Electronicas: Differential Media and Proliferating, Transient Worlds

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ABSTRACT: "Electronicas" are defined as electronic music and the cultures involved, and more broadly as music's not-so-distant cousins, the electronic arts. Electronicas require us to rethink many "givens" in mainstream ideas about contemporary culture and technology. Yet, despite the obvious series of connections between electronicas and the more workaday applications of new media in general, and despite the recent increase in analysis of electronicas themselves, there has been little attempt to think through new media from the "point of view" of electronicas. This paper outlines some theoretical bases - drawn primarily from the work of Bernard Stiegler - for an exploration of electronicas. It does so in the twin contexts of their innovative and longstanding engagement with technology, and their more recent attempts to put the digital back into the world. It gives a brief account of the contrasting natures of an electronic understanding of culture and technology and some more mainstream views. These contrasts lead to a general theoretical consideration of digital media as *differential media*. This term implies media based upon the technics, philosophies and cultures of intensive difference rather than the stabilisation of differences into the "unity" of "communication".

KEYWORDS: Electronic music, electronic arts, new media, culture and technology, Bernard Stiegler, differential media

MESSAGES AND "WORLD"

> In the 1990s, scientists were able to identify precise defects in specific human genes as sources of various diseases. This prompted the expansion of the apparently most promising field of medical research, gen-etic therapy. But experimental researchers hit a wall: how to deliver a modified gene with an instruction to correct the defective gene in the body to the proper place, even when they knew where the target was…Some biologists think that this engineering mentality (one target, one messenger, one impact) overlooks the complexity of biological interaction, with living organisms adapting to various environments and changing their predicted behavior. [1] (p.58.)

It is striking how much Manuel Castells' description of the challenges to this 'engineering mentality' in contemporary biology parallels another history - that of media and communications. In both genetic therapy (for diseases) and media interventions (in the realm of ideas, the social, or just marketing) the notion of a well-engineered message impacting unproblematically upon a target persists. This is despite the complexity of biological or social interaction, and despite many alternative ideas in both sectors (some of which, however, only complicate this model with what are seen as *secondary* processes of feedback or noise, or merely multiply the targets, messengers and impacts without changing the model).

The confrontation between the attempt to engineer fixed outcomes on the one hand, and the complexity of the ecologies involved on the other, is further complicated in the contemporary world by a series of collapsed borders. Action and perception, or "active" engineering (by media producers) and "passive" ecologies (of receivers), are no longer as separable as they once seemed. In addition, there is not only now a 'blurred frontier between nature and society' ([1] p.59.) but, as famously, a blurred frontier between both of these and machines. In the light of these changes, it is perhaps no accident that as digitally-assisted perception changes the form of the physical world, and bio-engineering becomes a matter of coding, we find our thoughts oddly situated - suspended somewhere *between* the until recently very different questions of engineering and ecology.

The engineering mentality of 'one target, one messenger, one impact', has been extremely productive in disciplines as diverse as genetic sciences, media and communications, software design, and computer science-related areas from some forms of AI and cognitive science to usability testing and performance management. Of course, the productivity of this engineering mentality has not been confined to academic disciplines. It has also informed many of the disciplinary forms of cultural production with which academies are involved (the regulation of the cultural expression of "life", information and entertainment, the social, work, thinking itself). Even in its more complex forms however, perhaps precisely because the engineering mentality's usefulness to the disciplinary, this mentality tends at some point to ignore the mess of a complex, undisciplined "world" of blurred frontiers. This calls out for alternative "mentalities".

This paper argues that thinking through the complex refrains found both in electronic music and electronic arts could contribute to the emergence of these alternative mentalities, particularly in the context of new media theory. (I will define "refrain" here both as a musical phrase that is repeated or returned to, and, more broadly, as the actualisation of ongoing difference in repetition found, for example, in the *existential* deployment of musical refrains.) These alternative mentalities may allow us to celebrate the complexity of the world, even if such complexity finally makes it impossible to pin "world" down. As such, these mentalities look towards the culture, technologies and philosophies of "electronicas" for what they can tell us about new media events beyond their status as message, text, or even discourse.

The paper begins with a brief overview of significant, if never absolute, differences between electronicas and the "target-message-impact" aspects of new media. In doing so, it assumes a certain convergence between the history and recent expressions of electronic music and culture with the history and recent expressions of electronic art in general. In part this is because the history of the two is so entwined (one example is Moholy-Nagy's desire, way before scratch and DJing, to 'use gramaphone records to design a "groove-script ABC" that "would render all previous instruments superfluous"' ([13] p.228.). The record becomes a kind of 'drawing paper, on which great worlds can come into being on the blank page'). The term electronicas also assumes a convergence between electronic music and arts because there are so many similarities between the two in their attitudes towards technology, media and worlds. So with the term electronicas I mean both entwined histories *and* specific music and art events that take on the electronic attitude. These obviously include electronic music events of all kinds but they also include electronic artworks such as Stelarc's *Ping Body* (1996) (when Stelarc wired his body up to the internet) or Joyce Hinterding's *Electrical Storms* (1992) in which the artwork is made deliberately vulnerable to electro-static disturbances in the air.

TRANSVERSALITY

A final introductory note is that this essay takes a transversal approach to these issues. *Transversality* is a term taken from Felix Guattari's importation of his specific work in psychoanalysis into more general social theory. Gary Genosko points out that the early formulation of this term in a psychiatric, institutional setting suggested the 'modification of the objects incorporated (technically introjected) by the superego' ([4] p.66.) so that there is a 'dehabituation of the superego to its police operations and impositions of rules'. Transversality eventually took on wider terms than the psychoanalytic, terms that are largely transdisciplinary but also, in Guattari's terms "ecosophical". What I shall be assuming here, without directly discussing it, is that electronicas' very affinity with transversality is precisely to do with their ability to modify objects introjected into the mainstream "new media superego" (challenging discipline in all the senses of that word). It is no wonder that modulation, plug-ins and new forms of assemblage are so important to electronic music.

I shall now briefly sum up some useful distinctions to be made between an approach to new media via transversal electronicas and an approach via notions of 'one target, one messenger, one impact'.

