Architecture's Awaking from Correlationist Slumber: On Transdisciplinarity and Disciplinary Specificity

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PoMo Relativism

Slavoj Žižek's diagnosis of the struggle for intellectual hegemony between postmodern (PoMo) Cultural Studies and the cognitivist popularisers of 'hard' sciences is still relevant, a decade on.[1] The so-called Third Culture covers a vast range of theories: from evolutionary theory to quantum physics and cosmology, cognitive sciences, neurology, theory of chaos and complexity, studies of the cognitive and general social impact of digitalization of everyday life, to auto-poetic systems.[2] The theorists and scientists involved have been endeavouring to develop a universal formal notion of self-organizing emergent systems. These systems apply to 'natural' living organisms and species, as well as social 'organisms' such as markets and other large groups of interacting social agents.[3] On the other hand, there are cultural theorists whose pseudo-radical stance against 'power' or 'hegemonic discourse' effectively involves the gradual disappearance of direct and actual political engagements outside the narrow confines of academia, as well as the increasing self-enclosure in an elitist jargon that precludes the very possibility of functioning as an intellectual engaged in public debates. So, the choice, according to Žižek, comes down to either dealing with an all-too-fast or metaphoric transposition of certain biological-evolutionist concepts to the study of the history of human civilization, or – in the case of cultural studies – sharing the stance of cognitive suspension, characteristic of postmodern relativism. But as Žižek concludes, 'prohibited' ontological issues seem to have returned (with a vengeance) in the former case. In clear contrast to the strict prohibition of direct 'ontological' issues in cultural studies, the proponents of the Third Culture unabashedly approach the most fundamental pre-Kantian metaphysical issues such as the ultimate constituents of reality, time, space, the origins and the end of the universe, what consciousness is, how life emerged, and so on.

PoPoMo Correlationism

The struggle has recently been rekindled with the so-called Speculative Turn triggered by Quentin Meillassoux's *After Finitude* (2006).[4] It is also worth pointing out that we have by now drifted out of all-too-structuralist postmodernity. In the words of Claire Colebrook: 'It is [the] equivocity that engenders postmodernism, for it establishes the signifier, system, subject on the one hand, and the real or the retroactively constituted world on the other.'[5] What binds an otherwise heterogeneous group of Speculative Realists is their shared antipathy for so-called *correlationism*.[6] A correlationist accepts that we only ever have access to the correlation between thinking and being – epistemology and ontology – and never to either of the terms in isolation.[7] In other words, correlationism marks a self-reflexive loop (marked by finitude) where nothing can be independent of thought. The familiar flavour of cognitive suspension or plain agnosticism vis-à-vis the 'outside' (noumenon) is shared by most post-Kantians.[8] Kant, himself a 'weak correlationist', did in fact allow for the possibility of the 'in-itself' albeit unknowable.[9] But if the idea of the world independ-

ent of our access seems unintelligible, as another speculative realist Ray Brassier cautions, perhaps the fault lies more with our notion of intelligibility than with the world:

> The phenomenological radicalization of transcendentalism, initiated by Heidegger, found itself excavating deeper and deeper into the 'primordial' (…) uncovering the conditions for the conditions of the conditions. Yet, the deeper it digs towards the pre-originary the more impoverished its resources become and the greater its remove from things themselves. Heidegger and his successors end up striving for the pre-reflexive through increasingly reflexive means; exacerbating abstraction until it becomes reduced to (…) playing its own exuberant vacuity. This meta-transcendental problematic reaches some sort of apogee in Derrida who introduces both a healthy measure of scepticism and a fatal dose of irony into the proceedings by revealing how the immediacy of access was always already contaminated by mediation or *différance*. (…) Once the problematic of access and of the access to access has reached its ironic *dénouement* in this terminally self-enclosed spiral of reflexivity it is no surprise to see the very notion of a world indifferent to our access to it dismissed as unintelligible. Phenomenology begins with the things themselves, and ends up poring over words, nothing but words. Perhaps, this is inevitable *dénouement* of the philosophy of access [correlationism].[10]

Realism

Denying realism amounts to megalomania, according to Karl Popper. But we need to bear in mind that not so long ago a Realist 'coming out' and embracing a mind-independent reality would be met with ridicule. It would have been considered, at the very least, as naive. Still, the (new) materialism in general, and the (empiricist) Affective Turn in particular, seem to be gaining momentum to such an extent that even some of the scholars of this affiliation urge caution.[11] As it happens, many a logocentric thinker has been unjustly turned into

a straw person. As Charles T. Wolfe cautions: 'The trick is to not go all the way with embodiment, so as not to end up in what Deleuze, speaking of Maurice Merleau-Ponty, called the "mysticism of the flesh".'[12] However, as far as the discipline of architecture is concerned, this otherwise healthy dose of scepticism is not only utterly premature but also counterproductive, and quite literally so. Somewhat paradoxically, architecture has historically undergone a gradual disassociation from the material realm and become an ultimate white-collar profession. The consequent withdrawal from reality ('into itself') has been seen either as (bad) escapism or as a (good) strategy of resistance: 'The withdrawal is into an idealist realm, a realm secluded from everyday life and from contamination by the unacceptable new order.'[13] The urge to ward off the givens and to continue to contemplate alternatives is most worthy. Especially in the light of the recent tendency to jump on the band wagon of ¥€$ (is more) 'pragmatic yet utopian [sic] third way'.[14] Architects seem desperate in their effort to catch up with the media. The non-normative has become the norm, writes Terry Eagleton.[15] Michael Hays, the spearhead of critical theory in architecture, laments how the most theoretically aware contemporary architects have unfortunately rejected what he sees as the most important operative concept of the theory of architecture at the moment of its re-foundation in the 1970s, namely *autonomy*.[16] But idealist bracketing also comes at a price. Architects might end up painting themselves into a corner of impotence by depriving themselves of the means to intervene which, after all, has always been the main trait of (any) materialism.[17] As Eugene Holland admits: 'Any postmodern Marxism worthy of the name will want to abandon teleology and adopt contingency and emergence as better paradigms for understanding history.'[18] This is how architects Reiser and Umemoto proclaim the new materialist position:

