

**Cognitive Architecture.
From Biopolitics
to Noopolitics.
Architecture & Mind
in the Age of
Communication
and Information**

Introduction: Architecture & Mind in the Age of Communication and Information

Deborah Hauptmann

Cognitive Architecture begins with the basic premise that in a world increasingly populated by technologies of information and communication, the analysis on biopolitics must be expanded to include thinking on noopolitics. While the former acts on body, or populations of bodies, and inscribes habits and practices specific to life (*bios*), the latter operates on mind (*nous*), on general intellect and mental disposition. Here the concept of noopolitics is broadly posited as a power exerted over the life of the mind, including perception, attention, and memory. This volume will posit questions and put forward ideas pertaining to the conditions through which world, body, brain, and mind are coupled, influenced by, and inflected through contemporary forms of material and immaterial production and processes such as those found in our current communication and information age.

The Foucauldian discourse on biopolitics and power has for decades been considered a cornerstone of theories (throughout numerous disciplines including architecture) that address the formations of society and culture in relation to economy and politics in all their permutations. It is important to retain the distinctions that have been made between biopolitics and biopower; primarily the distinction between the integration and stratifications of forces by institutions and various agents, organizations, and the constellations of power, singular or multiple, as a set of relations of forces acting on forces outside what some might refer to as the body-politic itself. Equally relevant is to recall that these so-called institutions of organization do not solely generate various sources of power, but in fact themselves stem from these relations of power.¹ Furthermore, as readers of the work of Foucault will recognize, underpinning his entire discourse is the concern with the power to exercise freedom and the creative power of resistance. Which, to our mind, also remains as a central concern to what we are here discussing under the terms of noopower and the subsequent forms that the production of subjectivities (considered both positively and negatively) take in within noopolitical frameworks of what have become highly distributed networks of forces and organization.

Perhaps we should point out that we do not believe that the prefix *bio* with respects to politics or power can simply be supplanted by the prefix *noo*. Nor would we wish the reader to feel we have collapsed (or conveniently ignored) the mind-body problematic which, according to Fredric Jameson – who refers to this as the raw nerve of metaphysics – runs through the dualisms of Cartesian and Spinozan philosophy ‘all the way down to base and superstructure if not the mechanical-materialist mirage of the cognitive brain itself.’² We do, however, consider the issues raised in this volume to be less ideologically related to the (Marxist) subject/labor paradigm, or the subjugation of populations through integration and capture within the order of reproduction, and more dynamically related to modalities of power as a relation between ‘forces acting on forces’ through integration and differentiation, which within an order of invention create sublime and complex conditions of

¹ Of course this is taken up extensively in Deleuze’s work **Foucault** (Minneapolis: University of Minnesota Press, 1986).

² See: Fredric Jameson, ‘Critical Response: How not to Historicize Theory,’ **Critical Inquiry** 34 (Spring 2008).

control and resistance. Maurizio Lazzarato has developed the importance of these distinctions in his well-known essay 'Life and the Living in the Societies of Control.' In this work he outlines the continuation of disciplinary societies (Foucault) into societies of control (Deleuze). Following Gabriel Tarde, he argues that media provide the conditions for 'the action at a distance of one mind on another, through the brain's power to affect and become affected, (which) is mediated and enriched by technology.'³ Identifying the importance of memory within action at a distance, he draws a distinction between 'life as memory from life as a set of biological characteristics ...' In other words, between the bio of biopower and bio as it is held in memory; Lazzarato thus turns to the term 'noopolitics' in order to distinguish the latter.⁴ Thus, the relevance of noopolitics in contemporary discourse and practice is integrally connected with memory and mind and to theorizing the relation between the forces and forms of communication. Networks of information and communication generate new logics of representation that are more topological than analogical. This action at a distance can be seen as an apparatus of noopolitics which emerged at the end of the nineteenth century with the advent of mass media in the form of something that today appears fairly innocuous: the newspaper.

Deleuze, in his essay 'Postscript on Control Societies,' also argues that the *dispositifs* of power and control that once operated primarily on the body (read *pace* Foucault) now operate on the mind through technologies of communication. With this we are no longer within the closed spaces of control outlined by geographic or political boundaries (sovereignties as such) of individuals or populations; but in the open spaces of public opinion, of multiple affiliations and dispositions dispersed across the globe. With this we witness not only the control of territories, but new forms of deterritorializations (Deleuze/Guattari), in other words, intensive modulations and temporal reconfigurations are both superimposed upon and subordinate extensive modalities of space. Or, as Lazzarato expresses it, 'we could say that noo-politics commands and reorganizes the other power relations because it operates at the most deterritorialized level (the virtuality of the action between brains).'⁵

Architecture and urbanism inhabit the same spaces and temporalities that characterize these new modes and relations; their presence also possesses the potential to bend and contort the very systems in which they operate. Architecture too often tends to be considered as autonomous, disengaged, and distanced from life as some form of hermetic (design-centric) endeavor. Quite the opposite is true – architectural technologies are embedded in the interwoven fabric of social, political, economic, psychological, historical, and spiritual relations of a community of differences and heterogeneity. Architecture has created its own set of *dispositifs* that provide for the smooth realization of new and diverse networks into planned conditions of the built environment. Put differently, architectural imaginations

produce practices that allow for the exploration of remote territories, like the paranormal, non-linear, psychic, and insensible, which pulsate beyond the reach of the formulaic methodologies of the logics of computational programs. Equally, the concept of the virtual has become increasingly important to the architecture and urban design discourse. In fact, architectural and urban processes, procedures, and products commingle to form complex systems of recurrent and recursive circuits, which, in the end, help produce novel forms of networks that empower the imagination and constitute the cultural landscape with new objects and subject relations.

The above briefly indicates the general concerns that motivated our interest in furthering the discussion on noopolitics. Of course, with this we remain primarily in the domain of philosophy and theory. However, as indicated above, our interests also lean heavily on thinking new relations between culture and the brain. By this we understand the brain not merely as the privileged metaphor for mind, consciousness, or cognition; but the brain as examined in contemporary neurosciences. Here we are interested in the manner in which the brain is transformed through cultural influences, and conversely, how the emerging knowledge on the brain informs both the limits and possibilities of our interaction with and effect upon our world. We wish to develop a better theoretical understanding of the emerging conditions that generate new continents of research and elicit forms of power and relations of power within the context of new economic, political, social, aesthetic, and cultural contingencies; a search that is also paralleled by many scientists who, in various manners, conduct research into our cognitive capacities in general, and the brain (whether psychological, physiological, biological, or neurological) specifically. Further, we believe that in addressing recent advents in architecture the relation between culture and the brain cannot be ignored, thus recent ideas emanating from neuroscience must be included in our understanding not merely of what architecture is, but how it acts.⁶

Further introduction to issues providing partial background for our discussion on cognitive architecture will be taken up in Sven-Olav Wallenstein's contribution, which acts as an introductory essay, extending much to the issues that underpin this collection. His paper, 'Noopolitics, Life and Architecture,' provides a critical survey of Foucauldian and Deleuzian theories related to biopolitics and noopolitics as situated in relation to the vitalist philosophy of thinkers such as Henri Bergson and Gabriel Tarde. His more subtle task, however, is to propose the possibility of a critical theory that may better account for thinking modes of 'affectivity and subjection' in the context of thinking new forms of discipline and control.

³ Maurizio Lazzarato, 'The Concepts of Life and the Living in the Societies of Control,' in **Deleuze and the Social**, eds. Martin Fuglsang and Bent Meier Sorensen (Edinburgh: Edinburgh University Press, 2006), 180.

⁴ *Ibid.*, 186. With this it should be clear that we have taken this term from Lazzarato. Naturally, we hope that our work here will serve to offer something in return.

⁵ *Ibid.*, 187.

