FCJ-081 Toward An Ontology of Mutual Recursion: Models, Mind and Media

Mat Wall-Smith, English, Media and Performing Arts, University of New South Wales.

'...the 'axioms of daily life' stand in the way of the a-signifying function, the degree zero of all possible modelisation.'

(Guattari, 1995 : 63)

2 The ways we conceive of minds, subjects and technics, particularly media technics, are intimately related.[1] This relation is only partly explained by the often-intersecting histories of media technologies with the philosophies of mind and cognitive sciences. On the one hand, different models of mind suggest different approaches to media forms and technologies. On the other hand, there is the ability for those forms and technologies to move the body to think, to evoke novel resonances between body and world, paired with their provision for realising and developing a calculated return to the affordances that these resonances develop. The dynamic of the relation between minds, subjects and technics, and between these and modelisations of the processes involved, becomes critical to what Bernard Stiegler and associates have called the 'industry of mind' (Ars Industrialis 2005). In this article I am mainly concerned with how mind-subject-technics relations are conceived and how those conceptions modulate the industry and vitality of mind.

3 I will examine some of the more pervasive conceptions of this relation, focusing particularly on the 'cognitive' perspective as illustrative of a wider, functional operative tendency in modelisation, if one based on false premises. I will then propose that the ideas of Brian Massumi and Bernard Stiegler provide for a unique approach to the mind, body, technics matrix. These ideas illustrate the relational dynamic out of which such operative tendencies – whatever their premises – emerge and develop.

4 In doing so, I am proposing a metamodelisation at the junction of their ideas. In Parables for the Virtual Massumi describes 'The Autonomy of Affect' in our ecology of thought (Massumi, 2002 : 35). The object of Stiegler's Technics and Time is 'technics apprehended as the horizon of all possibility to come and all possibility of a future' (Stiegler, 1998 : ix). The ecological dynamic I am proposing here describes the recursion between this 'affective autonomy' and a 'technical horizon of possibility'. It provides a metamodel of the relation between body and world, between perception and expression.[2] Finally, I argue that this metamodel allows for the technical architectures that enshrine media processes and models as both the manifestation and modulation of the 'industry' or vitality of mind. I argue that these technical architectures are crucial to the creation and maintenance of dynamic ecologies of living. More specifically, they are crucial to the way perceived potential forms the basis for forethought anticipation, and this in turn for the emergence and continuity of a non-autonomous subjectivity.

Black-boxing the Mind

5 In February 2007 Wired magazine published a feature titled 'What We Don't Know'. The feature lists, with some brief expert editorial, all those areas into which human knowledge is yet to penetrate. It is the kind of simultaneous celebration of the great unknown and a chart for its future colonisation that is quintessentially Wired. This following excerpt frames our ignorance regarding human consciousness:

> 6 Some philosophers still argue that consciousness is too subjective to explain, or that it is the irreducible result of matter organized in a specific way. That philosophic black-boxing is probably more nostalgic than scientific, a clinging to the idea of a spirit or soul. Without that, after all, we're just organisms – more complex, but no less predictable, than dung beetles. But scientists live to reduce the seemingly irreducible, and sentimentality is off-limits in the lab. Understanding consciousness means finding the biophysical mechanisms that generate it. Somewhere behind your eyes, that meat becomes the mind. (Rhodes, 2007)

7 Despite the article's declared ignorance, Rhodes is fairly assured in his dismissal of philosophy, his confidence in the sciences immanent reduction of consciousness to the 'biophysical mechanisms that generate it', and in his emphatic conflation of mind, consciousness and the brain (Rhodes, 2007). The assertion is that although we don't know how consciousness is produced, we do know

that it's inside your head. We know this because thanks to advances in medical imaging we've seen a whole lot of activity going on 'behind your eyes'. The conclusion apparently follows that when we have cracked the neural code indicated by this activity we will understand consciousness and by implication the human mind. The writer is apparently unconcerned that the a priori reduction of an undefined, if not irreducible, process might be logically problematic.

8 The Wired article illustrates a pervasive – if often contested – operative assumption that infiltrates much of the popular discourse on mind, intelligence, and subject and all the diverse fields where that discourse plays out; that the biophysical manifestation of the mind's dynamic can and will be isolated, and if not subsequently instrumentalised then at the very least demystified. This view is pervasive in much mainstream cognitive and neuroscience and the image of thought those sciences communicate to the greater public. It is a resonant image precisely because it reinforces the common-sense notion that thought is contained within, and controlled by, a brain that manages the body's interaction with the world at large.

9 The oldest and most common form of 'black boxing' in the philosophy of mind assumes that the movement indicated by the perception of thinking-going-on indicates some self-contained causal mechanism. It makes little difference whether that mechanism is conceived as soul, a spirit, or 'biophysical mechanisms' as it is in the excerpt above. In each case we have internalised thought's momentum, thought's differential.

10 This article begins by outlining both the phenomenological and rhetorical dynamics that are exemplified in the Wired article. These dynamics indicate a wider operative tendency in some of the basic assumptions within modelisations of thinking and media. They persistently orientate our body's approach to an ecology that has always arguably included technics but does so increasingly today. I will then introduce the theories of Massumi and Stiegler, which go some way to reconfiguring this dynamic within a meta-model that provides for the mutually recursive development of the relation between body and world.

11 Recursion is central to the metamodel I will describe. However, from the outset I will need to differentiate between the computational model of recursion that folds from cybernetics into cognitive science and the form of recursion described by the work of Massumi and Stiegler.

Recursion and the developing mind/relation between body and world

12 Recursion in mathematics is the repeated application of a procedure or rule to successive results of the process (Pearsall et al, 1999: 1198). A recursive function is one defined by its ongoing application to itself or its context. As an aside its worth noting that this is a paradox (an infinite regress) unless we conceive of the definition as topological; a system defined by its recursive definition can only be understood as a 'continuity of variation' (Massumi, 2002: 197).

13 In the context of this article, the relation between body and world is defined in 'mutual' recursion. Mutual recursion describes two or more functions that are defined in terms of each other. More clearly, it describes two functions that are defined according to a mutual relation. In a mutual recursion the definition of each system is contingent on the continuity of the other; mutual recursion describes a relational ontology. In actuality this means the two systems are not distinct at all, they are components of a dynamic assemblage.

14 This article develops the notion of recursion in order to describe the recursive modulation that operates between perceived relation and processes of expression. Expression either reinforces the perceived relation and becomes the basis for an extended system of continuity on the one hand, or realises a further contingency and a new perceptual relation on the other. It is important to note that in this context it is the relational definition established between body and world that develops in mutual recursion.

15 In such contexts, the definition of the systems themselves change, not simply a set or series of representative values or results. We are talking about recursively defined relational ontology rather than simply a defined recursive function. This marks a significant difference from the form of recursion that I'll refer to later in reference to Alberto Toscano's (perhaps rather too dismissive) evaluation of autopoiesis, and which is found in much thinking about cognition (Toscano, 2005: 56).[3] Here a recursion is limited to that which is established between the input of a system and its output in order to control a predefined set of relations. While the argument is beyond the scope of this paper we might argue that this latter understanding of recursion is 'representationalist',

based as it is on a defined 'protocol' or symbolic relation. The form of mutual recursion with which we are concerned operates at a more fundamental level of ongoing systemic definition and redefinition.

