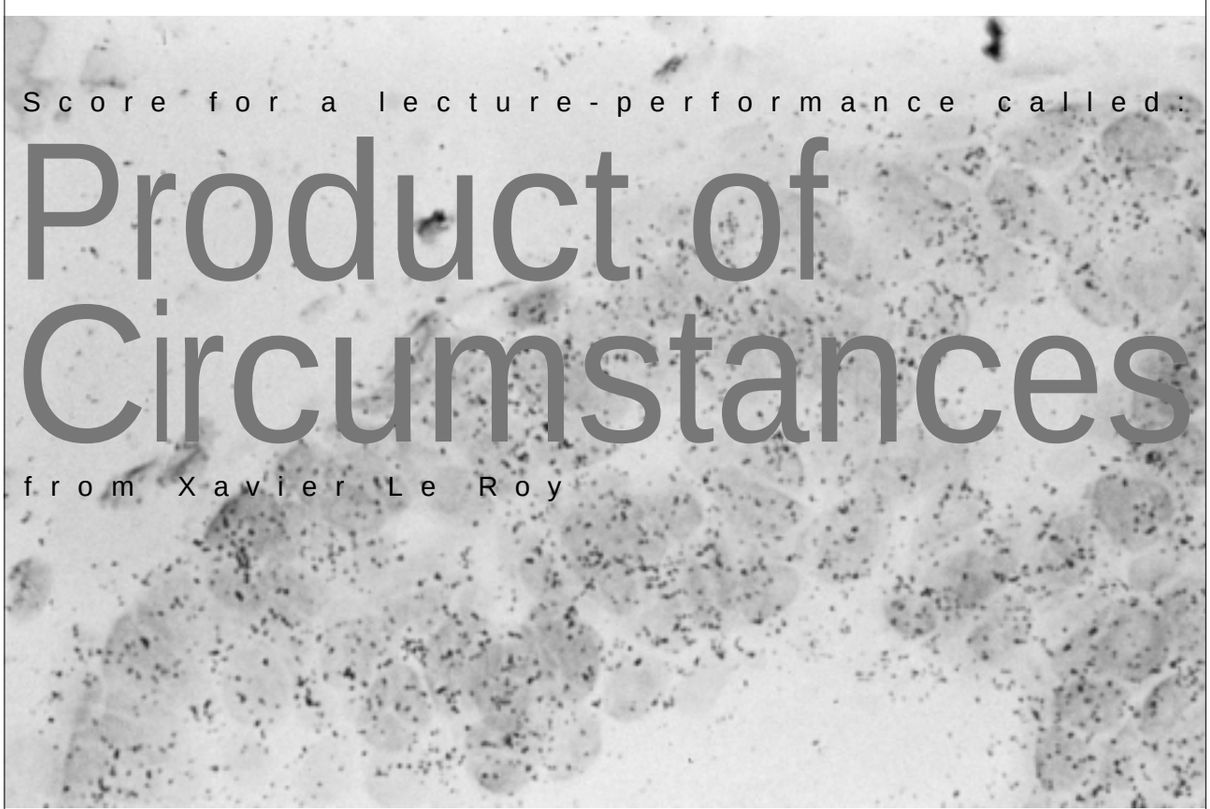
# ESPACIO

# CONCEPTS

Score for a lecture-performance called:

# Product of Circumstances

from Xavier Le Roy



**XAVIER LEROY**
vive y trabaja en Berlín.
**x.leroy@caramail.com**

# Product of Circumstances

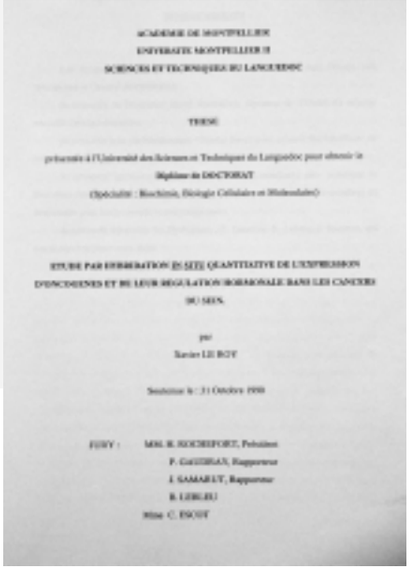
This performance was originally presented in a theater (Podewil-Berlin) and can be presented in any situation allowing for an audience in front of a stage and a screen for slide projection (theater, conference room, etc). The light should be, insofar as is possible, the same on stage and in the audience space. The intensity should go down for slide projection but should never black out. The light is on at the beginning and at the end of the performance and never goes off. According to the space you might use a microphone, a conference desk, a slide projector, a chair, a pillow and any other props you might want to use to transform this performance.
The text is written in an English corresponding to my ability in this language, it is part of the presentation and should be read as clearly as possible. The performance should, as much as possible, present each element as a matter of fact trying not to emphasize any one of the aspects. Try to perform without irony, sarcasm, romanticism or any affliction which could transform the facts. The performance of each element should stay as close as possible to the matter-of-fact. Every text which is not in a square should be said or read. The cursive framed texts are instructions to be executed.

Good evening Ladies and Gentlemen. I will do this performance in English and if you have questions at the end of this performance I will be glad to answer. ■ The title of this performance is: "Product of Circumstances".
In 1987 I started to work on my Ph.D. thesis in molecular and cellular biology and at the same time I began to go to dance classes once a week. ■ I finished my Masters degree and received a scholarship from the French government to write my thesis. I was admitted to work in a laboratory specializing in research on Breast Cancer and hormones. The same year I started to look at a lot of dance performances during the summer festivals in the south of France where I lived. ■ I was still playing basketball and my body was trying to stretch itself.

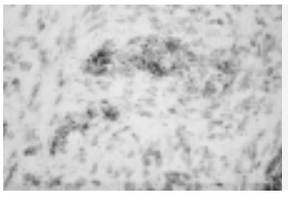
■

I leave paper and microphone, go 3 steps to the side. I do a stretching exercise bending my torso over trying to reach the floor with my hands (20 light bounces). My hands don't go down further than 20 cm from the floor, as it was at this time (1987). Then I return to the microphone.

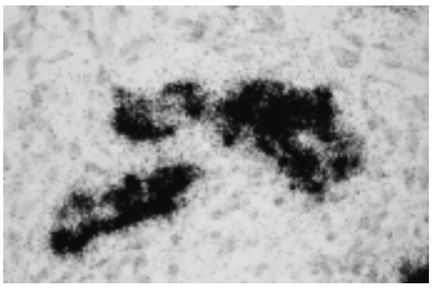
The title of the thesis I submitted in October 1990 was:
**Slide#1:** thesis title
**STUDY OF ONCOGENES EXPRESSION AND HORMONAL REGULATION IN BREAST CANCER USING QUANTITATIVE *IN SITU* HYBRIDIZATION (h.i.s)**



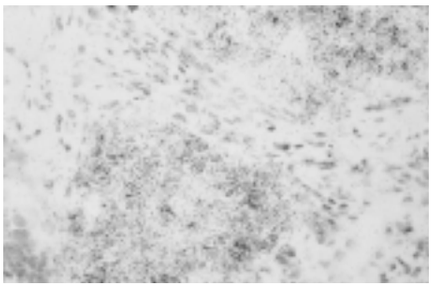
Oncogenes are genes which after alteration at a structural or expressive level have the ability of transformation and are then part of some cancer mechanisms. ■ Oncogenes can be altered by punctual mutation, genetic rearrangement, amplification or over-expression of the oncogene. ■ When in the laboratory my task was to study *in vivo*, in human biopsies, the expression of oncogenes in breast cancer. ■ The usual techniques used to study the RNA or protein expression in culture cells are not well-adapted to detect gene expression in human biopsies, because most of the time the biopsies are too small for RNA or protein extraction and the heterogeneity of the tissues makes it impossible to localize the studied expression.■ So we chose to develop and use a new technique called: *in situ* Hybridization.
*in situ* Hybridization reveals the presence of messenger RNA (mRNA) on tissue sections by using a probe of the tested gene marked with radioactivity. After hybridization of the tissue section with this probe the slides with the tissue sections are exposed for two weeks in a black room and then developed (like a photograph) in D19 Kodak Dektol. The tissues are finally stained with hematoxylin and eosin. The nuclei appear in blue and the cytoplasm in pink. ■ The slides are then observed under a microscope and the presence of mRNA is visible as black dots or grains on the tissue sections.