⁶ For those readers interested in an overview of discussions on architecture and the brain, see Harry Francis Mallgrave, **The Architects Brain: Neuroscience, Creativity, and Architecture** (Oxford: Wiley-Blackwell, 2010). Although our own approach to this topic, as well as the issues that concern us here, differ quite substantially from Mallgrave, I regard his book as an excellent and timely contribution to this emerging area of study.

The volume has been divided into five sections: ‘Plasticity and Potentiality,’ ‘The Noo-Sensorium,’ ‘Administering Attention,’ ‘Epigenic Reconfigurations,’ and ‘Capitalism and the Mutating Intellect.’ We consider these terms as meta-stable and blinking, representing concepts and ideas that resonate in architecture, theory, philosophy, and neuroscience simultaneously. Thus, these titles serve only to indicate a selection of primary themes that we believe are woven into this compilation as a whole. In fact, the majority of papers included herein address more than one of these themes as none can actually be discussed in isolation. The contributions as outlined below are sketched in broad brush-strokes, as it proved impossible within the constraints of this introduction to provide a thorough review of the issues and arguments these authors address in their respective contributions. Finally, it should be noted that we have conceived the contributions as a series of dynamic contingencies to be read as a distributed and complex network of ideas, which, taken together, open up the possibility of new vocabularies and tools with which to develop the discourse on *cognitive architecture*, *noo-power* and *noopolitics*.

Plasticity and Potentiality Approached from a theoretical perspective, the concept of plasticity bears on questions pertaining to the conditions of the changing cultural milieu, what might be called cultural plasticity, which through its direct or indirect actions effect memory, perception, experience, and thinking. Further, these transformations can be directly related to technological developments as well. Of course, writings on such matters have echoed through discourses concerned with art and media and their effective relation to socio-cultural conditions and conditionings, whether considered as a virtual or an actual real. Developments in neuroplasticity, which sit within scientific research primarily within the fields of experimental and physiological psychology, cognitive psychology, cognitive science and cognitive neuroscience, have now been extended to the cultural realm. When coupled with technological developments on the one hand, and ontogenetically driven cognitive strategies on the other, plasticity and its effects bear heavily on our modes of understanding our life-world.

Henri Bergson, for instance, argued that people are inclined to project their psychic or mental states into spatial form; and in so doing, not only are these mental states themselves transformed, but simultaneously they return to generate alternative and new forms of experience when reflected back into consciousness. We might easily recall Walter Benjamin’s now canonical claim that ‘the mode of human sense perception changes with humanity’s entire mode of existence,’ and the vehicle of such change is determined by ‘historical circumstances’ (by which he was referring to the technology of film). While, a more current example can be seen in Fredric Jameson, who puts forward a similar perspective – specifically with respect to the architecture of the Bonaventure Hotel, Los Angeles – suggesting that built space is mutating into something that people do not yet possess

the perceptual faculties to understand.⁷ In other words, as architecture changes, so too must the mind that must fathom it.

As these examples portray, the plasticity at play in experience and perception (along a sensation-affect and memory-attention axis) can be extrapolated in terms of both bios and nous. Thus, we grasp the notion of plasticity as it generally indicates the idea of mutability, transformation, and the inherent potential for change (whether productive or prohibitive) within the spheres of both real and imagined states and processes within beings. For some of our contributors this is seen as a theoretical notion of (pluri)potentiality as a means to elucidate a diagrammatic concept applied to the process of social and cultural evolution, especially as it creates new forms in the built environment or elicits new cultural niches in various and nuanced ways (cultural plasticity). For others, this is discussed as a property of the brain (neuroplasticity), providing for a greater understanding of how contemporary science posits human evolutionary capacities.

Potentiality is also used as a notion within discourse on capitalist organizations, tertiary economies, and the public sphere of sociopolitical practices. In his contribution ‘Movement,’ Paolo Virno suggests this as nothing less than ‘the arena of struggle’ in which ‘human nature’ itself is at stake. Here Virno identifies the differential traits of the species (*Homo sapiens*) in such things as ‘verbal thought, the transindividual character of mind, neoteny, and the lack of specialized instincts’ and will situate these ‘specie-specific prerogatives’ within a complex meta-history of biology, power, and temporal contingents. Natural history, for Virno, takes on complex form in relation to sociopolitical configurations (experienced facts) and biological invariants (possibility of experience); with this he utilizes the diagram as a mechanism to identify this complex relation between what he refers to as the ‘just now’ (human nature) and ‘always already’ (biolinguistic capitalism): ‘I call *natural-historical diagrams* the sociopolitical states of affairs that display, in changing and rival forms, some salient features of anthropogenesis. The diagram is a sign that imitates the object to which it refers, meticulously reproducing its structure and the relation between its parts.’ Biolinguistic capitalism is here considered as a key element in the global movement and although Virno does not name it as such, we consider this as a specialized reading on noopolitics as it posits a central concern regarding the organization of intelligence and the mutation of intellect.

In respect to potentiality, the concept of *dynamis* is raised. Virno will address this as a ‘power’ evincing the ability of change. Similar to Patricia Reed (on Agamben) as we will see shortly, he identifies the *dynamis* as a non-presence (absence of presence). In Virno this is related to the ‘not-now’ of an eternal presence. The eternal, as ‘that which displays a high degree of invariance,’ is resistant to social and cultural change; thus it is the faculty of language that modulates the power (*in potentia*) of the non-actual, undefined and indeterminate. Virno further roots potentiality (the

⁷ See: Henri Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness* (London: George Allen & Unwin Ltd., 1910); Walter Benjamin, ‘The Work of Art in the Age of Mechanical Reproduction,’ in *Illuminations*, translated by Harry Zohn (London: Fontana Press, 1992); and Fredric Jameson, *Postmodernism, or the Cultural Logic of Late Capitalism* (Durham: Duke University Press, 1991).

indefinite) in neoteny, the condition of a non-specialized organism that characterizes man. This idea of a continuous, 'uninterrupted learning process' is also found in the Deleuzian distinction between societies of discipline and control. Whereas the former indicates a progression, a passage from one state of capture to the next (from the home, to the school, to the factory, and so forth) the latter indicates recursive movements back and forth between these various modalities of training. Virno takes another step here, however, and it is a step particularly relevant to architecture thinking; whereby he argues that the non-specialized organism is also one that is perpetually 'out-of-place.' The 'human animal,' on this account, has no natural environment (no niche) in which he might insert himself 'with innate expertise once and for all.' In other words, he is an organism without organization. Thus '... our "essential nature" is characterized ... by the absence of a determinate environment, and therefore by an enduring disorientation.' Virno does not speak here of the built environment per se, but it remains possible to interpret his argument in relation to the indeterminate, the open-ended and (seemingly infinitely) modifiable conditions of the cultural environment in which architecture establishes its own diagrams and maps of possible worlds that 'portray the absence of a univocal environment.' In fact, we might suggest that one of the potentials of architecture could here be posited as the power to help make the 'human animal' less indeterminate in this regard, to sculpt through architectural languages the creation of a niche that acts on the neoteny of the human species, offering 'plausible diagrams' of an invariant human nature. Neoteny is also related to neuroplasticity as it opens up the possibility for man to live in multiple domains that are in a state of constant flux; a multiplicity of natural as well as cultural niches of which architecture plays a role in forming. The above comments do not even begin to touch the complexity of the arguments Virno presents in his paper, arguments in which he succinctly takes on the traditional nature/culture divide with respect both to biology and history (not to mention regarding their socio-political interface with modes of capital production).

