint from these comments for how to go about reflecting about ethics and, at the same time, adhering to Wittgenstein's criterion? I think we can. I for myself, try to follow the following rule:

"For any discourse I may have, say, in science, philosophy, epistemology, therapy, et cetera, to master the use of my language so that ethics is implicit."

What do I mean by that? I mean by that to let language and action ride on an underground river of ethics, and to see to it that one is not thrown off, so that ethics does not become explicit, and so that language does not degenerate into moralizations.

How can one accomplish this? How can one hide ethics from all eyes and still let her determine language and action?

Fortunately, Ethics has two sisters who allow her to remain unseen, because they create for us a visible framework, a tangible tissue within which, and upon which, we may weave the Gobelins of our life. And who are these two sisters?

One is Metaphysics, the other Dialogics.

My program now is to talk about these two ladies, and how they manage to allow Ethics become manifest without becoming explicit.

Metaphysics

Let me first talk about Metaphysics. In order to let you see at once the delightful ambiguity that surrounds her, let me quote from a superb article on "The Nature of Metaphysics" by the British scholar W.H.Walsh:

"Almost everything in metaphysics is controversial and it is therefore not surprising that there is little agreement among those who call themselves metaphysicians about what precisely it is they are attempting."

When I invoke today Metaphysics, I do not seek agreement with anybody else about her Nature. This is because I want to say precisely what it is when we become metaphysicians. I say we become metaphysician whenever we decide upon in principle undecidable questions. There are indeed among propositions, proposals, problems, questions, those that are decidable, and those that are in principle undecidable.

Here, for instance, is a decidable question: "Is the number 3.396.714 divisible by 2?" It will take you less than 2 seconds to decide that indeed this number is divisible by 2. The interesting thing here is that it will take you exactly the same short time to decide this question, if the number has not 7, but 7000 or 7 million digits.

Of course I could invent questions that are slightly more difficult, for instance: "Is 3.396.714 divisible by three?", or more difficult ones. But there are also problems that are extraordinary difficult to decide, some of them having been posed more than 200 years ago and have not yet been answered. Think of Fermat's "Last Theorem" to which the most brilliant heads have put their brilliant minds and have not yet come up with an answer.

Or think of Goldbach's "Conjecture" which sounds so simple that it seems a proof cannot be too far away:

"All even numbers can be composed as the sum of two primes".

For example: 12 is the sum of the two prime numbers 5 and 7; or 20 = 17+3; or 24 = 13+11; and so on and so forth. So far, no counterexample to Goldbach's
conjecture has been found. And even if all further tests would not refute Goldbach, it still would remain a conjecture, until a sequence of mathematical steps is found that decides in favour of his good sense of numbers. There is a justification for not giving up but to continue the search for finding a sequence of steps that would prove Goldbach. It is that the problem is posed in a framework of logico-mathematical relations which guarantees that one can climb from any node of this complex crystal of connections to any other node. One of the most remarkable examples of such a crystal of thoughts is Bertrand Russell's and Alfred North Whitehead's monumental Principia Mathematica which they wrote over a period of 10 years between 1900 and 1910. This magnum opus of 3 volumes and more than 1500 pages was to establish once and for all a conceptual machinery for flawless deductions. A conceptual machinery that would contain no ambiguities, no contradictions and no undecidables.

Nevertheless, in 1931, Kurt Gödel, then 25 years of age, published an article whose significance goes far beyond the circles of logicians and mathematicians. The title of this article I will give now in English: "On formally undecidable propositions in the Principia Mathematica and related systems."