16 In accordance with the conception of a formative mutual recursion, I will suggest that media technics have a specific and profound series of impacts. They institute an architectonic relation based on an established way of perceiving and expressing the body's relationship with the greater ecology. They also represent both the concretisation, and the bases for extension, of that recursive continuity. In this sense media technics are, as Deleuze described of all technics, the realisation and completion of metaphysics; the modelisation of a relation that, once actualised, structures the potential for, and mode of, future recursion (Deleuze, 1998: 92). In short, our models of mind fold recursively into our technical architectures and our technical architectures tend, at least in part, to enshrine modelisations in architectural/infrastructural forms.

The Mind Interiorised in the Brain

17 Many mainstream models of mind tend, even by acts of definition, to "interiorise" the origin of thought. The common sense models of a rational structure in which we are a mind, controlling a body, navigating the world, structures our relation and interaction with our ecology. However, as the work of many theorists, philosophers, and an increasing number of cognitive and neuro-scientists has found, there is a persistent suggestion that thought might not be as internally contained or as rational as our commonsense suggests. From Deleuze to Ramachandran, the material relation between body and world is opened up to a metamodelisation in which networks of perception, and vectors of expression realise resonant continuities between body and world. Those continuities can't be reduced to body or world alone; they can only be understood as relationally defined and defining.[4] It is this resonant continuity that structures the recursive development of an always-emerging subjectivity.

18 The body as a whole, its world-engaged perceptual mechanisms and dynamics, the limits and tendencies of the senses, become critical to thought's recursion. Our conception of mind has begun to leak out from 'behind the eyes' into the body's resonant connections with the world. This approach to thought-as-perception transforms our understanding of a world based on mediation into one based on resonance. The senses can no longer be conceived as a mechanism of mediation that more or less perfectly transmits information about the world to a central processor. The senses are nodes in the resonant continuum that connects body and world, actively realising the differential that gives momentum to thought.

Exterior/Interior

19 Our entire mental environment – and the way concepts or models of this environment fold into this environment itself – thus become the ground upon which we struggle for a vitality of mind/thought. Stiegler describes the dynamic of this fold from concept to expression as characterised by a 'structural coupling in exteriorization'; a perceived relation folds into the world as the basis for expression (Stiegler, 1999: 176). At the same time, this structural coupling in exteriorisation includes an 'interior-ization' of relational potential into a mental ecology.

20 Stiegler's 'interior-ization' can be usefully thought about along the lines of two different processes; an 'incorporation' and a 'modelisation'. The modelisation entails an abstraction of the structural relation, in which, in Massumi's terms –

21 > Regularized, repeatable, uniform connection – the systematicity of a thing – constitutes a profitable disengagement of the thing's thinking from its perceiving in such a way as to maximize its extension into thought under a certain mode of abstraction. (Massumi, 2002: 94).

22 Steigler argues that conceptions of the human and the autonomy of the subject emerge as the modelisations of a fundamentally 'technical being' evolving by convergence and adaptation to itself ; it becomes unified interiorily according to a principle of internal resonance' (Simondon cited by Stiegler, 1998: 71). The crux of Stiegler's argument is however that the human is always finding its 'self' in the 'fold of experience' (Massumi's term) (Stiegler, 1998: 158; Massumi, 2002: 182). The human finds itself in the potential for a prosthetisisation of the body-world relation. For Stiegler this means 'the being of humankind is to be outside itself' (Stiegler, 1998: 193). However the modelisations of the body's relation with the world folds recursively in modulation of a future perception. As a consequence those models modulate the way we engage with the world; The way

we express ourselves as the product of a perceived relation modulates the self we will find in the 'fold of experience'. The conception of 'self', and critically of brain, mind, thought and the matrix of related phenomena, are then modelisations that express their own 'technical essence' that 'remains stable through the evolutional lineage, and not only stable but productive as well of structures and functions by internal development and progressive saturation' – where saturation is the ongoing organisation (incorporation) of the relation between body and world (Simondon cited by Stiegler, 1998: 77).

23 'Incorporation' can be a rather more dynamic process than modelisation. I have borrowed the term incorporation from Katherine Hayles in order to differentiate the corporeal phase of interiorisation from its modelisation (Hayles, 1999: 198). In Hayles' schema 'incorporation' is placed in opposition to 'inscription', which here can be understood as the operative function of the modelisation I have just described (Hayles 1999: 198). In incorporation, our potential to incorporate the resonant continuum of a mental/body/world/technical ecology becomes the basis for anticipation. The anticipation of possible futures depends on a past folded forward – in an ongoing modulation of the relation between body and world. Incorporation occurs not within our heads or brains, but within an immediate ecology. In the process, it enacts a systemic redefinition. For example, we incorporate the intensely-felt potential to cut in the experience of the sharp edge of a stone, the expressive potential of a beat in the stretched skin, the social economy in SMS text messaging. We incorporate the affordances involved as the basis for forethought or calculated expression. We organise our ecology to ensure a return to that material affordance plays out accordingly. We find the right stone for producing a cutting edge, the right mobile plan for economic text messaging.

Technics and Incorporation: A System of Anticpation

24 Incorporation marks a redefinition of the 'subject' as a system of anticipation. But crucially it also marks the genesis of a particular technics in one and the same maneuver. Stiegler describes this as 'mirror proto-stage…whereby one, looking at itself in the other, is both deformed and formed in the process' (Stiegler, 1999 :158). This is the process I'll introduce later as an Instrumental Maieutic (Stiegler, 1999: 158).

25 As the basis for a technical anticipation the 'structural coupling' between body and world (here including media technologies and processes) also marks the genesis of a subject in time as the recognition of perceived potential produces a 'horizon of possibility' in the perceptual field of the subject (Stiegler, 1998:ix). Rather than the contrivance of a higher order rationalism located somewhere 'behind the eyes', technics becomes the basis for a developing network of technical anticipation. That developing network provides the mnemonic scaffold for a subjective continuity. As Massumi writes; 'we always find ourselves in this fold of experience' – in the fold between a lived past and a potential future (Massumi, 2002: 182). It matters little as to whether the basis for anticipation is well founded. An association only need evoke a preemptive expression that either reinforces a structural certitude in a technical relation or realises a contingent differential. Either way, the recognition of a future in an immanent relation realises a recursive continuity between body and world.

Media: Modulations of the Resonant Continuum

26 As I suggested earlier in the article such a model requires a radical shift in our approach to understanding, modeling and using media forms and technologies. Media technologies move the body to think, evoke novel resonances between body and world, and provide for realising and developing a calculated return to the affordances of a particular mode of connection, of networking body and world. This understanding becomes critical to what Stiegler and associates have called the 'industry of mind', by which I mean here the potential for the mind (for thought) to realise a productive difference that moves beyond simple ecological affordance (Ars Industrialis, 2005). This is of course an industry of mind soaked through with media technologies. However those technologies tend to enshrine the assumed autonomy of a cognizant subject. Our operative model of media and technological engagement and of knowledge production more generally are thoroughly invested in the 'modelisation' that forgets the generative intersection in which the model as a form of technics itself is realised. Despite the endless deconstructions of text, authorship, and subject offered by forty odd years of poststructuralist analysis we continue to slip

into institutional, architectural, and technological models that 'forget' the differential relation that provides momentum to thought. Perhaps this is because as Derrida writes we cannot 'pronounce a single destructive proposition which has not already had to slip into the form, the logic, the implicit postulations, of precisely that which it seeks to contest' (Derrida, 2001: 354). But perhaps if discourse is conceived as a technical prosthesis enabling a particular style of resonant connection then what we require in order to encourage a vital and thoughtful ecology is a different approach to technics, with a particular focus on the way they realise a recursive continuity between body and world. We also need to carefully work through the complex of recursive modulations between broad conceptions and specific technical modelisations as these become central to the vitality and industry of mind.