Giorgio Agamben has made the comparison between an architect and a child, arguing that although the architect has the potential to build (as the poet has the potential to write), he or she also possesses the power to decide 'not' to make a work but instead to maintain that potential in an unused state. The child, on the other hand, does not yet possess such knowledge (praxis), as he or she possesses a 'generic form of potentiality.' Thus, the child must 'suffer an alteration (a becoming other) through learning.'⁸ And, as Neidich will suggest, 'it is this alteration that is at the core of the administration of the pluri-potentiality of the nervous system.' Clearly, language and culture are powerful immaterial forces in sculpting the brain. In 'The Politics of I Can,' Patricia Reed provides a different reading on potentiality; through Agamben she dismantles the longstanding dialectic relation between potential and action. A necessary condition if we are to think noopolitics

in relation to action at a distance as opposed to an actualization, or rather an action manifested in discrete (contiguous rather than continuous) form. Reed points to the importance of 'in-action' in Agamben, writing that: 'It is within potentiality that Agamben finds the basis of life itself, lying in this zone of indistinction where a coincidence of two, seeming opposed systems – the capacity to act and the capacity not to act – meet and produce an unknown, unnamed topology.' Those familiar with Agamben will recognize this as taken from his reading of Aristotle's theory of *dynamis*. Further: 'The zones of indistinction exemplified in the existence of potentiality shift away from the dichotomous disposition of the term in its potential/actual configuration, and point to what Agamben calls "di-polarities," not as substantial but as tensional.' This idea of indistinctness ('the in-between state of potentiality') found in the 'I can' of Agamben is taken further in respect to its ethical dimension with the concept of political equality in a close reading of Jacques Rancière. Here Read identifies the 'sheer contingency' of any sociopolitical system as that which lacks no natural law or order. Thus a social order must be produced and this is what Rancière refers to as 'the police,' a term that, according to Read, denotes 'a particular sensible ordering of bodies, roles, places, identities, and functions.' The police, according to Rancière, allocate ways of 'doing,' of 'being' and 'saying,' it defines an order of the 'visible and sayable.' We are here reminded of Foucault's difficult and enigmatic relation (or non-relation) between the articulable and the visible (between strata of knowledge functioning in relations of power). Or as Deleuze puts it, in Foucault knowledge is defined by 'the combinations of visible and articulable that are unique to each historical formulation'; and as such, 'knowledge is a *practical assemblage*, a *mechanism* of statements and visibilities.'⁹ According to Read, politics (in Rancière) does not derive from the governing of life through rules and regulations, but is 'antagonistic' to these very structures and is linked to the process of 'testing the contingency of equality.' Politics 'happens' as a relational process, its enactment of statements and visibilities demarks the horizon where, one might say, act and potency (action and potential) converge and simultaneously disperse, disseminate, and disappear.

In speaking of potentiality in relation to time, the present, or, as with the above, the 'absence of presence,' the contribution by Boris Groys, 'Comrades of Time,' takes a different tack. In his paper, Groys puts forward an argument on the meaning of the term 'contemporary' in respect to time-based art (primarily in video and cinema). If modernity understood time as productive (stable in respect to a past-future axis) our contemporary time, Groys suggest, would be seen through these filters as unproductive (without historical perspective) 'wasted time.' Looking at this otherwise, as 'excess time,' Groys offers another perspective. If excess time is seen as suspended and delayed, in fact, the postponement of time, 'it is precisely because such a wasted, suspended, non-historical time cannot be accumulated and absorbed by its product that it can be repeated.' Touching on

⁸ Giorgio Agamben, **Potentialities: Collected Essays in Philosophy**, translated by Daniel Heller-Roazen (Stanford: Stanford University Press, 1999).

⁹ Gilles Deleuze, **Foucault**, translated by Seán Hand (Minneapolis: University of Minnesota Press, 1998). Originally published as **Foucault** (Paris: Les Éditions de Minuit, 1986).

Nietzsche's eternal return of the same and Bataille's excess as modernity's (repressive) ideology of progress (both of which are constituted in repetition), Groys points as well to Deleuze's 'literal repetition' as being 'radically artificial' as a means of 'initiating a rupture in the continuity of life by creating a non-historical excess of time through art.' But the author intends to propose a new way of thinking the term contemporary so as to be 'with time' rather than 'in time.' Suggesting that such art 'ceases to be present, to create the effect of presence – but it also ceases to be "in the present," understood as the uniqueness of the here-and-now. Rather, art begins to document a repetitive, indefinite, maybe even infinite present – a present that was always, already there, and can be prolonged into the indefinite future.'

Groys also points to the advent of mass communication networks (Facebook, MySpace, YouTube, Twitter, and so forth) as means of distribution through which 'contemporary art has today become a mass-cultural practice.' Of course, Benjamin posed this similarly with the advent of the media of 'the daily press' in which 'at any moment the reader is ready to turn into the writer.'¹⁰ However, the point here does not hinge on earlier critiques on the status of the author, but on a more contemporary distinction, which Groys reconfigures under the classical terms of *vita activa* (the predilection toward speed and movement as found in the modernist mentality precisely during the conception of film) and *vita contemplative* (with its roots in ancient philosophy, typically understood as a passive spectatorship), whereby he argues that if there is still a society of spectacle today (Debord), 'then it seems to be a spectacle without spectators.' The notion *vita contemplative* here is situated in relation to the spectator who is permanently active. Potentiality here lies in temporal formulations (as location as such is inaccessible) of nomadic movement, which with Virno indicates the absence of univocal actions in the presence of a perpetual stream of stimuli. Time-based art, he concludes, eradicates the distance between the active and the contemplative (time-based art transforms into art-based time).¹¹ This collapse of what we here might refer to respectively as the bios and nous, offers an example of how cultural plasticity operates by creating new modes of intensive temporalities. This point, as well as others raised in Groys might well be read against John Rajchman's contribution, in 'The Noo-Sensorium' section.

The brain has its potentiality embedded into its neuroplasticity and its static living appendages, its neurons, dendrites and synaptic entities as well as its dynamic and oscillatory potentials. As we will see, these are flexible entities and are sculpted and complexified by the world we interact with. This is done in the context of a genetically prescribed unfolding narrative responding to events both inside and outside of our intellectual grasp. Put simply, the neurobiologist Marcus Jacobson defined neural plasticity as a process through which the nervous system adjusts to changes in the internal and external milieus.¹²

Central to this discussion we have included an edited (abridged) version of a seminal paper by Steven Quartz and Terrance Sejnowski, 'The Neural Basis of Cognitive Development' (1997). This paper provides an account of 'neural constructivism' in terms of the 'dynamic interaction between neural growth mechanisms and environmentally derived neural activity.' Quartz and Sejnowski show how this relationship (between neural development and environment) provides for a dynamic and flexible form of learning identified as 'constructive learning.' Their constructivist model posits 'progressive growth' against that of the selectionist model (selective induction) which emphasizes 'regressive mechanisms.' By this they offer a way of understanding the complexity (and interactivity) of the brain as it becomes dependent on the environment as something other than what has been preconditioned or prescriptive (Edelman) by its neurobiological architecture. 'Our view is that the human brain's development is a prolonged period in which environmental structure shapes the brain activity that in turn builds the circuits underlying thought. In place of pre-wired modules, patterned activity builds up increasingly complex circuits, with areas staging their development.' For Quartz and Sejnowski, the environment is understood as active, dynamic and non-stationary. They suggest that while 'most natural systems are only confronted with ecological change, human cognition requires highly flexible and adaptive representations to accommodate both cultural and technological innovations. We see similar issues at work in Virno's paper and Neidich, in his own contribution, finds a middle ground through which to bind Neural Constructivism to Neural Darwinism together as a unified concept with which to explore how are networked environment in its intensity might affect the functional status of the brain's complex rhythmicity.