Origins

New media, and the computers that fuel them, are often given military prehistories [2]. Electronicas' prehistories tend to lie rather with the musical (and other) avant-gardes. The two are not entirely unrelated, and a better way to put this might be that musical instruments as a whole form quite a different "machinic phylum" to weapons. Indeed, with the notable exception of the Futurists, electronicas have been largely, often vehemently, non-military. This is especially true of contemporary electronicas. On the other hand, electronicas tend to accept that origins are not always as clear as they seem in some discourses surrounding technology, as we shall see.

Configurations

Electronica and "target-message- impact" phyla do seem to have developed different approaches to configuration. Unlike office software, browsers and e-mail packages, or even "black boxes" in the military, digital music technology is seldom "plug and play" (even on an iMac).

To put this more positively, although all digital technology is open to experiment and reconfiguration, music technology seems to assume a more complex configuration from the beginning. Music configurations tend to be more varied amongst themselves, more open to amendment and augmentation (and plug-ins such as virtual synths which are often stand-alone packages in themselves as opposed to, for example, the filter plug-ins of Photoshop). Music configurations are also more complex in their hardware/software configurations, and in some ways more open to a variety of inputs and outputs (MIDI and audio for a start) than many other media configurations, at least as far as the home user is concerned.

So music configurations involve very open exchanges with the world through an emphasis on constant reconfiguration and innovation. This open-ness to exteriority paradoxically allows music the freedom to create new kinds of interiority. Music software internalises a whole series of external actions and events. Thus the combined digital/analogue interface of many packages which mimics analogue actions such as fading and turning nobs, or famously, in the case of Propellorheads' Reason software, the plugging in and unplugging of leads. Music itself "internalises" through the formation of temporal, existential and spatial territories, in the refrain, or the loop. Music software also internalises various recording and playback combinations, mixes, real and suspended times, delays and anticipations as well as various types of programming, plug-ins, virtual analogue instruments and so on. Music software packages such as Reason and Cubase are also mixing, editing, and playing the "product" all at once, in "real time", *even as this real time is constituted in partnership with the processes of production*. All these internalisations only add to the differential intensities made available within music software, and add in turn to further possible engagements with the world. In this intense series of cybernetic-cultural-acoustic circuits, most music packages also incorporate as they transform previous techno-cultural relations within music. For example the simultaneous mixing, engineering and playing functions within software packages clearly derive from the simultaneous occurrence of DJ and recording engineer within the same person.

In general, it is excess rather than efficiency that counts here. For example, an extra turntable transforms the entire nature of music - and in addition the relations of time produced in tandem with that music. There is a happy acceptance of

supplementarity, so that, for example, DJ and sound engineer Afrika Bambaataa sees 'the digital rhythm box as a digital servant…freeing up the second record player…' ([13] p.224.).

To put this question of configuration differently, the technical and technosocial configurations of electronicas do not have to come with installed (natural, social or individual) worlds. Instead electronicas are involved with both manufactured and controlled electricity, and, we could say, following artist Joyce Hinterding, with 'electricity we didn't make' [8].

All in all, electronicas call out for us to reconsider the whole notion of configuration. Normative approaches to configuration within computing and new media are undeniably necessary. Yet, in their constant etching of productivity and the maxima and mimima of efficiency into thought and life, normative configurations are also a form of governmentality - in the full Foucauldian sense of a configuration of regulating forces which are internalised in order to stabilise social systems and patterns of behaviour. It would be easy enough to argue that electronicas play out Foucault's "techniques of the self" by re-routing these configurations without exceeding given discourses and forces. Yet this would ignore the inventiveness of the development of technics (defined here as the combination of technologies and techniques) within electronicas, and the very open-ness of configurations to the indeterminate world. Electronicas arguably question even the constraints of a "technics of the self" as they give fullest expression to this technics. This is precisely because they take this technics and run with it, not just by making the most of the constraints of discourses, but by turning the techniques and technologies involved on their heads - at technical, social and individual levels. Using a turntable for scratch - and the tremendous social changes this has brought about - is one simple example. Guitar feedback would be another (the best example here would be Hendrix' playing of the U.S. national anthem at Woodstock). This is to say that music, the refrains involved, and as importantly, the technics involved, somehow seem more basic than "technics of the self", or than many forms of governmentality against which these techniques and technologies of the self pose themselves. This is perhaps because music is a technical, affective and inventive play with forces, not just a reordering of forces. Yet, at the same time, music is able to form cultures. It is precisely because electronicas operate in the realm of thought force and felt force that they are not as caught up within textual or even "sub-textual" (i.e. discursive) determinations. As electronicas always focus on the formation of new assemblages - configurations that go beyond the "system", or even the "system-user system", they are best seen as broad and complex ecologies linking all the "lesser" ecologies involved. Electronicas are well-documented as reconfiguring these ecologies at many levels simultaneously. This includes a reconfiguration of what Felix Guattari has called "virtual ecologies" [7].

Participation in Complex Evolving Worlds

An example of such a reconfiguration of virtual ecologies would be the "doof". A doof is a 'post-rave technotribal gathering' ([17] p.10.), in the forest for example, often combining electronic music with environmental politics. Such electronica events assume very different structures of "virtualisation" and immersion in the world to many other techno-cultural events. This is largely because they have different aims when it comes to controlling (or not controlling) the world. Perhaps because electronicas seem to prefer participating in complex if only partially known worlds to controlling knowable worlds, electronicas give rise to different social practices, some would even say a different set of cultures, to mainstream cultures involved in digital technologies. Put simply, there is a different dialogue between control and complexity in electronicas, with complexity let off the leash a little more than in some other technocultural configurations and cultural events. A result of this (and of course of the vibratory nature of sound) is that electronicas also more happily accept new media as media of an ongoing emergent embodiment.

Moreover, electronicas often seem to conceive of thought itself differently - to understand that *this emergent and ongoing embodiment, rather then some disembodied speculation or digital fantasy of mind as "pure" information, might be what thought is*. Electronicas often align themselves with recent philosophies of cognition that suggest that thought might be both directly physical and technical, and not something that descends on the two from "somewhere else" [16]. The consequence is that in electronicas, instrumentality is both accepted and turned into something else.