**Slide#2:** is a photograph of tissue section under the microscope after *in situ* hybridization with the oncogene *c-myc*
On this slide you can see a section from a biopsy of ductal breast carcinoma and the black grains reveal the expression of the oncogene *c-myc* in cancer cells.



**Slide#3:** is a photograph of tissue section under the microscope after i*n situ* hybridization with the oncogene *c-erbB2*
On this slide you can see the expression of the oncogene *c-erbB2* at the RNA level in an invasive ductal breast carcinoma.
It's easy to notice a quantity difference in the number of grains between the two previous examples and also in the next one.



**Slide#4:** is a photograph of tissue section under the microscope after *in situ* hybridization with the oncogene *c-myc*
In this example it is also clear to see that the grains are visible in some zones but not in others. It shows how this technique allows you to localize the expression of the tested gene.
You can see here the expression in the epithelial tissue but not in the stromal tissue.

So as you can see the technique allows you to localize the expression of the tested gene.
And the different examples show a clear difference of quantity of grains.
But to get useable results from these experiments we had to be able to differentiate the quantity of expression of the tested oncogene and translate this quantity into numbers in order to make comparative and quantitative studies of the RNA expression useable for statistic studies. ■ One way is to count the grains visually one by one but this requires about 2 hours for each chosen field under the microscope. So my first work was to develop a method to be able to count mechanically the level of RNA detected by i.s.h. on tissue sections, in collaboration with computer scientists.

I go to a chair which is almost in the middle of the stage staying one third of the way from the left side, I take the pillow off the chair and stand up on top of the chair to perform the first 5 min. from a piece I did in 1994 called "Things I Hate To Admit". The dance is made out of movement where my arms are stuck (without artifice, only physically and mentally) against my torso from the arm pit to the elbow, which I imagine to be my shoulders. Then I go back to the microphone.

In order to count mechanically the black dots we used a microscope connected to a camera and a computer with a software developed specifically for this task. ■ First we select a field from the studied tissue section under the microscope. Then we take a picture from this field with the video camera which is on top of the microscope. This picture is then entered into a computer where it is digitalized and the digitalized pictures appear on a video monitor where the processing can be followed. ■ It take us 10 minutes with the help of the computer to count one field and it's already much better than the 2 hours needed for a visual counting. This results were published, and it was the first time that I participated in a scientific publication.
At that time I took 2 or 3 dance classes a week and I was trying to learn how to do this kind of exercise:

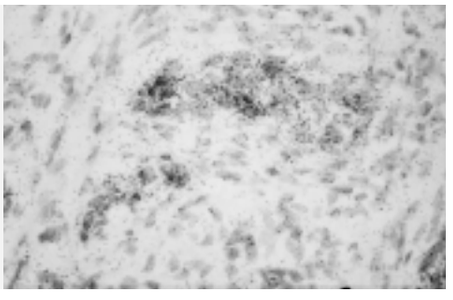
I leave my papers and the microphone, take several steps to the side and do the exercise in 6 (or other) from Merce Cunningham. After that I do a diagonal with a combination of triplets which are adapted according to the space in which I am performing. Then I return to the microphone. ▸ ▸ ▸

During all this period I spent a lot of time looking at sections of human tissues under the microscope trying to learn how to recognize the histological differences between normal and cancer cells and between the different types of cancer. I remember that it was sometimes difficult to make a clear and objective decision about which of the numerous existing categories the observed tissue belonged to, even for the very experienced researcher. But the decisions had to be as objective as possible. Looking into the microscope I very often had the feeling that while I was observing the tissue, I was at the same time transforming what I was observing. ■ I had the feeling that my decisions were subject to influence. I felt every decision challenged my ÒobjectivityÓ and i felt no longer able to maintain my objectivity or that I could not be objective.