In his paper 'Metastable Mind,' Scott Kelso offers a reading from the perspective of brain science developed through his studies on what he refers to as 'coordination dynamics.' 'Coordination dynamics deals specifically with *informationally* coupled, self-organizing systems, where information is meaningful and specific to coordination tasks and functions: *functional information*.' Kelso poses that, in disciplines as diverse as physics and philosophy, it appears that thinking sits most comfortably in dualisms and binary (dialectic) oppositions. These contrary states are easily grasped by the structural logics contained in most epistemological systems. Much harder to grasp, Kelso suggests, is the notion that 'contraries are complementary.' Kelso puts forward the model of 'metastability' as, among other things, a new conception of brain organization; one that reduces hierarchical couplings between 'the parts of a complex system while allowing them to retain their individuality.' A theory that allows for both local ('segregative') and global ('interactive') processes to coexist as opposed to conflict. It is not possible to recount the scientific basis and nuances of his specific argument here; however, it is important to note that in many ways this argument accounts for an understanding of brain functions in a manner that contributes much to the Deleuzian account of a 'difference that makes a difference.' Particularly relevant in this regard would be the

¹⁰ Benjamin, 'The Work of Art in the Age of Mechanical Reproduction,' 224.

¹¹ In his contribution, Groys also deliberates on the distinction between what Marshall McLuhan termed 'hot and cool' media. In so doing he offers a twist to how the Internet (and other such hyper-media) might be situated in terms of a new form of 'cool contemplation,' which could be read against Andreas Angelidakis' contribution in the third section of this volume.

¹² Marcus Jacobson, *Developmental Neurobiology* (New York: Plenum Press, 1991), 26.

manner in which Kelso discusses time (dwell time and phase dynamics) in terms of persistence, distribution, and destabilizations that intricately ‘switch,’ or in the terms offered above, we might say modulate. As Kelso has written elsewhere, metastable coordination dynamics ‘also rationalizes William James’s beautiful metaphor of the stream of consciousness as the flight of a bird whose life journey consists of “perchings” ... and “flights” ... Both tendencies appear to be crucial: the former to summon and create thoughts, the latter to release individual brain areas to participate in other acts of cognition, emotion and action.’¹³

Epigenic Reconfigurations If plasticity can be understood as a state of having multiple possibilities, epigenesis is here understood in broad terms as the process through which select possibilities are made stable within a given context. Put otherwise, if plasticity is generally understood as an underlying property of the brain, epigenesis constitutes the process through which this property is reconfigured. Following, for instance, Gerald Edelman, the brain that one is born with, with its neural plastic potential, may become sculpted through a process of ‘neuronal group selection’ by existing environmental contingencies. Parallel to this, yet from a different perspective, as we saw above with Quartz and Sejnowski, is the ‘neural constructivist’ approach. Both of which delineate the ways and means by which neural biological matter might be organized through epigenesis by the man-made milieu (meaning nature is open, possessing varied biological propensities).

In other words, if the previous section concerned the conditions of the brain and mind at birth as a reservoir of potential; this section addresses a becoming brain that can through the forces of epigenesis be sculpted by the world. Here we deliberate on a world transformed from one of a natural kind to that of a cultural kind. Of course, culture is continuously transforming; and both philosophy and architecture mirror and engender many of these changes.

In thinking on the effects of the environment on the brain, Bruce Wexler, in ‘Shaping the Environments that Shape our Brains: A Long Term Perspective,’ offers a scientific contribution that is equally accessible by the more theory-situated reader. Sensory input provided by the environment (cultural and biological) generate complex ensembles of systems and functions that form brain and human activity. ‘Psychological processes and cognitive operations like perception, memory and thinking are properties of these ensembles and functional systems.’ Information, how it is processed and stored in culture through dynamic distributions of artifacts and institutions, takes on an importance equal to, if not greater than (at least in terms of rapidity, incrementality, and variability) biological processes stored in stable sequences (such as DNA molecules). Neuroplasticity, accordingly, provides a key function with respect to the evolution of the human brain both within an individual lifetime and during the evolution of the species over time. The potential of neuroplasticity (and the neurochemical mechanisms that

support it) also indicates the adaptive function of neurons to supplement selective processes (for instance the rerouting of visual with auditory input in the auditory cortex). Taken to an extreme, in aesthetic theory, this phenomenon is related to what is referred to as synesthesia. Wexler will, however, focus more closely on the human rearing environment in order to make his claims about the significance of cultural environments, in other words, the influences of a more localized environment on the evolution of human behavior as man incorporates, transforms, and extends his modalities of thinking and doing. Thus within a neuroscientific perspective we should grasp that ‘environment-induced neural activation shapes brain development to be consistent with the largely human-made environment.’ Here we are speaking directly of the matter that makes up the human sociocultural environment – music, architecture, art, media, and language, as well as political, social, and cultural institutions.

In addressing the emergence of cities, Wexler identifies ‘population density, increased leisure, role specialization and increasingly complex social organization’ as critical factors that fundamentally altered relationships between people and the physical environment (significantly altering the ‘rearing environment’ so crucial to the evolutionary capacity of the brain). He also points to the powerful shift that took place due to the advent of symbolic systems, which extended human memory and broke down the barrier between internal states and external manifestations of those states. Foucault, too, had pointed to the moment where life was introduced into history as the moment that economy, originally understood as the governing of families, and politics, or the governing of peoples, became intertwined forming new *dispositifs* of bio-power.¹⁴ And although he does not speak on this directly, Wexler also points to commerce as an influence that allows new forms of highly stable communities to emerge. In urban studies, for instance, against the long-held perspective that finds cities emerging out of the shift from hunter-gatherer communities to the cultivation of agrarian societies – primarily a Marxist archeology approach arguing the impact of (agricultural) surplus value (in V. Gordon Childe, for instance) – there are also those who find the development of nomadic migration and trade routes to be the critical factor in the formulation of cities (Jane Jacobs, for instance). In other words, cities do not emerge only as an agglomeration of their natural surroundings, but are a product of networks of complex resources and activities by which we understand a dynamics of mobility as highly relevant to the generation of constellations of exchange (economic, social, cultural, and political). Later developments (whether artisanal, manufacturing, industrial, or post-industrial) only served to establish cities as more intensified seats of material and immaterial production further extending the complexities of these networks of organization. Of course, this very schematic sketch does nothing to explain the more significant relationship between the formation of cities and formulation of societies. But, it is possible that there remain insights into these histories as they relate to the evolutions (and revolutions) of urban models through the filters of cognitive architecture.

¹³ In Kelso ‘perchings’ are viewed as ‘phase gathering, integrative tendencies,’ while ‘flights’ are understood as ‘phase scattering, segregative tendencies.’ See: J.A. Scott Kelso, ‘An Essay on Understanding the Mind,’ *Ecological Psychology*, 20:2 (2008): 180-208.

¹⁴ See: Maurizio Lazzarato, ‘From Biopower to Biopolitics,’ *Tailoring Biotechnologies 2* (2006): 11-20.

Regarding the general concerns of this section, it must be said that questions pertaining to the brain – its function, structure, relation to cognition and, of course, mind – are as old as philosophy itself. And if epigenesis can be broadly understood as the unfolding development in an organism, we have also taken this to indicate the unfolding of developments (specific histories) in thinking about matters of brain and as situated within certain philosophical, psychological, and neuroscientific perspectives on such things as cognition, mind, intellect, and self.

For instance, John Protevi, engages intricately with Wexler's work, here specifically his book *Brain and Culture*. In 'Deleuze and Wexler: Thinking Brain, Body, and Affect in Social Context,' Protevi provides a reading of Wexler in relation to the '4EA' approach (embodied, embedded, enactive, extended, affective). However, the primary focus of this contribution is to extend Wexler's arguments within the philosophical framework (thought models) of Gilles Deleuze. Protevi's focus is on three areas or conceptual underpinnings, which he finds particularly relevant to the concerns of this volume: 'an ontology of distributed and differential systems' as found in the notion of the virtual; the idea of 'multiple subjectification practices,' as opposed to an abstracted subject ('the' subject) as typically addressed in 'embodied mind' theories; and a recasting of the notion of affect into a thematizing of 'political affect.' The three are, of course, interwoven into the text; thus the entire paper can be read as a 'radical relationality' – a term Protevi utilizes in describing Wexler's work.