What Gödel does in his paper is to demonstrate that logical systems, even like those so carefully constructed by Russell and Whitehead, are not immune against undecidables to sneak in. However, we do not need to go to Russell, Whitehead, Gödel, or to other giants, to learn about in principle undecidable questions, we can easily find them all around. For instance, the question about the origin of the universe is one of those in principle undecidable questions: nobody was there to watch it. Moreover, this becomes apparent by the many different answers that are given to this question. Some say it was a single act of creation some 4 or 5000 years ago; others say there was never a beginning and there will never be an end, because the universe is a system in perpetual dynamic equilibrium; then there are those who claim that approximately 10 or 20 billion years ago the universe came into being with a "Big Bang", whose faint remnants one is able to hear over large radio antennas; but I am inclined to trust most Chuang Tse's report, because he is the oldest and was therefore the closest to this event. He says:

"Heaven does nothing; his nothing-doing is dignity;
Earth does nothing; her nothing-doing is rest;
From the union of these two nothing-doings arise all action
And all things are brought forth."

I could go on and on with other examples, because I have not told you yet what the Burmese, the Australians, the Eskimos, the Bushmen, the Ibo, etc., would tell us about their origins. In other words, tell me how the universe came about, and I will tell you who you are.

I hope I have made the distinction between decidable and in principle undecidable questions sufficiently clear, so that I can present you with a proposition I call the "metaphysical postulate". Here it is:

"Only those questions that are in principle undecidable, we can decide."

Why?

Simply because the decidable questions are already decided by the choice of the framework in which we are asked, and by the choice of rules of how to connect what we call "the question" with what we may take for an "answer". In some cases it may go fast, in others it may take a long, long time, but ultimately we will arrive, after a sequence of compelling logical steps, at an irrefutable answer: a definite Yes, or a definite No.

But we are under no compulsion, not even under that of logic, when we decide upon in principle undecidable question. This is the good news, American journalists would say. Now comes the bad news. With this freedom of choice we are now responsible for whatever we choose. For some this freedom of choice is a gift from heaven. For others such
responsibility is an unbearable burden: How can one escape it? How can one avoid it? How can one pass it on to somebody else?

With much ingenuity and imagination mechanisms were contrived by which one could bypass this awesome burden. With hierarchies entire institutions have been built where it is impossible to localize responsibility. Everyone in such a system can say: "I was told to do X."

On the political stage we hear more and more the phrase of Pontius Pilate: I have no choice but X." In other words "Don't make me responsible for X, blame others." This phrase apparently replaces: "Among the many choices I had, I decided on X."

I mentioned objectivity before, and I mention it here again as another popular device of avoiding responsibility.

As, you may remember, objectivity requires that the properties of the observer shall not enter the description of his observations. With the essence of observing, namely the processes of cognition, being removed, the observer is reduced to a copying machine, and the notion of responsibility has been successfully juggled away.

However, Pontius Pilate, hierarchies, objectivity, and other devices, are all derivations of a decision that has been made on a pair of in principle undecidable questions. Here is the decisive pair!

Am I apart from the universe? That is, whenever I look I am looking as through a peephole upon an unfolding universe.

Or:

Am I part of the universe? That is, whenever I act, I am changing myself and the universe as well.

Whenever I reflect upon these two alternatives, I am surprised again and again by the depth of the abyss that separates the two fundamentally different worlds that can be created by such choice:

Either to see myself as a citizen of an independent universe, whose regularities, rules and customs I may eventually discover, or to see myself as the participant of a conspiracy, whose customs, rules, and regulations we are now inventing.

Whenever I speak to those who have made their decision to be either discoverers or inventors, I am impressed again and again by the fact that neither of them realizes that they have ever made that decision. Moreover, when challenged to justify their position, a conceptual framework is constructed that, it turns out, is itself the result of a decision upon an in principle undecidable question.