Autonomy and Allonomy: The Brain in Mind

27 The specific conception of mind presented in the Wired article quoted at the beginning is a form of cognitivism. Vincent Descombes described cognitivism thus;

28 > The cognitivists differ from most of their predecessors in adherence to a strict materialist doctrine. They make clear form the outset that, in their eyes, mental life is a physical process and that the mind they seek to reestablish over and against behaviorism is a material system: quite simply, the brain... [Cognitivism] sees itself as a mental mechanics. (Descombes, 2001: 4)

29 Later in the same section Descombes illustrates the modus operandi of the cognitivist doctrine.

30 > We are expected to know, through the science of physiology, that the mind is located in the brain and that we must conclude, according to this philosophy, that the mind is thus identical to the brain, unless we are prepared to admit that two active powers can effectively occupy the exact same place. (Descombes, 2001: 5)

31 However, the assumption of the brain as the centre of thought presents a number of issues that have played out endlessly in the various philosophies concerned with the body, subject and mind. The root of the problem is an a priori distinction between allonomy and autonomy. Simply put the term 'allonomous' is used to describe systems that are both 'formed and function under the effect of external causes' as opposed to the term 'autonomous' used to describe systems exhibiting 'a recursive and self referential causality' (Toscano, 2006: 58).[5] The problem of the a priori distinction is framed as such; if the brain is conceived as the centre of thought then how do we defend a sensed autonomy from a bio-mechanically determined relation?

The Origin of Thought *and* System

32 Alberto Toscano provocatively links Kant to this a priori distinction (Toscano, 2006: 56), and both of these to Maturana and Varela's theories of autopoiesis (which are strongly associated with so called New or Second Order Cybernetics).[6] Toscano argues that both theories resolve the antinomy of the autonomous and allonomous simply by beginning with the creation of a hard distinction between them (Toscano, 2006: 55). This a priori distinction then frames thinking on the nature of autonomy. Autonomy becomes a question as to how the internally unified system connects with its ecology and how that marks a distinction from the allonomous system. The assertion of a central and contained engine that produces thought's differential also implies that both forms of system – that internal to the autonomous and that external to it – are given as unified within themselves a priori (Toscano 2006: 59). The opposition of autonomy to allonomy means that we can parlay the difficult question as to how an autonomous system emerges in the first place. However, the opposition/binary definition of the two terms can't parlay the question that must be answered in proxy to that of the system's origin; the question regarding the origin of thought.

33 Famously, Kant finds the 'problem of an original cause' evident in the way 'all the philosophers of antiquity' resolve the antinomy between nature and freedom (another iteration of the same opposition). According to Kant they do so by 'going beyond mere nature for the purpose of making a first beginning possible' (Kant, 1993: 334). As an alternative to this attribution of a transcendent origin Kant addresses the 'the objective synthesis of appearances'. Once we admit an autonomous internally unified mind connected to the external world via the senses we are confronted with the problem of representation. How do we know the world if perception is always only a shadow of the real? As Kant describes it, this question sees the philosophy of mind tend toward the extremes of either a 'despairing skepticism' or the assumption of 'a dogmatical confidence and obstinate

persistence' regarding the basis for knowledge (Kant, 1993: 309). Kant himself, however, turns the problem presented by representation – a foundational question for media concepts and processes – into a resolution of the question of an origin. He does so by developing a schema that allows at once a distinction and a connection between body and world, or rather, the body/sense as the mediator of information between internal mind and world. For Kant –

> There is nothing actually given to us, except a perception and the empirical progression from it to other possible perceptions. For appearances, as mere representations, are real only in perception; and perception is, in fact, nothing but the reality of an empirical representation, that is, an appearance…
>
> (Kant, 1993: 357)

At the same time –

> Possible experience can alone give reality to our concepts; without it a concept is merely an idea, without truth and relation to an object'.
>
> (Kant, 1993: 355)

Finally-

> To call appearance a real thing prior to perception means that we must meet with this appearance in the progress of experience, or it means nothing at all.
>
> (Kant, 1993: 357)

For Kant then free will 'succeeds the acts of nature but does not proceed from them' ('succeeds' in a kind of transcendental maneuver versus 'proceed' as in a direct biomechanical determination). There is a necessary disjunction between the concept and its origin in 'possible experience' (Kant, 1993: 334). Representation furnishes this disjunction. In The Critique of Pure Reason we find a prototype of an explicitly 'representationalist' model of mind. That model is illustrative of the tendency for a wider 'cognitivism' by which an assumed a priori distinction between human and other, nature and freedom, autonomy and allonomy, frames the postulation as to what mechanism is responsible for that distinction (soul, intelligence, brain) and how in turn we might emulate, understand, or control that mechanism as a means of harnessing what are subsequently placed as virtues of autonomy (innovation, creativity – in short, freedom).

Locate. Reduce. Instrumentalise.

Under the representationalist perspective the mechanisms of thought are buffeted by an order of abstraction from the perceived threat to autonomy posed by the suggestion of a direct biomechanical relation/determination between thought/mind and world. Perception is subject to the resonant tendencies of a perceptual relation but thought is not. As Toscano argues, this tendency is carried through to the philosophies and sciences of the mind, which continue to be invested in models of individual thought, intelligence, creativity. Second order cybernetics is Toscano's specific target but this need only be an indicator that much of mainstream cognitive science (with notable exceptions) operates according to a similar logic.

Cognitivism is an extreme case of this. By assigning an assumed autonomy to a particular mechanism located somewhere 'behind the eyes' in the 'meat that becomes mind' cognitivism tends to localise and reduce thought. The logic follows that by studying the brain we will inevitably approach an understanding of thought or mind or consciousness. The genesis of thought, the mind's vitality, is attributed to an internal mechanism that only requires further isolation in order to be understood and perhaps controlled. The assumption of the subject and thought as internally contained and their mechanism ultimately localisable allows a 'centre' of thought to be attributed and epistemologically contained, in lieu of, and always pending, it being understood.

Of course, although it is not my aim to discuss this in any detail as it is so widely known (Weiner, 1950: 95-103; Descombes, 1994; Sutton, 1998; Hayles, 1999: 164-168; Dupuy, 2000; for example), I should remark in passing that cognitivism's cradle is very much bound up with the development of media forms, especially those of computer media forms, with their inputs, outputs and symbolic processings.

A Persistent Assumption

43 The persistent assumptions of cognitivism are pervasive in both the history of ideas and in contemporary disciplines and institutions – again most prominently media studies and practices – concerned with revealing and applying an understanding of what Stiegler et al. call 'the life of the mind' (Ars Industrial, 2005). The fact that this set of assumptions continues to operate within the sciences and philosophies of mind, subject and intelligence is indicative of their continuing sway. As I have begun to suggest, this sway is in evidence despite a number of influential theoretical models and experimental findings that suggest viable and well-supported alternatives to a hard distinction between autonomy and allonomy. That said, these set of assumptions go well beyond the frame of a particular school of thought. They represent a pervasive, cultural operative assumption and, via this, a tendency that modulates the body's orientation to the world at large.