Much like Protevi, Charles Wolfe has also developed a highly specialized argument on the brain, which he points to as the 'social turn' in the past one to two decades in, for instance, theories of cognition. In 'From Spinoza to the Socialist Cortex: Steps Toward the Social Brain,' Wolfe traces a specific philosophical history of the brain that runs seamlessly through a network of relations from Spinoza and Marx to early Soviet neuropsychologists Lev Vygotsky and Alexander Luria, to the more recent European philosophies of Deleuze, Virno, and Toni Negri. In Wolfe this trajectory situates thinking regarding the brain within its sociopolitical framework and naturalistic aspects of development (forming a unique materialist perspective), which the author will describe as the 'Spinozist Brain.' The author briefly addresses the idea of an individual or individuated subject, but his focus is not the importance of inter-relationality between persons in a collective or 'common' environment. Communication on this account is not merely the transferring of information, but what would be understood as the 'affective dimension' of communication. Throughout this reading we are led to understand that the social (sociability) qualities of our mental being are considered a fundamental property of the brain. 'Exactly as a contemporary practitioner of "social" or "affective" neuroscience might have it,' Wolfe writes, 'the passions are not properties of an essential human nature, or an isolated individual, but rather of a relational spectrum between a plurality of individuals. Instead of Descartes' *cogito ergo sum*, Spinoza says *homo cogitat*, "man

thinks": there is no foundational self, but always a process – a network.' This is reminiscent of Bergson's formulation that 'consciousness *is*' as set against the Husserlian formulation that consciousness is always 'consciousness *of* something.' In other words, as Spinoza does not require an internal correlate (in the form of 'I') neither does Bergson require an external correlate (in the form of a 'thing.'). These are externalist and relational concepts, which Wolfe will develop in some depth.

In 'Other Minds, Other Brains, Other Worlds,' Patrick Healy delivers an erudite reading of ancient discourses surrounding debates on mind and world primarily through the problem of language (speech) in relation to cognitive functions as they pose an account of intelligibility. He begins with an account of Merleau-Ponty's analysis of the structure of behavior which, he argues, provides an account of the ontological claims of understanding man's fundamental engagement with the problem of meaning as something other than functionally embedded codes and operational significations: 'Expression does not mirror an already given order,' Healy writes, 'but shapes and creates even as it is situated in the complex field of relations which are meaning-laden.' Healy argues that the philosophy of expression should be read – against methodological behaviorism and neo-Darwinian functionalism – as having direct implications for understanding the organization of the human nervous system. Healy further argues that, man is not defined by 'his capacity to create a second nature, economic, social or cultural – beyond biological nature, it is rather the capacity of going beyond created structures in order to create others.'

The real work of this contribution turns on Healy's Socratic reflections (and pre-Socratic thinking) as he carries the reader along a dialogic journey through a greatly neglected set of literary sources disclosing a complex history of thinking on the problem of thinking ('thinkery'). Living, dynamic speech and public enactment here open a different reading of nature and meaning in the Ancients. 'Talking is the searching murmur, the obscure enactment of ontic difference. It moves in difference, and remains open simply through its own activity.' Thus, against the reproduction of the already given, speech produces 'excess' (indeterminate, ambiguous), required for innovative production.

The papers in this section all, in one manner or another, open up questions on the formulation of self and in 'Designing the Lifeworld: Selfhood and Architecture from a Critical Neuroscience Perspective,' the authors, Lukas Ebensperger, Suparna Choudhury and Jan Slaby, address architecture in relation to ontologically driven formations of selfhood: 'architecture as an object (*objectum*) that materially opposes us, us as beings that are subjects – plastic, mimetic beings that are *sub-jected* to the structures imposed by architecture.' The authors sketch two contrasting models that have served to configure our possible experience of architecture. The first, being the

imposition of a geometric idealization of space that afforded all objects a location (measureable, fixed, controllable), whereby location becomes an ‘external property, projected onto and defined via a system of coordinates’ – the ‘geometric-mathematical predetermination of ontology.’ The second, being the phenomenological perspective that develops notions of space and time as directly derived from experience – with all its (internalized) quotidian practices. The point of this paper, however, is not to trace well-known perspectives on theories of architecture, but to examine how such empirical fascinations and ontologically driven matters contribute to our experience (not merely our understanding) of architecture as it relates to the formulation of selfhood. A question that remains central to many urban theorists as well. Architecture, the authors suggest, ‘shapes our existential-space, out of which we formulate our self-understanding’ – a proposition that they develop in some depth throughout the paper.

Importantly, Ebensperger, Choudhury and Slaby also point to studies in architecture and design that have leaned heavily on principles of environmental behaviorism, empirical and psychological studies, they suggest, which have no need to lean on the sciences that study the brain. Thus, they posit the question, why does the brain matter? Although they do not develop this observation, I have noted it here as it points to an earlier interest (ca. 1970s) in architecture and urban research that sought to illicit so-called positive behaviors of people(s) as a legitimate domain of design practice. Social engineering (planning practices similar to those discussed in Lazzarato, Tarde, Foucault, and Lefebvre, among others), hegemonic exertions, in fact, of what constituted a ‘good society.’ In relation to our concerns here, this can be seen as an example of a practice that sought to capture and reproduce (through biopolitical means) a homogeneous and well ‘disciplined’ society. However, the most insightful critique on architecture and urban practice launched by this trio warns that current discourses and practices adopting a ‘neuroarchitecture’ label tend to ‘prioritize ‘biologistic- and neuronally-reductionist descriptions’ of subject/object ontologies. Focusing on the ANFA (Academy of Neuroscience for Architecture), they suggest that there is danger in placing too much faith in neuroscience as a foundational approach to architecture as it validates the speculative claim that neuroscience has a privileged access to human nature. In other words, according to the authors, these (too facile) approaches somehow conflate ‘selfhood’ and ‘brainhood.’ We, too, believe in remaining wary of disciplines that install a technoscientific (‘reifying and objectifying’), or positivist outlook on the ‘quest for a satisfactory formulation of selfhood’; which, the authors of ‘Designing the Lifeworld’ contend, ‘remains at the core of every existentially relevant philosophy.’

Administering Attention Language and culture are powerful immaterial and material forces in the sculpting and administration of both experience and cognitive responses. Lazzarato identifies memory and attention as the key

components in understanding how noopower exerts force in societies of control. Here we find that it is the incorporeal dimension of bodies that are now fixed in the crosshairs of the forces (acting on forces) of our contemporary life-world.

We might also consider how institutions and organizations concerned with the exertion of power deploy means (in tertiary economies) to hype up selective nodes of information that accentuate administrative power over not only attention and memory, but also desire. Of course there is also a well-instantiated practice that puts these theories to work, I am speaking naturally of what is currently understood as the ‘attention economy.’ Consider, for instance, how commodities are now linked together as branded networks that intensify their desired quotient. The so-called ‘global market place’ now generates powerful and complex networks of attention that further define both political and aesthetic regimes.