We assert the primacy of material and formal specificity over myth and interpretation. In fact, *while all myth and interpretation derives from the immediacy of material phenomena, this equation is not reversible.* When you try to make fact out of myth language only begets more language, with architecture assuming the role of illustration or allegory. This is true not only of the initial condition of architecture but actually plays out during the design process in a similar way. Material practice is the shift from asking 'what does this mean?' to 'what does this do?'[19] [emphasis added]

We cannot afford to throw out the baby or toolkit with the bathwater of ideology 'precisely because it is not a matter of ideology, but of a machination'.[20] The best strategy of resistance seems to lie not in opposition but in (strategic) affirmation. To embrace naturalism is to see cognition as belonging to the same world as that of its 'objects'.[21] There is no need to postulate the existence of a more fundamental realm (transcendental 'skyhooks'). *Natura naturans* (naturing nature/creator) and *natura naturata* (natured nature/created) are inseparable. There is no ultimate foundation, but the immanence of powers, relations and bodily compositions: 'Power is not homogeneous, but can be defined only by the particular points through which it passes.'[22] The first step to break out of the pernicious self-reflexive loop is to acknowledge that – with or without us – matter does matter. This is what Charles Sanders Peirce refers to as 'firstness'. Then there are relations or 'secondness'. Crudely put, the dyad marks the difference between the (intrinsic) properties and (extrinsic) capacities. Lastly, there is also the 'centre of indetermination' or 'thirdness' where an interval between perception and action is inserted (the mind). It is crucial not to dismiss the 'pedagogy of the senses', where secondness presupposes firstness, and thirdness incorporates both firstness and secondness.[23] This is another way of saying that everything starts with the sensible or, as Whitehead's disciple Susanne K. Langer put it: 'All thinking begins with seeing.'[24] It is neither about

the appearance of essence, nor about the conditions of apparition. Rather, it is about the *mutual* presupposition of the virtual – the modality with the real-yet-not-actual ontological status – and the actual, where the virtual would be utterly sterile without the actual.[25] The reciprocity of the two is crucial, as the cultural studies scholar Lawrence Grossberg explains in a recent interview:

> The distinction between possibility and virtuality is crucial, and I think that most theories of imagination have been theories of possibility. Of which, the utopian is the most obvious example. The result has been a politics that is almost never rooted in the present. But I think one must look to the present because it is in the present that you find the virtual, that you find the contingency. (…) I think it is rooted in the possibility (if one can use that word) of reconceiving the imagination as intimately connected with the analytics of the empirical. Imagination is not separate from science, analysis, or description of the actual. Imagination has to be rethought as a rediscovering of the contingent, the virtual in the actual (…) and that it seems to me is a very different notion of the imagination than what the Left has ever had.[26]

The world, after all, 'does not exist outside of its expression.'[27] Deleuze and Guattari were explicit about this often misunderstood maxim. Transcendence is always a product of immanence. One could argue that 'reification' is necessary for the expression to start 'migrating', a major precondition for the creation of an artistic style.[28] It has become somewhat common for their epigones to favour the virtual over its expression.[29] But the fact of the matter is that you cannot have one without the other. Expression is not the meaning but the torsion of both the expressor and the expressed. If 'non-organic vitality' is the content, argues Zourabichvili, then expression is its 'agrammatical syntax'.[30] Their determination is absolutely reciprocal. In any event, it is useless to seek a more substantial truth behind the phantasm (essence of appearance). Furthermore, seeking

such a truth via a confused sign leads to mere *symptomatologizing*.[31] It is equally futile to contain the truth within stable figures (sense of apparition): 'To construct solid cores of convergence where we might include, on the basis of their identical properties, all its angles, flashes, membranes, and vapors.'[32] Hence there is no possibility of *phenomenalization* either because every form, conversely, is a compound of the relationship between forces. This is how Michel Foucault sees Deleuze's countereffectuating strategy as a way of overcoming both 'bad habits', namely, symptomatologizing and phenomenalization:

> Phantasms [incorporeal events] do not extend organisms into the imaginary; they topologize the materiality of the body. They should consequently be freed from the restrictions we impose upon them, freed from the dilemmas of truth and falsehood and of being and nonbeing (the essential difference between simulacrum and copy carried to its logical conclusion); they must be allowed to conduct their dance, to act out their mime, as 'extrabeings'.[33]

Traditionally, the truth was defined as *adequation* and *noncontradiction* but as we will argue, both claims can be challenged from the perspective of a genealogical method. If there is no referent, the former loses all meaning, while the requirement for the latter is shown to depend on the illusion of the potential mastery of a wholly self-transparent discourse, namely, phenomenology.[34]

Non-Discursive
A lot of lip service has been paid to bridging the gap between theory and practice but the true imperative should be to stop regarding trans-disciplinarity, with its nomadic structure, and disciplinary specificity as mutually exclusive. It should not come as a surprise that some of the most prominent beacons of contemporary architectural theory are happily 'trespassing'.[35] What binds them is zero degree tolerance for narrow-mindedness. Another impera-

tive is to exclude – once and for all – the law of the excluded middle. We need to get rid of this Ockhamite tendency because *not all the potentialities are an already accrued value.* In this way architecture will be able to reclaim the *medium* specificity from a genuine realist/materialist position and be treated rightfully as a non-discursive practice.[36] This will certainly not be easy as the hegemonic binary system knows no such logic. Its inherent dualism brings together the most unlikely of allies: the Cartesians and Informationists (ex-Cybernetics).[37] Regrettably, the media theorist Friedrich Kittler is right to credit the father of the information theory Claude Shannon with writing the most influential master thesis ever.[38] By Kittler's account, Shannon even 'thought digitally', which is plausible and, for that, all the more dangerous, just as any other approach that distinguishes between meaning and information. Opposing 'the static Aristotelian duality' of Form and Matter with the 'meta-theoretical trinity' of Processing (executing commands), Transmitting (requiring an address) and Storing (memory as data base) is not helpful.[39] The analogy between needing an address to retrieve computer data and an address to locate a house in a city (or even to recall memories) is as popular as it is misleading. It all seems to boil down to the following 'dilemma', as posited by Gibson:

> The issue between the two kinds of theory [primacy of language vs. primacy of perception] can be illustrated by the following question. Does a child distinguish between two physically different things only after he has learned to make different responses to each, names, for example; or does he first learn to distinguish them and then (sometimes) attach names? On the former alternative he must learn to respond to things; *on the latter he must learn to respond to the difference.* (…) The issue is deep and far-reaching.[40] [emphasis added]

Ecosophy

Indeed, what motivates the author's research is the architect's habit of taking for granted the homology between representation and 'presentation'. There is widespread consensus on this fallacy among laymen and professionals alike. As Robin Evans diagnosed: 'We are landed not only with a picture theory of vision, but with a pervasive picture method of construction for manufactured objects as well.'[41] We are also landed with the hypothesis of the five senses, the proof of Aristotle's enduring authority. The number five relates to the supposed channels of sensation running from the periphery to the centre. In the case of vision, the sequence is all-too-familiar: Object > Retinal Image > Image in the Brain > Various Operations on the Sensory Image > Full Consciousness of the Object and its Meaning.[42] Such an approach to perception – as the conscious experience of sensory input – remains in its essence Aristotelian through and through. Philosopher of mind Susan Hurley named the implicit model of the mind behind such an approach as the 'classical sandwich', with perception as input, action as output, and cognition as in-between.[43] We see with our eyes, don't we? No, Gibson was resolute, we see with saccading eyes in the mobile head on the locomotive body supported by the ground, the brain being only the central organ of an entire visual *system*.[44] According to Gibson, the brain may produce sensations, hallucinations, dreams, illusions and after-images, *but never perceptions.* You are not your brain.[45] The perceptual system is synaesthetic, that is, cross-modal and supported by proprioception, which refers to the body's ability to sense movement within joints and their position. It is therefore also kinaesthetic and, as such, inseparable from action.[46] Kinaesthesia is not like something, explains proponent of the Corporeal Turn Maxine Sheets-Johnstone, it is what it is.[47] *Neither thingness, nor essentiality.*[48] Seeing is a matter of skill and participation, and not contemplation. Perception and action are not propositions, nor are they based on a proposition and cannot,

therefore, be either correct or incorrect.[49] The ecological approach to perception knows no such thing as 'sense data'. *Ecological*, it must be qualified, stands for reciprocity between the life-form and its environment.[50] Their mutual relation is not one of computing but of resonance. It is no coincidence that the School of Ecological Perception describes perceiving as *tuning in* – as in radio frequency – as opposed to the *computational* metaphor (with the brain as a computer, eye as a camera, and so on).[51] Perception cannot be considered independently of the environment since it is defined as an evolved adaptive and constructive relation between the organism and the environment. Unfortunately, experimental psychology research has relied overwhelmingly on *object* perception, rather than environment perception, with the findings of the former providing the basis for understanding the latter.[52] Architecture continues to suffer from this fallacy. Arguably the greatest feat of contemporary psychology has been to include the environment of life-forms in the study of the psyche.[53] To separate the 'cultural' from the 'natural' environment – as if there were a world of mental and a world of material products – is a fatal mistake. *There is only one world*.[54] Only recently have biologists considered the (feed-back/feed-forward) effect of the 'niche construction' on the inheritance system.[55] The theory of niche-construction proposes that an organism does not passively submit to the pressures of a pre-existing environment, but that it actively constructs its niche (genetically, epigenetically, behaviourally and symbolically). Implications for the discipline of architecture are obvious: perception is an important area of study because it provides information about the environment which is in turn intimately related to the life of life forms. Architecture ought to reclaim its vanguard position within the Epigenetic Turn, which embraces technology in general terms (*tekhne*) as constitutive of humanity, and not merely the other way around.[56] It is high time to complement the passive principle of natural selection (logical argument) with the active princi-

ple of self organization (natural argument).[57] The principle of *exteriorization* – the city as an exoskeleton is a good example – is evolution continued by other means. This is beautifully illustrated in the opening scene of *2001: A Space Odyssey* (1968) by Stanley Kubrick, compressing 4.4 million years of tool evolution from the bone to the spaceship.[58] The epigenetic structure of inheritance and transmission is, as the very term suggests, external and non-biological. As such it transcends our particular existence. It extends beyond our biological finitude. Moreover, as Guattari claims: 'Man and the tool are *already* components of a machine constituted by a full body [socius] acting as an engineering agency, and by men and tools that are engineered (*machinés*) insofar as they are distributed on this body.'[59] [emphasis in the original] The long-lasting legacy of privileging *episteme* over *tekhne* needs to be rethought, as the philosopher of technology Bernard Stiegler urges.[60] The 'what' (tekhne) invents the 'who' (the human) at the same time that it is invented by it. Strictly speaking, architecture, as a *sedimented* epi-genetic (mnemonic) device, has an even higher order of autonomy, which makes it epi-phylo-genetic.[61] If epigenetics is the concept of non-genetic heritability (such as language acquisition), then epiphylogenetic means that the rhetoric of 'We Build our Cities and in Return They Build Us' is to be taken literally.[62] Stiegler explains:

> Epiphylogenetics, a recapitulating, dynamic and morphogenetic (*phylogenetic*) accumulation of individual experience (*epi*), designates the appearance of a new relation between the organism and its environment, which is also a new state of matter. If the individual is organic organized matter, then its relation to its environment (to matter in general, organic or inorganic), when it is a question of a *who*, is mediated by the organized but inorganic matter of the *organon*, the tool with its instructive role (its role *qua* instrument), the *what*. It is in this sense that the *what* invents the *who* just as much as it is invented by it.[63]

It is time for the discipline to awaken from the slumber of anthropocentrism and shake off the baggage of old dualisms. Deleuze and Guattari propose that we drop anthropomorphism for geomorphism, which defies (all-too-human) interpretation.[64] In the same vein, Keith Ansell-Pearson calls for a major reconfiguration of ethology: 'Behaviour can no longer be localised in individuals conceived as preformed homunculi, but has to be treated epigenetically as a function of complex network systems which cut across individuals and which traverse phyletic lineages and organismic boundaries.'[65] Relation comes before that which it places in relation.[66] In Heideggerian parlance, it is dwelling that precedes both building and abstract or subjective thought.[67] In contrast to binary logic, one should always proceed from the middle or the *milieu*, both conceptually and literally.[68] As explained by philosopher of science Isabelle Stengers, Deleuze deliberately plays on the double meaning of this French term, which stands for the middle and the surrounding.[69] Proceeding from the middle is arguably the best way to undo the habit of thinking in terms of formal essences and sensible formed things. As philosopher Gilbert Simondon was well aware, the tradition tends to forget a sort of middle, an intermediary. And it is at the level of this intermediary that everything gets done.[70]

The complementarity between the animal and its environment was a life-long project of psychologist James Jerome Gibson. His (unwitting) affiliation with Deleuze and contribution to radical empiricism in general is still underappreciated.[71] The most notable point of convergence between the two thinkers is their more or less overt theory of 'passive synthesis', with which they vehemently oppose, or better yet complement, the active synthesis of representation.[72] Passive syntheses fall outside of the jurisdiction of an ego whereby a living present is a multiplicity of 'contemplations'.[73] Deleuze describes passive synthesis as one which 'is not carried out by the mind, but occurs in the

mind'.[74] As a discipline architecture has more often than not sought legitimacy from without. The irony is that it felt embarrassingly inadequate because of its heuristic, that is, anexact (yet rigorous) modus operandi.[75] The two thinkers stress distinctness and obscurity in opposition to scientism based on Cartesian distinctness and clarity. No less than a genuine change of heart – triggered by the realist/materialist impetus – is required for the architecture of conjecture to (continue to) resist becoming the architecture of canons. The modernist divide between materiality on the one hand and design on the other is vanishing, according to sociologist Bruno Latour: 'The more objects are turned into things – that is, the more matters of fact are turned into matters of concern – the more they are rendered into objects of design through and through.'[76] This is to say that one can no longer indulge in the idea that there are, on the one hand, objective material constraints and, on the other, symbolic human subjective values. As philosopher Henk Oosterling puts it, *Dasein ist* design.[77] When a society modulates its matter it is not a reflection *of* culture, it *is* culture.[78] Therefore, the discipline should regain self-confidence and do what it does best, in the words of architecture theorist Mark Wigley: 'Architecture neither houses nor represents culture, neither precedes nor follows culture. Rather it is the mechanism of culture.'[79] What distinguishes architecture from simple handicraft and makes it a 'material practice', according to Stan Allen, is the interplay between abstract tools and concrete ends.[80] It requires both the intellectual and practical tools to work effectively in this paradoxical environment, 'at once immersed in the world of images and abstract notations, yet intimately connected to the hard logics of matter and forces'.[81] However, if taken separately, both perspectives continue to embody correlationist conceit.[82] Practice is to be considered neither as an application of theory nor as its inspiration but as action. In the words of Foucault and Deleuze: 'There's only action – theoretical action and practical action.'[83] To appropriate this battle cry is to have done with

representation.

Notes

1. Slavoj Žižek, 'Lacan Between Cultural Studies and Cognitivism', in *UMBR(a): A Journal of the Unconscious*, 4 (2000), pp. 9-32.

2. *The Third Culture* was written by John Brockman in 1995. Brockman has continued to challenge the supposed incommensurability between humanities and sciences – C.P. Snow's Two Cultures – on the homonymous website. <http://www.edge.org/3rd_culture/> [accessed 22 June 2012].

3. Chaos theory works from the simple to the complex, while Complexity theory works from the complex towards the simple. Two highly readable, nonmathematical treatments that capture the paradigm-breaking nature of dynamic systems are Prigogine and Stengers' *Order Out of Chaos: Man's New Dialogue with Nature* (1984) and Gleick's *Chaos: Making a New Science* (1987).

4. Quentin Meillassoux, *After Finitude: An Essay on the Necessity of Contingency* (London and New York: Continuum, [2006] 2008). See also: Levi Bryant, Nick Srnicek and Graham Harman, *The Speculative Turn: Continental Materialism and Realism* (Melbourne: re.press, 2011).

5. Claire Colebrook, 'Postmodernism Is a Humanism: Deleuze and Equivocity' in *Women: a cultural review*, 15, 3 (2004), pp. 288, 292.

6. By the proponents' own account, speculative realism does not really exist, rather it is a generic term for a group of thinkers that advocate very different ontologies and epistemologies that are often opposed to one another. The two features that unite them is 1) a commitment to some variant of realism and 2) refusal to privilege the world-human correlate.

7. Gregory Bateson, 'The Cybernetics of 'Self': A Theory of Alcoholism' in *Psychiatry*, 34, 1 (1971), pp. 1-18.

8. Manuel DeLanda, 'Materialism and Politics' in *Deleuze: History and Science,* ed. by Wolfgang Schirmacher (New York and Dresden: Atropos Press, 2010), p. 29.

9. Erwin Schrödinger, *What Is Life? The Physical Aspect of the Living Cell.* (Based on lectures delivered under

the auspices of the Dublin Institute for Advanced Studies at Trinity College, Dublin, 1943).