44 Our relationship to the technics of communication and expression are particularly subject to the tendencies of this orientation. The internalisation of thought and the subsequent assumption of a mechanism whose predicate is thought plays into a conception of the body's relationship to the greater ecology, and to other bodies, as informational. Our models of authorship, of communication, of discourse, and of technics and knowledge more generally (what we might call following Stiegler our mnemo-technical architectures) are modulated by this informational stance (Ars Industrialis, 2005). The author becomes the origin and master of expression as the causal agent of thought. Communication becomes an act of transmitting some abstract message stuff from one body to another. Discourse becomes a means of mediating a priori meaning; it becomes a mode of transmission between author and reader, sender and receiver. Technics becomes the mediation of an a priori intent or agency – it becomes purely instrumental. Knowledge is figured as stored internally and education is reduced to its clear transmission. We can see this playing out in any number of fields. In music the valorization of the musician as 'creative genius; provides an incipiency for the industrialization of music, the construction of music that is consumed more than its is performed, the marginalization of improvisation as a creative practice' (Zorn cited in Heuermann, 2004). The valorisation of the authored text in academic discourse marginalizes the development and valuation of more fluid dialogical and open approaches to knowledge production. The reduction of knowledge production to the transmission of information sees it play into rhetorics of exchange, value, and a pervasive 'audit culture' with little critical analysis of the recursive effects of such a culture on the production of knowledge (Strathern, 2000). In all of these cases the shadow of late-industrial capital looms large, however the market itself can be understood as a recursively productive mnemo-technical architecture that preferences defined objects of exchange and an economy of supply and demand into which they fold and then marginalizes and controls the potential for more distributed and relational economies and the realization of new modes for the production of capital (Delanda, 1996).

45 It is clear that 40 odd years of poststructuralist thought has endlessly deconstructed and offered fruitful alternatives to the assumptions that are embodied by this informational stance. More recently the postconnectionist perspectives on the mind as an agile engagement between body and world radically undermine the notion of the mind as internally contained or controlled (Sutton, 2005:12). It is also abundantly clear that operatively if not necessarily theoretically these models persist in many of the systems, technologies, institutions concerned with the life and industry of mind.

Locating Thought

46 It is important to remember that the persistence of the operative assumption of an informational and representationalist stance does not just come into being by itself. Behind it, we find the hard distinction between autonomy and allonomy. This is more than a simple error in logic.

47 Here I will suggest that, even in its error, this process exemplifies the very real dynamic of human thought. It illustrates the drive to organise a perceived potential in the service of a calculated return – or rather in the service of a continuity of relation and an ontological certitude. Locating thought's mechanism within the brain is perceived as the logical first-step toward harnessing the mechanisms of mind, whatever those might be.

48 If on the other hand the subject can be more accurately understood as co-determined according to the relation between body and world (as would be the case if we removed that layer of abstraction found in representation or mediation) then the 'mind' would have to be conceived as

'subject-to' the contingencies of that relation. Such a mind would leak out into the world, making it impossible to contain or delimit.

49 I have only been able to gesture in brief here to the detailed and complementary accounts of the dynamic of cognitivist/representationalist perspectives in both historical and contemporary work in the theory and sciences of mind that is offered by Descombes and Toscano (Descombes, 2001; Toscano, 2002). Rather than further extrapolating those accounts, I will now discuss an alternative to the tendency they critique, and to this tendency's assumed distinction between autonomy and allonomy, human and other, natural and technical. The alternative is suggested in the intersection of Brian Massumi's Parables for the Virtual and Bernard Stiegler's Technics and Time Vol.1: The Fault of Epimetheus.

Affect and Technics : Massumi and Stiegler

50 Despite a certain amount of recent work that engages each of these contributions, Parables for the Virtual on the one hand, and Technics and Time on the other, their relation to each other in is rarely discussed in detail.[7] I argue that these two works need to be thought out together. Both theorists are concerned with the dynamics and the incipiencies, the already-beginning-to-happen that describes the human body's interaction with its environment. Each approach that dynamic from differing perspectives and with recourse to differing theoretical vectors. However their accounts overlap and resonate together in a way that promises a powerful synthesis of these vectors. On the one hand Massumi accounts for the 'autonomy of affect' in the relation between body and world (Massumi, 2002: 23):

51 > Affect is autonomous to the degree to which it escapes confinement in a particular body whose vitality, or potential for interaction, it is. (Massumi, 2002, 35)

52 Stiegler on the other hand is concerned with the emergence of both technics and subject in the realisation of a technical relation between body and world.

53 As I wrote in the introduction, there is a complex formative recursion occurring between the autonomy of affect and the horizon of possibility (Stiegler, 1999). Read together I argue that they offer a unique description of the recursive dynamic out of which a spiraling technical network of realisation and expression emerges and develops. In both accounts media technics, figured more generally in Stiegler's work as a pervasive and global mnemotechnical architecture, stand at the generative front of this emerging network of affect and technics.

54 The dynamic of these interactions indicate a metamodel – a flexible, adaptive model – of mind as simultaneously distributed and intensely embodied. That metamodel describes an allonomous affordance as central to a developing and agile (quasi)autonomy. The metamodel is also open to the particular modulations of the materials, technologies, and architectures through which we structure the body's connections and potential for interaction with the greater ecology. At the same time, this metamodel can account for the tendency towards a more reductive modelisation as it plays out in both technics and concept. So the metamodel provides both a warning regarding a tendency to technical determination on the one hand, and a promise of the expansive virtuality of the mind-body-technics assemblage on the other. Through all this, the mind is assumed to be a generative and generated, recursively developing process, the agility and vitality of which is a function of affect and technics as much as it is a higher order rationalism.

Stubborn Relationality

55 In Parables for the Virtual, Brian Massumi argues for a human thought and subject that are fundamentally folded in with the pre-conscious and autonomic modulation of perception. Massumi's theory is extrapolated from a number of perceptual phenomena that undermine the dominant assumption that the mechanics of perception can be distinguished from the processes of thought out deduction. These phenomena suggest that there is no level of thought removed from the vagaries and determinations of the mechanics of perception. The theory presented in Parables amounts to a refiguring of the mechanics of perception as cognition. At the least, Massumi's argument erodes the possibility of a hard distinction between perception and thought. In the process he threatens the perceived autonomy of the subject by providing an empirical basis for the suggestion that the subject emerges and finds their continuity in the relation between body and world. Indeed, even the autonomous body is threatened. If the thinking subject is conceived as emerging in the codetermination between body and world then our understanding of the

mechanisms of thought cannot be reduced to the body alone. Our conception of thought and subject begins to leak out into the world and our struggle to understand the genesis and continuity of both becomes ecological rather that simply biological – it becomes stubbornly relational.

Lagging, Reading and Being

56 Massumi's account discusses two perceptual phenomena that are of particular relevance here. The first is Benjamin Libet's discovery of a perceptual latency in conscious awareness (Massumi, 2002: 195; Libet, 2004: 32). The second is the phenomena of 'blind sight' in which the subject of the cited experiment appears capable of reading and interpreting text below the level of conscious awareness (Massumi, 2002: 199). The first describes the discovery that the human body performs a kind of temporal warp, an antedating of awareness that provides for the impression that our perception coincides with our awareness of it. This perceived coincidence of perception and awareness is an illusion. Libet's experiments prove that there is a considerable delay between the perception of an event and our awareness of it. Perceptions take up to a half-second to reach the level of conscious awareness. In order to put that in context it is common for a dance track to run at a tempo in excess of 120 beats per minute (BPM). When listening to such a track the beat that I am conscious of has always already passed – my body is already hearing the next beat as I become conscious of hearing the former (try thinking that through while you're on the dance floor). The present in which we exist has always already passed by the time we become conscious of it. Our body corrects for this latency. In his account of these experiments, Mind Time, Libet describes the experience of this antedating;

57 > If you tap your finger on a table, you experience the event as occurring in "real-time". That is, you subjectively feel the touch occurring at the same time that your finger makes contact with the table. But...the brain needs a relatively long period of appropriate activations, up to about half a second , to elicit awareness of the event. (Libet, 2004: 32)

58 The coincidence of event and awareness is a construct. In that up to half-second, awareness is 'produced and then antedated so that it appears to coincide with the event'. For Massumi Libet's results indicate that;

59 > ... thought is always a complex duration before it is a discrete perception or cognition. Further more it is a recursive duration whose end loops back to its beginning. (Massumi, 2002: 195)

60 The Libet lag indicates that much of what we perceive as rational thought, as a rational response to information parsed to the senses, is actually occurring below and before the level of awareness. My body is already acting before I become aware of the decision to act. The body has already engaged in some fairly high order processing and 'heavy' manipulation of the percept before it becomes available to thought out deduction. The present that I perceive as inhabiting and consciously navigating has always already passed by the time I become aware of it. Our bodies have always already responded autonomically to the modulations extant between body and world.