It seems that I am telling you a detective story, but keeping silent about who is the good guy and who is the bad guy, or who is sane or who is insane, or who is right and who is wrong. Since these are in principle undecidable questions, it is for each of us to make this decision and to take the responsibility for it. There is a murderer. I submit it is unknowable whether he is or was insane. The only thing we know is what I say, what you say, or what the expert says he is. And what I say, what you say, and what the expert says about his sanity or insanity, it is my, it is your, it is the experts responsibility. Again the point here is not the question "Who is right and who is wrong". This is an in principle undecidable question. The point here is freedom; freedom of choice; it is José Ortega y Gasset's point:

"Man does not have a nature, but a history. Man is no thing, but a drama. His life is something that has to be chosen, made up as he goes along, and a human consists in that choice and invention. Each human being is the novelist of himself, and though he may choose between being an original writer and a plagiarist, he cannot escape choosing. He is condemned to be free."

You may have become suspicious of me qualifying all questions as being in principle undecidable questions. This is by no means the case. I was once asked the question, of how the inhabitants of such different worlds as I sketched them
before, the inhabitants of the world they discover, and the inhabitants of a
world they invent, how can they ever live together? There is no problem to
answer that. The discoverers will most likely become astronomers, physicists and
engineers; the inventors family therapists, poets and biologists. And for all of
them living together will be no problem either, as long as the discoverers
discover inventors, and the inventors invent discoverers. Should there
difficulties develop, fortunately, we have this full house of family therapist
who may help to bring sanity to the human family.
I have a dear friend who grew up in Marakesh. The house of his family stood on
the street that divides the Jewish and the Arabic quarters. As a boy he played
with all the others, listened to what they thought and said, and learned of
their fundamentally different views. When I asked him once: who was right? he
said, they are both right.
"But this cannot be", I argued from an Aristotelian platform, "Only one of them
can have the truth!"
"The problem is not truth" he answered, "The problem is trust."
I understood: the problem is understanding; the problem is understanding
understanding; the problem is making decisions upon in principle undecidable
questions.
At that point Metaphysics appeared and asked her younger sister, Ethics: "What
would you recommend that I should bring back to my protoges, the metaphysicians,
whether or not they call themselves such?", and Ethics answered: Tell them they
should always try to act so as to increase the number of choices; yes, increase
the number of choices!"
Dialogics
Now I would like to turn to Ethics' sister Dialogics. What are the means at her
disposal so that through them Ethics can manifest herself without becoming
explicit. I think, you may have already guessed it already, it is, of course,
language. I am not talking here about language in the sense of the noises that
are produced by pushing air past our vocal chords, or language in the sense of
grammars, syntax, semantics, semiotics, and the whole machinery of phrases,
verb-phrases, noun-phrases, deep structure, etc. When I talk here about
language, I talk about Language, the dance. Very much so when we say "It needs
two to Tango", I am saying, "It needs two to Language".
When it comes to language, the dance, you, the family therapists are, of course,
the masters, while I can only speak as an amateur. Since "amateur" comes from
"Amour", you know at once that I love to dance this dance.
In fact, the little I know to dance this dance I learned from you. My first
lesson was when I was invited to sit in the observation room and to watch
through the one-way mirror a therapeutic session in progress with a family of
four. At one moment my colleagues had to leave, and I was by myself. I was
curious as to what I would see when I could not hear what was said, so I turned
the sound off.
I recommend to you to make this experiment yourself. Perhaps you will be as
fascinated as I was. What I saw then, the silent pantomime, the parting and
closing of lips, the body movements, the boy who only once stopped biting his
nails, ... what I saw then were the dance steps of language, the dance steps
alone, without the disturbing effects of the music. Later I heard from the
therapist that this seeesion was very successful indeed.
What magic, I thought, must sit in the noises these people produced by pushing
air past their vocal chords, and by parting and closing their lips.
Therapy! What magic indeed!
And to think that the only medicine at your disposal are the dance steps of
language and its accompanying music.
Language! What magic indeed!
It is left to the naive to believe that magic can be explained. Magic can not be
explained. Magic can only be practiced, as you well know.
Reflecting upon the magic of language is similar to reflecting upon a theory of the brain. As much as one needs a brain to reflect upon a theory of the brain, one needs the magic of language to reflect upon the magic of language. It is the magic of those notions that need themselves to come into being. They are of second order.