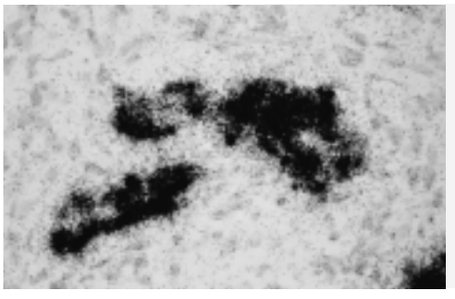
I asked myself : how objective must I be in order to be able to continue to practise science or more specifically biomedical research? ■ But I quickly forgot these thoughts to be able to continue my work.
So after we developed this mechanical method of quantification we first studied the expression of oncogenes from the group of the fibroblast growth factor like genes.
This work was the first subject of discord with my laboratory director.■ We argued a lot and his experience and social position quickly became more important than any scientific argument. The discussions were rarely about scientific problems or questions; it was all about career, power and hierarchy. ■ I was learning the importance of publication and that publishing articles is the major credit of the scientist to create and protect his position in society. I was learning that research has to follow and use the method of capitalism.
I was asked to produce science, not to search.
During this time I took at least one dance class a day, I did some yoga and I regularly began to visit an osteopath. These corporeal experiences laid the ground for the necessity of a new understanding of the body or new theories about the human body.

I leave my papers and microphone and walk to the center of the stage. I lie down on my back with the soles of my feet on the floor and knees toward the ceiling. I stay there for one minute. Then I go back to the microphone.

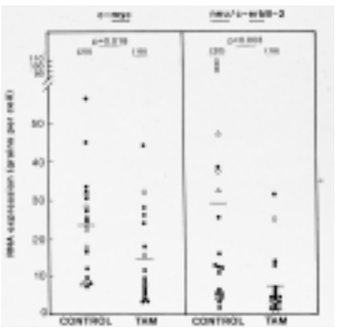
The next phase of my work in the laboratory was to study the regulation *in vivo* of oncogenes by Tamoxifen. ■ Tamoxifen is a chemical used for therapy against breast cancer because it has the ability to inhibit the effect of steroid hormones which are probably playing a role in the development of breast cancer. ■ We studied the effect of tamoxifen on RNA levels of *c-myc, c-erbB2, hst* and *int-2* in 19 biopsies of breast cancers from patients treated for 3 weeks prior to surgery and compared the results with 22 control patients. The RNA levels were measured by *in situ* hybridization and with the computer aided quantification as described before. ■ We found that all four oncogenes were expressed in breast epithelial cells and that the expression in the stromal tissue was negligible. ■ As you can see on the next slide.



**Slide#5:** example of *c-myc*
Can be the same as slide#3
You can see here an example of a clear difference of expression from the gene *c-myc* between stromal and epithelial cells in an invasive ductal breast carcinoma.



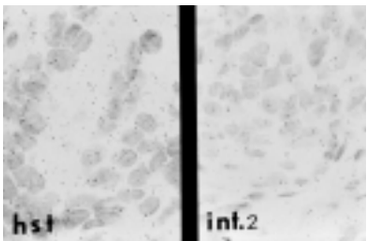
**Slide#6:** example *c-erbB 2*
Can be the same as slide#4
And here in the same area from the same cancer tested with the gene *c-erbB-2* which is clearly more expressed than *c-myc*



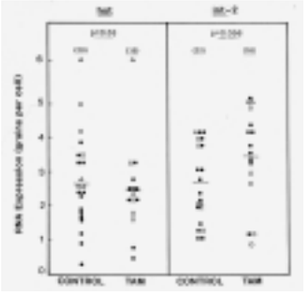

**Slide#7:** Graphic with difference of expression of c-myc and c-erbB-2 between 2 populations
On this figure is represented the expression of *c-myc* and *c-erbB-2* in the two different populations (treated by tamoxifen and the control). For both genes the expression is high in the control population (with a mean value of 23.4 for *c-myc* and 29.1 grains / cell for the gene *c-erbB-2*), and significantly decreased in the Tamoxifen treated population (mean value 14.6 and 7.4 grains / cell).

