In this paper I will summarize an investigation in some cultural and ontological effects of the redefinition of the body in biomedicine, examining the relation between the ongoing technologization of the human body and the shift to genetic research, in their implications for a feminist theory of the body. Contemporary feminist and science studies have increasingly dealt with the importance of biological and technological paradigms, especially in their converging interest for the female body (e.g. Haraway 1997, Knorr Cetina 1999, Leigh Star 1999, Rapp 1999, Katz Rothman, 1998). In order to exemplify the connection of biological and technological systems, I will analyze some technoscientific artifacts: biomedical images accessible on the Internet.

Biomedical and digital technologies seem to define new forms of representation of the body and life. In fact, looking for images of female bodies, I found interesting representations of organs and other human parts, all presenting various characteristics, except for a common criteria underlying narrative, which is that body and life are information. Consequently, I argue here that in contemporary technoscience there is a specific aesthetic shift that connects anatomy and biotechnology. They both rely heavily on digital technologies: bioinformatics, digital scanning, nanotechnologies, lasers, silicon chips, and photographic devices. The techniques of visualization involved in the production of these images rely heavily on processing, combining and arranging pieces of information. In short, the images I will discuss here illustrate powerfully the change from a conception of human life connected to a body, to a “relocation” of life both at
a sub-individual levels (as is the case in genetic research), or outside of material bodies, in “cyberanatomies”.

I argue that biomedical and digital technologies seem to displace the human finitude of the body (for example changing the body through plastic surgery or “exiting” the body by virtual identities) and expand or reduce too different scales the places where power lies (in the genes, not the organ, in connectedness rather than in the individual’s knowledge) (Haraway, Deleuze, Foucault). Nevertheless, under the apparent openness to different scales and mixings, old discourses of hierarchies and control over nature remerge. Biomedical technologies are ultimately based on a paradigm of extraction, destruction, creation and reproduction, whose effects have material consequences for gender, race and species power relations. This is why I consider a crucial issue for feminist research the development of a critique of biomedical and digital technologies, which may appear to be vaguely connected to gender politics in its traditional focus on feminists’ re-appropriation of the body. However, The paper intends to go beyond the simple criticism of the dominant scientific discourse. Rather, this discussion is intended to outline ways to relate to the technologies developed for scientific purposes from a feminist perspective.

Scientific methods and research

This paper draws from critical science studies and feminist theories of the body as a useful a background to question the notions of gender difference and inequality, undermining truth and science’s neutrality.

Science is based on the assumption of the neutrality of the observer and the experimental methods. Similarly, social sciences, "born" as a discipline during the enlightenment and the industrial revolution, rely largely on the development and the acceptance of the scientific model. During last century, as a consequence of many social and scientific changes (just to name a few: Heisenberg's principle of indetermination, relativity theory, end of colonialism, psychoanalysis,
Nazi genocide, television, DNA, computers, cold war, nuclear technologies, transnational capitalism) the conception of knowledge changed greatly, and with it, the relationship between the "scientist " and the object of the research. In particular, feminism, post colonialism and critical ethnography posed the questions of "who is speaking for whom". Feminism has contributed to the idea of marginal subjects (objects of research) having a voice, criticizing social scientists for appropriating "the other" ‘s voices. Similarly, ecology and anti-racist thinking have posed crucial questions on the meaning of research and on the scientific method. With the "advent” of deconstruction and the linguistic/post-modern turn, epistemology becomes a crucial socio-political question. Since we cannot separate ourselves and our object of knowledge, this shift goes beyond the epistemological level into ontology. The scientist, his or her methodology, the detection devices and the "studied subject" are dynamic and mutually constitutive of each other. If we cannot separate our object of knowledge from our location, as Harding argued, then we inhabit knowledge, our knowledge is situated and we are constructed by it (Haraway).

Interestingly, while in the realm of hard sciences high energy physics was dominating the show, in biology, in the same period, the focus shifted from species and organisms (characterized by intelligible and relatively simple functions) to DNA (“the code of the codes”), and into molecular biology (Cetina). In this context, it is crucial to recognize the influence of cybernetics on all sciences, war, and social relations since the ‘40s. Cybernetics developed system theories of control and response, flows of information. This paradigm became the model for developments in artificial intelligence (Hayles) and, conversely, the body became an artificial intelligence system (Haraway, 1989). Science redefined itself with the potential -or the pretense- to control life and death, by controlling and organizing flows of information. Ultimately, as the DNA model tells us, life is information (Haraway 1997).