It is also the way language protects itself against explanation by always speaking about itself: There is a word for language, namely, "language"; there is word for word, namely "word". If you don't know what "word" means, you can look it up in a dictionary. I did that. I found it to be an "utterance"? I looked it up in the dictionary. The dictionary said it means: "to express through words".

So we are back where we started. Circularity: A implies A.

But this is not the only way language protects itself against explanation. In order to confuse her explorer she always runs on two different tracks. If you chase language up one track, she jumps to the other. If you follow her there, she is back on the first.

What are these two tracks?

The one track is the track of appearance. It runs through the land that appears to be stretched out before us: the land we are looking at as through a peephole.

The other track is the track of function. It runs through the land that is as much part of us as we are part of it; the land that functions like an extension of our body.

When language is on the track of appearance it is monologue. There are the noises produced by pushing air past vocal chords, there are the words, the grammars, the syntax, the well-formed sentences. Along with these noises goes the denotative pointings. Point to a table, make the noise "table"; point to a chair, make the noise "chair".

Sometimes it does not work. Margaret Mead learned fast colloquial language of many tribes by pointing to things and waiting for the appropriate noises. She told me that once she came to a tribe, pointed to different things, but always got the same noises "chumulu". A primitive language she thought, only one word! Later she learned "chu mulu" means "pointing with finger".

When language switches to the track of function it is dialogic. There are of course these noises; some of them may sound like "table", some others like "chair", but there need not be any tables or chairs, because nobody is pointing at tables or chairs. These noises are invitations to the other to make some dance steps together. The noises "table" and "chair" bring to resonance those strings in the mind of the other which, when brought to vibration, would produce noises like "table" and "chair": language in its function is connative.

In its appearance, language is descriptive. When you tell your story, you tell it as it was: the magnificent ship, the ocean, the big sky, and the flirt you had, that made the whole trip a delight.

But for whom do you tell it? That's the wrong question. The right question is: With whom are you going to dance your story, so that your partner will float with you over the decks of your ship, will smell the salt of the ocean, will let the soul expand over the sky, and there will be a flash of jealousy when you come to the point of your flirt.

In its function, language is constructive, because nobody knows the source of your story. Nobody knows and ever will know how it was: because as it was is gone forever.

You remember René Descartes, as he was sitting in his study, not only doubting that he was sitting in his study, but also doubting his existence. He asked himself "Am I, or am I not"?: "Am I or am I not"? He answered this rhetorical question with the solipistic monologue "Je pense, donc je suis", or in the famous Latin version "Cogito ergo sum". As Descartes knew very well, this is language in its appearance, otherwise he would not have quickly published his
insight for the benefit of others in his "Discourse de la méthode". Since he understood the function of language as well, in all fairness, he should have exclaimed: "Je pense, donc nous sommes", Cogito ergo sumus"; or "I think, therefore we are!"

In its appearance, the language I speak is my language. It makes me aware of myself: this is the root of consciousness.

In its function, my language reaches out for the other: this is the root of conscience. And this is where Ethics invisibly manifests itself through dialogue. Permit me to read to you what Martin Buber says in the last few lines of his book "Das Problem des Menschen"12:

"Contemplate the human with the human, and you will see the dynamic duality, the human essence, together: here is the giving and the receiving, here the aggressive and the defensive power, here the quality of searching and of responding, always both in one, mutually complementing in alternating action, demonstrating together what it is: human. Now you can turn to the single one and you recognize him as human for his potential of relating. We may come closer to answering the question: what is human? When we come to understand him as being in whose dialogic, in his mutually present two-getherness, the encounter of the one with the other is realized and recognized at all times."

Since I cannot add anything to Buber's words, this is all I can say about ethics, and about second-order cybernetics. Thank you very much.

Notes