## The results for the genes hst and int-2 were much less spectacular.

**Slide#8:** is a photograph of tissue section under the microscope after *in situ* hybridization with the oncogene *int-2* and *hst*




**Slide#9:** Graphic with difference of expression of int-2 and hst between 2 populations
As you can see on this example *int.2* and *hst* RNA show very low levels of expression with an average of 2 to 3 grains / cell.
The *int.2* and *hst* RNA levels were not found to be significantly altered by the treatment.



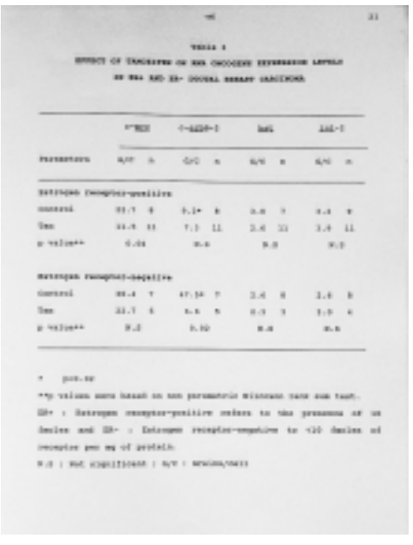

## All these results were used for statistical analysis in order to look for possible correlation.

EFFECT OF TAMOXIFEN ON RNA ONCOGENE EXPRESSION LEVELS IN PR+ AND PR- DUCTAL BREAST CARCINOMA* POPULATIONS

| | c-myc | | c-erbB-2 | | hst | | int-2 | |
|---|---|---|---|---|---|---|---|---|
| Parameters | G/C | n | G/C | n | G/C | n | G/C | n |
| **Progesterone receptor positive** | | | | | | | | |
| Control | 23.8 | 12 | 16.7* | 12 | 2.9 | 9 | 3.0 | 11 |
| Tam | 13.8 | 10 | 7.4 | 10 | 2.6 | 10 | 4.0 | 10 |
| p value | N.S | | N.S | | N.S | | 0.03 | |
| **Progesterone receptor negative** | | | | | | | | |
| Control | 22.7 | 7 | 47.7* | 8 | 2.6 | 6 | 2.7 | 6 |
| Tam | 16.7 | 7 | 7.5 | 7 | 2.4 | 4 | 3.0 | 6 |
| p value | N.S | | 0.01 | | N.S | | N.S | |

* p=0.05

**Slide#10:** Table of correlation between oncogene, RNA expression and their DNA amplification in control and treated populations of ductal breast carcinomas
The statistical analysis showed a correlation between gene amplification and expression for *c-erbB.2* (with a p. value of 0.0005) and for *hst* (with a p value of 0.02) in the control population. No correlation was detected for the oncogenes *int-2* and *c-myc* in both populations.



**Slide#11:** (table 3) statistical analysis, correlation with estrogen receptor status
The effect of Tamoxifen on the RNA expression in ductal breast carcinoma with or without estrogen receptor showed that Tamoxifen significantly decreased for the *c-myc* gene expression in the estrogen receptor positive population (p=0.04), while surprisingly the elevated *c-erbB 2* RNA expression was more significantly diminished in the population estrogen receptor negative (p=0.02).