Acceptance of Instrumentality

Music has never had a problem with technics. Music is obviously and completely immersed in technics and has long accepted instrumentality (by necessity). We could say there has long been an effective deconstruction of the technics/human divide in music. This has provided the ground for many of the breakthroughs in music from Russolo's *Art of Noise* to contemporary electronicas. Even Western classical music - despite its claims to transcendence - has been more accepting of instrumentality than many other cultural practices. Or, to put this another way, all forms of music have long accepted the ambiguities poised between the technical and the sublime. The diverse, real *ecologies* of both technics and sublimation coexist within music in their full differential intensity. To take just one example (as explained to me by Mitchell Dean) of how the many tensions between these ecologies of instrumentality and the sublime evolve, there is the current fad for recreating the instruments for which many popular orchestral pieces were first written (such as *The Fours Seasons* suite for example). Recreating these older instruments has demonstrated how much the music involved was "smoothed out" by the development of later instruments to fit the smooth lines of enlightenment, colonial culture. The "original" instruments and techniques call for the gaps and disjunctions – now common in electronic music - in pieces such as *The Four Seasons* to be reinstated. Of course, this is not to claim authenticity to either the smooth or the rough, merely to point to the strange reconfigurations of time, or *transductions* - co-creative, generative processes - between virtualisations and actualisations, technics and sublimations, that occur throughout music.

On the other hand, the acceptance of instrumentality is the beginning of the deconstruction, in ideas and in practice, of the very concept of instrumentality, or rather of a realm that is separable from instrumentality that would determine instrumentality as instrumental.

Interface, Event and Immersion

Brian Eno has noted that, with the appearance of new music technologies 'people like me just sat at home night after night fiddling around with all this stuff, amazed at what was now possible, immersed in the sonic worlds we could create' ([5] p.131.). We should not miss the temporal dimension of experimentation in these worlds, in that Eno is immersed - night after night - in (the triggering) of events through time. Why do electronicas lend themselves to such experimentation? Perhaps because technics - electronic musical technics in particular - produces not only sounds but a sense of an immanent yet virtual in-between of "worlds" within the dialogue between sound, existential territories and the specific faders, nobs and mixing desks of technics. Here we should not miss again the importance of delay and anticipation, directly within electronic technics (down to capacitors and transistors as storages and regulators of electricity through time), and more broadly within the temporality of the sonic experience. This has obvious implications for philosophies and technology of virtual reality, immersion and interactivity. I shall deal with the virtual briefly, as for me it includes a consideration of immersion and interactivity.

Structures of Virtualisation

Virtualisation has quite a different technical sense (Virtual Reality, action/perception at a distance, networking) and philosophical sense (potential but not fully enacted, real but not actual). Yet the recent technical and philosophical senses of the virtual seem more and more related. As I have suggested elsewhere [11], the contemporary technosociality of virtualisation gives us more access to - and responsibility within - the virtual aspect of the world described by thinkers such as Deleuze and Derrida. This access to "virtual ecologies" leads us to an ethic involving something like the preservation of open futures (and perhaps less determined pasts). Yet virtual ecologies must necessarily be engaged with rich actual ecologies. They are two sides of the same coin.

Electronicas are fully engaged with both virtual and actual ecologies. The ethos of dance music in relation to the creation of temporary spaces (classic examples of Bey's Temporary Autonomous Zones ([17] p.16.) - is an obvious example of the dynamism of these ecologies within electronicas. A slightly less obvious example would be the technical ecologies involved in the reworking of old hardware synths as software synths. As well as "preserving" the actual synths involved, this of course extracts something else from them - some potentials that had not been seen before. Yet this extraction is totally in accord with the nature of the synthesiser, for there has always been a degree of open-ness to which the synthesiser has lent itself. This kind of open-ness and ongoing "synthesis" is of course philosophically opposed to more analytic forms of cultural expression such as static individuation as the basis of ownership (in copyright, for example). The "ethic" of MP3 and file-sharing that has emerged into culture largely through the convergence of electronics and music is the obvious example of this very different, more synthetic approach to new media cultures.

Indeed, the primary marker of electronicas' attitude to structures of virtualisation is the way in which, as above, there is a deliberate move from, for example, basic office configurations to complex, open ecological engagements (social, technical, environmental). One could also suggest that access to the virtual - the extraction of an expressible uncertainty opposed to complete technical or sociotechnical determination - is the raison d'etre of electronicas.

It is no accident then that the dark prophet of the network society, Paul Virilio, has celebrated two of the main activities and structures of engagement within virtualisation found within electronicas - dance (although he is not necessarily championing the kind of dance discussed here) and the video installation [18]. For Virilio, both of these begin to place us back within the virtual in a way that allows us more room to participate in it, negotiate it. Dance and video installation give us highly technicised but embodied experiences of images, sonics, technics, time and space. All are malleable and differential rather than given. Through dance and video installation, access can be given *experientially* to a series of enhanced systems that are normally closed to us (or closed to us in any sense but the performativity best described by Jean-François Lyotard in *The Postmodern Condition*). As Gilbert and Pearson put it, through dance, popular music might be healing 'capitalism's fissure between body and that which it produces' ([5] p.119.).

That which Virilio calls in the video installation the "persistence of the witness" (as an evolution - or perhaps diminishing - of the persistence of the image within the cinema) also seems vital here. This is because witnessing is precisely the problem when it comes to participating in the new socio-technical ecologies of the virtual. Of course, Virilio would like more than witnessing - and someone such as Guattari, who is far less pessimistic about interactive media, see this "more than witnessing" within specific engagements with popular music. Guattari sees the creation of existential territories through the mobilisation of refrains [7]. Yet Virilio's persistence of the witness still provides a crucial beginning for embodiment with regard to the ecologies in which new media take part. Raves, doofs, clubs are doing a great deal more than entertaining here - though of course they are also important precisely because their structures of immersion work through enjoyment. Doofs in particular use enjoyment to 'seek to … momentarily inhabiting artificial islands of heterogeneity and exploration where novel connections and affiliations are formed and experimental social forms are incubated' ([17] p.15.).

Electronicas today are particularly important then, not only in allowing us to live through blurred frontiers, but also in allowing us to construct complex involvements with what may come next.

TECHNICS, TIME AND THOUGHT

What may come next is a profound reworking of ideas and practices surrounding technics, time and thought. I shall now turn to Bernard Stiegler's account of technics, time and thought to begin to map the crossed spaces of electronicas and the network society. In this I shall attempt to provide a more "electronic" account of the network society as much as electronicas themselves.