**Feminist critique of science**
The most interesting implication of the aforementioned points is that technology; science, production and life are mutually constructed and always changing. If we follow the feminist critique of science, we consider the influence of "scientific" discourse on social sciences as a crucial problem to address. Contemporary feminist and science studies have increasingly dealt with the importance of biological and technological paradigms, especially in their converging interest for the female body. One example is Rosalynd Petchesky’s critique of the refunctioning of sonar technology from military to medical purposes, with the diagnostic use of ultrasound to produce images of internal organs and fetuses, as a way in which biomedicine exert more control than in the past over the female (the mother’s) body. Another example is Karin Korr Cetina’s feminist research on scientific epistemologies, based on transforming scientists and laboratories into "objects" of her ethnographies, in order to undermine their "objective" neutrality, and to explore what kind of knowledge they produce. Finally, Donna Haraway critiques science as part of larger social cultural discourses, to highlight the general epistemological shifts that impact all beings (including animals and plants). The possibility of resistance suggested by her feminist approach is the appropriation of the scientific military paradigms (exemplified in the ideas of the cyborg, or diffraction), in order to subvert and use them to denounce inequality, racism and patriarchy.

While these approaches in feminist research and theory are absolutely crucial today, they still have problematic aspects: all these feminist critiques function only in a derivative relation to science. It would be necessary to points out possible experimental ways of researching and theorizing which explore new ways to engage with biotechnologies in a challenging, not derivative way. In fact, all the examples described here show how the embodiment of knowledge (especially in the case of non-hegemonic bodies) and experience is an important element in all-feminist theories. This emphasis inevitably makes the study of the body as a central object for
feminism, especially in the project of criticizing biomedicine. Today feminist critique has to shift the to digital and biotechnologies because they drastically modify our assumption of the body and life (Haraway 1989).

**Redefinitions of the body and life**

As noted above, there seems to be a consistency in the parallel developments of the narration of biotechnology and digital technologies: both are expansions to our bodily limitations, both tend to open infinite combinations, They both rely heavily on processing, arranging pieces of rich and vast information (Poster). Most interestingly, both seem to displace the human finitude of the body, to expand or reduce to different scales the places where power lies (Deleuze, Foucault). For example, the clonation of a sheep -named Dolly- posed the question of reproduction in new terms, displacing the conception of motherhood and introducing the reality of clonation. In other words, the value inherent to the capability to reproduce is no longer located in the unit of the individual -the mother- but at the level of the genetic material s/he carries (Sawicki, 1991). Ultimately, life can be “outside” of the whole organism, and different organisms can be combined thorough their DNA, to create something else.

What happens to the body, then, if we think in terms of life as, in a sense, “disembodied”, if life is seen as energy, intensity, and movement of information? If we assume that life has now been redefined as a matter of presence, image, or information rather than biological being (Haraway). As a consequence, the body is seen as multiple, constantly changing in its boundaries, not unitary. One interesting postmodern shift in the conception of the body is the fact that once the limitations of Cartesian dualisms (mind/body inside/outside, male/female, culture/ nature) are left behind, we can think instead in terms of surfaces, as Deleuze and Guattari propose in a new model of “molecular” politics: bodies can be without organs, and perceptions can distribute.
Undoubtedly, there are many risks to a conception of life totally abstracted from embodiment. One of the risks is that the body is reduced to a more and more alienated condition of control, surveillance, and commodification of its parts. For example, some of the latest research in anatomy has come about from digital cameras applied to sliced bodies of executed prisoners. In a similar vein, genetic research extracts and compares strings of letters representing proteins, genes, chromosomes” from laboratory animals - their genes are modified and added to others, as in the case of the oncomouse™, or the famous rat with a human ear on his back. In both cases, the individual’s whole body is redundant; it’s preferable to have organs without bodies.

Simultaneous to the increasing selection and valorization of the specific components of some bodies, the biomedical sciences have no use for millions of humans who are considered to be unwanted, redundant obstacles to accumulation, and who are consequently left to die (in wars, migrations, famines, toxic poisoning or epidemics). One important example of this process is the increasing need in the Western countries for cheap labor in the sector of caregivers. Increasingly, nurses, nannies, the care takes of babies and elder people are immigrant women, whose work is precisely to perform functions of care in a western family to sustain economically the life of their own families in their countries of origin. In a sense, their situation is emblematic of the view human bodies as machines, whose functions and needs are dealt with by exchange and labor; in this case, it is also clear how the investment in life, affection and emotions is increasingly abstracted form the body: the genetic material of Dolly the sheep, is immensely more valuable that the life of an immigrant woman.