The results suggest that Tamoxifen *in vivo* decreases *c-myc* and *c-erbB-2* RNA levels in breast cancer cells and has no effect on the expression of *hst* and *int*-2. And it seems that the mechanisms of regulation of these two oncogenes by antiestrogens are different. ■ Tamoxifen seems to be able to interfere at the DNA level or RNA levels either using or not using an interaction with the estrogen's receptors. ■ To find about these different mechanisms the perspective would be to develop an experimental protocol using, for example, different lineages of breast cancer cells presenting different status of estrogen receptor.

I had as a result of these 3 years of work some other conclusions and questions like: Why do we try to give a homogenous picture of the results when they are so heterogeneous? ■ Can we trust statistics? What is the meaning of statistical results? ■ About statistics I would like to quote some about risks of breast cancer highlighted by Yvonne Rainer in her film "Murder Murder". She reports that the probability of breast cancer is higher in the lesbian population than in the heterosexual population. Which means that when a woman comes out as a lesbian she increases the risk of breast cancer from one day to another, all because her relationship towards a woman changed.

During my practice of science, I also asked myself: what is the point of getting ever more specific? Is it really the way to understand the human body? ■ It seems very strange to study by isolating micro-systems out of their context for analysis in a laboratory environment. ■ This experimental system, like any other technical-scientific system, is responsible for the results. They impose the answers to problems, which are no longer about the original questions but about their transformation.

I had believed that trying to understand the cell as the microcosm of our body could be a very interesting model if it was not described and studied only by using mechanistic systems in order to create a myth out of it. ■ The human body is not organized only in the way that biology would like to organize it.

All these remarks may be pretty naive but I had the feeling that science was about understanding problems made up to give us the impression and the satisfaction of a total control of the questions on the human body. I had another, idealistic understanding of science and slowly I lost my faith in science. I lost this very distinguished belief specific to science which sees itself as a right of access to truth and to a different world.

▸ ▸ ▸

These 3 years of work taught me that doing some laboratory research is 50% of the time making reports writing articles, publications that prove that you're actually working on a productive subject. 30% of the time is used to think how you could be productive. The rest of the time is for experiments, observations and analysis.

I realized that research in biology is primarily about power and "politics" and rarely about an understanding of the human body.

As Guy Debord wrote in "Commentaire sur la société du spectacle" ("Commentary on the society of spectacle") published in 1988:

"We soon notice that today's medicine is not allowed to defend the population's health against the pathogen environment because it would mean being opposed to the state or to the chemical industry"... "We no longer require science to understand or improve the world. We ask it to instantly justify everything that is done. In order to satisfy this final request it's better to no longer think and to have very good practice in the discourse of the spectacle"

Maybe my experience is very specific to biomedical research? ■ Maybe it would have been different if I had done fundamental research in physics, for example?

In 1990 after I submitted my thesis, I ended my career as a molecular biologist. I escaped. I decided to do more contemporary dance. ■ Thinking became a corporeal experience. ■ My body became at the same time active and productive, object and subject, analyzer and analyzed, product and producer. ■ It became a field to be used and extended for questions. I entered a spiral of reflections centered on corporeal experiences not forgetting that thinking is one of them.

I leave the microphone, go to the chair, sit almost at the center of the stage with my back to the audience and perform a part of the beginning of "Burke" (piece created in 1997). This part plays with movement which gives the illusion that my arms are cut at the elbow by folding my lower arms behind the rest of my arms. I perform this simultaneously thinking and imagining that my arms stop at the elbow. When I finish I return to the microphone.

◂ ◂ ◂

# I went to Paris where I took more dance classes. And I did some of these:

I leave the microphone and repeat the second part of 3, then I return to the microphone and say:

During this year in Paris I went to auditions. I remember that one time I was rejected because I was too skinny but most of the time it was because of the lack of technique that I was not accepted. So I tried to practise more of these:

I leave the microphone, step aside do some Cunningham-like développés, then I return to the microphone and say:

It didn't really help. My enthusiasm for contemporary dance and my fascination for the diversity of bodies moving on stage were mixed with disappointment and a feeling of exclusion. My body was resisting the norms of dance. ■ Maybe I was too old? ■ Maybe there was something wrong with my body? ■ Maybe it was this...