Massumi's Recursive Durational Loop

61 As Massumi notes the inherent latency might otherwise be dismissed as a measurable lag and perceptual curio except that Libet also finds events that occur within half a second of an initial event can be altered by a subsequent event triggered within that duration (Massumi, 2002: 196). The temporal relationship between body and world is modulated by this strange 'recursive durational loop' in which the time of the subject is produced rather than simply mediated (Massumi, 2002: 196). The linear continuous time of lived experience is a construct; the body/world relation produces the time of the event, produces awareness, in the act of 'simply thinking' (Davis in Tofts et al, 2002 : 15). It's worth returning to music as an example again because it is a 'stubbornly relational' form of expression. According to this account of our autonomic modulation of perception the body might be seen as continually folding a succession of notes into an embodied harmony that constructs melody as a 'continuity of variation'. Perhaps our musicality is a function of the particular ways in which these autonomic perceptual modulations 'carry variation'. Where is the music exactly? Neither in the body, nor the instrument, but between them – in the recursive modulation of present and past. Of course the same could be said for any media form. The frames of the film, the succession of stories in news broadcast, the flow of an argument, the structure of a lecture, a marketing strategy. All depend on the ability to effect this continuity of

variation between body and world; they depend on realising a qualitative difference, a 'qualitative thirdness', between body and world. They also depend on a folding of that 'thirdness' into the future as possibility.

62 > If a later stimulus can modulate an earlier one before it becomes what it will have been, the recursive durations start to meld togethe ... You get a thirdness: you get a supplemental effect not reducible to the two stimuli's respective durations considered separately ... Since any lapse of time is infinitely divisible, and at every instant there must be some kind of stimulus arising through one sense channel or another , if you try and fill in what happens in the half-second lapses in awareness ... you're left with an infinite multiplication of recursively durational emergent awarenesses, madly smudging each other. (Massumi, 2002: 196)

63 To make sense of this Massumi posits a 'double system of reference' in which lived experience is autonomically 'elicited' and folded forward in modulation (a mutual selection) with an emerging present so that each recursive duration leads to a discrete awareness;

64 > Except that only very few make it to awareness, the others subsist non-consciously ... our lived experience swims in an infinite cloud of infinitesimal monadic awarenesses, gnats of potential experience. Every awareness that achieves actual expression will have been in some way modulated by the swarm from which it emerged. (Massumi, 2002: 196)

65 The Libet Lag indicates that this 'elicited and involuntary' modulation between perception and lived experience occurs before and below conscious awareness (Massumi, 2002 : 207). The implications for thought and for our conception of the subject are profound and in a very pragmatic sense they encourage a shift in our relationship to media forms and technologies which are now conceived as actively modulating thought's dynamic. As Massumi writes; 'Every first-time perception of form is already, virtually, a memory...perception is an intensive movement back into and out of an abstract "space" of experiential previousness'.

Virtually Reading

66 Blind-Sight describes the condition in which subjects blinded in one eye due to neurological damage demonstrate an ability to perceive without any awareness of perception. The subject of the blind-sighted experiments described in Massumi's Parables for the Virtual can locate the position of objects with an outreaching of the hand without any awareness that they had perceived the position of the object. More importantly for Massumi's argument is that a flash card presenting text revealed to the blind-sighted eye modulated the interpretation of a card revealed to the sighted eye. The blind sighted subject appeared capable of reading 'higher' order abstract forms below (or before) the level of conscious awareness; '....An unconscious perception involving highly developed cognitive skill was modulating conscious awareness' (Massumi, 2002, 198-199). Massumi suggests that the phenomena of blind sight gives some veracity to his posited 'double system of reference'. In addition 'blind-sight' suggests that higher forms, 'words, numbers, grammars recursively time smudge as messily as anything – they re-enter the relational continuum...A practiced meaning had become non-conscious perception capable of positively colouring the conscious production of more meaning' (Massumi, 2002 : 199). Much of the work we usually attribute to higher level/conscious/rational thought is actually occurring before and below the level of consciousness suggesting that Massumi's recursive duration modulates complex and socio-cultural forms as much as it does simple triggered stimuli:

67 > The most material of experience, the firing of a single neuron, is always-already positively sociocultural. Conversely and perhaps more evocatively reading ceases to be a practice of mediation. We are capable of operating socially and culturally on a level with matter. (Massumi, 2002 : 199).

A Continuity of Variation

68 The Libet lag and the phenomena of blind sight suggest that 'a body doesn't coincide with its present, it coincides with its potential...it coincides with the twisted continuity of its variations' (Massumi, 2002 : 201). A past folded forward in modulation with an unfolding future constructs the present subject as a continuity of variation. Massumi notes that without the recursive duration the body would be cut off from its past (Massumi, 2002: 200). In order to forge a temporal continuity with the lived past that 'experiential previousness' must be contemporaneous with the present; lived experience only becomes the past if it folds into the present. In the same instance there

could be no possibility of change without the potential for that change to fold forward in modulation with the present; 'Anything that varies in some way carries the continuities of its variation' (Massumi, 2002 : 201).

69 Thought finds its very continuity in the potential for a recursive modulation. In fact Massumi's model suggests that the human subject is this recursive modulation and remodulation of potential. Under Massumi's model of perception as cognition the subject becomes a dynamic continuity of movement and sensation (Massumi, 2002 : 21).[8]

70 The model of the thinking subject that emerges from Massumi's depictions of these phenomena is remarkably different to the operative cognitivist or representationalist status quo. The subject is not given but rather emerges as a dynamic continuity folding forward in modulation with potential futures according to the peculiar incipiencies of perceptual relation. The subject is not insulated by a layer of abstraction from the vagaries and determinations of perception but rather emerges and finds its continuity according to the relational continuum established between body and world. This resolves the hard distinction between autonomy and allonomy; autonomy is the product of an allonomous affordance.

Rethinking Media in the Recursive Duration

71 It is in this context that we need to rethink media. Massumi argues for the development of 'technologies of emergent experience'...'that can be twisted away from addressing preexisting forms and functions' and are designed to elicit involuntary, undeterminable and therefore potentially generative resonances from which might emerge novel and dynamic continuities of technical relation (Massumi, 2002: 192).[9] In fact all media forms and technologies, in the light of Massumi's re-centering of the dynamics of perceptual relationality, become 'technologies of emergent experience' to obviously varying degrees and according to their particular affordances (Massumi, 2002: 192). Massumi's theory provides a very different approach to designing, designing with, and analysing media forms and technology in terms of the way they structure this fold between experience and its expression in continuity.