It is starting from this view of life and bodies that I approach the parallel processes of technologization of the human body through biomedicine and digital machines. It is clear that these are not two separate phenomena, but rather specular reflections of a general shift in values.
The human body and its life are no longer the units where we invest our resources, energies, emotions and affection. Economic and scientific interests are found in genes (chromosomes, proteins, etc.) while, at the same time, care and value can be experienced in relationship with machines or disembodied entities (such as cyber girlfriends or genetic maps). In order to understand how these post-human ideas and material entities work and what kind of knowledge and social relationships emerge, I looked at two examples of technoscientific representations of life and the body: the Visible Human Project and the visualization of DNA through digital technologies. The questions I pose are: what kinds of bodies does science look at? What do science value of them? Where and how can a feminist view enter this discourse critically?

The origins of Anatomy From drawing to digital photography

The first important Anatomy texts are Andreas Vesalius’s *De Humanis corporis fabrica*, published in 1550, characterized by a beautifully poetic prose and accurate engravings of dissected bodies. The second most impressive systematization of anatomical knowledge was published in 1685 by Goffredo Bidloo with the title *Anatomia Humani corporis*. In this case, the division between the medical art of dissection and the art of pictorial representation was already present. The engravings by de Laraisse that accompany Bidloo’s writings are extremely theatrical and beautiful. In both cases, anatomists were particularly interested in the dissection of women’s bodies, especially pregnant women.
A feminist critique of anatomy is that visual representations of female bodies served the purpose of constituting a normative gender category, mapped onto real women’s bodies in order to discipline them (Jordanova). Anatomy, according to Jordanova, is a science of invasion, aggression and public display, that still today does not prove very useful to women’s health (as the accounts by Sedwick and Adrienne Rich powerfully demonstrate). Interestingly, the ways in which anatomy represents its objects shifted greatly, as the Visible Human Project proves.

The visible female (human) project

The Visible Human Project® was developed by the national library of Medicine thanks to a 1.4 million $ grant. “It is the creation of complete, anatomically detailed, three-dimensional representations of the normal male and female human bodies. Acquisition of transverse CT, MR and cryosection images (7000 imgs total) of representative male and female cadavers has been completed. The two bodies were frozen, sawed into four sections, packed with dry ice and dissected. The male was sectioned at one millimeter intervals, the female at one-third of a millimeter intervals. (...)

The Visible Human Project data sets are designed to serve as a common reference point for the study of human anatomy, as a set of common public domain data for testing medical imaging algorithms, and as a test bed and model for the construction of image libraries that can be accessed through networks. The data sets are being applied to a wide range of educational, diagnostic, treatment planning, virtual reality, artistic, mathematical and industrial uses by over 1,400 licensees in 42 countries. The long-term goal of the Visible Human Project® is to produce a system of knowledge structures that will transparently link visual knowledge forms to symbolic knowledge formats such as the names of body parts.”

Such is the official description on the VHP webpage.
When we look at VHP images, there is nothing that reminds us of humans, of our organs, because the slices are so detailed and large in scale that they show “something else”. In a sense, in their accuracy and details, these images of the body do not fit the imaginary of the modern science of anatomy in which to each organ corresponds to a function: they have an excess of information and no unitary function. After all, the emergence of anatomy in the 15th century “abetted hierarchical specialization by inscribing regions and systems on the body as distinctive” (Moore and Clare, 2001: 58).

While searching for images of the Visible Human project, one can find practically no mention of the humans who inhabited these digitalized images - all the specificities have been removed, together with the social origins of these bodies (as mentioned earlier, the first laser-sliced body was an executed prisoner). In terms of social categories, the two bodies do presents an interesting gendered opposition. The man, a prisoner, sentenced to death, probably unhealthy, nobilitated by science in the final act of his pitiful life. The woman had always been healthy and a perfectly moral sociopolitical subject is acceptable by science in her non-threatening, post-menopausal sexual phase. In both cases, their lives and stories are not valued, in contrast to their symbolic universality as information.