10. Keynote lecture by Ray Brassier, 'The Pure and Empty Form of Death: Deleuze and Heidegger', *A/V Journal*, 2 (2006).<http://www.hssr.mmu.ac.uk/deleuze-studies/journal/av-2/> [accessed 22 June 2012].

11. Keynote lecture by Claire Coolebrook at the *7th European Feminist Research Conference: Gendered Cultures at the Crossroads of Imagination, Knowledge and Politics* (Utrecht June 4-7, 2009). Under the title 'Sexuality and the Politics of Vitalism', Colebrook declared a recent shift in knowledge paradigms away from linguistic, intellectual and cognitive approaches and towards experience accompanied by a turn to embodiment, affect, vitality and the dynamism of knowledge. According to her, many of these vitalist appeals for corporeal and transhuman life – for all their claims to radicalism and posthumanism – harbour highly normative masculinist, organicist and Western presuppositions regarding proper life. By examining the ways in which the crisis of our imagined future has enabled a return to life, Colebrook advanced the case for a counter-vitalism that is also anti-organicist.

12. Charles T. Wolfe, 'De-ontologizing the Brain: From the fictional self to the social brain', in *CTheory*, ed. by Arthur and Marilouise Kroker (2007). <http://www.ctheory.net/articles.aspx?id=572> [accessed 22 June 2012].

13. Tahl Kaminer, *The Idealist Refuge: Architecture, Crisis, and Resuscitation* (Delft University of Technology Doctoral Dissertation, 2008), p. 9.

14. Bjarke Ingels, *Yes Is More: An Archicomic on Architectural Evolution* (Köln: Evergreen, 2010).

15. Terry Eagleton, *After Theory* (New York: Basic, 2003), pp. 16-7.

16. Michael K. Hays, 'Ideologies of Media and the Architecture of Cities in Transition', in *Cities in Transition*, ed. by Deborah Hauptmann (Rotterdam: 010 Publishers, 2001), pp. 262-73. 'The aspiration to an autonomy of disciplinary forms and techniques as a way of creating and measuring the distance between a critical practice and the degraded status quo of consumer culture.' Hays sincerely admits that he is not yet fully able to account for this new attitude but wants to reflect on it and on 'the ideologies it has replaced'. The ideologies he is referring to were written almost in a form of a manifest and were issued by coincidence ('or perhaps not') in 1966: Rossi's *The Architecture of the City* and Venturi's *Complexity and Contradiction in Architecture*.

17. 'Fit for the boudoir, and not for the street.' See: Arie Graafland, 'On Criticality', in *Crossover: Architecture, Urbanism, Technology* (Rotterdam: 010 Publishers, 2006), p. 698. Cf. Manfredo Tafuri, 'L'architecture dans le boudoir', in *The Sphere and the Labyrinth: Avant-gardes and Architecture from Piranesi to the 1970s* (Cambridge, MA: MIT Press, 1987) pp. 267ff.

18. Eugene W. Holland, 'Nonlinear Historical Materialism and Postmodern Marxism', in *Culture, Theory & Critique*, 47, 2 (2006), p. 184. For an overview of the range of topics that New Materialism concerns itself with, see: Diana Coole and Samantha Frost, *New Materialisms: Ontology, Agency, and Politics* (Durham and London: Duke University Press, 2010).

19. Jesse Reiser and Nanako Umemoto, *Atlas of Novel Tectonics* (New York: Princeton Architectural Press, 2006), p. 23. See also Geoffrey Scott, *The Architecture of Humanism* (New York: W.W. Norton, [1914] 1974), p. 168.

20. Félix Guattari, 'Balance-Sheet for "Desiring-Machines"', in *Chaosophy*, ed. by Sylvere Lothringer (Los Angeles: Autonomedia/Semiotext(e), 1995), p. 115.

21. Harry Heft, *Ecological Psychology in Context: James Gibson, Roger Barker, and the Legacy of William James's Radical Empiricism* (Mahwah, NJ: L. Erlbaum, 2001), p. 73.

22. Gilles Deleuze, *Foucault* (Minneapolis: University of Minnesota, [1986] 1988), p. 25.

23. Charles Sanders Peirce, 'The principles of Phenomenology', in *Philosophical Writings of Peirce,* ed. by Justus Buchler (New York: Dover Publications, 1955), 74-97.

24. Susanne K. Langer, *Philosophy in a New Key* (Cambridge, MA: Harvard University Press, 1957), p. 95. See also: James Jerome Gibson, *The Ecological*

Approach to Visual Perception (New Jersey: Lawrence Erlbaum Associates, [1979] 1986), p. 250.

25. 'Virtuality' – from the Latin *virtualis*, or that which exists potentially but not actually – is a form of physical modality, distinct from possibility and necessity to account for the double status of singularities which are real in their effects but incapable of ever being actual. Manuel DeLanda, 'Deleuze in Phase Space', in *Virtual Mathematics*, ed. by Simon Duffy. (Manchester: Clinamen Press, 2006.), p. 150. See also: Daniel W. Smith, 'Deleuze's concept of the virtual and the critique of the possible', in *Journal of Philosophy: A Cross Disciplinary Inquiry*, 4, 9 (2009), pp. 29-42.

26. Lawrence Grossberg, 'Affect's Future: Rediscovering the Virtual in the Actual (in an interview by Gregory J. Seigworth & Melissa Gregg)' in *The Affect Theory Reader*, ed. by Gregory J. Seigworth and Melissa Gregg (Durham, NC: Duke University Press: 2010), p. 320.