72 In a similar spirit to Massumi's 'technologies of emergent experience', Stiegler and associates argue for both the realisation of an Industrial politics of mind/spirit and the production of Technologies of Mind/Spirit (or what I would suggest we call a spirited technics) in the service of 'the life of the mind' (Massumi, 2002: 192; Ars Industrialis, 2005). The media and technologies that modulate the resonant potential between the body and the world become critical to a vitality of mind because it is in the dynamic of that continuum that we'll find the differential that provides a momentum to thought.

73 Stiegler and Massumi are by no means alone in this approach to media technics. Matthew Fuller, for example, writes evocatively of the 'synthetic, mutational capacities of media, the distortions they effectuate and the powers they release' (Fuller, 2005: 171). Fuller perhaps expresses the problematic most clearly when he writes that:

74 > ...the question is how to couple reality forming, ontogenetic drives ...without falling into the normalizing [modelising] trap of the latter, but using it as a mechanism by which a greater intensity of life may be sprung. (Fuller, 2005: 171- my brackets)

75 I argue that Massumi's re-centering of the strange mechanics of human perception, coupled with Stiegler's approach to technics begins to provide one possible answer to Fuller's question. That answer develops as a metamodelisation of the mind-body-technics relation. That metamodelisation is fundamentally, technically pragmatic and empowering. It turns out, according to these two theoretical vectors, that an allonomous affordance, far from signifying an ecological determination, fundamentally empowers a subject that has always been, and is always becoming, technical.

Midwifery and Knowledge

76 In Technics and Time 1 : The Fault of Epimetheus Bernard Stiegler develops a theory of technics that like Massumi's refiguring of perception effectively de-centers human thought and subject. Stiegler's theory describes the subject as realised and finding its continuity in the codetermination between body and world that he calls Instrumental Maieutics (Stiegler, 1998: 158). As the term

instrumental indicates this instrumental maieutics has substantial implications for our thinking of technics and media technologies specifically.

77 The term 'maieutics' is drawn from the Socratic process of 'realising' an innate knowledge that is conceived as lying dormant in the body of the subject. Maieutics refers to the Socrates dialogical approach to argument. Via his dialogical probing of the assumptions that underwrite common thinking Socrates brings his interlocutors to realise the truth that was 'already-there'. Rather than conceiving of knowledge as being communicated from one body to another, moving from a sender to a receiver, Maieutics conceives of knowledge as realised within the body by virtue of an interaction. The term 'Maieutics' refers to the Greek term for 'midwifery'. In the dialogue Theaetetus Socrates figures himself as the midwife, who is passed child bearing age, expert at identifying pregnancy, and able to bring the fruits of that pregnancy into the world (Plato, Theaetetus: 10-12). In maieutics knowledge is coaxed from the body as a baby from the womb. Read in the light of this metaphor Stiegler's addition of 'Instrumental' to Maieutics sees the concept played out in a number of interesting ways.

The Body Knowing

78 Instrumental maieutics sustains the notion of an innate knowledge from its classical forbear. We can modulate the notion of the "innate", update it for twenty-first century sensibilities and call it the "embodied". However, simply finding knowledge within the subject begs two questions. First, what function does the instrumental plays in the process; how does the technical infrastructure facilitate the realisation of the already innate/embodied? Second, what is the status of the "in" in "innate"?

79 Let us briefly postpone dealing with the second question (the status of the "innate") in order to deal with the first (the function of the instrumental). Knowledge, or the potential realisation of knowledge, subsists in the extended network of bodied affordances that defines and continually redefines the subject as a continuity of variation. We can then rule out the idea of a medium of transmission. From the outset the call to maieutics places Stiegler's model in stark juxtaposition with the 'transmission' paradigm of the information sciences (a paradigm that finds only its truest form and most applicable context in the Shannon/Weaver paper in which it was originally stated) (Shannon Weaver 1949). There is no fully formed sender, no receiver, and no abstract message 'stuff', more or less faithfully transmitted between the Socrates and his respondent. Apologies for the mixing of metaphor but it goes to the point; here we have a 'midwife' (a maieutician) who (for the sake of argument at least) is figured as 'barren', not having the facility to produce knowledge themselves but able to recognize the potential for knowledge in the body of another. That midwife deploys a technical system that facilitates the realisation of an embodied potential for knowing. Given that the realised knowledge is figured as singularly bodied (Socrates is figured as barren – not possessing another body's knowledge a priori) we should understand the knowledge as irreducible-beyond, specific-to, and contingent-upon, the context of its instantiation.

80 Now we can move to the question of the status of the "in" in "innate". As knowledge is left unrealised in any singular technology or body, knowledge must be realised differentially, relationally. One plausible way to figure the matrix of singular bodies, technics, and the realisation of knowledge is to understand technology as instantiating or facilitating a resonant continuum, a sympathetic movement between body and world and to understand that resonant quality as the basis for 'knowledge'. Under an Instrumental maieutics the latency of knowledge is then simultaneously distributed and embodied. It is distributed in the sense that it is identified as a form of differential resonance shared between bodies (body and material or body and technology) that cannot be reduced to either body alone. It is embodied in the sense that while not reducible to either body alone neither can it transcend the context of its instantiation or its modulation according to the bodied tendencies and intensities in which that resonant quality is realised.

81 Furthermore, as Massumi describes it, there is a 'qualitative thirdness' realised in the resonant potential between body and world (Massumi, 2002 : 196). The 'qualitative thirdness' realised between bodies is excessive. It cannot be reduced to either body alone.

A Fleshy Dynamic

82 The notion of a qualitative thirdness realised in the resonant potential shared between two bodies appears a little abstract until it is exemplified in the fleshy dynamic of perception. I'll argue that

Massumi's description of perception-as-cognition provides a model of the human perceptual dynamic that augments Stiegler's description of an integral Instrumental Maieutic. Perception is a resonant quality. It depends on the potential for a sympathetic movement shared between bodies that are otherwise distinct in space or time. Sound is the most obvious example of a quality in which the resonance of one object moves the air, which moves the eardrum, the small bones, etc, etc. Perceiving the object requires a network of resonant potential as does being perceived. Massumi notes that; 'Perception, before it is a thinking out, is already a limited selection of potential pertaining to a thing' (Massumi, 2002: 93). He later extrapolates the implications of this limited selection as the basis for a relational ontology. The resonant connections between things/bodies begins with, are contingent upon, and fold out from, the dynamics of perception; 'A thing is its being perceived. A body is its perceivings … separately each is no action, no analysis, no anticipation, no thing, no body' (Massumi, 2002 : 95).

83 All knowledge folds out from the perceptual continuum as the basis for anticipating a return to lived experience But that anticipation is always contingent upon a return to the material conditions that gave rise to the resonant quality in the first instance. This is the role of technics. On the one hand, if the result of expression is as anticipated then the technical certitude is reinforced. On the other hand, if the expression is incongruous with its basis in perception then the contingency realised in expression folds into perception and reconfigures it more dramatically, beyond an easy utility. Expression beyond utility becomes the basis for the always-ongoing development of a resonant network of technical potential.

84 Because the ecology is dynamic, driven by the cardinal force of an originary entropic differential, the contingent tends to be pervasive and our technical development always ongoing. However, despite this entropic drive the organisation of inorganic matter in the service of a calculated return to perceived potential marks a gradual – if dynamic – modelisation of the body's relation to its immediate ecology. There are two sides to this. First, the more I plug into material prostheses organised according to their perceived utility, organised with a view to a calculated return, the more chance variation is likely to be 'modulated' according to form and logic of that utility or prosthetic. The process leads to the increasing systematisation/habituation of the potential between body and world and means that the possibility of realising contingencies/potential beyond the form and logics of those phyla is increasingly unlikely (Delanda, 2001). Secondly, however, the more resonant relations are created via technical prostheses, the more variation is created.

