Virtual Theory: the virtual (and virtual technics) in Deleuze, Bergson, Massumi, Grosz, Žižek, Lévy, De Landa and others

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Introductory note: I wrote this a very long time ago and never quite published it (I don't think I tried). So it's very much a draft. It's what I thought others were saying about the virtual *then*. If it's useful I'm glad.

VR as a series of emergent technologies

As Howard Rheingold (1991) points out, VR is a series of emergent technologies: immersive technologies that are by turns telecommunicational, telethesic (sensing at a distance), telekinetic (moving at a distance), and so on. They use such apparatus and systems as: helmet and goggles, data gloves, force and tactile feedback (as in chemistry applications where the aim is to 'fit' molecules together). They are not always, however, about wearing helmets. Myron Krueger, for one, has proposed the term Artificial Reality where the machine registers your whole body in a largish space and responds to your unencumbered body rather than engulfing you in a gigantic helmet. Whatever its forms, however, VR has found many applications and will find more as it evolves rather quickly; from 3-D graphics and games to surgery or space repairs to sex and 'teledildonics'.

Yet what use is it? And what cultural changes/changes in the realm of thought does it imply? Nicholas Negroponte has famously written about 'being digital' but what does it mean to be 'becoming-virtual'? Is VR a social space or just a series of technologies?

Another way of putting this is that, long ago, people belonged to a community that was provided for them. The local village, for example, may have provided the ground for most of their lives. They may never have moved more than 50 kilometres from it. More recently, and for more and more people, community life became inescapably merged into a social mix of many milieu and a number of coexisting communities through which they moved in, for example, urban space. Yet these communities were still somewhat given. In virtual space, however, we have to create the communities as we go, in their, and subsequently our own, multiplicity. How are we to cope with this?

Thinking the Virtual Through

How do recent thinkers define the virtual? It may be useful to provide a brief survey of the ideas of many thinkers before we go into a few of these in more detail. Not all of these are in accord with the more contemporary, technological definitions of the virtual in relation to distance; though most are related to this at some level. Many define it in terms of both its opposition and adjacency to reality. All this points to the way in which the virtual upsets our most basic sense of being, even if it has helped to form it. Margaret Morse points out that 'virtuality is a dematerialized, and for that reason, ontologically uncertain mode of presence' (24). Katherine Hayles' discussion of virtual bodies as those moving between a structure of presence and absence and one of pattern and randomness reinforces these ideas. Margaret Wertheim sees cyberspace as the rearticulation of a space for the psyche. This is a return to something resembling medievalism which 'subverts three hundred years of Western epistemic history, repudiating the tyranny of materialism and once again suggesting the possibility of a genuinely dualistic vision of reality' (54). Claudia Springer warns against the attempt to leave the material for cyberspace, or for a pure space of mind. Along with Wertheim, she warns us of the dryness of science, which has 'squelched dreams of social equality and created instead a repressive, exterminatory, mechanical landscape of the mind' (1998: 75).

Manuel De Landa heads to mathematics to give one of the most precise definitions of the virtual. For him, the virtual can be understood through the series of

abstract tendencies that inform the behaviour of a system. These tendencies can be defined mathematically in 'phase portraits' (1991: 234). These are mathematical portraits that deal only with the relevant tendencies of a system's behaviour. Thus if we were to model the behaviour of an oven the only 'degree of freedom' which would matter would be 'its temperature'. We could therefore make a graph of possible oven behaviours using only a line through various temperatures to represent the variations. If a system contained two degrees of freedom, you would need to plot the possible behaviours in two dimensions and you would end up with a plane. The example De Landa gives is that of a clock's pendulum. It has two important degrees of freedom, 'changes of speed and position'. The more complex the system, the more degrees of freedom that need to be modelled. One also needs more dimensions to model it. A bicycle would have 'ten degrees of freedom' (and we would begin to need a computer rather than a pencil and paper to develop a suitable mathematical model - thus pointing us toward another way in which computers have opened the virtual to us). At any moment in time a point in this model would represent 'the state of the system…The behaviour of the system over time appears as the trajectory of that point traced by that point as it moves through phase space'. Such portraits are portraits of tendencies - of likely behaviours that might occur over time - rather than accurate predictions of what will happen when. We know from a phase portrait, for example, what the range of temperatures of an oven could be heated to or what possible combinations of speed and position are possible for a pendulum.

Some points within the phase portrait can indicate a tendency to attract or repel the trajectory over time. For example, a ball tends to roll to the lowest available point in a situation and this will appear as a single attractor point in its phase portrait (235). There are also line attractors, which represent the tendency of a system, such as a pendulum to oscillate between two extremes. De Landa also points out that the application of computers to phase portraits enabled us to move beyond these simple attractors to the discovery of 'attractors with strangely tangled shapes… called 'strange' or 'chaotic' attractors' (236). They 'represent turbulent behaviour in nature'. For Brian Massumi, 'the attractor state is virtual insofar as the instability that departs from it and tends towards it is concerned' (1992: 64). Yet 'in theory it is actualizable'.

More important than attractors, simple or strange, however, are bifurcations. These represent the points at which one set of behaviour tendencies transforms itself into another, when, for example, a tendency to be attracted to one point is replaced by a tendency to oscillate between extremes (and the portrait moves from a point to line). Of course, bifurcations can also represent the movement from simple to strange attractors, and therefore indicate the onset of turbulence in a system, as when a liquid boils. Bifurcations represent 'spontaneous mutations of the long-term tendencies' of objects. What such mathematical models are representing is both the actual behaviour and the virtuality of certain systems. (We shall shortly, following Massumi, that we can go further than this and pose a potentiality that lies between the two but for the moment we shall conflate the notion of potential and virtuality). The actual behaviour is represented by a given trajectory through phase space. The attractors and bifurcators represent the virtual. This virtuality is a real component of the system. De Landa calls this virtuality, following Deleuze and Guattari, the virtual machine that underlies a system. Massumi notes the manner in which this entire process works as two systems.

> The virtual and actual are coresonating systems. As the actual contracts a set of virtual states into itself at a threshold state, the virtual dilates. When the actual passes a threshold, bifurcates toward a specific choice, and renounces other potential states, the virtual contracts them back and the actual dilates…Each side has its own internal local-global correlations: resonances and tensions between nucleating subpopulations that respond individually and together. The local-global correlation of the actual and that of the virtual interact as a subpopulation of a single individual…to every actual intensity corresponds a virtual one… (1992: 65-66)

It is finally important to note that there are two types of virtual machine here. One, represented by the attractor, affirms a somewhat stable system. Another, the bifurcation, represents a mutation in the system. Thus a virtual machine can operate both to maintain behaviours and to change it. As De Landa points out, attractors indicate how concrete actuality will turn out. In a 'layer' (237) above attractors, the bifurcations indicate how the

attractors themselves are changing. This encapsulates the relations that are both local and global to the system - those relations that give it its individual consistency and the process of that which 'infolds disturbances from outside' (Massumi, 1992: 62). Massumi sees the consistency of the system as the record and continuation of the systems past. He sees a disturbance from the outside as the emergence of the unpredictable future. It can be seen that these global-local relations and tensions indicate a kind of crisis where it 'could go either way. It is still ordered by its past, but its future has already arrived'. He points out that the way things will turn out can never be totally predetermined or predicted, even in the laboratory. The best one can do is assign 'probabilities' (63) as 'the system will always exhibit a certain 'degree of freedom''. Whether this is freedom as we have known it, as freedom of the will, or whether it is a freedom in a more limited sense as impenetrable complexity is hard to say. It can be said, however, that, either way, the freedom here gives one room to move within specific circumstances.

It is the grasping of this kind of complexity that some theorists see as the creativity of the virtual. This leads to the idea of a 'virtual ecology' to guard this potential. Guattari writes that –

> virtual ecology will not simply attempt to preserve the endangered species of cultural life but equally to engender conditions for the creation and development of unprecedented formations of subjectivity that have never been seen and never felt. This is to say that generalised ecology - or ecosophy - will work as a science of ecosystems, as a bid for political regeneration, and as an ethical, aesthetic and analytic engagement. It will tend to create new systems of valorisation, a new taste for life, a new gentleness between the sexes, generations, ethnic groups, races…(1995: 91-92)

Many theorists align the virtual with a notion of potential, as we shall see (although Massumi convincingly qualifies this in more recent work, as we shall also see). Many also follow this notion of two types of virtual, one in which the virtual works on the actual and another that the virtual works upon the virtual itself. This theory generally finds its source in Deleuze's early book, *Difference and Repetition*.