Like many others, Stiegler tends to ignore music in his book *Technics and Time 1*. Yet the deconstruction of technics and thought, technics and life that Stiegler, following Derrida, performs is one that finds great resonance within electronic music. This can be seen even in the very concept of "originary delay" or "de-fault" that Stiegler places within the mythical setting of Epimetheus. Epimetheus was the Greek God who forgot to clothe and arm humanity in the process of creation, thus necessitating technics from within an originary lack. This concept of delay, of a humanity, world and time manufactured in a coupling with technics is central to electronic music (technologically, though I do not mean this only in terms of specific technologies, most of the most prominent effects in electronic music - echo, delay itself, flanging, chorus and so on - are based upon variations of delay). In mainstream new media it is often the "instantaneous" - with its related fear of loss of origins - that counts. Yet both Stiegler (and Adrian McKenzie) and electronic music remind us of the importance of delay - or of technics' non-immediate and non-linear relation to time. The non-originary production of time suggested by the fact that at the "origin" there is already a "de-fault", a delay, and a co-dependency of human and technics seems to define the contemporary state cultural problems of technics more than any enhanced immediacy. This delay might be much more crucial to the way that technics are actualised than immediacy - both within technical evolution itself - and within the techno-cultural living out of technics.

Stiegler begins by re-situating 'technical beings' ([16] p.2.) between mechanics and biology. Technical beings vacillate at the edge of a split he finds first in the Ancient Greeks, a split that he thinks persists in contemporary culture and many recent influential philosophies. For the Ancient Greeks (or at least for Aristotle) the 'technical being belongs essentially to mechanics, doing little more than conveying the vital behaviour of which it is but a thin trace'. Stiegler immediately gives this a Heideggerean twist. He begins to point out the contradictions within the assumption of a core of (human) life to which all technics is (or at least should be) subjected.

Many of these contradictions arise from an insufficient understanding of time, as well as an over-determined sense of the human within time. Heidegger challenges both. Within Heidegger there is a notion of a 'historial' past (that past which is 'not my past' ([16] p.5.), and which I cannot really know, yet is given to me as the past that precedes my existence). There is also an undetermined and unknowable future (i.e. death). Both of these subject life, thought, and the autonomous individual, to fractures within time. Of course for Heidegger one can "authentically" accept these fractures and unknowables, and I might not be the first to point out that it is within this acceptance of "historiality" that we find sampling, sequencing, the attack on copyright within music. These are not just an expression of self but precisely the opposite; the expression of an authentic relation to open-ended time in which the self is diminished in regard to the world in time.

This acceptance of historiality is, then, found in electronicas play with copyright material. Rather than preserving copyright, there is a rich play with both time and with historiality - sampling is here involved with *(re)*sequencing and *(re)*mixing. Aware that the past is both given and impossibly unknown by any individual, sampling and mixing reference and even occasionally revere historiality without trying to own it or pin it down. This is obvious throughout electronic music but can also be seen in digital art as a mixing and sampling ethic. Mariko Mori is exemplary here, visually sampling and sequencing an impressive range of religious attitudes, technological and "natural" environments, and magazine aesthetics. Such work is also a "remixing" of metaphysics that, if it survives, survives only as a metaphysics of difference.

In general, the movement away from an "absolutist" metaphysics of thought, life, the individual and the human can take two forms. One is Heidegger's eventual examination of 'being without beings'. Here 'man and being reach each other in their nature, achieve their active nature by losing those qualities with which metaphysics has endowed them' ([16] p.5.). Yet technics complicates this because being and technics are as difficult to separate as technics and metaphysics.

The second movement away from metaphysics (one not mentioned by Stiegler at this point) might be one towards beings without being. This is Guattari's solution to the problem [6]. Even more than being in Heidegger's work, however, beings in Guattari have a machinic nature, particularly as all beings are produced (and destroyed) through time, and all beings are assemblages (which also makes them ecologies). Guattari's approach not only gives more scope to technical beings than Heidegger's, it allows for a more important series of assemblages of technical and other beings within the machinic. Electronicas are again important here. They embrace both the productive and the machinic aspects of the ecologies they are involved with. At this point we are not talking about instrumentality so much as a willful embrace of the technical within a broader set of configurations of the machinic, all of which are open-ended in terms of time. *The interactive here means both the highly engaged and the unfinished*. And what regulates its rhythms, even as the interactive creates and

disassembles territories, is the refrain (which I have written about elsewhere [12]), the actualisation of ongoing difference in repetition.

Perhaps it is as simple as this. Electronicas are more able to adapt rhythmically to the complex relations between technics, cultures and worlds than “target-message-impact” approaches, particularly as technical transformations become more complex, diverse and widespread. Stiegler directs us here to Bertrand Gille's notion that there are 'rhythms of transformation, cycles of acceleration and deceleration of the evolution of the technical system' ([16] p.37.). These rhythms become somewhat literal in the overlaying of refrains in electronicas (DJing, mixing, sequencing, dancing), but this literalness is the point. The embodied complexity of rhythmic overlays through time is foregrounded in electronicas. We can also note the productive power of the polyrhythmic (and polytemporal) ecologies that result from this embodiment. In the network society in general, this ongoing complex embodiment enables us to live with 'a rhythm of constant innovation' ([16] p.42.).

With regard to this constant innovation, Gille writes that 'if we are heading today towards a new technical system…, it is a question of assuring not only its internal coherence but also its coherence with other systems'. The temptation here, noted by Stiegler, is to program or organise the future, to preserve the global coherence of systems. Yet Stiegler points out that this begs the question of the future itself as the problem of 'the originary relation between the human and the technical, *qua*, a *phenomenon of temporality*' (p.43.). Here again electronicas are exemplary. The famous Kraftwerk love of technology (to the extent, earlier in their career at least, of loving nuclear power), the acceptance of technics in the doof, and the emergence of techno from Detroit hold this much in common: the active engagement with both technics and time, or with technogenesis in a transductive relation with time. Speeds and rhythms become a form of “power over power”. Within electronicas, even the (rhythmic) accident can be a form of power. Marshall Jefferson writes that the influential acid house track, 'Acid Tracks' was 'an accident man' ([5] p.125.) an accident that gave “power over power”, and not only to the producers involved. Even the shift to much longer tracks (or even *to* tracks as evolving continuities, as opposed to songs as stand alone items), so typical of several breakthrough tracks from Donna Summer's 'Love to Love You Baby', to Kraftwerk's 'Trans Europe Express', demonstrates this play with temporality as a form of power over power.