The extreme care involved with the processes of obtaining the slices and producing the images does not have anything to do with care for the life of a human. The object of care is not the person, but the transparency and flow of information. The digitalization of the human is
beyond life, the body is technologized even in death. The result is an incredibly ugly assemblage of human parts. This is a considerable shift from the previous ways of representing human anatomies, in which the visualization of internal organs was characterized by graceful, even erotic charm. The cadavers were represented in abandonment, almost as sleeping, offering their bodies to dissection, to the scientist, which as often portrayed in picture (See Perniola’s aesthetic discussion of the work of deLaresse). On the contrary, the slices obtained in the VHP have no reference to a real body, no trace of the material act and actors involved in the process of creation. Their digital perfection is chilling, yet their meaning is only understandable with a previous knowledge of anatomy (More and Clarke, 2001:77). What is more, “the Visible Human Project transforms our notions of space and time” (ibidem).

**From the visible body to 3D computer models**

These digital images are so beyond the unit of the organ, so much “below” the unit of the body, so difficult to think of as human, that they inevitably have to be recomposed to a larger scale. This may be the reason why digital scanning and photography (already obsolete) are just the first steps towards the construction of three-dimensional models of organs, to be studied by thousands of doctors and researchers as the most extensive source of anatomical knowledge ever. It is clear that the universalization of a specific knowledge deriving from one body has negative consequences for the emergence of differences and counter discourses that may challenge today’s anatomical theories (ibidem).
New scales for studying the human

Another fascinating aspect of the Visible Human Project is the development of ad-hoc-software to navigate and interact online with the slices - the so-called “visible human browser”. Clearly, technoscience has moved beyond the limitations of ultrasound visualizations of fetuses. The idea of the browser is so familiar to anyone who owns a computer that it is by now a basic way by which we think/organize time and space (back-forward-reload click-select-delete). The only specific new element to the “visible human viewer” is the zooming interface, by which it is possible to change view across body parts, change angle and zoom into details. Not surprisingly, the same organization of information in a browser, capable of navigating space/time and scales, may be found in the representation of genetic files. In the pervasive technology of the browser, its common use that makes it already invisible, is the proof of the technologization of bodies and information. We can be viewers of body parts, constantly shifting point of view, and, changing the scale of our vision, redefining the spatial relationship between us and our “object of
knowledge.” Digital technologies are not only new machines, but also powerful epistemological tools.

**The DNA**

My search for the representations of the DNA encountered again many “browsers”, similar to those developed to navigate the human body. First, I discovered with slight disappointment that the entire sequencing of the human genome is downloadable in 5 zipped files. Then I realized that the files had to be read by specific software, able to re-assemble the information and display it on a screen, using a “browser”, it is also possible to navigate through segments of the genetic sequences, and to zoom to different scales and visualizations. Here again it is practically impossible to separate the role of digital technology from the genetic material. The “gene” is so full of information and so redundant (after all, 99% of it is considered to be junk DNA) that it has to be “cleaned”. It is so invisible and metaphorical that it must be symbolized by letters and colorful bars, transferred into a silicon chip and processed. For example, the exploration of a mouse’s gene is only possible by much navigation, where inscriptions and infinite re-readings are presented.
Surprisingly, immensely valuable genes are relatively simple to buy, to extract from lab animals and to compare. The files are accessible. It is the interface and processing that is the expensive part. In genetic maps and representations it is not even necessary to take care of the preservation of the body from which the information/life came from. In order to exemplify this idea, I will here specifically analyze the genechip as a material semiotic entity, an artifact epitomizes contemporary technoscience and the processes of disembodiment.

What is the genechip?

The GeneChip system, made by the Affymetrix Corp. of Santa Clara, California, paved the way, and is still the system of choice for many pharmaceutical companies and academic labs that can afford it. Affymetrix uses a photolithographic method borrowed from the electronics industry to deposit probes for thousands of different genes on a single wafer the size of a dime. Each probe is a short stretch of synthetic DNA called an oligonucleotide that replicates a unique sequence identifying a gene. These "oligos" are laid down in precise, sequence-specific arrays. To determine which genes have been expressed in a sample, researchers isolate messenger RNA from test samples, convert it to complementary DNA (cDNA), tag it with fluorescent dye, and run the sample over the wafer. Each tagged cDNA will stick to an oligo with a matching sequence, lighting up a spot on the wafer where the sequence is known. An automated scanner then determines which oligos have bound, and hence which genes were expressed. Affymetrix sells a variety of standard kits for yeast, Arabidopsis, mouse, rat, and human genes, among others, which are listed at $500 to $2000 per chip. (The chips are good for one use.) The company donates equipment to collaborators at major genome centers, but few labs get free chips and few can afford the estimated $175,000 it costs to install an Affymetrix setup. Several researchers claim that, until recently, it was also hard to get GeneChip arrays because supplies were short.