And yet, equally, we can no longer speak solely within the rubrics of immaterial labor, and neither within that of the so-called ‘general intellect.’ Perhaps from the neuroscience perspective, with Kelso: ‘Active, dynamic processes like “perceiving,” “attending,” “remembering,” and “deciding,” that are associated with the word *thinking* are not restricted to particular brain locations but rather emerge as patterns of interaction among widely distributed neural ensembles and in general between human beings and their worlds.’¹⁵

Throughout this section we find discussions on attention framed within terms relating to the principle of motion/rest and time-space: dynamic processes, static states, properties, qualities, successions, simultaneities, hesitations, tendencies, intensities, potentials, propensities, etcetera. Of course, the reader will recognize the direction this very partial lexicon begins to take, although the meaning of terms (any term whatsoever) is in itself not what is relevant here. The point to be made is the importance of the relationality (perhaps, ‘radical relationality’) such terms articulate with respect to spatiotemporal predicates and organizations. For instance, Keller Easterling, in her paper ‘Disposition’ (another such term), unfolds a multiplicity of relations between the active form and inactive potential of this highly nuanced term. Disposition, she suggests, ‘locates activity, not in movement, but in relationship or relative position,’ in other words, it is ‘a relationship of potentials.’ This discourse implicates modes of change, and for our purposes here we might also say that it acts through (differential) modulations of perception, habit, memory and attention. Noopolitics, Easterling suggests, can be found in ‘interior virtual territory as well as exterior physical territory. For instance, ideation and habit of mind project scripts onto the urban sphere, and the interactions between these scripts and urban infrastructures gradually author the city.’ The author carries this discussion through the work of such thinkers as Gilbert Ryle, Bruno Latour and Gregory Bateson. ‘Ryle describes disposition as a latent or inherent property of both materials and intentions, Latour retools social science techniques to account for the ever-unfolding

dispositional nature of sociotechnical networks. Bateson, perhaps most overtly landing in the noopolitical territory, posited the cybernetic model as a means to create equilibrium amid violent tensions in the mind, the group and the larger political scene.' In Bateson, disposition is a behavioral property inherent in groups. Although Easterling does not take up a direct discussion on attention per se, her paper turns on a similar leaning-towards, or being drawn-to, of both active and inactive forms and forces within the contemporary spatiotemporal 'scripting' of noopolitical organizations.

As Easterling, a practicing architect and theorist, provides an account of disposition in loose relation to variant activities potentially enacted upon the city, so too does Elie During, a philosopher, provide an account of certain spatiotemporal conditions impacting contemporary forms of life and living in contemporary cities. In 'Loose Coexistence: Technologies of Attention in the Age of the Post-Metropolis,' During suggests that new technologies of information and communication have erupted into new and unprecedented regimes of attention, which in turn generate new forms of spatiotemporal organizations inseparable from those affecting contemporary urban life. Of course the 'post'-metropolis expands on early theories of the metropolis as found in the writings of such thinkers as Simmel, Kracauer, and Benjamin as well as figures such as Baudelaire's *flâneur*. The author points to various themes that emerged due to the conditions of the early metropolis, such as 'shock,' 'fragmentation,' 'hyperstimulation,' and 'disassociation.' During recognizes this as a pathology commonly attributed to those who dwell in large urban centers and likened often to 'sheer neurasthenia,' he notes Simmel's correlation between 'hyperesthesia and latitude,' resulting in some cases as a 'dulling of sensitive skills.' It is easily imaginable that each reader of this volume will have his or her own associative memories paralleling these critiques of almost one hundred years ago.

However, the focus of this paper does not linger in the past, as the author turns his attention to the mechanisms such conditions trigger within man's perceptive skills, developing means with which to process the affects of such things on overstimulation within a regime of attention and its necessary correlate, inattention. The term 'distraction' here has become the catch phrase for all the misgivings associated with technologies of information and communication – from broadcasting to telecommunications, Internet interfaces and digital devices in all their major and minor keys. But During suggest that new forms of distributed attention (as neither 'scattered' nor 'diffused'), 'better suits the new figure of the *flâneur* emerging from the context of ubiquitous technologies.' Clearly, the spatiotemporal logic of these new environments, whether in the screen space of our personal computers or maneuvering the city, needs to be thought on new terrain. In so doing the author argues convincingly that discourses that overemphasize the nature of speed – immediacy of forces acting on mental states and perceptual awareness –

have distorted concepts of coexistence and simultaneity, now an issue of some importance for both theories and practices concerned with spatial and temporal interconnectedness. During argues that there is no such thing as instantaneous action at a distance, not, that is, for living, embodied subjects. That it is not only a sense of connectedness, that our hyper-networked era achieves, but equally produces 'specific forms of desynchronization and disconnection.' Attention then becomes a matter of an individual's ability to organize her own dispersion. Notions such as split attention and distributed attention, rather than distraction, better estimate the 'polyphonic immersion' of the contemporary subject within the material and immaterial fabric and forces of coexistence within urban life and urban form.

Theories on the urban today turn as equally on the concept of dynamic action as the idea of static form. In fact, while most contributions to this volume have implicitly taken on the task of thinking toward what we refer to as cognitive architecture, in Blackman and Harbord we find explicit articulation on one of its possible contours. In 'Technologies of mediation and the affective,' Lisa Blackman and Jane Harbord discuss attention, or the remaking of attention, within 'the paradigm of co-enaction, co-constitution and co-evolution,' within the relation between actors and agents and the built environments that they both populate and invent. Addressing new technologies of information and communication the authors point to the rising development of so-called media cities – dedicated developments 'more precise and precisely designed than the global city and more tactile and fluid than the modernist city' – explored through a case-study of MediacityUK. The authors suggest that through the entangling of both ambient communication and digital technologies the *place* in a media city is at once virtual and actual, which leads them to investigate the distinction between the concepts of media and mediation. The latter possesses virtual potential, and more directly suggests informational processes and better identifies somatic experiences in affective as well as cognitive relations. As with During, Blackman and Harbord point to the problem of attention as arising in the late nineteenth century 'tied to the problem of how a subject maintains a coherent and practical sense of the world' (here citing Jonathan Crary). Yet the notion on which this paper critically turns is that of memory, which the authors develop extensively in such terms as trans-subjective, co-enacted, co-emergent, and post-memory. The dynamic transmission of memory is more *affective* than cognitive, and it is through the discussion on memory, the authors argue, that it is possible to 'consider questions of affect, bodies' and the task of 're-thinking and re-modeling sensation, perception, memory, attention, listening, and emotion – what we understand as cognitive architecture.'

Henri Bergson once wrote that the brain does not so much have thinking as its primary function, 'but that of hindering the thought from becoming lost in dream,' and as such the brain is seen as

‘the organ of *attention to life*.’¹⁶ The state of dreaming, like that of distraction as discussed in *During*, also has another interpretation when read directly from a cognitive neuroscience perspective. As the title indicates, in ‘The Industrious Subject: Cognitive Neuroscience’s Reevaluation of Rest’ the authors, Felicity Callard and Daniel Margulies, will explore the other side of attention, that is, what happens in the mind when it is in a so-called state of ‘rest.’ True to the aims of this volume, the authors begin by situating their own highly specialized concerns within a broader theoretical context. Sketching upon well-founded discourse regarding the knowledge economy (knowledge commodity *pace* Harvey), and following Virno’s account of post-Fordism as it eradicates all distinction between labor and non-labor time, the authors write: ‘Labor-time now draws upon, indeed depends upon, the life of the mind.’ But the work of these authors is not to reiterate theories founded in philosophy, the social sciences and such, in fact they issue a small (albeit respectful) challenge to move beyond ‘generic abstractions’ in an attempt to ‘explicate the history and scope of terms and constructs that indicate humans’ “cognitive capacities.”” Thus, under the ‘rubric of cognitive productivity,’ they open the discussion (within the framework of neuroscience) on the brain during ‘activation’ versus when at ‘rest.’ With this we are led to understand that, here too, such distinctions remain perched upon a certain valorization of assiduousness over idleness. Even daydreaming, distraction, and the pale thoughts that accompany idle imagination, it seems, cannot escape attempts to be harnessed by capitalism’s modes of production (a point similarly taken up in the final section).