Deleuze's Virtual

For Deleuze, the virtual is real, but real in a particular fashion. He writes that 'the virtual must be defined as strictly a part of the real object - as though the object had one part of itself in the virtual into which it plunged as if into an objective dimension' (1994: 209). In short, everything has a virtual and actual side. The kernel of the reason for this is that any object is immersed in time. The virtual cannot be fully understood without considering the object's relation to time. Although for Deleuze, objects are completely determined at virtual and actual levels, they are never determined once and for all. They are not stable. They do not, as clocks, for example, seem to do, determine time. In fact, we could simply say that time comes before (and after) the object. The object, and the world, merely expresses time.

We can take this a little further by introducing the question of structure. For Deleuze the virtual is a concept that addresses the structural questions involved in the relation between the world and time. Specifically, the virtual is associated with the kind of structure grappled with in the ideas behind the development of the mathematical calculus - in both differentiation and integration. Here it is important to remember that the calculus was developed as a mathematics to deal with change as expressed through relations between variables. A common example is the relation between distance and time as expressed in velocity. Another is the relation between a curve and a tangent to the curve. Imagine the production of the curve and you have introduced the notion of time. There is a certain sense in which we can say that velocity is an expression of the relation between distance and time, or even that velocity is created by this relation. Or, vice versa, we could say that distance and time are, in a sense, created by velocity. Likewise we could say that the tangent and the curve create the area between a curve and a tangent to the curve. Or, vice versa, if we could find a mathematics for it, we could say that there is something about the area, as an expression of this relation over time, that produces both tangent and curve. The calculus, then, is about elements of difference, and their relations. Much of the understanding of phase space (with its singularities - attractors, repellers and bifurcations) discussed in relation to Manuel De Landa has been arrived at through use of the calculus.

For Deleuze, the virtual is real insofar as it 'consists of the differential elements and relations along with the singular points which correspond to them. The reality of the virtual is structure' (1994: 102). This structural reality is not that of actuality - we cannot point to the virtual and say 'there it is' - just as we cannot point to an attractor or point of bifurcation and say 'there is it'. Yet this structural reality is no less real for that. Balls do tend to roll towards the lowest point they can find (attractors). Water does boil (bifurcation).

The structure revealed by the calculus is not the end of the story however. Deleuze is of course not really a structuralist but a poststructuralist, which here we can define as a thinker who amplifies the problems of time involved in discussing the role of structure in the world. Specifically, Deleuze here combines the two modes of the calculus, differentiation and integration, with a notion of ongoing genesis. This genesis is put in biological, evolutionary terms in *Difference and Repetition* but it implies more than a purely biological evolution. To oversimplify, differentiation is the movement of process in process - change as it occurs at any given moment. Integration is, in the sense meant here, the calculation of what it is that makes the object whole (that is, its relations) through space or over time. Apart from mathematics, we all perform integration all the time. Through one process or another, we pose whole objects or worlds by integrating relations, creating 'my body' as a particular set of relations over time. This also occurs with ideas, which are also relations that aggregate over time. Moreover, not only 'we' do this, but it happens throughout the world, with and without 'us'.

Put simply the actuality of the world - and any object within it - is a kind of ongoing integration of a series of relations. This integration, in that it actualizes the world and objects in an ongoing way, is also what Deleuze calls differen*c*iation (with a 'c' as opposed to a 't'). This integration of relations into specific expressions, which Deleuze also terms differen*c*iation - can be related to the biological use of the term differentiation. This covers the progressive specialisation of generalised forms, as in the development 'upward' from an embryo. Thus, for Deleuze 'the entire world is an egg' (216). (It is probably worth reminding ourselves that, within biology, even with the recent advances in genetic science, we still do not entire understand how specific forms emerge from the genetic material.)

Of course, it is a little more complex than even this, as even the determination of the relations behind this - whether we call it integration, differen*c*iation (Deleuze) or differentiation (biology) - is changing over time. In other words, while mathematics needs to rely on some functional constants (the earth's gravity was one such 'constant' in the development of the calculus - at least by Isaac Newton), Deleuze's philosophy does not. Not only do relations change the world, but also the world constantly changes relations. Or, to put this another way, relations constantly change relations. This is of course because for Deleuze time is change. There are no constants, not even relational constants. For example, each new instance of expression of the gene pool is a slight change to the gene pool and to the relational structures that genes express. Deleuze gives the term differen*t*iation to the creation of singularities within the virtual (De Landa's virtual machines of attractors and bifurcators - the point towards which a rolling ball tends to be attracted) and the term differen*c*iation to subsequent actualizations (the rolling of the ball). To understand fully the ongoing nature of the process of the world he suggests the term differen*t/c*iation in order to 'designate the integrity or integrality of the object' (Deleuze, 1994: 209). There is a further sense in which the object, as actualizing, contains the seeds of its virtuality as well. This is to say that singular points emerge only in relation the ongoing process of actualizations (even if these emerge from the relations between singular points). Gravity only emerges in the ongoing relations of bodies (even if it forms them in turn - in fact, the two are mutually dependent). For Deleuze, the concept of virtuality is not transcendent. It is not suggesting that there is anything 'beyond' the world (or cosmos). Quite the opposite.

> On the one hand, complete determination carries out the differentiation of singularities, but it bears only upon their existence and their distribution. The nature of these singular points is specified only by the form of the neighbouring integral curves - on other words, by virtue of the actual or differentiated species and spaces. On the other hand, the essential aspects of sufficient reason - determinability, reciprocal determination, complete determination - find their systematic unity in progressive determination. In effect, the reciprocity of determination does not signify a regression, nor a marking time, but a veritable

progression in which the reciprocal terms must be secured step by step, and the relations themselves established between them. (210).

Deleuze then does not see differentiation and integration as opposites but as yet another set of relations - as mutually determining principles. To put this baldly, the fact of difference is the fact of creation. Anything that we think of as whole - a body or an idea, for example - is in fact an ongoing relation of difference. This is true in the realm of the actual or the virtual. Another simple way to look at this is that the world is a series of positive problems first rather than solutions. In the virtual dimension, for example, an idea is a productive problem; perhaps one that determines more precisely or clarifies for thought a relation between singularities. In fact, for Deleuze it is the case that the virtual is 'completely determined' in the structure of 'the Idea as problem'. The virtual is determined by differentiation 'corresponding to the varieties of relations and the singular points depending upon the values of each variety' (210). The actual is the series of solutions to this problem, actualized in a constant changing process - in that which we have seen Deleuze term differen*c*iation. For example, an 'organism is nothing if not the solution to a problem, as are each of its differentiated organs, such as the eye which solves a light 'problem' (211). Yet the actual only contains half of reality. Even the eye is immersed in the virtuality of the ongoing 'light problem' as both eye and this 'problem', actual and virtual, evolve.

In a sense then the virtual is ideal but in the sense of the *idea* not in the sense of unreality - and, at that, the Idea as a problem. The virtual as ideal is not unreal, as it is determined and is in sense a real component of objects, once we begin to glimpse the significance of the world's immersion in time. We could see the-virtual-as-ideal as indicating a flight towards fancy and unreality only if we ignore the attempt to use the concept of the virtual to understand how the ideal operates within the world. It is as this point that we can see the relation between Deleuze's concept of the virtual and the more everyday, often technological concept of the virtual, as that which seems to merge transcendence and immanence, to collapse 'proper' distances and intervals of time.

Bergson's Virtual

Deleuze is in turn heavily influenced by the ideas of the French philosopher Henri Bergson (1859-1941). Bergson was, amongst other things, a philosopher of time. If all the above seems a little abstract, an example of the virtual and the actual closer to home for many of us is that of memory. Memory is a crucial part - perhaps the crucial part - of the machine behind our behavioural tendencies.

Bergson pointed out that when one remembers something one first shifts one's framework to the past in general and then, as it were, searches for specific memories within this general past. We have all experienced this. In fact, we experience it all the time, even if the past we throw ourselves into seems only split seconds old. According to Bergson, the emergence of recognisable memories was a process of actualization of specifics out of the virtual. In De Landa's terms, it is as if we first sense the sum total of 'phase portraits' of the world that surrounds us and then actualize, moment by moment, a changing trajectory through them. Of course, the bifurcations are many - the system is constantly reorganizing itself. This means that we are not negotiating our way through a stable system, which remains recognisable, but instead having to act creatively at every moment. This in part explains why we never quite seem to remember anything the same way twice - it all depends on how the virtual in which we are immersed 'contracts' - as Bergson would say - around us.