27. Gilles Deleuze, *The Fold: Leibniz and The Baroque* (London and New York: Continuum, [1988] 2006), p. 152.

28. We refer here to the 'specialized lines of expression' such as (one-dimensional) genes or (epi-genetic) words. See: Manuel DeLanda, 'Deleuze, Materialism and Politics', in *Deleuze and Politics*, ed. by Ian Buchanan and Nicholas Thoburn. (Edinburgh: Edinburgh University Press, 2008.), p. 165. 'While before the rise of living creatures all expression was three dimensional – the geometry of a crystal, for example, was what expressed its identity – genes are a one-dimensional form of expression, a linear chain of nucleotides, and this linearization allows material expressivity to specialize.'

29. As Bernard Cache cautions, the key is not to repeat the mistake of the avant-garde at the beginning of the twentieth century who, with the onset of new technologies, immediately dismissed the older techniques and ideas as outmoded and anachronistic: 'Listening to architects describing how we were living in a non-Euclidian, virtual space. I just couldn't stand it any longer and had to respond.' See: Bernard Cache, 'George L. Legendre in Conversation with Bernard Cache', in *AA Files*, 56 (2007).

30. François Zourabichvili, 'Six Notes on the Percept (On the Relation between the Critical and Clinical)', in *Deleuze*: *A Critical Reader,* ed. by Paul Patton (Cambridge, MA: Blackwell, 1996), p. 202.

31. A near synonym of symptomatology is 'interpretosis', 'the 'despotic' legacy of any discourse whose primary pivot is the signifier'. See: Jeffrey T. Nealon, 'Beyond Hermeneutics: Deleuze, Derrida and Contemporary Theory', *in Between Deleuze and Derrida*, ed. by Paul Patton and John Protevi (New York: Continuum, 2003), p. 160.

32. Foucault's Review of Deleuze's *Logic of Sense* (1969) and *Difference and Repetition* (1968) T*heatrum Philosophicum*. The essay originally appeared in *Critique*, 282 (1970), pp. 885-908.

33. Michel Foucault, 'Theatrum Philosophicum' in *Critique*, 282 (1970), pp 885-908. 'The Logic of Sense can be read as the most alien book imaginable from *The Phenomenology of Perception* [by Merleau-Ponty].'

34. Luc Ferŕy and Alain Renault, *French Philosophy of the Sixties: An Essay on Antihumanism* (Amherst: University of Massachusetts, [1985] 1990), p. 9. 'Which [i.e. phenomenology] the hypothesis of an unconscious, or more generally of an exterior that motivates all discourse without the speaker's knowledge, specifically excludes.'

35. For example, 'street philosopher' DeLanda, 'physicist' Kipnis, and 'literary theorist' Kwinter. Kwinter firmly believes that the question of space 'can no longer be thought fruitfully within the domain of language or even within its broader analytical paradigm, but only through the minute study of our physical, material and technical milieus – of which language is little more than a subset.' See: Sanford Kwinter, 'On Vitalism and the Virtual' in *Pratt Journal of Architecture: On Making* (New York: Rizzoli, 1992), p. 185.

36. The insistence on medium-specificity arose in the era of modernism and has become associated with the art critic Clement Greenberg. The concept, however, can be traced back to Gotthold Ephraim Lessing's 1766 essay, *Laocoon*. Lessing dismantles Horace's famous claim *ut pictura poesis* [as is painting, so is poetry],

arguing that these media are inherently different. While poetry unfolds in time, painting exists in space. By contrast, architecture, we suggest, exists in space-time. In this we side with McLuhan in that the medium is specific through its effect and not its content. As Henry Moore wrote: 'Rodin of course knew what sculpture is: he once said that sculpture is the science of the bump and the hollow.' See: Philip James, *Henry Moore on Sculpture* (New York: Da Capo Press, 1992).

37. Hayles discusses the regime of computation (complexity to complexity) as an alternative to classical metaphysics (simplicity to complexity). See: Katherine Hayles, *My Mother was a Computer: Digital Subjects and Literary Texts* (Chicago: The University of Chicago Press, 2005), p. 15.

38. The recently deceased media guru Kittler represents a stream of media theory which came out as an alternative to the Marxist and hermeneutic theories dominating the German discourse in the latter part of the twentieth century. Shannon's paper drawn from his 1937 Master's thesis, 'A Symbolic Analysis of Relay and Switching Circuits', was published in the 1938 issue of the *Transactions of the American Institute of Electrical Engineers.*

39. Also known as the triad of making, storing and transmitting. The attempt to 'fix' dialectics by introducing a third term is a well known yet futile exercise.

40. James Jerome Gibson, *The Senses Considered as Perceptual Systems* (Boston: Houghton Mifflin, 1966), p. 282.

41. Robin Evans, *The Projective Cast: Architecture and Its Three Geometries* (Cambridge, MA: MIT Press, 1995), pp. 359, 370.

42. This fallacy has become commonplace. See: James Jerome Gibson, *The Ecological Approach to Visual Perception* (New Jersey: Lawrence Erlbaum Associates, [1979] 1986), p. 252.

43. Susan. L. Hurley, *Consciousness in Action* (Cambridge, MA: Harvard University Press, 1998).

44. J.J. Gibson rejects a snapshot/apperture conception of vision in favour of the ambient/ambulatory one. See: James Jerome Gibson, *The Ecological Approach to Visual Perception* (New Jersey: Lawrence Erlbaum Associates, [1979] 1986), p.1.

45. The substitution of the *brain* for the Cartesian *spirit* is known as the 'Francis Crick Fallacy'. As Crick wrote in the journal *Nature*: 'Scientists need no longer stand by listening to the tedious arguments of philosophers perpetually disagreeing with each other. The problem of consciousness is now a scientific problem [sic].' See: Interview with Alva Nöe by Gordy Slack, *You are not your brain* (2009), <http://socrates.berkeley.edu/~noe/an_interviews.html> [accessed 22 June 2012]. See also: Charles T. Wolfe, 'De-ontologizing the Brain From the fictional self to the social brain', in *CTheory,* ed. by Arthur and Marilouise Kroker (2007), <www.ctheory.net/articles.aspx?id=572> [accessed 22 June 2012].