Callard and Margulies deliver a faceted and succinct genealogy of ‘rest state’ research as it emerged in debates surrounding the cognitive neurosciences over the past decade, suggesting that the studies on ‘rest’ have now developed their vocabulary so significantly that they are ‘primed for a neuroscientific reframing of inner mental life.’ The careful steps taken by these authors need not be summarized here. But I would like to highlight a few key points. First, the authors convincingly argue that resting state research has significant implications for advancing our theoretical understandings of self and subjectivity. For instance, they show how research in cognitive psychology re-conceptualized understandings of the default mode, leading to hypotheses on such things as the ‘future-oriented’ nature of the resting brain, the importance of ‘stimulus independent,’ ‘mind wandering’ and ‘*Self-related processing, episodic memory, social cognition, and sense of agency*.’ The default mode function subsumed in what would emerge as a default mode network. Inattention, it seems, may indeed be very creative (as Virno too has suggested), certainly it needs to be reconsidered on new grounds. The authors suggest that the research carried out, advancing understanding of ‘rest,’ also points to a possible reorientation of thought models within the humanities and social sciences in theorizing a notion of self in respect to non-purposeful (non-deliberate) activity. They write: ‘It is our contention that through the reconfiguration of

rest, the resting brain has been territorialized: it is conceptualized and materialized as a matrix that is constituted as perpetually productive, as intrinsically creative, and as thrown toward the future.’ This further extrapolates to possible reconfigurations of our understanding of memory. Through such things as ‘mind wandering,’ daydreaming, or the otherwise heretofore perceived ‘aimless’ journeys of the mind, memories themselves become created. Memories are not memories of perceptions, or mere recollections of events; their purpose may well be, ‘less for leisured reminiscing ... and more as a knowledge-base that guides our lives in an increasingly formed manner’ (authors here citing William James). We are no longer in the domain of Proust’s *mémoire involuntaire*; but, I would like to suggest perhaps still in that of Bergson’s *mémoire pure* with its intimate relation to the present.¹⁷

The modernist tendency to see distraction, absentmindedness and the like as opposed to attention is suffuse, and as *During* also shows, today this opposition very much still holds. However, we also now find that ‘network brain activity “at rest” is mapped on to the psychological category of attention, such that attention’s opposite no longer exists.’ Yet, concerns over capitalism’s desire to harness all forms of creativity in cognitive capital might give us pause. And the authors, too, raise the concern that ‘uncovering the mystery of the resting state might also be the moment in which its mystery is colonized.’ And in conclusion the authors remind us that ‘resting-state research demands exploring whether such research contributes to the bolstering or to the degradation of the creative capabilities of human subjects.’ It is impossible not to agree with the authors when they suggest that their colleagues in the humanities and social sciences might well have something here to learn

The Noo-Sensorium The implications of questions on the nature of such things as sensation, affect, perception, memory, and experience may once have sat comfortably in the categories of vitalist and aesthetic philosophy, yet today they extend to the neurosciences and economic and political theory as well. This section was earlier titled ‘the governing of the senses’ – owing to ‘the distribution of the Sensible’ following Rancière, whereby politics and arts construct ‘material rearrangements of signs and images’ producing real effects that define ‘variations of sensible intensities, perceptions and the abilities of bodies.’¹⁸ However, once the issue of individuality and commonality are set against notions of the bios and nous in all their permutations, matters of materiality come under fire affecting the logics of perception and experience. As with the section on plasticity, the capacity of art and architecture to generate new modes of temporalities is crucial to understanding what we here term the ‘noo-sensorium.’ Here we are no longer dealing with the sensorium as the sum of perception seated in sensation and focused on space or the relation to objects (visual or haptic), nor on traditional modes of aesthetic representation. Time now becomes the horizon on which the contours of perception, experience, memory, and sensation are traced.

¹⁶ Henri Bergson, *The Creative Mind*, trans. Mabelle L. Andison (New York: Carol Publishing, 1992 [1941]), 74.

¹⁷ I have addressed Benjamin’s account of Bergson and Proust in: ‘The Past which Is: The Present that Was,’ in *Cities in Transition*, ed. D. Hauptmann (Rotterdam: O10 Publishers, 2000).

¹⁸ Jacques Rancière, *The Politics of Aesthetics* (New York: Continuum, 2004).

Time-technologies as apparatuses and social machines reconstitute sensibilia through both affective and intellectual processes. We wish to consider not only the processing of data (immediate and mediated) in relation to the body (active/reactive), as such, but also the processing of data within a mind that is increasingly directed toward the future (active/prognosticating).

This was touched upon in the description of Callard and Margulies above, in referring to the way we now construct memories during states of ‘rest’ – not memories *of* perceptions, but memories *forming* perceptions. Or, as one neuropsychologist has put it: ‘To conjure up an internal representation of the future, the brain must have an ability to take certain elements of prior experience and reconfigure them in a way that in its totality does not correspond to any actual past experience. The ability to manipulate and recombine internal representation critically depends on the prefrontal cortex and the emergence of this ability parallels the evolution of the frontal lobes.’¹⁹

David Cronenberg’s 1999 film *eXistenZ* mapped the new technologies of information and communication upon biotechnologies giving us a futuristic projection of an intensive virtuality immersed in a fully sensorial environment. This *novum*, ‘the interface of the human psyche with bioelectronic devices, is a sort of analogue to Freud’s notion of drive (*Trieb*) ... conceived as an entity bridging the mental and the somatic, the interface of mind and body,’ producing, in fact, a ‘psychic reality.’²⁰ If *eXistenZ* can be seen as an example of a cultural *bio*-imaginary, then the more recent example of Christopher Nolan’s 2010 film *Inception* exemplifies the current *noo*-imaginary. *Inception* conceives of neuro-technologies capable of remapping minds within minds, dream convergences, constructions of perceptual and sensorial realities within a scripted landscape of neuroarchitecture, leading ultimately to the fabrication of memory. The concept of minds acting on minds (action at a distance) resonates. One final distinction remains relevant. While *eXistenZ* takes its impetus from virtual models of gaming (play), *Inception* projects a new form of corporate espionage and thus situates directly upon noopower in the *dispositif* of cognitive capitalism.

These examples only serve as a glimmer to indicate the cultural imaginary at work. The real work of cinematic analysis, the theories and arguments to help us conceive and understand the noo-sensorium, are seen in the first two contributions to this section.

We have opted to include John Rajchman’s well-known paper, ‘Deleuze’s Time, or How the Cinematic Changes Our Idea of Art.’ This contribution begins with a reminder that there are times when our thoughts and ideas can no longer be held in old thought models, when new constellations arise in which ‘upheavals in sensibilities’ call for an entirely ‘new image of thought,’²¹ and in taking up his work on cinema Deleuze sought to address mutations occurring in society in relation

to images, to space and time, and pace. Time, as During too points out, that no longer can be grasped as succession; space no longer held by simultaneity. Memory too, will come under reconsideration as something other, something more, than mere recollection or the draw toward remembrance. Though we do not here see the disposition to the future as discussed just above, there is a multivalent present. In Rajchman’s rendering of Deleuze, sensibilia, refracted through Kant, become freed from schematic links to understanding, releasing them to artistic ‘experimentation or invention.’ Of course, for Deleuze there is a meaningful correlation between the terms experiment and experience.

Cinematic sensibilia emerge from the problematic relation between psychology and the image; ‘images’ here are not understood as inner representations located or held in our brains or minds, they are related instead to the new questions explored in neurology and psychology. And as Deleuze’s work on cinema left off in the mid-1980s, the question of how to extend his thinking further in light of new developments remains one that Rajchman takes up in discussion on the visual arts. Architecture here comes into play as new spatiotemporal experiences of movement within time-images: ‘The cinema hall or gallery is “architecture”, just when architecture itself is seen in terms of a given *dispositif* – the darkened room itself deriving from a theatrical *dispositive* transformed by opera, the first modern mass form.’ The above reference to Benjamin on the manner in which technologies and media of mass production transform our very possibilities of experience is fundamental here. But the comparison runs deep, for we are not merely addressing transformations affecting architecture, cinema and art; but shifts within sensorial registers that are not yet internalized in human perception. Jameson’s appraisal of architecture (inaccessible to perception) reverberates. Rajchman points too a problem with respect to the audience, a problem which ‘Deleuze associates a problem with “thinking with cinema” – and, in a singular way, thinking with time-image cinema – is that the “the people are missing”; they must yet be invented along with making the film itself.’ So too was the conclusion of Benjamin on the public’s lack of resonance with lyric poetry in one of his masterworks on Baudelaire.²²

Thus we might say that the noo-sensorium as we are here conceiving it, much like the time horizon it reflects, is always receding before our grasp. Ina Blom also addresses memory, thinking, and the image – the transformative aspect of art as a means to ‘govern the senses.’ In ‘Spectacle versus Cinematic Sociality: Art and the New Media Architecture,’ she does not explore the image as

¹⁹ Elkhonon Goldberg, **The Executive Brain: Frontal Lobes and the Civilized Mind** (Cambridge, MA: Oxford University Press, 2001), 25.