For Bergson, what he termed 'pure' memory was virtual. By pure memory Bergson meant the entire virtual unity of the past in the present (all possible relations unified into one whole). It is into this extensive past in the present that we have to 'throw' ourselves in order to allow more specific memory-images to emerge. The subsequent actualization of the virtual past in the present is therefore what creates the new at any moment, particular as more and more bifurcations are thrown into the mix. It our path through life, but for Bergson it was also the pathway of life itself more generally, in what he called 'creative evolution'. It shows 'by what continuous progress the past tends to reconquer, by actualizing itself, the influence it had lost' (1911: 169). In all this, the sensori-motor scheme is in a sense a relay through which the past is actualized. Bergson comments that the 'progress by which the virtual image realizes itself is nothing else than

the series of stages by which this image gradually obtains from the body useful actions or useful attitudes' (168). What then is the present? Bergson thought that 'which I call my present is my attitude with regard to the immediate future; it is my impending action. My present is, then, sensori-motor'. Of all 'my past, that alone becomes image and consequently sensation…which can at least collaborate in that action, insert itself in that attitude, in a word make itself useful' (180-181). The past - the unity of all relations as they have been formed thus far - must express itself specifically in an action. At this point 'the past leaves the state of pure memory and coincides with a certain part of my present'. Pure memory is virtual, 'powerless' or 'latent' (as we shall see, Massumi suggests that the virtual is not even potential, though it may head in that direction). Actualized memory is useful. Pure memory is also unconscious (and remember that Bergson is writing around the time of Freud).

If this all seems purely philosophical then consider the machinery of contemporary VR. In the computer, or more and more the network's, memory is latent past. As we move our sensori-motor system through VR, assisted by gloves, helmets and so on, we call up that part of the system that is useful to us at that moment. Most of the calculations that computers do in VR are to do with calculating the difference between different 'pasts' as they are actualized in the 3D environment that surrounds us. Once we network VR, and we could imagine, more and more connect it to stimuli from the real world, we can see that in VR space we would exist in an immense virtual space of enormous potential. In a sense, VR systems are then amplifying virtuality through networks turning 'powerless' or 'latent' virtuality into potential. The current jumpiness of VR systems, however, reminds us of something else that was a concern for Bergson and it is here that digital VR systems differ from our regular experience of virtuality. One of the reasons that Bergson conceives of the past as continuous with the present is that he conceives of time as continuous in itself. That is, for Bergson, time was not something that could really be 'cut up' into hours, minutes and so on. Instead it was *duration*, something we experience as a subjective movement through time rather than time's measurement. Digital systems are of course based upon cutting up experience into segments. For example, a digital clock breaks between points as opposed to the moving hands of an analog clock. (Even more evocative is duration, the movement of time

through a daydream or the different experiences of time we have throughout the course of any given day or night). For the most part we do not notice this cutting up of experience in the samples we are given by digital equipment (the music CD has about 44000 of these 'cuts' per second) but they are there in any case. It is only this discontinuity that enables digital experience to be reproducible in the way it is - and of course even then digital experience can be 'receptive' of time once one set of numbers can interact with another, as in over a network.

More broadly, to put this in De Landa's terms, any point on a trajectory in phase portraits could be used to represent an 'individuation' of a system's behaviour at a specific moment in time. It could be us at a moment in our movement through time. It could be an oven or bicycle. Or it could represent a combination of any of these - self and bicycle, for example - as an individuated system. This point does actually mean something in itself. Yet it is also, an expression, at that moment, of the virtual within which it is immersed - the unity of attractors, repellers and bifurcations in which it is involved (that is, the world cosmos or simply life at large). When one considers real systems and the complexities involved, of course, one can begin to understand that the virtuality is enormous and that there are bifurcations upon bifurcations. There is no sense in which the duplication of recognisably identical experience, uncontaminated by the accident or, more positively put, creativity, is at all possible.

In other words, a series of what we might call, following Deleuze, 'incorporeal events' runs through our more direct corporeality. In fact, even bodies themselves are corporeal and incorporeal, actual and virtual. This is why they have duration, why they change smoothly through time (this change is also what a body is - not just its features at any given cut into this time). Bodies are entities which are both their own systems and interlaced with other systems, attractors, repellers and bifurcators - from the immediate weather conditions to remote forces of gravity from the moon, the impact of fluctuations on the stock exchange and so on.

We have previously stated that cultural attitudes to virtuality affect the heart of culture but this may be even truer than we have suggested. Attitudes to the virtuality of culture and to the technologies that work with virtuality may lie at the heart of thought.

For Bergson, thought was what put an *interval* into the whole process we have described so far. Thought thus allowed the enhancement of the experience of the virtual. Thought, for example, begins by casting oneself into the virtual unity of pure memory. Through thought, the body is more 'thoughtfully' positioned within the virtuality within it is immersed. It is more engaged within the web of shifting singularities and so on which we call the world. In this sense thought is always both 'outside thought' and 'inside thought' - both outside and inside 'to the max!'. Moreover, just as the virtual negotiates the transcendent-immanent distinction so do the inside/outside distinctions as regards thought need rethinking themselves. This rethinking would form a part of a general creativity (and in the Heideggerean sense a revealing of the world through art). Thought enables more creativity to emerge from these enhanced relations to the virtual (and we can see VR machinery as a set of machines in a long line of thought-enhancing machines). Of course, the brain is a part of the body, but it is also the part that enhances this relation to the incorporeal (to the complexity of relations of which the body is tightly or remotely a part). Thought is a (highly complex) means of introducing an interval - or series of intervals between different aspects of the body (including body and brain) and of the body and other bodies, and the actual and virtual relation through which all this emerges.

For Eleanor Kaufman, this means that thought occurs in the relation of the virtual (memory) to actual (matter). For her, the 'virtuality of thought consists not in its being somehow not real but rather in its proximity to and potential for actualisation in matter. In other words, mind too contains the potential to bring together incorporeal events and corporeal substance' (134). In this sense, thought occurs not in (or only in) the brain, or in a mind somehow related to the directly to the brain. It does not move, for example, through Descartes' pineal gland, though this idea of mediation between brain and mind returns to us in the idea of virtual thought and Descartes' baby is not thrown out with the bath water. Thought instead occurs in a series of relations between outsides and insides as they are folded from inward to outward and vice versa.

For all Deleuze's supposed anti-humanism, it seems that he makes the above point into an argument for the human, writing that –

Duration, Life, is in principle (en droit) memory, in principle consciousness, in principle freedom. 'In principle' means virtually. The whole question ...is knowing under what conditions duration becomes in fact consciousness of self, how life actually accedes to memory and freedom of fact. Bergson's answer is that it is only on the line of Man that the *élan vital* successfully 'gets through'; man in this sense *is* 'the purpose of the entire process of evolution.' It could be said that in man, and only in man, the actual becomes adequate to the virtual. It could be said that man is capable of rediscovering all the levels, all the degrees of expansion and contraction that coexist in the virtual Whole. As if he were capable of all the frenzies and brought about in himself successively everything that, elsewhere, can only be embodied in different species. Even in his dreams he rediscovers or prepares matter. (1988: 106-107)

How does this come about in man (and woman)? Deleuze comments in this section that on man's 'line of differentiation' the –

… *élan vital* was able to use matter to create an instrument of freedom, 'to make a machine which should triumph over mechanism', 'to use the determinism of nature to pass through the meshes of the net which this very determinism had spread.' Freedom has precisely this physical sense: 'to detonate' an explosive, to use it for more and more powerful movements. (107)

Does this mean that computing and VR are evolutionary steps in a different manner? Are they augmenting the abilities of interaction to create instruments of freedom, just as increased brain size and augmentation of other cultural instruments manage to do this? In part the answer will come from whether the impulse is towards control or complexity, towards measurement and the cut or duration and interaction. Of course, inevitably it will be towards both but the understanding of these issues could be vital in the working towards complexity, freedom and interaction within the deployment of new technologies.