85 In sum, there is an ongoing uneasy relation between processes of modelisation and metamodelisation that is intrinsic to technics. It is more obviously the case with media technics. In none of this is either knowledge or technics the expression of the human as already there. The human is both realised in the possibility of a return to perceived potential engendered in technical relation and intensely felt in the body of the subject.

The Second Origin and Originary Differential

86 Stiegler proposes his theory of Instrumental Maieutics in response to the work of anthropologist Leroi-Ghouran on proto-human development. He offers a deconstructive reading of Leroi-Ghouran's theory regarding the relationship between technics and intelligence. Leroi-Ghouran's theory is formulated to avoid at all cost the assumption of an a priori or given rationale or spirit as driving the technical differentiation of the human. His alternative is to apply a zoological framework to the question of the relation between a developing brain and an emerging technics. From the Zoological perspective technics can be understood as an extension of bodied incipiencies out of which behavior folds in the process of interaction/actualisation. Stiegler's reading of Leroi-Ghouran illustrates the initial successes of this approach and then its final betrayal in the assumption of a second order of intelligence that lies in excess of the technical – a symbolic and creative intelligence (Stiegler, 1998: 150-154).

87 Leroi-Ghouran assigns the emergence of that new order of intelligence to cortical development (Steigle, 1998: 155). The cognitive development that this new order indicates is strangely divorced from the zoological processes of codetermination that proved so successful in moving beyond the entrenched assumptions and dichotomies that Leroi-Ghouran was rallying against. The evidence of technical stereotypes, the instances of which are not only culturally or geographically specific, leads Leroi-Ghouran to the assertion that the emergence of the stereotype is due to a 'genetic

memory' of the technical – the technical is figured as the 'direct emanation of species behavior' (155). This prompts the question of technical differentiation between human groups and 'within' the stereotype; how does the technology develop beyond the stereotype specified by the so called 'genetic memory'. In answer to this question Lerio-Ghouran posits a second order symbolic or creative intelligence that transcends the technical and allows him to account for that socio-cultural development (Stiegler, 1998: 156).

88 In his analysis of this attribution of a second order or creative intelligence, Stiegler argues that the non-specificity of culture or species in technical development (the emergence of technical archetypes across cultures) combined with the evidence of a co-relative cortical development only indicates their codetermination. It doesn't indicate that either cortical or technical development determine the development of the other – that one can be attributed as the origin of the other. The incipiencies realised between the 'naked' human and material world are indeed determined via a 'direct emanation of species behavior' (Stiegler, 1998 : 154). But as a 'direct emanation' the tool becomes a part of the body – or rather the material of the tool and the body become the basis for a technical assemblage, a codetermination. The value of Leroi-Ghouran's zoological approach to technics lies in the realisation of this codetermination between body and world.

89 For Stiegler this means that a second type of memory indeed augments and modulates genetic memory. However, the memory of the stereotype lies not only in the mind/body of the human but also in the material trace of the technical artifact itself. In this case 'not only' means 'not at all' because the genesis of the technical form is realised between body and world – in their 'structural coupling' – neither body or material alone describes the technical artifact. There is therefore no need, nor a justification for, attributing the repetition of the stereotype to anything other than a co-determination; the realisation of material tendencies and their fold into an ecological incipience. It is the process of a 'structural coupling in exteriorization' that Stielger calls an Instrumental Maieutic (Stiegler, 1999 : 158)

A Matter of Survival

90 Stiegler's reading exposes the anthropologist's work as illustrating a tendency of human thought to assume what Stiegler describes as a 'second origin' (Stiegler, 1998: 151). Stiegler's 'second origin' describes an underlying drive to identify and to capture a causal agent and an attendant inability to see the time of the subject as the product of a perceptual relation (151). This extends the implications of the Kantian distinction between autonomy and allonomy. It begins to offer some understanding as to what that opposition is predicated upon, and the way that the opposition modulates – and occludes – the recursive development of a fundamentally technical subjectivity.

91 As a matter of survival any sense of movement or change in our ecology – even if to our advantage – is perceived as a potential threat to the integrity of the organism. We are driven to identify contingency in order to anticipate, and in anticipation, to incorporate, that flux in the service of a continuity of form. We are driven by the imperative of form (from which modeling also arises) to identify and attribute the source and cause of the perceived movement. The imperative motivates the assumption of a linear causality in part because that logic is effective; 'find the cause and manage the movement/contingency'. We can see this logic playing out in the cognitivist approach to thought where thought is a movement that we need to account for and that motivates thought's isolation/reduction to a particular mechanism. As we've seen the premise is that having isolated that mechanism we can then achieve some control over thought. However, the assumption of a causal logic tends to obfuscate an originary differential; we isolate a component in a system of mutual affordances and arbitrarily assign it a causal agency or primacy.

92 If we take, however, a differential as the (un)origin of an event, a spatial relation actually projects and sustains a temporal continuity in the form of a dynamic ecology. An apparent logic of linear causality finds its origin in the entropic drive of an originary differential. In the end (and the beginning) all linear causality must boil down to its root in an originary differential that produces and defines a temporal envelope. The task of elucidating the dynamic of emergence becomes less about attributing a single causal agent and more about understanding the relational dynamic in which the potential for change lies. The intersection of Massumi and Stiegler's two approaches to our 'ecology of thought' goes some way toward illustrating that relational dynamic.

In Recursion. In Conculsion.

93 The work of both Massumi and Stiegler suggests that, in practice, the concept of an autonomous subject emerges as a function of the dynamics of human perception in modulation with the incipiencies of its greater ecology. This subject is 'simply thought' rather than an agent that thinks (Tofts et al, 2002: 15). Stiegler's theory of instrumental maieutics grounds an understanding of the emergence of a subject, capable of forethought anticipation, in the genesis of a technical relation between body and world. The autonomic modulations of Massumi's recursive interweaving of durational loops is close to Stiegler's conception of a subject that emerges according to incipient potential realised between body and world. Combined, the two theories rewrite the relationship between body, world and technics. Technics are no longer the contrivance of a higher order rationalism but a developing network of technical anticipation that provides the mnemonic scaffold for a developing subjectivity. At the same time the 'no-difference between hallucination, perception and cognition' described by Massumi means that the very persistent sense of an 'I whose predicate is thought' folds forward in recursive modulation of the relationship between body and world (Massumi 2002: 190). The logics that emerge from this – or technics, models or metamodels – have real effects (Massumi, 2002: 207; Tofts et al, 2002: 15). They shape our institutions, our media technologies, and our relation to the world and each other generally.

94 Perhaps the most interesting aspect of the metamodel suggested by these complementary theories is that they explain the way the tendencies of human perception, what Massumi calls the body's 'ways of carrying variation', fold naturally into the emergence of the form and logic upon which the cognitivist model, as an exemplar of a more general dynamic, is based (Massumi, 2002: 201). But they also indicate the folly of an endless rationalist deconstruction of the 'form and logic' of the 'liberal' subject. We can't re-engineer the bio-dynamics of the perceptual systems that fold naturally into the assumption (where assumption becomes a stance or orientation of the body) of an 'I' whose predicate is thought.