46. The 'perceptual system' thesis was set out by Gibson in an earlier book: James Jerome Gibson, *The Senses Considered as Perceptual Systems* (Boston: Houghton Mifflin, 1966). For a contemporary account of proprioception see: Brian Massumi, *Parables for the Virtual; Movement, Affect, Sensation* (Durham: Duke University Press, 2002).

47. Maxine Sheets-Johnstone, *The Primacy of Movement* (Aarhus: Aarhus University, Department of Philosophy, 1999), pp. 139, 146-150. See also: Maxine Sheets-Johnstone, ed., *The Corporeal Turn: An Interdisciplinary Reader (*Exeter: Imprint Academic, 2009).

48. Gilles Deleuze, *Cours Vincennes*: 'Anti Oedipe Et Mille Plateaux' (February 27, 1979), <http://www.webdeleuze.com/php/texte.php?cle=186&groupe=Anti%20Oedipe%20et%20Mille%20Plateaux&langue=2> [accessed 22 June 2012]. 'Essentiality is the property of formal, fixed essences, the circle. Thingness is the property of sensible, perceived, formed things, for example the plate or the sun or the wheel.'

49. Claire F. Michaels and Claudia Carello: *Direct Perception* (Englewood Cliffs, NJ: Prentice-Hall, 1981), p. 109.

50. The word *ecology* comes from the Greek *oikos*, a house. But it can also mean household, family, milieu, vicinity, habitat or environment.

51. The animal may change as a consequence of experience, but we view that change not as an accumulation

of knowledge, but as a keener ability to detect the affordances of the environment. According to Gibson, learning becomes the education of attention. See: James Jerome Gibson, *The Senses Considered as Perceptual Systems* (Boston: Houghton Mifflin, 1966), p. 270.

52. William H. Ittelson, 'Environment Perception and Contemporary Perceptual Theory', in *Environment and Cognition* (New York: Seminar Press, 1973), p. 142.

53. Chemero and Silberstein provide a comprehensive taxonomy of the two most important debates in the philosophy of the cognitive and neural sciences. The first debate is over methodological individualism: is the object of the cognitive and neural sciences the brain, the whole animal, or the animal-environment system? The second is over explanatory style: Should explanation in cognitive and neural science be reductionist-mechanistic, inter-level mechanistic, or dynamical? Our thesis unequivocally sides with the dynamical animal-environment system approach which we name Gibsonism. See: Anthony Chemero and Michael Silberstein, 'After the Philosophy of Mind: Replacing Scholasticism with Science', in *Philosophy of Science*, 75 (January 2008), pp. 1-27.

54. James Jerome Gibson, *The Ecological Approach to Visual Perception* (New Jersey: Lawrence Erlbaum Associates, [1979] 1986), p. 130.

55. John Odling-Smee, 'Niche Inheritance: A Possible Basis for Classifying Multiple Inheritance Systems in Evolution', *Biological Theory,* 2, 3 (2007), pp. 276-89. The 'epigenetic turn' calls for a re-examination of the status of Lamarckism. In contrast to Darwinism, Lamarckian inheritance is the idea that an organism can pass onto its offspring characteristics that it acquired during its lifetime.

56. 'Epigenesis' is the term used to describe the relatively mysterious process of how form emerges gradually but dynamically out of a formless or homogeneous environment or substrate. See: Sanford Kwinter, 'Soft Systems' in *Culture Lab*, ed. by Brian Boigon (New York: Princeton Architecture Press, 1993), p. 214.

57. Against the second law of thermodynamics: *negen-*

tropy (negative entropy).

58. It is a difference in degree before it is a difference in kind. See: Stanley Kubrick, 2001: *A Space Odyssey* (1968).

59. Félix Guattari, 'Balance-Sheet for "Desiring-Machines"', in *Chaosophy*, ed. by Sylvere Lothringer (Los Angeles: Autonomedia/Semiotext(e), 1995), p. 110.

60. Bernard Stiegler, Technics and Time 1: *The Fault of Epimetheus* (Stanford, California: Stanford University Press, 1998).

61. Bernard Stiegler, 'Who? What? The Invention of the Human', in *Technics and Time, 1: The Fault of Epimetheus* (Stanford, CA: Stanford University Press 1998), pp. 134-79. Biologist Conrad Waddington (1905-1975) is often credited with coining the term epigenetics in 1942 as 'the branch of biology which studies the causal interactions between genes and their products, which bring the phenotype into being'. The extent to which we are pre-programmed versus environmentally shaped awaits universal consensus. The field of epigenetics has emerged to bridge the gap between nature and nurture.

62. A real-socialist slogan also attributed to Churchill. Ontogeny: development (developmental and organismic scales). Phylogeny: descent and branching (reproductive and evolutionary scales).

63. Bernard Stiegler, 'Who? What? The Invention of the Human', in Technics and Time, 1: *The Fault of Epimetheus* (Stanford, CA: Stanford University Press 1998), p. 177.

64. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus* (London, New York: Continuum [1980] 2004), pp. 318,19.

65. These developments call for a major reconfiguration of ethology. See: Keith Ansell-Pearson, *Germinal Life: the Difference and Repetition of Deleuze* (London: Routledge, 1999), p. 171. For Gibson the formula is neither *mentalism* nor conditioned-response *behaviourism*, but *environmentalism*. See: James Jerome Gibson, *The Ecological Approach to Visual Perception* (New Jersey: Lawrence Erlbaum Associates, [1979] 1986), p. 2.

66. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus* (London, New York: Continuum [1980] 2004), p. 350.

67. Martin Heidegger, 'Building Dwelling Thinking' in *Poetry, Language, Thought* (New York: Harper and Row, [1951 lecture] 1971), pp. 145-61.