Elizabeth Grosz has discussed precisely this political issue in much recent work, broadly arguing that it is time to consider a virtual politics of the unknown and creative

solution rather than merely what it possible according to logic of stability and identity. She argues that political solutions should constantly be sought in the unexpected and unplanned, in emergence, as much as in the drive to takeover the State of things, or to hold culture together in a predictable and indeed "predictive" way. For Grosz a constant act of creation (and the way in which De Landa would say that a 'point' expresses a relation and potential for bifurcations) means that there is a 'surprise that the virtual leaves intact within the actual' (1999: 27). She also gives a clear account of actualization as individuation, one that does not rely on identity in order to give us (in an oxymoronic way) the individual. For Grosz, 'the movement of actualization is the opening up of the virtual to what befalls it' (in the complexity of interactions in which it is involved). It is the 'creation of singularity (whether physical, psychical or social), insofar as the processes of individuation predate the individual yet the individual is a somehow open-ended consequence of these processes'. This process involved the 'alignment of virtualities' in which here is a 'radical excentering and self-exceeding'. At this point we are of course in the realm of becoming, not being - 'a movement of differentiation, divergence, and self-surpassing, or actualization of virtualities in the light of the contingencies that befall them' (28). This understanding of the virtual complicates notions of history and of politics. History is no longer an identity of the present with the past but the marking of the complication of the future by the past as virtuality. It calls for a 'history that defies repeatability or generalisation. Only such a history would be commensurate with a politics directed to the pragmatics of change' (2000:229).

Such ideas also apply to notions of subjectivity, which for Bergson (and many others who follow) is very much virtual. In fact, subjectivity cannot be understood until its virtual nature is understood. Of course, this is in part for Bergson because of the relation between memory, subjectivity and the virtual. For Bergson, once subject and object are placed in time, not in space, a different perspective on both is arrived at. Subject and object co-emerge and unite in an 'extended perception the subjective side of perception being the contraction effected by memory, and the objective reality of matter fusing with the multitudinous and successive vibrations into which this perception can be internally broken up' (1911: 77). Subjectivity is a contraction over time - a collection of attractors, repellers and bifurcators which is traced through a specific relation to

emerging and diverging objects over time in a process of ongoing individuation. McKenzie Wark puts this in clear terms when they write of the creation of 'virtual culture' in which the emerging generation become the first generation to truly live within this virtuality - not just in terms of machines but in terms of ideas. Virtual here means 'the ability to thrive on new information, to absorb it creatively into one's being' (1999:224). This may seem idealist but it is not - at least not if the idea is not opposed to the real. In some senses neither is the virtual abstract - in the sense of removed from reality. Deleuze's quotes Proust's formula for the virtual - 'real without being actual; ideal without being abstract' (1988: 96).

Before returning to these ideas, I would like now to take an extended detour through psychoanalysis, which has been so important to our understanding of the virtual, yet currently faced challenges from the theories and technologies of what is, in some senses, partly its own child.

The Virtual's Challenge to Psychoanalysis

Psychoanalysis has always relied heavily on notions of the virtual (in the concept of the unconscious for example). Moreover, the relation between the two is rather instructive in relation to the more general shifts contemporary culture is undergoing.

At one point in his work, for example Jacques Lacan opposes virtual images to real images. He uses a common notion of the mirror as a space of virtual images (2005: 2). On the other hand, Lacan is famous for posing the inaccessibility of the real to us, partly because the path to maturity runs through a 'mirror stage' where our sense of self develops, and is also split at the same time, precisely through a relation to virtual, mirrored images. Scott McQuire develops this point in relation to virtual reality. For Lacan, one becomes a spectator through setting up a series of relations between looking, space and desire that he calls the gaze. In this, one learns to pose and comprehend a world which one can see, but from which one is absent (this enables us to enjoy the experience of the cinema, for one thing). One learns to do this through the initial experience of the mirror stage where *virtual* images play such an important part. McQuire quotes film theorist Christian Metz here when he writes that 'the spectator…is thus able to constitute a world of objects without first having to recognize himself in it' because 'the

spectator has already known the experience of the mirror' (McQuire: 98). Yet the spectator, in the midst of all this splitting and refraction of images of the self, understandably seeks some kind of control. He or she desires to capture the power of the gaze itself. He or she desires to see him or herself seeing, as this would seem to position everything neatly within the gaze, even his or her own power. Yet for Lacan this is precisely impossible - or only possibly as a delusion. Once one has had one's sense of self formed through the hall of mirrors of virtual images, there is no return to a simple self-perception. This leads to Lacan's dictum 'The picture certainly is in my eye. But I am not in the picture' (McQuire: 99).

McQuire thinks, however, that Virtual Reality technologies, as opposed to the cinema, present us with an 'overturning of Lacan's dictum'. For McQuire, 'what is distinctive to VR technologies is the ability for the observer to be both witness *and* participant, visibly situating his or her own body in the picture via head sets, data gloves and the like'. Lacan of course, would say that such machinery is fulfilling a fantasy and McQuire writes of the dream in which 'I saw myself seeing myself'.

Slavoj Žižek takes this idea in a different direction. Commenting on cyberspace he notes that –

> …cyberspace merely radicalizes the gap constitutive of the symbolic order: (symbolic) reality always-already was virtual; that is to say*: every access to (social) reality has to be supported by an implicit phantasmatic hypertext*' (1997: 143).

For him, even if the virtual is a series of fantasies it is a series of fantasies in which we already live. His worry is that the particular fantasy attached to cyberspace - of unmediated access to all the world - will result in the collapse of the Symbolic - as a system of necessary mediation. In this sense he argues that cyberspace is taking us not too far away from reality, but potentially too close to it.

Žižek thinks that the present time is able to see the transition to a virtual age more clearly than will be possible once it has been fully embraced - much as those who went through the introduction of sound to film understood what was lost and what was gained

(130). On the other hand, the present age suffers from contradictory sets of myths as regards the virtual. On the one hand these promise that somehow cyberspace will give an access to the Real as never before. On the other hand, these myths promise that we will not be punished by reality for this access, that somehow cyberspace precludes the Real as never before. Žižek would in some ways like to reaffirm some of the boundaries that we have discussed as being challenged by the virtual.

In fact, for Žižek, there are many contemporary technologies that threaten the boundaries between these two myths. Biotechnologies confuse the boundaries between natural and artificial (133). VR technologies and an entire culture of the hyperreal confuse semblance and truth. There is no blind spot in the unremitting culture of the hyperreal 'from which the object returns to the gaze'. There is no blind spot in which we can situate desire or the self as absence. In seeing everything, we only lose the emptiness that we relied upon as possibility, as the space of our yet to be fulfilled desire, as the Self which was yet to form. All that is left is the laying bare of illusion, which has no dark spaces to which to run. In cyberspace one thus experiences 'the ideological mechanism of the production of Self, the immanent violence and arbitrariness of this production/construction' (134). All in all –

> … we are dealing with the loss of the surface which separates inside from outside. This loss jeopardizes our most elementary perception of 'our own body' as it is related to its environs; it cripples our standard phenomenological attitude towards the body of another person, in which we suspend our knowledge of what actually exists beneath the skin…and conceive the surface (of the face, for example) as directly expressing 'the soul'.

On top of this we are in danger of losing 'grounding in the concrete life-world' (135), through the way in which our bodies are increasingly signal mechanisms for other machines, or signalled by other machines.

Of course, psychoanalysis gives a coherent account of this increasing displacement of the human within the machinic signifier (as we have argued, the virtual/actual distinction in the work of others such as Deleuze seems to negotiate much

of this in a more satisfactory manner). Here there is a kind of vicious cycle - Žižek calls it the 'loop of (symbolic) castration'. This is between the attempt to escape the body in one direction through the artificial on the one hand, and the attempt to re-instate the body as desiring through technical means on the other hand. Žižek writes, for example, of using technology to deodorise the body and then using more technology to perfume it. In other words, following the Lacanian formula, it is precisely because the subject fails to find an anchor in the world that it seeks it elsewhere in the world in an ongoing way. Yet it seeks the world as anchored by an as-yet-elusive but pursuable. Where Deleuze writes of differentiation and integration, and Bergson of the virtuality of subjectivity as a kind of positivity, Žižek writes here of the subject's 'dispersal/failure' (136). For Žižek, it is precisely because the subject is a dispersed series of signifiers that it seeks the anchor of *the* signifier that would bring everything together. This signifier, amongst other things, affirms a gap between the mental and the bodily (the problem for Deleuze was negotiating this gap, which for him seems too wide already). Being a good psychoanalytic critic, this signifier is the –

> …the phallus [as] the ultimate occasionalist object: the point at which the very gap that separates the series of mental causes from the series of bodily causes is inscribed into our body… (143)

It is not only the dispersion of subjectivity, about which there is little disagreement from any of the thinkers we have discussed so far, that disturbs Žižek. It is also, according to Žižek because subjectivity has 'failed' that it seeks success in the fantasy of the signifier. It is the second of these - the failure of subjectivity - which can be argued with. Perhaps a better understanding of the virtual in culture will assist (and at this point we would move back from Lacan to Deleuze and Bergson). However Žižek thinks the opposite - that cyberspace 'radicalizes this gap'. For Žižek, in that the symbolic has 'real' effects in the world it conflates the 'actual with virtual' (150). He points to the actual effectiveness of the virtual as threat (as potential) in power in general and the power of the threat of castration in particular. We can sum this up as saying that the virtual attains its reality within culture in the formation of a symbolic virtuality which forms culture

itself, along with the ability to move through it. In this there is a slightly different, though related, 'actuality of the virtual' to that proposed by Bergson and others. The result is that 'every actual activity appears as a 'form of appearance' of another 'invisible' power whose status is purely virtual'. This all means that the 'dimension of virtuality and function of 'interface' are consubstantial with the symbolic order' (151). Everything is stacked in favour of the virtual from day one. Moreover, this virtual is organized by a master signifier.