Again, electronicas are not concerned here with efficiency so much as excess. Not only because excess is fun, but also because excess takes the process beyond instrumentality and towards the remaking of forces and powers (as noted by Brian Massumi on many occasions). Excess also frees up redundancies that can be fed back into the process for the reconstitution of basic elements such as rhythms and speeds and their formation of individual and collective bodies. Indeed instrumentality itself is a mediating force for this remaking of forces. Poschardt, for example, writes of a kind of active deconstruction of speeds and sounds that was enabled by the 'first mixing desks with equalizers' ([13] p.237.) for DJs. These equalizers, by enabling DJs to break up the sound sources into constituent parts (lows or highs for example), 'freed up the channels for deconstruction'. In such technical evolutions it is no longer a question of the survival of the fittest but of *the reworking of the very techno-social nature of fitness in real-time*.

The crucial relation between technics and time in electronicas is echoed in Stiegler’s work. For example, Stiegler criticises Heidegger’s opposition of speech to instrumentality in which 'speech bears this original temporality of time' ([16] p.14.). Stiegler writes that, for Heidegger, time 'is given in speech' (p. 13.) and that 'individuation and “intersubjectivization” *through time* are what are at stake in language'. Yet Stiegler also points out that the opposition between speech and instrumentality is a metaphysics in denial of the way that technics itself might be '*constitutive* of individuation'. Heidegger’s valorisation of speech is a denial of the organisation in/of time of/by inorganic matter; that is, of/by technical beings. Moreover, it is a denial crucial to the opposition of instrumentality to a number of other figures: culture, thought, life, the human, speech, even science. It is a denial that provides the framework that poses technics as “secondary” - a framework that persists in the rhetoric and practices of even the most advanced cultural events (even, for example, in the split between the notion of “user” and “system”, or in the famous Microsoft slogan 'where do you want to go today?'). Yet Stiegler's fundamental point is that today, the 'division originally made by philosophy between *tekhne* and *episteme* has become problematic' (p.21).

Sadly, when faced with this problematic, the denials often increase - systematically. Worse, the opposition between technics and a series of more vital figures is used to disguise the advent of systems that more fully justify the fears of “instrumentality” held by those such as Heidegger. These would include systems of surveillance claimed to “protect” individual freedom, and systems of performativity claimed to assist the “free” development of the human.

Again there is a clear if at times paradoxical difference between electronicas' approach to technics and that of the more reactive aspects of the network society. As electronicas embrace technics, they broaden the notion of production and assemblage within technics into complex ecologies that can no longer be said to be “determined” in any clear linear sense. To take one example, 'The intricacies of [drums'n'bass] labour intensive programming [of rhythms] defy expressive theories of performance and disrupt linear notions of temporal flow' ([5] p.117.). In such cases the music is only diminished in effect if played “live” by a “real” drummer, precisely because the rhythmic effects arise from stretching, mixing and compressing samples and temporalities. In drums'n'bass there is only ever a mix of temporalities - of “liveness” and the technical constituting each other. Or, to take another example, 'recording and sequencing technologies have managed to confuse and conflate the relationship between composition and performance' and

'performance becomes more important in its relation to the various moments of reception'. The result is an opening of the virtual (historiality and futurity) if also a disregard for the pre-eminence of the human. What we perhaps hear instead is the sound of (temporal) difference in itself.

Stiegler begins his search for a less antagonistic approach to technology in Bertrand Gille's comments on technical evolution. Again, what is crucial here is the disjunction between the 'rhythms of cultural evolution and the rhythms of technical evolution' ([16] p.15.), now found in a situation of 'permanent innovation'.

> Technics evolves *more quickly* than culture. More accurately put, the temporal relation between the two is a tension in which there is both advance and delay, a tension that is characteristic of the extending [reminding us again of the stretching of rhythm samples in drums'n'bass] that makes up any process of temporalization. It is as if time has leapt out of itself…

These is no doubt that these are important comments on the network society as a whole, but in many ways they describe the complex "unconscious" of that society (what is often considered noise, feedback, or more simply a failure of communication). This temporal tension is expressed far more "consciously" within electronicas. (It might almost be said that electronicas are therapeutic analysts for the network society.) The tension is expressed obviously in the manipulation of rhythms and speeds, and slightly less obviously in the happy play with temporalisation performed within electronic music *events*. It is also expressed in the electronic philosophy of the deferral of 'decision-making and anticipation' to a '"machine" or technical complex'. It is then expressed in the manipulation of social times, the complex of technical complexes involved in electronicas, the embrace of permanent innovation. It is expressed in the attention given to an "authentic" relation to historiality and futurity. Yet this is an attention that paradoxically does not *necessarily need* a (non-temporal) guarantee or origin for an authenticity (thus the freedom of sampling). Stiegler calls this 'the taking place of time as much as the taking place of space' or 'event-ization' (p.16.).

This temporalisation makes space seem the more alive. Calculations and (the real forces marshaled by) metaphysics are distributed throughout, and disturbed by, the temporal with its shifts in speeds, rhythms and assemblages. The milieus involved are processually created by these shifts. Although the constant temporal (re)distributions embrace the temporal per se, they also reconstitute it in terms of "worlds" – particular space-times, perceptual events, shifting "unwelts". With global technologies now forming a more networked exterior milieu for these (re)distributions, we are faced with the fact that 'the dilution of the interior milieu (culture, the human, that termed the *ethnic* by Leroi-Gourhan) into the exterior milieu has become essentially technical' ([16] p.62.). In this regard, we have seen that electronicas are open to interaction, to the intermeshing of ecologies of all kinds, to constant reconfiguration and the enveloping into larger complex systems of all kinds of smaller systems, to historiality and futurity. Electronicas are therefore in a perfect position to tell us a lot about technogenesis, by which I mean not the genesis of technics but the role played *within* genesis *by* technics. Techno-genesis also hints at the way we might have to rethink both genesis and technics within a fuller understanding of the temporalisation of the world.