To use such system, scientists isolate mRNA from their cellular sample, tag it with a chemical marker and pour it over the chip. By observing where the sample mRNA matches and binds to the cDNA on the chip, they can identify the mRNA sequences in their sample. Earlier this year Affymetrix launched two new sets of chips for analyzing human-cell samples. One allows researchers to identify more than 60,000 different human mRNAs; the other can screen cells for roughly 1,700 human mRNAs related to cancer.

Conventional structural biology is based on purifying a molecule, coaxing it to grow into crystals and then bombarding the sample with x-rays. The x-rays bounce off the molecule's atoms, leaving a diffraction pattern that can be interpreted to yield the molecule's overall three-dimensional shape. A structural genomics initiative would depend on scaling up and speeding up the current techniques. *(Gene Therapy Weekly, Key, 1999)*

Clearly, the development and spread of microchip and computers is based on the need for processing information fast. Similarly, “scaling up” refers to processing large units of
information, which ultimately is a related to the speed of the processor that allows the scanning of large arrays of DNA sequences.

These description still beg the question of what changes in the employment of computer chip for the “objects studied” and for their materiality. I simply believe that the embodiment disappears: the body is merely the production site; the animal, whether a lab mouse, a fruit-fly, or a zebra fish, is too literal to be visible. In contrast, genetic software and hardware are so abstract and beautifully complex that their visibility is considered to be important both aesthetically and economically.

*The “birth” of bio-informatics: visualizations and wording*

I will give here some textual examples to emphasize the level of metaphorization inherent to the gene as a discourse, shaped by digital instruments. It is evident that the genetic research websites are designed to attract investors and therefore choose a non-technical way to describe the lab activities. Accordingly, the descriptions of the gene and the entire sequencing project are quite simple, and can be summarized as follows: the genechip contains junk and variations that are stored, valuable, or rather, very precious. Technologies can decode information in the cell (the original) that we can isolate, take out, manipulate, put somewhere to incubate for future developments of a new life form. These technologies speak an interestingly information oriented language: "robust data", "clean sequences". Most of the debate in scientific journals, is precisely focused on the few companies that produce microarrays (genechips), and the quality of their data. From the Affymetrix website, we can read: “versatile and powerful tools for the analysis of a common studied plant model organism” (the name of the specific plant is irrelevant).

All the example given here show how biomedicine care immensely for the genetic material, and for its implications for the future of pharmaceutics, as long as it is divorced from its origins. In other words, genetic technologies are valuable to the extent that they can re-enter the circuit of
social and economic value, in the form of possible cures.

If it is clear that life and machines are being constructed as more and more inter-related and indistinguishable from humans; it is also true that machines are not only part of the process of knowledge, but that they are also material artifacts increasingly rendered “alive” as is the case of bioinformatics.

**Biotechnology**

As discussed above, the biotechnological paradigm is based on principles of extraction, destruction, creation and reproduction of organs and parts (embryos, or cadavers) or genetic characteristics taken from various species. In this context, the body appears to be conceived as an accumulation strategy (Harvey), a “highly militarized system of strategic differences in the arena of imagery and practice” (Haraway 1989).

Basically, from a feminist perspective, it is very easy to criticize the discourse of biotechnology as another myth of man conquering life (cracking the code), entering the ultimate adventure to discover the secrets of life and dominate it. The body of nature becomes the passive object from which man is able to reduce new forms of life. Not suprisingly, biotechnology has had a notoriously difficult time in finding acceptability in the realms of politics, society and ethics. According to the Krokers, the editor of the online journal *Ctheory*, biotechnology and the human genome project are aimed at *facilitation* (medical improvement of life span, based on the moral duty if increasing the life chances for everybody) and *control* (decoding, controlling informationally and surveilling all forms on life). These two characters define what they call “the genome and its infotech ideology”(Kroker 2001). My impression is that biotechnologies have been rightfully resisted not only because of their aim to *control life informationally*, but also for other serious political implications, which I will briefly summarize in the following points:
The politics of biotechnology for a PowerPoint presentation

- domination of nature by human technology- Monsanto’s terminator gene
- negation of the processes of destruction of life and production in science (reduction of patented varieties)
- selective research on genes and supposed universality of the “discoveries”
- location and extraction of the matter from the margins for the knowledge of the centers (basmati rice from India re-engineered and copyrighted by Monsanto to be sold globally)
- expansion beyond the given limitations (ending motherhood and the genetic unpredictability of the baby)
- control and reproduction of life at a molecular biological level (clonation of the father)
- determinism that reduces the role of the environment to inertia