What then makes for the decisive 'digital break', asks Žižek. The answer is to be found in the 'suspension of the function of the Master' (152) (here Žižek the Hegelian comes to the fore). Without this function of the Master virtuality changes its consistency, seeks to be organized by singular points, and starts to give way to the full dizziness of the interconnected world. Žižek gives the example of the experience of writing on a computer, in which no version is ever final. It is only 'conditional, provisional' and therefore 'virtual' (151), which would here mean something that is not at an end, fully realized, or Mastered (here he is in accord with Bergson, Deleuze, Grosz and others but Žižek is anxious about that which they celebrate). This is a 'break in the functioning of the symbolic order' (152). Though Žižek allows for some insights and 'amusing' ideas due to this break, what worries him is that the vacuum left by the master will be occupied by the 'big Other'.

> … the new media deprive the subject radically of what he wants - that is, the very evocation of a choice to be made performatively creates the need for the object of choice. One should bear in mind here that the main function of the Master is to tell the subject what he wants - the need for the Master arises in the subject's confusion, in so far as he does *not* know what he wants. What happens then, in the situation of the decline of the Master, when the subject himself is constantly bombarded with the request to give a sign of what he wants? The exact opposite of what one would expect: it is when there is no one to tell you what you really want, when all the burden of choice is on you, that the big Other dominates you completely, and the choice effectively disappears - is replaced by mere

semblance…if no forced choice confines the field of free choice, the very freedom of choice disappears. (153)

Australia, where I write this, is full of big Others - the Big Banana, the Big Prawn (which should delight Australian Lacanians), the Big Merino. All of them are there to tell us what we want, or perhaps, in the failure of the symbolic in that peculiarly Australian way, to tell us where we are in the ruins of the symbolic order (or at least where we are on the road from Sydney to Canberra). Maybe the fear of the big Other …

Žižek's notion of the big Other could be opposed to Deleuze's notion of the Societies of Control - where subjectivity is not the issue it was for power under the disciplinary society. According to this notion, the problem is not the imposition of the big Other within the realm of subjectivity so much as the pure technical control allowed by the digital break. This is currently seen within the recorded music industry. In fact, the emergence of P2P networking for the accessing of digitized music recordings on hard drives around the world can be seen a direct contradiction to Žižek's theory. Cyberspace here has not destroyed forced choice (the choice of music has widened considerably but it is still from within the field of commercial recorded music for the main part). Moreover, even if it had this will be irrelevant as soon as the music industry developed satisfactory encryption methods.

As with much psychoanalysis, as great a diagnosis as it provides, it does not want to leave the fields of perversity in any new order - it likes a specific and familiar disorder. The problem is that there is little allowance for the way in which new machineries - literal and cultural, may allow us to pass through this shift, if not safely, then at least with the promise of something surviving.

The abandonment of *the* signifier leaves us, however, for Žižek, only with disarray, the 'moment of implosion when humanity will attain the limit it is impossible to transgress; the moment at which the co-ordinates of our societal life-world will be dissolved' (154). In a lurching from one extreme to the other favoured by only some Hegelians, 'the excess of choice will be experienced as the impossibility to choose' and the open-ness of cyberspace will result in a 'radical closure'. The virtual is suggested as 'the paradox of an infinity far more suffocating than any actual confinement'. In this, the

virtual is Real with a capital 'R'. The virtualization of culture puts us in touch with too much of the Real (we could say that in a Bergsonian sense we are caught too far back in the contraction of the Real to actualize any of it). For Žižek, we would be better off in the old way of the virtual - that is to say, the comforts of the symbolic ordered by the Master signifier and its phantasies.

For Žižek, racism in its postmodern form is a result of this too-close-to-too-much of the Real phenomenon. We can grant that there is an astute diagnosis here but is not the point also that there is an accommodation possible of this kind of contact and that this will make the new culture? Likewise, for Žižek it is the fullness of cyberspace that no longer leaves gaps either within the social or the symbolic. This destroys the emptiness in which the Other appears. The implication is that in VR technologies the virtual, in being drawn closer to us, is, in another sense, as that which is beyond our knowledge, being lost. As against most writers who say that we are losing 'reality' in cyberspace, Žižek writes, 'cyberspace is *not spectral enough*' (155). This is not only a fear of the loss of the Real. It is also a fear of the loss of desire. In short, it is a fear of castration. Is it too much to point out that this fear is exactly that of the Master (not of the slave). This is the fear that his desire will find no recognition, no displacement in the desire of the other, and therefore evaporate. In short, can we ask here whether this is the fear of the loss *of* the Master or loss *for* the Master? Is Žižek here not Hegelian enough?

Some of the answers here seem to me to be provided by the manner in which cyberspace is characterised. This is quite simply full of errors. Cyberspace is described as 'a frictionless flow of images and messages' (156) as if the symbolic still had no hold on the way those images and messages worked in cyberspace. Worse still, Bill Gates' description of cyberspace as 'friction-free capitalism' is taken up somewhat literally by Žižek. Yet this is obviously a phantasy itself, and has nothing much to do with the history of the relations between capital and cyberspace (consider the software for pirating commercial music, Napster, for a start). In short, Žižek's cyberspace-based counter examples to the friction-filled life of pre-digital, phantasmatic virtuality, all head straight back to the same set of phantasies - a lack of mediation permeated by a fear of loss.

As he himself notes, cyberspace continues some of these phantasies. As he also notes, it does radicalize some of them, but we would add that it radicalizes them in terms

of access to modes of negotiation and modulation of the virtual, not in terms of a radical foreclosure of it.

Of course, the politics of Žižek's argument needs to be taken seriously, but it also needs serious qualification. Žižek draws a further example from the fall of Communism in Europe. He points to the fact that in the suspension of the virtual 'structural ambiguity' (159) of the Master-Signifier - the attack on the virtual nature of 'symbolic authority' and the revelation of the Master's (communist dictator's) impotence - there was nothing left to structure the world. Rather than producing freedom this at times produced a worse exercise of power in which 'the subject is 'the hostage of the Word': 'Word' stands here for the ideological doctrine which has lost its substantial bearings'. In other words, as under Stalin, people are sacrificed in order to 'save the appearance' of power. The more fragile power seems, the more people are sacrificed to its appearance, and the more everyone must sacrifice themselves to words and behaviours at every moment which seem to support it.

This is indeed an argument that needs to be taken seriously. One might say that it should be deployed strategically as it does explain a great deal of the sacrifice involved in the continuity of impotent ideologies. This is not only that of communism, but precisely, as Žižek points out after Bill Gates, that of 'friction-free capitalism' or the free market which is only now starting to lose its symbolic authority and virtual power.

Yet one could also say, with Deleuze and Guattari, that 'there is no ideology and never has been' (1987: 4). One could say that 'ideology is a most execrable concept obscuring all of the effectively operating social machines' (68). One could say that in this case power is not impotent and never has been, that signs and desire operate rather than fail, that words give orders, and that the virtual is not a realm plastered over the Real but partakes of a dialogue with the actual within the real. In this the partial critique of Žižek's position is that it falls back upon itself too quickly. It is not only founded on the ongoing certainty of cultural formations effectively revealed once and for all. It also places these revelations too quickly into too vast a teleology based upon a specific kind of Ziziekian social philosophy derived from Hegel and Marx. It is also enmeshed in the attempt to provide a systemic account of language as per Lacan's complications of De Saussure. In this, one might argue that Žižek's account, as useful and as humbling as it is, is 'not

spectral enough' in itself. Time is perhaps the spectre whose entry has been half-stalled in this account. For time (and for that matter the dispersal of space) means that there is no general content (ideological or otherwise) to be expressed in social actions. Žižek's conception does not, as Deleuze and Guattari write, account for 'a precise state of intermingling of bodies in a society' (90). Over time, these can allow for quite different 'regimes of signs' and the fall of one of these does not always entail that it will double back on itself in order to 'save its own appearance' - although of course it may. At that point the power of Žižek's work remains.