An example is the nature of shifts in musical styles (Satie to Eno, Stockhausen to techno, house, garage, acid, techno to ambient, trance, jungle, and the current complex mixing of all of these). Each new style is not only a mix of styles or fashions. It also involves the rather serious question of the ongoing 'relation of the human to matter' ([16] p.49.). This suggests, for example, that although techno does come out of Detroit, and Juan Atkins and Derrick May *are* important innovators, neither Detroit nor Atkins nor May are the absolute originators of such styles. Rather, from a transductive point of view, musical styles *as real forces in the world* also emerge *from within musical ecologies themselves. They are quite literally reorganisations of matter*. As Stiegler writes 'It is organized inorganic matter that transforms itself in time as living matter transforms itself in relation to its milieu'. The technics of music does not just give expression to the human; it has its own partial evolution with the human. And precisely because of the involvement with technics, somewhat ironically considering the current hopes and fears about genetic engineering, humans are no longer bound to their genetic destiny in the way they were. This is because there are no longer the 'genetic isolations that guarantee the unity and the stability of the animal species' (p.51.).

The history and contemporary practices of electronicas, then, seem to provide some responses to the issues raised in Stiegler's account of technics and time in the West. The confusion of mechanics and biology is often celebrated, and more than that, enactively embodied in electronicas. This confusion is celebrated in Russolo's *Art of Noises*, the merging of hand and electronic "field" in the Theremin, or dance music determined by electronic sensors that form part of the dance's scenery. The confusion is celebrated in the very embrace of sound in popular dance music events. The mechanics of sound itself seems able to actively change the body and the body's negotiation of social contexts. Sound also seems, through music events, to bring technics, environments and productive bodies together precisely so that there is *leakage* between the ecologies involved.

So when Stiegler calls for a 'new consideration of technicity' (p.17.) in the contemporary world it seems to me that electronicas are already active in this new consideration - and not only in a new consideration of technicity but in new practices and material negotiations of technicity. As much of what defined Stiegler's project as a whole also defines what I think are some of the most crucial aspects of electronicas I shall quote him at length.

> …nonorganic beings have their own dynamic when compared with that of either physical or biological beings, a dynamic, moreover, that cannot be reduced to the "aggregate" or "product " of these beings.
>
> There is today a conjunction between the question of technics and the question of time, one made evident by the speed of technical evolution, by the ruptures in temporalization (event-ization) that this evolution provokes, and by the processes of deterritorialization accompanying it. It is a conjunction that *calls for a new consideration of technicity*. The following work aims to establish that organized inorganic beings are originarily -- and as marks of the de-fault origin of which there is [es gibt] time -- *constitutive* (in the strict phenomological sense) of temporality as well as spatiality, in quest of a speed "older" than time and space, which are the derivative decompositions of speed. Life is the conquest of mobility. As a "process of exteriorization", technics is a pursuit of life by means other than life.

Drums'n'bass practitioners stretch drum samples to get at the decompositions of speed. Dancers reconstitute worlds as active speeds in fast assembling and disassembling production. More generally, the whole experience of "real time" is complicated by the 'multi-track tape, computer sequencing and hard-disk audio recording' ([5] p.116.). Electronicas *are* the conquest of mobility, of the very flow of electrons. They are much more than the breaking up of experience into data (i.e. the digital), which is only derivative of these flows.

Electronicas are, in other words, willfully "transductive", not concerned with singular origins but with a 'techno-logical [i.e. technics *and* logos] constitutivity of temporality' ([16] p.18.). Adrian McKenzie gives a full description of transduction's 'diverse interactions and resonances between the elementary technicities present in a technical ensemble' ([10] p.15.). Transduction also involves the metastabilities that emerge and produce change in the 'resonance and coupling between diverse realities' (p.16). Transduction accounts for 'how things become what they are rather than what they are…Boundaries, singularities and differences underlie transductions' (p.17). Transduction works through differential relations, even through the processual differences a "thing" has with itself (spatially or temporally, the latter in the way that a being is delayed or anticipating with regard to itself). In electronicas, then, it is not just a question of identifying styles but also a question of identifying the boundaries, singularities and differences between those styles. It is a question of identifying their basic elements, technicities, speeds and rhythms, along with what these productive transductions produce.

Played out in exemplary form in electronicas but also in sometimes hidden processes in digital culture, new media and the network society, the concept of transduction allows us to consider not the cause and effects or determinations of technologies but the distribution of forces temporally throughout techno-social-ecological fields. Electronicas are at the forefront of this experimenting with transduction, increasing the complexity of the engagement with ecological worlds, asking the question, as Stiegler puts it, of 'what power (pouvoir) we have over power (puissance)' (p.21.).

This question of power could be put in the terms of Leroi-Gourhan. What actual "ethnic" instances of techno-logical evolution can participate the more in virtual tendencies, and how can/should they? This is to ask quite specific questions about concrete musical events as well as to try and look at the specific virtual tendencies that give rise to them. It is to ask about the two sides (virtual tendencies and specific ethnic actualisations) of Detroit techno, Kraftwerk and electronica in Germany, Eno and ambient. It is perhaps, in the context of electronic art to look at an artist such as Stelarc, not only as a unique oddity but as engaged in a transductive series of virtual tendencies and specific "ethnic" actualisations. It is to see all these different, new types of "ethnicities" as collectives of rhythms and speeds, in which the 'unity of the ethnic group is governed by its relation to time' (think of ambient, Kraftwerk or the Orb's different relations to time). Or, 'more precisely', the ethnic unity is governed by 'the relation to a collective future sketching in its effects the reality of a common becoming' ([16] p.55.).

On the other hand, Stiegler asks (p.66., following Simondon) whether increased work done in the exterior milieu at the expense of the interior milieu challenges the ethnic – when the ethnic is considered in the special sense of an interior milieu built as a 'system of defense against technics'. This does not mean that we should turn away from cultural specificities but that we should consider them not as 'interior milieus' but as technicised players within a series of exterior milieus that are increasingly networked (so that, for example, the influence of African-American musicians on Kraftwerk or John Cage - and vice verse, should no longer surprise us, if it ever did). Is the current collapse of electronic music styles into ever smaller and more mixed specificities an indication of the global taking up of ethnic redundancy – redundancy meant here in the sense of that freed up, or left over, from the organization of interior milieu? Or, to put this question of the disappearance of the "ethnic", interiorised technical outcome differently - do electronicas show us that the experience of the technical object is of an object that is 'never totally known' (p.76.), and as such never totally interiorised? Perhaps in the terms used here, there is never any absolute ethnic in the sense of a unity which stands still long enough to be identified, because the technical objects and outcomes of the ethnic are never 'totally concrete'. The ongoing and shifting logic of the technical is "revealed" only in ongoing performance, 'only in its (temporal and temporary) realization' (p.75.), by the DJ, in the performance of the refrain, in the electronica installation in the art gallery 'or, as it were, on the stage'.