68. This is in contrast to deconstructivist Jacques Derrida who does not start from the middle but rather 'from the limits'. Mathematician Arkady Plotinsky offers a comparative analysis between the two contemporaries Deleuze/Derrida as follows: Middle/Limits, Geometry/Algebra, Thinking/Writing. See: Arkady Plotinsky, 'Algebras, Geometries and Topologies of the Fold: Deleuze, Derrida and Quasi-Mathematical Thinking (with Leibniz and Mallarmé)', in *Between Deleuze and Derrida*, ed. by Paul Patton and John Protevi (New York: Continuum, 2003), pp. 98-119.

69. The former means without grounding definitions or an ideal horizon, while the latter is meant to indicate that no theory gives you the power to disentangle something from its particular surroundings. See: Isabelle Stengers, 'An Ecology of Practices', in *Cosmopolitics* (Minneapolis: University of Minnesota, 2010).

70. Gilbert Simondon, 'Genesis of the Individual', in *Incorporations* (New York: Zone Books, 1992), pp. 297-319. See also: *A Short List of Gilbert Simondon's Vocabulary.* <http://fractalontology.wordpress.com/2007/11/28/a-short-list-of-gilbert-simondons-vocabulary/> [accessed 22 June 2012].

71. James Jerome Gibson's major works are: *The Ecological Approach to Visual Perception* (New Jersey: Lawrence Erlbaum Associates, [1979] 1986); *The Senses Considered as Perceptual Systems* (Boston: Houghton Mifflin, 1966); *The Perception of the Visual World* (Boston: Houghton Mifflin, 1950).

72. Beneath active syntheses of thought there are passive syntheses of perception and beneath them still there are passive organic syntheses of metabolism. See: John Protevi, 'Deleuze, Jonas, and Thompson: Toward a new Transcendental Aesthetic and a New Question of Panpsychism' (Montreal: SPEP, 2010). <http://protevi.com/john/research.html> [accessed 22 June 2012].

73. As used by Franz Brentano and then Husserl, 'intentionality' means that mental states like perceiving are always *about* something, that is, directed towards something. By contrast, for Deleuze intentionality does exist but it is always multiple. In other words, there is never a single originator of the intention. Desire itself is a multiplicity of competing drives. See: Gilles Deleuze and Félix Guattari, *Anti-Oedipus: Capitalism and Schizophrenia* (New York: Penguin, [1972] 2008).

74. Gilles Deleuze, *Difference and Repetition* (New York: Columbia University Press, [1968] 1994), p. 71. The distinction between passive and active syntheses is not dissimilar to the one recently made by the Nobel Prize laureate Kahneman between the 'automatic System 1 and effortful System 2'. See: Daniel Kahneman, *Thinking: Fast and Slow* (New York: Farrar, Straus and Giroux, 2011).

75. J.J. Gibson draws on Polanyi's notion of 'tacit knowledge'. See: James Jerome Gibson, *The Ecological Approach to Visual Perception* (New Jersey: Lawrence Erlbaum Associates, [1979] 1986), p. 22. 'Everything (…) has long been known implicitly by practical men – the surveyors of the earth, the builders, and the designers of the environment. It is tacit knowledge.' Cf. Michael Polanyi, *The Tacit Dimension* (Garden City, NY: Doubleday, 1966).

76. Bruno Latour, 'A Cautious Prometheus? A Few Steps Toward a Philosophy of Design (with Special Attention to Peter Sloterdijk)', Keynote lecture for the *Networks of Design* meeting of the Design History Society (Falmouth, Cornwall, September 3, 2008). 'Humanists are concerned only about humans; the rest, for them, is mere materiality or cold objectivity…. By treating human life supports as matters of concern, we pile concerns over concerns, we fold, we envelop, we embed humans into more and more elements that have been carefully explicitated, protected, conserved and maintained …This little shift in the definition of matter modifies everything: it allows practitioners to reuse all of the notions of materiality and of artificiality, by freeing them from the restrictions imposed by the older style of modernist matters of fact.' pp. 7,8,

http://www.bookpump.com/bwp/pdf-b/9429063b.pdf [accessed 24 October 2012].

77. Henk Oosterling, 'Dasein as Design; Or: Must Design Save the World?' *Premsela.org* lecture (2009), <http://finzhao.wordpress.com/2010/09/22/what-is-relational-design/> [accessed 22 June 2012].

78. 'From representation to things' is the core thesis of Scott Lash and Celia Lury, *Global Culture Industry: The Mediation of Things* (Malden, MA: Polity, 2007), pp. 7, 19. 'For Horkheimer and Adorno, culture (…) was still in the superstructure. (…) our concern was with how things actually move, how they 'transition' between many states, how they are (self-)organised as temporal, rhythmic morphologies or coherent behaviours.'

79. Mark Wigley and Jeffrey Kipnis, 'The Architectural Displacement of Philosophy', in *Form, Being, Absence* (Pratt Journal of Architecture, 1988), p. 7.

80. Stan Allen, 'Pragmatism in Practice' (manuscript from *Pragmatist Imagination* Conference, Museum of Modern Art, New York, November 1999).

81. Stan Allen, 'Commentary in response to "Stocktaking 2004: Nine Questions About the Present and Future of Design"', in *Harvard Design Magazine,* 20 (Spring/Summer 2004), p. 44.

82. Ian Boogst, *Alien Phenomenology, or What It's Like to Be a Thing* (Minneapolis: University of Minnesota, 2012), p. 14. 'The scientist believes in reality apart from human life, but it is a reality excavated for human exploitation. The scientific process cares less for reality itself than it does for the discoverability of reality through human ingenuity. Likewise, the humanist doesn't believe in the world except as a structure erected in the interest of human culture.'

83. Michel Foucault and Gilles Deleuze, 'Intellectuals and Power', in *Language, Counter-Memory and Practice*, ed. by Donald F. Bouchard (Ithaca, NY: Cornell UP, 1977), pp. 205-07.

Biography

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