I leave the microphone, go to a wall (or screen) backstage then I extend my arms against it from the floor to the highest point I can reach, keep this point with my finger, stand against the wall under this point still marked by my finger, mark between my hands the distance between the top of my head and the highest point, then I show this distance to the audience and return to the microphone.

After a year of dance classes and auditions I finally got a job as a dancer in a company. I was fitting in, I was very proud and very excited. I remember we were working on the body as a metaphor for desire, war and other themes. Under the direction of the choreographer we were trying to express something by creating movement sequences supposed to answer his questions and desires. I had to learn movement from others to be able to reproduce them and be part of group dances, and most of the time it was difficult for me. ■ I will now show an example for this.

I leave the microphone, go somewhere on the stage and dance a part (called "la caresse") from the "Materiau-Désir" created by Christian Bourigault in 1993.

In 1992 I moved to Berlin for reasons of love. ■ Except for one or two groups I found the dance scene uninspiring, but I began to practise a little bit of contact improvisation and I also took some Alexander technique classes. These experiences changed a lot of my perceptions about the human body.

I leave the microphone, go to the chair, sit down and stand up Alexander's way, then I go into the space and improvise taking the balancing of arms in space as a beginning. Then I return to the microphone.

I began to work with a multi-disciplinary group using video, theater and dance. With this group I began to ask myself questions about the definition of dance. ■ I was more and more disappointed by most of the performances that I saw. Watching a lot of them from a lot of different groups coming from all over, I could less and less imagine working with one of these choreographers.

## So in 1993 I began to work alone.

My body became the practice of a critical necessity. ■ I began to use my body for questions about, body images, identity, differences. ■ I worked on creating function and dysfunction of the body with an analytical almost scientific method. ■ The first choreographies were constructed by creating linkages between fragments of bodies voluntarily taken apart as maybe a biologist would do to analyze them. ■ Performing these movements was about inscribing or encoding something which could be described as a go-between, between mind and body, seen as a moving entity. ■ It was a way to work on the mind/body opposition and on the idea that, just as the mind organizes the rest of the body's tissues into a life process, sensations and perceptions, to a large degree, organized the mind. Sensations and perceptions do not simply give the mind material to organize; they are themselves a major organizing principle. ■ I don't think that dance is reduced to handling the questions about sensations and perceptions. I think that it has a much larger field of action.
So I continued to deconstruct and reconstruct my body to choreograph some movement sequences. ■ I have already demonstrated 2 different examples of this, extracts from a triptych called "Narcisse Flip" and I will now demonstrate another excerpt from "Burke" which was the third part of the triptych.

Parts from "Burke": Go side to side, arms around, leading and changing direction 3 times. Then body parts in all directions until my arms go away, acceleration all performed as if my arms were not mine and then return to the microphone.

The first choreographies I worked on were presented during private events called "Pressure Presents". The first one was in end of 1993. ■ It was proposed by a musician and musicologist friend who suggested that we could offer each other some works in order to push us to find a form to present them. The idea was to take the works out of an exclusively personal experience. The decision to present a piece of dance, music or anything else could be quick and the exchange was great.

Since then we have had the chance to have some support from institutions and have been invited to present different pieces to bigger audiences in different places in Europe. ■ But this success, recognition or attention slightly changed my way of thinking. ■ I lost a degree of independence. ■ I slowly noticed that the systems for dance production had created a format, which influences and sometimes significantly determines how a dance piece should be. To a large extend, dance producers and programmers follow the rules of the global economy. ■ I had adopted the economic dynamics of dance production because I wanted to be able to make a living with what I had decided to do. ■ But, while I was very careful not to be influenced by that particular logic, simultaneously aiming for acceptance and resistance, I was not always completely convinced by my decisions. ■ It reminded me of earlier experiences and made me think about the utopian and idealistic reasons which made me give up the work of research in medical biology. ■ My status within society had changed, but I found myself in a blurred field of similarities between the social and political organizations of science and dance. I felt like a fugitive who actually never escaped what he thought he was escaping. ■ I needed to change the ways of changing and work more critically. ■ At the same time I realized that the content of a piece was not enough for a critical position.