This suggests that specificities always redirect the technicity of events onwards towards process. (Brian Eno [3] points to the specific acoustics of every musical performance situation as crucial to the realisation of the (eco)logics of a musical work.) And these specificities arise within the world of the human (defined now as the techno-human)

only through 'technico-socio-cultural' ([16] p.155.) and I would add environmental "*differentiation*". Which is to say that we must conceive of a *specificity that is also an active relation*, an intensive difference. (An acoustic of course, is also an effect of differentiation of surfaces and collisions, and of delay). This is also to suggest that technical tendencies, when conceived as productive and processual with regard to the human, are not just a *result* of differentiation but are *differentiation itself*. And just as a 'language cannot be conceived that is not idiomatic', neither can this process of differentiation in general be conceived as anything but idiomatic.

Once again, we suggest how active is the embrace of the differentiating, idiomatic nature of techno-cultural relations in music software, in the ongoing evolution of music styles, or in music as an embodied coupling with social and environment forces and ecologies. And in passing we understand again why attempts to control these relations are always somewhat doomed. Here we can see that State laws made to attempt to control these outbreaks of differentiation (MP3 and other copyright issues for example) are in serious conflict with the more specific "laws" at the blurred frontiers of technics. 'As soon as there is exteriorization, and even if it must certainly have had a species-specific origin in which it is still caught, we are precisely no longer in the specific, but in the process of a differentiation between (human) groups governed by techno-logical and idiomatic, if not "ethnic", laws' (p.156).

If electronicas are perhaps the most obvious realisation of technocultural work performed by all networks and systems when conceived temporally and dynamically, able at times even to resist State laws and corporate will, what can this tell us about new media in general?

New media - conceived electronically - attempt to processually assemble the flow of electrons, the ongoing flow of technics and cultures, the experience of world without its determination as World, and human without its determination as Human. For me, for a want of a better and perhaps more original term, this makes new media *differential media*.

DIFFERENTIAL MEDIA

The term *differential* describes cultures and technologies that are based upon the in-between, that is, difference in itself. It is also meant to imply the end of media as clearly bound forms (film, TV, etc) or genres. The term *differential* signifies that, now more than ever, media tend to constantly differentiate themselves in an ongoing process. This is not just a *response* to a cultural/natural environment. Differential media also involve the *creation* of this environment. We could say, again following Stiegler, that the term "differential media" signals an approach to media that attempts to 'draw out the possibilities for an analysis of technical dynamics that is reducible neither to mechanics nor to biology nor to anthropology' ([16] p.17.). Neither is it reducible to particular technologies but rather focused on the productive differences between them. Scratch and sampling, for example, often considered a kind of cooperative pair, with perhaps sampling and sequencing slowly replacing scratch, are actually best seen as producing a series of musics dependent on their particular intense differential meetings over time.

Differential also implies constant change – it is an appropriate description for the cultural transcoding that Manovich refers to as an essential aspect of new media. For Manovich, computers and culture constantly change one another. This leads to a speeding up and instability of both computer media and cultural forms and processes. Stiegler suggests that is not just a matter of a technics separate from "real life" but of life itself. For Stiegler, Derrida's term différance also sums the matter up, as différance, 'calling man (or his unity) into question, is nothing other than the history of life' (p.136.). In this, différance is also the breakdown of the division between life and technics, or between the "who" and the "what". Différance is 'neither the *who* nor the *what* - but their co-possibility' (p.141.). It is life as the undermining of 'the authentic/inauthentic divide'. This obviously undermines the divide between the human and the technical, so that 'the human invents himself by inventing the tool' - with an interior that does not pre-exist exteriority but is itself 'constituted in exteriorization'. So, for example, memory becomes the differential intensities between archive, sampler and sequencer. As Poschardt writes, 'the sampler brings memory back into the present and awakens frozen life into cheerful existence' ([13] p.229.). As in the case of the sampler, memory in general, as the basis of culture and individual interiorities, is in a transductive relation with a 'constitution of temporality' ([16] p.143.). This constitution of memory and temporality is 'elaborated and conserved by the organization of the inorganic'.

Dance, so fundamental to so many electronicas, may be more important than we might often think here. Stiegler notes that everything begins, in terms of co-evolution of the organic and the inorganic, not with the constitution of the determining brain, but with the feet. The feet allow the erect posture that 'determines a new system of relations'. This frees the hands (and, in a different way, the rest of the body), and they call for tools. In turn, tools call for language - an extremely pliable, exterior tool of cognition. Electronicas accept the priority of the feet over the brain, and the tool over language. Poschardt, for example, writes that the DJ's intervention in the world exemplifies the fact that 'the world of the symbolic has become the world of machines' ([13] p.31.). As for the brain in the middle of this world, 'it obviously plays a role, but it is no longer directive: it is but a partial element of a total apparatus' ([16] p.145.). Either that, or everything becomes brain until the concept of brain becomes so distributed - or so virtual in its networked potential, that it has to be seriously reworked - as in the title of the Orb track 'A huge evergrowing pulsating brain that rules from the centre of the underworld'. In all this mobility (and affect, the movement of forces, the participation in worlds) becomes 'more significant than intelligence' (p.146) (or information, or messages). In fact 'intelligence is but a type of mobility'. In other

words, dancing may be fun, but it is not just fun. As Poschardt writes, in such circumstances 'authorship moves towards the digital circuits of the music machine, and at the same time it moves away from the brains of the artists' ([13] p.31.).