95 What we can do, given our new understanding of the strange relation described by these theories, is hack the system. We can design mnemotechnical systems that promote and augment the mind's vitality, that conserve the virtuality of the mind in spite of the development of our mnemotechnical ecology always tending to a point of systematisation and eventual over-determination as a function of the dynamic that constitutes it. This 'hack' is easier to gesture toward than achieve. Particularly considering the complex interweaving and transductive interference and reinforcement that occurs between layers of the global mnemotechnical architecture. It is important to note however that we are not hacking established technics here, but rather, hacking the 'proto-technical generator'- the recursive durational loop – in order to realizes new economies, new excesses lying beyond an a priori capitalization or rationalization, perhaps new modes of surplus based on logics of connection and contribution rather than scarcity and demand.

96 Internet media, or dynamically networked media more generally, are particularly promising in this regard for two reasons. They maintain their molecularity and they have the potential to record and 'intelligently' distribute the 'qualitative excess' realised as the body moves through media. The web, particularly since the advent of real simple syndication (RSS) and user generated content has become a stream of qualitative excess. It engages bodies, motivates thought and provokes expression in a way that continually realises new connections between otherwise disparate datasets. Those connections are only constituted according the network's potential to move bodies. Engines such as Del.icio.us, Last.fm, or Stumbleupon.com open us onto a continuity of variation. That continuity is based not on pure chance or broadcast economies but on the trail of an affective engagement that links the movement of bodies into 'involuntary and elicited' vectors of potential becoming (Massumi, 2002: 189). These sites specifically are examples of an often overlooked and rarely discussed facet of metadata tagging in the contemporary network. These are not (primarily) social networking sites. They are sites whose efficacy depends on mining the affective intensity that moved a body to bookmark in the Del.ico.us, to 'Tick' a suggested site in StumbleUpon or simply listen to a suggested track in Last.fm. In each case its not an arbitrary keyword that makes a meta-tag useful. It is the fact that the body was moved to meta-tag an data object at all, or simply engage with it in the first place. It's not the arbitrary collection/selection of friends or the attribution of a personalized folksonomy that matters in these networks but the realization and capitalization of an intense and generative relationality between otherwise distinct

bodies. These networks promise a markedly divergent model for a fluid, less stratified knowledge ecology and economy.

97 Under the metamodelisation suggested here our media forms and technologies move to the foreground in the struggle to ensure a vital ecology of mind. Media and technology are partners with, not just extensions of, our perceptual network. They actively modulate the subject's coincidence with its potential. They shape the potential for expression, for variation, for development before and below the level of consciousness. Yet this isn't simply a call to reclaim our control over the means of media and technical production. The very notion of 'reclaiming' control is fundamentally undermined by this alternative to the cognitivist approach to mind. The only way forward is to hack the recursive durational loop and the instrumental maieutic, to circumvent any pretense to control in the service of realising a 'qualitative' difference in the relation between body and world.

98 I will end with the most important point that I take away from Parables for the Virtual. The crucial point is figured in the introduction of the book and the whole work that follows seems to echo and develop around this single problematic. Massumi identifies a critical paradox in the 'dynamic unity of movement and sensation' that is a function of the recursive durational loop (Massumi, 2002: 21). The crux of the paradox is that for the 'virtual to fully achieve itself it must recede from being apace with its becoming' (Massumi, 2002: 21). In order for the virtual subject to achieve its 'full' potential, or rather, in order to realise the body's potential in relation with its greater ecology the subject must forgo the very momentum of which it is constituted. The intersection of the two theories described above is perhaps a site from within we might approach the design of technics capable of forcing this recession from being apace with the subject's becoming. The production of an appropriate technics and architecture becomes crucial anywhere in which the aim is to realise qualitative difference between body and world in modulation of an emerging subjectivity.

Author's Biography

Mat Wall-Smith is a Lecturer and Ph.D candidate writing about ecologies of thought, affect and technology in the School of English, Media and Performing Arts at The University of New South Wales, Sydney, Australia.

Notes

[1] By technics I mean both technology as 'organized inorganic matter' and technique as an orientation between body and a particular object; 'It is organized inorganic matter that transforms itself in time as living matter transforms itself in it interaction with the milieu. In addition it becomes the interface through which the human qua living matter enters into relation with the milieu' (Stiegler, 1998: 49).

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[2] Guattari on metamodelisation; 'The stakes of a metamodelising theoretical composition of analysis are accordingly raised. They primarily involve a repudiation of the universalist and transcendent concepts of psychoanalysis which constrain and sterilize the apprehension of incorporeal Universes and singularizing and heterogenic becomings' (Guattari, 1995: 72). Metamodelisation is also discussed elsewhere in this issue of the Fibreculture journal.

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[3] While Toscano's use of Maturana and Varela is effective as a rhetorical trope its arguable whether autopoeisis can be so easily reduced to the assumption of an a priori unity as it is in Toscano's work. The description of an 'embodied mind' that leaks into the dynamic of perception does account for an incorporative process (Varela et al, 1992). For one example of the sophistication of their approach look to Varela's work on Multi-stable perception and a relational temporality in The Specious Present (Varela in Petitot et al, 1999).

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[4] A limited selection; Deleuze, 1994: 229-231 on the synthesis of the Idea; Deleuze, 1999 : 72-73 on the origin of thought; Varela et al, 1991 on the embodied mind; Thompson in Varela et al, 1999 on 'filling in' and embedded mind; Clark and Chalmers, 1998 on the extended mind; Clark, 1997 : 1213-1218 on 'Where does the mind stops and the rest of the world begins?'; Stiegler, 1998:

150-154 on Technical Consciousness; Massumi, 2002, for example Chapter 1, on 'The Autonomy of Affect'; Ramachandran, 2004: 48 on 'Peak Shift'; Damasio, 2003: 183-220 on 'Mirror Neurons' and representation; Brooks, 1991 on Intelligence without Representation; Murphie, 2005A on 'Differential Life'.

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[5] This is a very different form of recursion to one which I'll describe as central to a dynamic ecology of mind for reason that I detailed earlier in this piece. In short the recursion there is an informational or representational recursion working within a set of an a priori symbolic equivalence, a form of recursion that privileges a already defined unity as the centre of thought – a computational recursion. The form of recursion with which I am concerned is at the level of a systemic definition and redefinition according to an the exposure of a relationally contingent system to a modulating force.

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[6] Here I am following and developing a trail traced by Toscano's Theater of Production with closer reference to relevant sections of The Critique of Pure Reason (Toscano, 2006; Kant, 1993).

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[7] Stiegler is central to Andrew Murphie's work on models of cognition and their relation to modernity in which Massumi's work also plays a central role (Murphie, 2005A). He also engages both Massumi and Stielger on the relation between mind, body and technics (Murphie, 2005B). Stiegler's work has been discussed critically and in some detail by Mark Hansen (Hansen, 2004 : 255-270). In the same work Hansen engages in passing with Massumi (227-231 & 109-110), the latter in a limited reading of the potential Massumi promises for new media technics. Hansen uses both but not in relation in his later work (Hansen, 2006). Anna Munster deploys Parables for the Virtual in various analyses of new media art and aesthetics throughout her recent book (Munster, 2006). Terranova discusses Massumi in relation to the body and the network (Terranova, 2004: 151, 152).

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[8] Massumi calls the subject a 'dynamic unity of movement and sensation' (Massumi, 2002 : 21). I have changed this to continuity for the sake of clarity in this context – 'Unity' hints at a more complex problematic/paradox than I can adequately address here.

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[9] The 'undeterminable' is a term used in Delueze's three part Schema in his discussion the realisation of the Idea – the undeterminable refers to a contingent externality in the relation between body and world (Delueze, 2004 : 217).

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