A further power of Žižek's work reminds one of that of Heidegger's 'Age of the World Picture'. In this he points out, with regard to meteorology, how much more meaningful weather is when there is a Beyond from which it emerges, as opposed to its conception in modern science which attempts to control it through placing a grid over the beyond. Here again however, the same problems arise as arise in Žižek's concept of cyberspace. The phantasy of modern science is conflated with the reality (and with far different conceptions both on behalf of scientists and culture in general or what it is that science does). This would be in order except for the generalisation involved. There is, for example, Žižek's allusion to a 'growing disenchantment with our actual social world' which is supposed to result to this change in meteorological perception. This carries, for me, at least, only ambiguous sociological empirical weight. For example, it has been documented time and time again that cyberspace communities are very often involved with the sub-cyber worlds, from activists organising physical protests against World Economics forums to e-commerce companies delivering books and machines in planes and trucks.

At the end of Žižek's essay, cyberspace is portrayed as a 'thoroughly technological-scientific phenomenon' (163) that reduces everything to the interface as a screen (not as something that actions move through - this is the problem with Žižek's analysis). Yet, although it is true that modern science, according to Heidegger, does turn everything into measurement, there are problems with this analysis in terms of cyberspace. For a start, cyberspace could be the result of a different kind of science to that Heidegger details, a science which merges interface and action, symbol and real, understands virtual and actual differently. Secondly, cyberspace is as much the creation

of commerce (in the full sense of the word) as science. As much as commerce in turn might depend upon science, it may also exceed it. This is particularly so in the way commerce is not content with measurement per se, but only with measurement as one participant in forms of exchange. Commerce reconstitutes the Symbolic in a manner which is not perhaps more desirable but certainly different to Žižek's loss of the Beyond. The real, for Žižek is now 'the Real of bytes' but this seems to me a faulty understanding of Lacan's Real. Lacan's Real is the real precisely as a blind spot in the Symbolic. It can be experienced, or at least we can be haunted by it, at least as that blind spot. The Real is not the real, however. The real is that to which, according to Lacan, we have even less access. Bytes are neither Real nor real. We access them all the time and they do not constitute a blind spot or a Beyond. Of course, this might be why Žižek sees the end of the Beyond. For Žižek, 'The outcome of the suspension of the dark spot of Beyond in the universe of modern science is thus that 'global reality' with no impenetrable dark spot is something accessible only on screen'. This of course, takes on board a popular but incorrect portrayal of cyberspace as a somewhere 'inhabited' in itself. It ignores cyberspace as a technology linked to actions in the world, by activists organising (physical) protests against globalisation as much as by e-commerce companies which are often selling physical goods which still have to be delivered by the United Parcel Service. Once again if the starting point is the virtual as illusion one ends up in untenable positions. One needs to understand the relation between virtual and action - both of them real. The charge that, in cyberspace, nothing really happens in our bodily reality' (164) is plainly ridiculous. The illustration from David Lynch's film *Wild at Heart* that precedes this point contains a misperception of film uncharacteristic for Žižek. Žižek refers to the scene in which Willam Dafoe invades the space of Laura Dern, 'touching her intimate parts, forcing her to say 'Fuck Me!', and after she finally does so, [replies] 'No, thanks, I don't have time today…'. According to Žižek, this parallels the way in which cyberspace lays bare 'the phantasmatic intimate kernel of our being...making us totally vulnerable and helpless'. We are lost if we are not fucked. Here lies the kernel of the well-known problem with many inflections of the Lacanian paradigm.

The problem with this analysis of the virtuality of cyberspace is precisely that Žižek himself conflates fantasy and reality - or rather, does so at strange moments that

seem at odds with the actual culture of cyberspace. Even in Lacanian theory, the fantasy of a 'perfect symbolic accountancy' is precisely that - a fantasy. In fact, the fantasy which Žižek claims that cyberspace instantiates seems nothing other than the central pillar of Lacanian theory. The phallus as signifier becomes the phallus as accountant here but has that always been its role?

Yet for Žižek there is something about this particular version of the fantasy that extends itself to its own catastrophe (and what follows is pure castration anxiety). The 'accomplished digitalization of all information…promises the almost perfect materialization of the big Other... a complete symbolic redoubling of reality will take place'. Žižek is afraid, not only of this big Other, but of its disturbance and contamination, of computer viruses, for example, destroying it, and 'leaving the external real reality intact'. This for him would be a 'purely virtual catastrophe' since "reality" is all of a sudden deprived of its symbolic support'. In another context, however, Sean Cubbitt has seen the anxiety about the digital as an extension of a general anxiety about perception, writing that the 'processes of perception have been understood as in crisis or at risk for more than a hundred years' (1998: 31). At the end of Žižek's essay he allows for a correction to all this panic, his own included, suggesting that it is possible that 'radical virtualization…will somehow redeem 'real life', opening it up to a real perception'. Having somewhat heeded the warnings, let us take this correction on board.

In fact, there are many theorists, following the Bergsonian-Deleuzean arguments given above, that do.

Virtualisation and Pierre Levy

Of all current cultural commentators, it is perhaps Pierre Levy who gives us the clearest account of the virtual's impact. There are many positive aspects of virtualisation that Pierre Levy points to that are of concern here. We can see virtualisation as the production of more creative space for the creation of communities, the social and politics. In this it is a kind of art, which is really a kind of virtualisation of virtualisation (1998: 99). Levy also moves to an interesting definition of intelligence with regard to machines. He eschews the use of the term artificial intelligence (which would make a machine equal

with an individual being) and instead posits the development of computer mediated communications as a kind of deliberate movement towards 'collective intelligence'.

> The development of computer-mediated communication and global digital networks appears to be the realization of a more or less well-formulated project to deliberately create new forms of collective intelligence, which are more flexible and democratic and based on reciprocity and respect for singularities. (122)

Note here one of the crucial points - that these new communities, distributed globally but also linking highly dispersed but very specific points within those networks, are caused to respect singularly communities as well as the reciprocity between them. He goes on –

> In this sense we could define collective intelligence as a fully distributed intelligence that is continuously enhanced and synergized in real-time. This new ideal could replace artificial intelligence as the myth that drives the development of digital technologies and reorients the cognitive sciences, the philosophy of mind, and anthropology to ward such questions as the ecology or the economy of intelligence. (ibid.).

In another sense, computer mediated communications mobilise what has always been the case, but which we have preferred to ignore. This is that our intelligences and subjectivities - dear to us as our own - have always, in one sense, merely been effects of something else - effects of what Levy calls a 'shared world which thinks differently in each of us' (136). Each of us may have shifting singularity, but this is always, and has always been a nodal point through which a network travels. Now that we know this and begin to realise this, we can operate through it more efficiently.

Levy comments that this collective intelligence is –

> Intelligence is fractal. It reproduces itself in proportion to the relevant scale of magnitude: macrosocieties, transindividual psyches of small groups, individuals, infraindividual modules (unconscious but complex regions of the

brain), transverse interactions among infraindividual modules involving different persons (sexual relationships, complementary neuroses, etc.). (137)

For Levy, obviously, this is a positive evolutionary step - an opening of human consciousness aided by computer mediated communications that refuses to be pinned down in one stable culture, one society, and one politics. Of course, Levy also productively accepts that the virtual is as real as the actual. Let us delve a little deeper into the reality of the virtual.

The virtualisation of the body is also important here. For Lévy, there are many situations in the contemporary world which mean Each in dividual body becomes a participant in an immense hybrid and globalized hyperbody' (41). The situations include telecommunications (in which the voice, thanks to the telephone, no longer depends upon the limits of the body). They also include the way in which the most private, interior aspects of the body (reproduction, immunity against diseases, the regulation of emotions) - all these are becoming 'public, exchangeable and externalized' (37), such as the circulation of blood around the world. This leads to an intensification of sensations (the backbone of VR technologies) and of other bodily possibilities. For Lévy then, the –

> The virtualization of the body is therefore not a form of disembodiment but a re-creation, a reincarnation, a multiplication, vectorization, and heterogenesis of the human. … My own body is the temporary actualization of an enormous hybrid, social, and technobiological hyperbody. The contemporary body resembles a flame. (44)

Virtual, Digital and Analog

Brian Massumi suggests that a true understanding of the virtual is one that comprehends it as Žižek's mourned 'blind spot'. Yet this is not a blind spot lost but a blind spot amplified, not a blind spot as the seat of lack and necessary illusion but as a knot of creation. It is a blind spot not as Mastery and the Master-Signifier but as vagueness and multiplicity.