The relation between mobilising difference and life within the technical is obviously important to all technologies and all media, but it is most clearly articulated in the philosophy and practices of electronica. This is seen, for example, in the MP3 phenomenon. In an important essay on MP3 [14], John Scannell has pointed to the importance of affect (i.e. life as process, the passage of worlds through each other) as a force within the drive towards the differentiating uses of MP3 and other file-sharing codecs. This consideration of affect within MP3 is often lost in debates about copyright. Yet such considerations are important when thinking through a techocultural ethics. They suggest modes of thinking through the technical aspects of culture that do not elide difference.

This is to ask the technical question of how we might put "differences in common", as Paul Wei, a perceptive colleague, termed them, into practice? Obviously the current climate of social control, reactionary identity-formations and what Virilio so accurately called "cognitive ergonomics" is desperate to use networks to turn "differences in common" into defined outcomes, profits and generally into the worst kinds of "identity without anything in common". Yet if networking is anything it is a technics of the "differences in common".

Networking not only allows these differences to be worked, but it unsmothers the cultural and philosophical stories of these differences. In short, if media are now more intensely networked than ever before, this only reminds us of how networked we have always been. And this in turn brings us to the importance of difference in itself, both technically in the form of the differential calculus of movement and change, and conceptually in terms of the differential – intensive difference in itself - as the basis for the thought by which we so often define ourselves.

This play with networked, electronic intensity is seen not only in musical electronicas but also in electronic arts. It is seen in the unsettling horizons of Patricia Piccinini's digital oceans in *Swell* (2000), Robyn Bracken's fibre optic cable installation at Sydney airport, *Weeping Walls* (2000), or Stelarc's ongoing MIDIing of the relations in which he finds himself. It is found in Linda Dement, Murray McKeich or Michelle Barker's explorations of hybridity in life/images, or in Lars Von Trier's linking, live via satellite, video images of an ant's nest in the United States with a gallery full of actors in Copenhagen in his performance work *Verdensuret* (1996) (the actors improvised to a rough script according to the technical indications given by a computer's measurement of the ants' movements through a prepared on-screen grid). All these electronic works are not just records of *reflected* intensity. Neither are they "messages", not even a message that is the medium. All these works are themselves *enactments* of differential intensity. They are all open to the virtuality of the network, not just as data, but also as electronic flow.

This suggests that we can understand the virtual *as* the network of networks, what I call "ecologically" the web of webs, but that this means abandoning many of our disciplines and categories. And differential media are virtual media precisely because they harness this intensity of webs, of networked media. Differential media – and for that matter differential-based technics, do not then just enhance connections but draw our attention to difference as intensity, to movement, to sensation, to ongoing affects. They draw our attention to the world as our perceptual frames (frames that are technical and "natural" at the same time) are not normally structured to see it. This is the world not as data but *as modulation*.

Following the Spinozan/Deleuzean notion that we have not begun to know what a body can do, it could be suggested that we have not begun to be able to think networks, or to know what they can do. (In fact, the question of networks and bodies may be the same.) We have not begun to understand the meaning or pragmatics of living as networks within networks. We have not begun to know what to do with networked cognition/perception/action/agency, with the brain, body and world conceived pragmatically as network.

When we do begin to know what to do with networks, we will listen more carefully to both artists and technicians, who in electronicas these days are often the same people. We will respond to them with differential institutions not based on directing outcomes but based on exaggerating the tangents to the curve. These institutions will be based on differential disciplines (transdisciplines) that allow us to shift when we need to, differential forms of publication that are the better for exceeding the webs of given disciplines, differential licensing methods and differential violations of these methods, differential property, differential consciousnesses and differential minds. Of course, we have been moving towards all of this for some time, dancing around the differential without often seeing what was happening.

It may seem, as in Heidegger's thought, that the modern technical *system* has nothing to do with differentiation in the sense meant here, but it is quite the opposite. For example, Niklas Luhmann gives an account of systems' autopoietic but inter-connected "swirls" through the world, swirls perceiving the world only on the basis of an originary *systemic differentiation* of binary elements towards which the system itself can only be blind. The differentiations or transductions involved can only be seen from outside the system, and this implies that differentiation and transduction are necessarily inter-systemic. But in the modern world at least, all systems are inter-systemic. In fact, Luhmann defines modernity as the inter-systemic observation of systems by others. Nowhere is this inter-systemic differentiation and transduction more obvious and more dynamic that in electronicas. They play with time as inter-systemic, as well as inter-subjective. They open systems to the world's complexity, rather than control.

It is this technical/lively open-ness to the world that is held in common by many digital artists and musical electronicas. To return to an early example, music software packages are always "a crowd" of packages, plug-ins, functions, simultaneous recordings, playbacks, mixing and edits. Or, there are clear parallels between a work such as Joyce Hinterding and David Haine's *The Blinds and the Shutters* (in which the contents of a decidedly modernist house slowly leak out and float off into the forest and sky) and the stretching through time of drum samples in drums'n'bass. The openness to environments (but *not* the idea that environments can be preserved without the action of mixing and sampling) is made even clearer in Hinterding and Haine's *Levitation Grounds* (2000-2002), in which they combined '3D imagery, and digital post' together with satellite images received from passing weather satellites (the parallel here might be with Scanner). Such electronic artworks make some other notions and practices of "network" and "system" within new media seem rather poor by comparison.

And to Microsoft's question 'where do you want to go today?', electronicas' answer is "we do not know in advance".

INTO THE WORLD BUT WHAT IS THE "WORLD"?

Electronicas suggest that we are indeed caught in the middle of a kind of simultaneous deconstruction and reconstruction (and never one without the other) of fundamental ways of thinking about technology, worlds and the human, at least in the West. Technology no longer guarantees a fullness within, nor does it destroy, nor does it merely supplement: life, thought, the human, the logos, control, memory. Yet many media theories paint themselves precisely into the corners of guarantee (of communication for example), destruction (of time, in Virilio for example) or supplement (in some forms of deconstruction).

Electronicas also show us, however, that the blurred frontiers within which we are caught are not nowhere, or without existential reality. Electronicas show us that to stand in the in-between is to enjoy a proliferation of "umwelts", of bodies and brains, of networks, configurations and systems, of all kinds of worlds visible and invisible, of shifting temporalities and outside thoughts.

How are we to know what to do with these transient and proliferating "worlds"? This may not be a question that needs to be fully answered immediately. As Robert Moog puts it, 'a good musical instrument can be used in a lot of ways that aren't discovered right away' ([15] p.209.).

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