Let’s consider how these points could be undermined by feminist critique. The key question is: What are our possibilities in rethinking the logic of biotechnologies? There are no simple solutions to the project of engaging with biotechnologies in a challenging, non-derivative way. Nevertheless, I would like to think that there are possibilities for using feminist theory and research to resist and transform the biotechnological paradigm of extraction/destruction of organs and other human material. Haraway states, in a quite metaphorical way, that “perhaps our hopes for accountability in the technobiopolitics within postmodern frames turn on revisioning the world as coding tricksters, with whom we must learn to converse”(1989). Following Martin’s call to awaken scientific metaphors to be able to create counter discourses useful to women, I envision a production of feminist research on genetics and the body inspired by the goal to give back biological metaphors and "living machines", outside of the established hierarchies of classificatory science. In short, feminist theory and research should subvert information and
reassemble it to redefine life without a specific function or value for dominant technoscience. Some other metaphors and conceptions which could be useful for the way feminist research chooses to relate to technologies developed for scientific purposes are presented below:

- feminist research could highlight the inconsistencies and contingent nature of databases and classifications, even at the bio-molecular level. As a hypothetical example, perhaps the speed-up involved in the race to “crack the genetic code” in recent years, runs the risk of killing the living “objects” of classification (Leigh Star).

- feminist research should develop a sensibility for machines, and a recognition of non-human elements and intelligence. Feminist biomedicine should recognize computers and networks as living systems, whose processes may well be processes beyond human control, following Heidegger’s remarks in *The Question Concerning Technology*.

- Finally, feminist research should increase solidarity and empathy among beings. These relationships should not be ordered according to marketable qualities or anthropocentric evolutionary hierarchies. We should value symbiosis. How shall we imagine a symbiosis between oncomouse©, paramecium, robot, fruit fly, fish, human and networks?

**Conclusions**

I intended to analyze here digital images of the female body. I argue that the representations I discussed do not give the sense of a unitary body. From the formal aspect, much of the biomedical images are constructed by digital technologies and specifically by the browser, which redefines our sense of space and time.

Clearly, the history of biomedicine, and the specific developments of anatomical images of the human body, have not been aimed at improving women’s health. Rather, they have imposed discipline and norms to our bodies. In a modern paradigm, organs had functions that
composed and organized the whole individual. Today, not only the integrity or beauty of the body and its organs are not valuable, but rather the value lies in subindividudal characteristics, namely, the genetic material. The importance of genes is inevitably related to digital technologies that make possible their representation.

If information is today the universal commodity -as Haraway and other theorists argue-the value of information is a complex social construction. Bits of information are valued because of the extrapolation from their context, in their fragmentation into molecular bits, in their flexible, abstract ability to be interconnected, stored, copied and pasted back together with incredible speed. Similarly to the digital information systems, the value of DNA is given when it is broken in reproducible, transportable chips, to reassemble, compare, move, and store. In short, the value is not in its materiality, but in what genes can do in the combination with other bits of information, abstracted from the source. In my view, the most interesting quality of the representations of body parts and genes is their similar organization. For example, it is equally possible to browse through a human body as through the genetic material. This proves that genetic and anatomic representations rely on highly symbolic orders, on a homogenized organization of knowledge, in which embodiment and experience disappear. Moreover, the role of the context, or the environment -in biological terms- is dismissed altogether, making a specific information or model a universalized standard body. All these examples show the pervasive, underlying narrative of life as information, which confirms the relevance of Haraway’s conception of the biopolitics of postmodern bodies (1989).

Undoubtedly, the representations here discussed emphasize the negative aspects inherent in the logic of biotechnology. As feminist thinkers, we are inevitably confronted with the question of how to engage with the discourse that makes these technologies, in a critical way. Even if I am not able to answer the question, I believe that feminist research should be considered
a project of protection of species and diversity, where information can be subverted in order to accomplish an effective politics against the dangers of biotechnologies. Feminist science studies should increase solidarity and empathy among beings, and recognize radical different life processes, in which living systems, including computers and networks, can be in relationships not ordered by anthropocentric evolutionary hierarchies nor by marketable qualities. In the end, bodies, technologies and life forms should not be conceptualized according to the sole criteria of our designing and controlling them.

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