For Massumi, the virtual 'is inaccessible to the senses' (2002: 133). As such perception of the virtual involved a paradox. On the one hand, the virtual ('the in-itself of in-folded transformation') 'cannot be neither felt nor thought' (1998: 313). On the other, it 'cannot but be felt [or later in the text, 'felt-thought'] … in its effects' (305).

It is at this point that we need to recast one notion with which we have associated (and will later continue to associate) the virtual. This is that of potential. Massumi complicates the discussion of the virtual by pointing out that potential, though it may emerge from the virtual, is not, strictly speaking, the same as it. He differentiates between the virtual, potential and the possible or rather, perhaps, between different views of the world along different lines. The possible consists in 'differences in content and structure considered as predictable alternatives' (1998: 307). Potential consists of 'the tension between superposed possibilities and the advent of the new'. For him, however, grasping either of these will not bring you 'close to the virtual'. This is precisely because the virtual 'is inaccessible to the senses' and only 'fleetingly appears' when you multiply the images of it (something we are no doubt doing here!) (305). Then its 'fleeting is in the depths between and the surfaces around the images'. The virtual here, though it has effects throughout the world, and though it is the seat of creation in one sense, in another cannot be conceived of through the notion of potential because potential is already too close to actualization. Potential, for Massumi, seems already to have brought the virtual to the boil within the actual, to have begun to tame the impossible complexity of the virtual within our preconceived ideas, even if these are more active ideas than within notions of the more tightly pre-conceived and directed possible. Massumi is more interested in the virtual in its 'cool' state, as pure quality, whereas potential can still be quantified. The virtual is what is always excluded from quantification, from representation or measurement of any sort. It is thus the 'residue or reserve' of quantification. Nevertheless there is still a relation between the virtual and potential. Massumi admits that the virtual is 'more insistent in potential than in possibility' (308). This is perhaps because potential seems more real than the possible. Potential is the beginning of the emergence of the virtual into the sensed.

Massumi also has a slightly different notion of the virtual's relation to structure. It is here that some crucial differences arise between the analog, as a continuous, folding,

only very partially sensed, relation of matter, and the digital, as a measured and pre-structured sampling of information about matter. For Massumi, 'images of the virtual make the virtual appear, not in their content or structure, but in fleeting, in their sequencing or sampling' (1998: 305). He makes a larger claim on the world for the digital in the form of sampling and sequencing - any image is, in this sense, a sample. Again however, the virtual does not appear in the digital content, in the 1s and 0s we could say, but in the gaps between them, as they misfunction, cease to cover all the ground, momentarily lapse in their conversion of the analog into information. This is why you always need more than one image - even in the digital (more than one pixel, more than one element, more than one screen, more than one shot). For Massumi, 'the appearance of the virtual is in the twists and folds of content, as it moves from one sampled structure to another. It is in the ins and outs of imagistic content or structure'. There is one way for a single image to reveal the virtual, but this is 'to twist and fold on itself, to multiply itself internally, knotting at a certain point' (306). In this the virtual is revealed through 'deformational moments of repetition' rather than 'sampling differences in content and structure'.

In short, for Massumi, the folding and knotting of the analog is in principal superior to the sampling and sequencing of the digital when it comes to revealing the virtual. He gives a complex topological model of the relations between virtual, potential, actual and digital grids which we shall not go into here, except to say that Massumi outlines the value of such a topological model in its provision of a sensation of the virtual in 'felt thought' (307). For him, sensation is 'always on arrival a transformative feeling of the outside, a feeling of thought'. Sensation is also analog because it is about quality not quantity - about the 'continuous transformation of an impulse from one qualitatively different medium into another…the analog processing by the body of impinging forces'. These forces are only later converted into information, if we can say that information exists at all beyond a certain corralling of these forces into packets of pseudo-stability. Of course, this implies a wider range of activities that we could consider the digital, from language to anything that we would normally say becomes 'information'.

This also explains why, for Massumi, possibility and potential do not reveal the virtual. The former can both 'be approached quantitatively', potential through

'probabilities' which for Massumi do not go far enough towards the analog to be considered virtual. Yet, he also suggests that even possibility and potential 'only lend themselves' (308) to quantification. Here it is important to grasp that both quantification and qualitative transformation are both 'processes of deactualization, or envelopment'. None of the terms so far discussed in this section indicate events directly found in the actual, although they are all of course related to events of actualization, even the other side to these events' "coin". The possible, potential and virtual are all a 'mode of thought, defined as a processual excess over the actual'. Quantification is about 'instrumental reason' (converting the world into information in order to measure it, grid it). It is here that possibility, the realm of identity and comparison, comes in. When potential is seen as measurable probability it also fits here. Qualification is about 'operative reason' (working through the world by sensing its forces). The virtual 'vaguely (residually and reservedly)' is found here, along with potential when it sheds the science of probability and is 'accepted as the unpredictability it is'. When reason is 'attentive to the virtual' operative reason, feeling forces in the world, it 'deforms into the topological exercise of contingent reason'. This is reason as 'imagination or intuition'.

Alongside all this the actual is once again seen as an active process rather than a state (in this way the grids of instrumental reason are not just poor representations of the world, they are fundamentally misconceived). In the actual, we find 'the interpenetration of the three modes of thought, the process of their meeting, mixing, and reseparation. This is 'sensation in its widest connotation' (308). Massumi (to some extent following Bergson) here suggests that we can sense nearly the whole spectrum here, once we include imagination or intuition, 'from the advent of the virtual to the run-down of possibility, from the insensibly given to the out-worn, from emergence to entropy'. Sensation is allowed this wide spectrum because it begins by placing itself in the middle, in potential. Thought covers the spectrum 'though differently, and centered on the virtual'. We should not think of images first when considering sensation and thought. 'An image of thought is an imaging of the imageless, as always analogic (the greater the degree of deformation, the better; the more twisted the truer)'.

There is only a spectrum however, because of the 'smoothness' of the analog. Yet this smoothness, and the constant transformation of the analog, is resisted by a 'third

deactualization process: codification'. This is a way of arranging forces into pure 'machinic habit'. Thus, for Massumi, here agreeing with Žižek from a completely different perspective, and this is the most important point for our purposes here –

> The medium of the digital is possibility, not virtuality, and not even potential. Digital coding is possibilistic to the limit…Nothing is more destructive for the thinking of the virtual than equating it with the digital. All arts and technologies envelop the virtual, in one way or another. Digital technologies in fact have a remarkably weak connection to the virtual, by virtue of the enormous power of their systemization of the possible. They may yet have a privileged connection to it, far stronger than any preceding technology. But that connection has yet to be invented. It is the strength of the work of Pierre Lévy (against Jean Baudrillard) to emphasize the participation in the virtual of earlier technologies - in particular writing…Equating the digital with the virtual reduces the apparitional to the artificial, with the 'simulacrum' taking the place of the phantasm ('phantasm' being a good-enough substantive for the process of imagination). This forgets intensity, brackets potential, and in that same sweeping gesture bypasses sensation, the actual envelopment of potential, multiple miss…Digital technologies have a connection to the potential and the virtual only through the analog. (309)

Massumi continues this theme throughout the paper. Yet he also writes, 'the digital, a form of inactuality, must be actualized. That is its openness' (310). Everything returns not only to the circuits between digital and analog, but to the circuits between the virtual and actual. The latter is all there is, even if attempted movement of closure such as the digital, though this way, work within it.