During the same period, in 1996, I had the luck to be invited by a dance company working on the re-creation of dance pieces that have played an important role in our modernity. The project was to work on the re-creation of "Continuous Project -.Altered Daily", a piece by Yvonne Rainer created in 1970. ■ This project was very important for me and it still exerts a huge influence on my work today. ■ It offered more than just an access to the history of dance through the practice of it, which was already a great experience. It also answered a lot of my questions. ■ Because this project was very aware of all the aspects implied in the production of a dance piece.
For example, the practice of dance questions the body and the process of work as well as composition methods and everything could be related to social and political questions and criticisms. Like, for example, individual responsibility and group conscience takes over power and hierarchy during the process of work as well as during the performance.

**It was also a lot of fun to do and I will now do some of it for you. first I will do "running" and then the "Chair and Pillow" dance.**

I leave the microphone, run around the stage (time changes according to each performance), then I take a pillow and a chair and do the "chair and pillow dance" from Continuous Project — Altered Daily (Yvonne Rainer 1970)

In 1997 in collaboration with a composer musicologist I carried out a project called "Das To.Be. Projekt". This project was about exploring different types of relationships between dance and music or sound and movement. It was presented as a row of speculative experiments trying do give different ways of perception to the audience where listening was as important as watching.

After all those experiences it became more difficult to think about producing a dance piece. Some times I even thought it was not worth doing a dance piece.

## Since then I have tried to work on questions like:

Can the production of a dance piece become the process and the production in itself without becoming a product in term of performance and representation? ( I mean something else than improvisation or the abused concept of work in progress which is now most of the time used as an excuse to present some "Unfinished" piece.) ■ What kind of organization do I want to use or propose for which body? For which process of work? For which performance? Is it possible to work on all these parameters at the same time? What is performance? ■ Is the human body an extension of the environment and the environment the extension of the body?

As Elisabeth Grosz suggests in her book "Volatile Bodies", the human body is not a stable system or a centered organization either at a biological level or at a historical, psychological or cultural level. She also suggests that any "body-image" is a continuous process of production and transformation. ■ Considering this, a perspective of work in the dance field could be to look for ways to change the predetermined organization of the body in order to transform the form of performance and representation. ■ Changing the outside in and the inside out. Changing the way of changing. ■ Based on these ideas or concepts of the body I am looking for ways to explore the performance of human and non-human bodies in a process of transformation and mediation.

Beginning at the microphone, do the section; "simultaneous sound and movement" from the beginning of "self-unfinished", go to the chair, sit, stand up, return to the microphone and take a few steps before reaching the microphone; quit this state of movement for a "normal one".

This was the beginning of a piece called "Self-Unfinished" I was working on in 1998 when I was invited to participate in an event about performance and theory. I was invited because as a dancer and choreographer, my currency in the "society of the spectacle" is to be an atypical dancer or a dancer molecular-biologist. ■ For this event I was asked to think about the possible theoretical pathways between biology and performance. ■ It was a very interesting challenge to try to make something out of this. ■ But it was impossible for me to get onto an abstract and theoretical level. I could not generalize or conceptualize. I could not write a "real" paper or lecture for this conference. ■ So I decided to stay at a personal level and give some information about some possibilities of exchange I experienced as a support for different thoughts. I was afraid but I took the risk to be maybe too egocentric hoping that I could provoke some questions.

## Now, to end this lecture I would like to suggest a conclusion:

This performance was about a contaminated body and its interweaving of historical, social, cultural and biological factors, a body that is the place and time for a bridge between different thoughts, a body unable to transform into abstraction and theory.

And maybe theory is biography, presenting it is a lecture and doing a lecture is performing.

Thank you for your attention and I'll be glad to answer any questions you might have.

I go to the audience in order to answer the questions and try to change my position in the audience room, not staying in front of them.