There is no thought without sensation (the relation between the two is crucial for Massumi). Everything is in analog communication (qualitative transformation). At the end of the day we can recast the digital as a series of operations of forces within the analog. The digital is an apparatus of capture at the molecular level, thus its use as a form of control for the control society. This is as much as to say that information theory is at

once powerful and a hoax. Information theory operates as a massive example of the force that attempts to eradicate the previous clumsiness of forms of disciplinary power in more efficient control. The digital, seen thus, is a force bracketing and packeting, of distribution of tasks, labour and choices in the world. A form of 'outside thought' that carries all the dangers of any other form of control. As with all forms of power, this can work against complexity, against the expression of difference only by virtue of denying the ultimate nature of the analog. (Thus De Landa's great understanding of the mess of the military as the attempt to impose order on chaos and complexity and failing that, blow it all up). Yet 'outside thought' inevitably works with complexity as well. As Andy Clark would say, it brings body, brain and world together. A way through to a better work with complexity is just a question of shifting between modes of thought, from instrumental reason to operative and intuitive reason. An aesthetics of understanding is once again crucial to a feeling out of the virtual, and this feeling out of the virtual is crucial to ethics (as we have seen in the work of Grosz). It is the opposite of the drive to control identified by De Landa in the military and by Massumi in much work on the digital. Massumi here writes favourably of a 'sprouting of the tendency to tendency' which is 'not restricted to the visual' (310).

> The visual envelops the tactile, and the tactile the aural, and the proprioceptive the visual. Virtual sensations are synaesthetic germs about to bloom into potential. They are multiple unities, so many virtual centers in impassive tension. Each virtual situation is a tensile field. (311)

Once again the movement of the world is important here. Digital control must attempt to corral forces because, like horses, they are always in movement, and this movement defies much of the very purpose of the digital's existence. Movement is 'intensive: deformational. Self-varying'. Digitality, from the measurement and codification of the genome to computerized profit and loss monitoring on the stock exchange, is an attempt to penetrate deeper and deeper into this molecular intensity in order to control it. There is no doubt that it is partly effective but it also has to deal more and more with its 'virtual analog' the more and more it enters into the processes of intensity, deformation and self-

variance. For Massumi, 'the crucial point in that the digital is virtualized and potentialized only in its integrative circuiting with the analog, in the way in which it is integrated into the analog or integrates the analog into itself'.

All this has parallels in computing. While our current standard computers are the workhorses of possibility, neural nets are 'probabilistic creatures' (312). These will be surpassed with the development of 'neuronal computers' - the movement of computing into a flesh basis. That is, as Massumi notes, if this occurs - although it already occurs all the time. At this point computing 'will no longer be digital' but will have returned more completely to the analog, to 'synaptic indeterminacy: the unprogrammed randomness of pure chance'. We are reminded of the Bergsonian interval and the return of individuation - even a certain idea of subjectivity as 'my very own interval' - no more but no less either. 'My very own interval' is what subjectivity is - not an interval of lack but an interval of production, creation, and integration, differentiation, bifurcation and attractors. It is the space or time between, rather than the lack of space, the between also of the thought-sensation relation, of the world as it passes through the body. Massumi describes this as a 'becoming-brain', when there is a movement away from the attempts at digital control and towards 'the highest powers of brainy vagueness'.

Sensation is not, however, control. It is rather the 'animated matter' (313) that is enlivened by the infolding of alternative states. Sensation is a sensation of that in-between as it deforms and folds in on itself. It is a 'register' of 'the indivisible effect of a multiplicity…that imposes itself in the manner of a force' (314). It is a 'superposition…felt - vaguely, en masse, as the intensity of an impinging force' (313). The 'in-itself' of this folding is the virtual, though, once again, in-itself, it can neither be 'felt nor thought'. Yet when it 'arrives' it 'cannot but be felt-thought', firstly as a slight-less vague sensation. This vagueness is 'the presence of something more than any pre-established array of possibility-potential'. It is the about-to-be new. Potential is one step down from this in vagueness, combining the new with the known.

> Possibility concerns degrees of clearness and distinctness (simplicity). Potential is a multiple-vague (complexity). The virtual is a singular multiple-vague (complication, emphasizing the etymological meaning of 'plica', fold).

The mass of transformations in potential can be seen to fall along a continuum stretching from the possible to the virtual, from the clear and simple to the impossibly vague.

We could say that ethics arises in the interval - 'my very own interval'. This interval is the result of my very own brain and body as they move through the world in an indivisible but individualised trinity. It is the "space"/interval, or in-between, of potential, where the virtual arrives, its impassivity transformed into a force of potential as the new meets the known (and the future is indivisible from the past - they are superposed one upon the other). This is the "space" of thought *and* the "space" of sensation - the "space" of thought-sensation. It is the "space" of potential, of the 'multiple-vague' of complexity. Ethics moves out from this interval, in the form of potentiality, in an abiding of potential by the degree to which it can intuit the virtual. Politics moves into this, usually in the form of possibility, now extended digitally into an attempt at molecular measurement, control, clarity of clearness and distinctness. Tele-microvision, telemicrometry, telemicrokinesis. In this sense we could say that ethics and politics are opposed to each other but of course it is not that simple as they are both relays for relations, for infoldings, for the impinging of forces from many more than two directions.

It is only perhaps now that we can begin to understand that 'potential and virtuality are connected. They form a continuum of intensity' (316). Massumi explains this topologically. For him, either term could designate the 'unity of the continuum' but he reserves the word 'virtual' for the unsensed knotting of complexity at one end, the 'unthought of thought'. For Bergson this would be memory before it was even plunged into. Others, such as Grosz, might extend this to the world as memory - a kind of inorganic memory. It is 'in reserve', 'a-positional as well as a-temporal…Eternal…The forever of transformation…matter-energy'. Massumi heads for the quantum level of matter here. For him, the quantum is 'the in-itself of force: the envelopment of structure in utter complication and infinitely residual tensile reserve' (318). This tensile reserve is what he calls 'virtual reality'. It is an 'ideality' but, in one of the great moments of posthuman theory, considered as an 'ideality of matter-energy'. Massumi reserves the word 'potential' for the pole in the continuum that is the sensed cut into the actual, at

which point the continuum is 'every-present and transpositional' (316). In short, it is necessary to 'imagine each situation-form as a dissipated point of actual intersection swept up in the impassive turbulence of the eternity of matter in its energetic state' (317). Singularities and attractors stand at the middle of this continuum.

This is all obviously complex but it gets more so, because of course there is no end to infolding. This means that the actual and the virtual can be folded over one another. There is no outside to the world and *it is the actual which is also the virtual* (this answers many of the critics of the notion of virtuality who see it as a form of illusion, as something unreal). 'The actual is the virtual self-referentiality of potential' (319). From the point of view of potential, the actual at any given moment appears partly felt, partly vague felt, and largely vague and unfelt. Or at least it would if we could see from this distant point of view but we cannot see it from this point of view - 'it is not possible' and this is the point. That is why there is an actual and a virtual, even if, in some senses, they remain two sides of the same thing. I, (or any individuation) have, or indeed emerge as, 'my own special interval' through which the entirety of the world passes in clarity and in vagueness. This specificity of my ongoing individuation is my blessing but it also means that, despite the world passing through my own special interval, I have no overall point of view. For Massumi 'vision from a distance' does not exist, only degrees of an unfolding, tactile-proprioceptive-visual proximity. We are in the world at large, in many senses, interconnected with it and infolded into it. Yet we only sense it in its *proximity*. Light was out there, but now it is in the eye. Seeing is a 'virtual touch'. All our senses form part of the same 'essentially synaesthetic experience'.

For similar reasons idealism, realism and processualism are similarly entwined. For similar reasons, as Deleuze says 'everything is consciousness' (1994: 220) precisely because everything is in the world, doubled through the virtual and the actual, determined 'genetically' by the 'dynamisms which determine its internal milieu' (216) *and* 'ecologically, by the external movements which preside over its distribution within an extensity'.

Control and Complexity

Control and complexity - both as opposing forces and as complements - are the most important issues of the day. The impulse towards the digital can sometimes look like the impulse towards control. The impulse towards the virtual is propelled by the tolerance of complexity. It is based here in a movement towards the world as it is in its becomings, on change, on foldings. Control in based on false premises - the premises of truth and stability, of a digital, measurable and informational clarity and distinctness. Control is the attempt to arrest the movement of the world. It is tempting to say, with so many others, that ethics is based upon the impulse towards the virtual but this is not quite the case. It is based on the negotiation of both. The conversion of the actual into the virtual, at least, the movement towards this in thought-sensation and the nurturing of potential. It is also based on the pragmatics of the cut into the actual of potential. Politics at the molar, macro level cannot be ignored. My own special interval and the world, not one or the other. This is why art is so important. At the other end of this we begin to understand why we have not yet begun to understand the models of control in which fascism has participated in everyday life. We return to Agamben's analysis of the camp or even to Foucault's introduction to *Anti-Oedipus* when he speaks of the fascism of everyday life.

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