²⁰ Teresa de Lauretis, ‘Becoming Inorganic,’ **Critical Inquiry** (Summer 2003): 547.

²¹ This ‘new image of thought’ is that which Deleuze and Guattari have termed noology. See, for instance, the section ‘Treatise on Nomadology – The War Machine’ in **A Thousand Plateaus**, where they write: ‘Problem II. Is there a way to extricate thought from the State model? Proposition IV. The exteriority of the war machine is attested to, finally, by noology.’

²² Walter Benjamin, ‘Some Motifs in Baudelaire’ in **Charles Baudelaire, a lyric poet in the era of high capitalism**, (New York: Verso, [1939] 1997). ‘Baudelaire envisaged readers to whom the reading of lyric poetry would present difficulties... if conditions for a positive reception of lyric poetry have become less favorable, it is reasonable to assume that only in rare instances is lyric poetry in rapport with the experience of its readers. This may be due to the change in structure of their experience.’

such, but instead the rejection, the eradication of the image within certain artistic inventions/interventions. Ruptures in time, refusals to capture attention, a refusal at the very site where media imagery is said to confront and shape subjects.

Questioning how media interacts with and challenges ‘the conditions for collective creation under an advanced capitalism that engages not just working bodies, but the entire human sensory apparatus – including our capacity for perception, cognition, and thinking.’ Guy Debord’s *Hurlements en faveur de Sade* (1952), an early critique on spectacle – interrogating what had begun to be seen as a radical shift in the structuring of temporalities of individual and social memory, and Tobias Rehberger’s *8r Years* (2002), a prolonged yet a-temporal event – contains infinitesimal whisperings on the chromo-luminescence logic of the senses. These are two examples the author cites as ‘rejections of imagery,’ each attesting to ‘different understandings of the way in which media interact with human perception, and the social and political implications of this interaction.’

Blom suggest that in these works, although they are radically different, we see less of a concern for the ‘production of images and forms than in an interventionist of engagement with the forces that structure our everyday life.’ Many readers will recognize Debord’s social critique of mass media by what would become his moniker – the ‘society of spectacle.’ Here we understand life as no longer authentically lived, but merely sustained through endless representations. Similarly, Rajchman points out that one of Deleuze’s projects was to reinstall ‘life’ in place of the subject or ‘self.’ The spectacle as such structures time and reorganizes memory (a theme we now recognize in many contributions herein). Estrangement in the ‘world picture’ is intensified in the ‘image-world.’ However, if the former, in Heidegger, spoke to an externalization – we cannot enter the picture, but must observe it from the outside; the latter, in Blom’s reading of Debord, speaks to an internalization – we cannot escape the concentration of the gaze, the continuous flow of images that ‘capture both eye and mind, man’s ‘entire cognitive and sensorial apparatus.’

As one might imagine with half a century separating Debord and Rehberger’s works, Rehberger’s reduction of experience works differently. In fact, the author suggests, *8r Years* even seems to pass beside the paradigm of ‘watching’ ... as the ‘nothing to see’ derives here not from the lack of visual events, [but] from the sheer duration of a piece’ that cannot be held within the span of human attention. Time out of joint, indeed. Images, here not as a ‘phenomenon that springs out of subjective imagination,’ but as ‘autonomous material instances’: streams of light and the flow of signals, not meanings. Signalitic material ‘registering a sensation of movement that is impossible for natural perception,’ and yet, producing new ‘sensorial and perceptual effects.’ Blom exemplifies this further with a turn to architecture, or more precisely, an intimate spatiotemporal exchange between a film and a set (not the film-set) by Philippe Parreno and Francois Roche respectively. What the reader will find in her rendering of this work – entitled *Hybrid*

Muscle by the architect and *The Boy from Mars* by the film-maker – is the permeability of succession with simultaneity, two perfectly reiterative material durations. An opening onto ‘time-in-general [is] a form of radical temporalization,’ as Blom suggests, ‘whose only real correlate is the “sense of time” produced in the human brain.’ We might understand this as an example of the permeability between matter and time, between the senses and their new modes of experience as located in the contours of the noo-sensorium. I would like to further recall Benjamin’s conception of the aura as ‘the unique phenomenon of a distance, however close it may be,’ so that today, in the light of our contemporary technology, we might rethink this as the unique consciousness of proximity, however distant it may be.

In his contribution, Jordan Crandall exposes a different reading of proximity and distance, of coordinates (co-ordinations) of spatiotemporal and cognitive-sensorial events. In ‘Movement, Agency, and Sensing: A Performative Theory of the Event,’ Crandall provides us with a virtual lexicon of the terms and conditions within which both human and machinic agency interact, interoperate, inter-immense. A Borgesian taxonomy on technologies of information: networks of networks within networks. Through techniques of tracking, of tracing (codifications of movements), cartographies of surveillance, data-mining, (locationing of agential articulation), sensors, processors, and filters (‘centers of indetermination’), the author unfolds a new continent in thinking the agent as the actor. Or, perhaps I should speak rather of *an* actor in following Deleuze in his conceptualization of ‘a life’ as ‘expressing singularities or events that coexist with the accidents of *the* life that corresponds to it.’²³

There is something at once inhuman and vital²⁴ in Crandall’s reading of agency, of apparatuses and prosthetic devices of extension that both expand and contract human and non-human perception and action into realms that even the imagination is just able to touch. The sensorium in Crandall is related to something other, something much more, than (mere) sensory faculties of animate bodies. Charles Wolfe, in his paper, reminds us that ontology makes no clear-cut distinction between the natural and artificial. And his account of agency in Negri (which he cites as ‘inseparable from ... the “set of prostheses”’), as well as that of ‘scaffolding’ (*pace* Clark among others) could be instructively read in relation to Crandall. Of course, the human body itself ‘can already be understood as a distribution system ... in the case of these distributed cognitive systems, the human is one kind of actor among many others.’ A body, in Deleuze, much like the agent in Crandall, can be most anything; it can be an animal, a body of sounds, a linguistic corpus, a social body; yet, a body must be defined as a unity of parts, parts held together relationally and having a capacity to affect and be affected both internally and externally. But in all the bodies and their actions and interpenetrations, which Deleuze sometimes calls resonance and interference,

²³ Gilles Deleuze, *Two Regimes of Madness* (New York: Semiotext(e) (Foreign Agents Series), 2007), 391. From the essay entitled ‘Immanence: a Life.’ The above excerpt continues with: ‘... but they are not arranged and distributed in the same way. They relate to one another in a completely different way than individuals do. It even seems that a singular life can do without any individuality at all, even without any of the concomitants that individualize it.’ I include this here as a rendering that somehow summarizes the dispositional status of ‘actor’ which we find throughout Crandall’s contribution.

²⁴ These words are taken from Rajchman’s paper, there used to describe an ‘underground element in the kind of time and movement the cinematic image makes visible.’ (Deleuze qua Bergson).

there is also the incorporeal, which for the stoics lies in making a line of separation pass no longer between the sensible and the intelligible.²⁵ Affect, in Crandall's account, is a vitality, a pure potentiality. And further, it is 'an undifferentiated, moving kaleidoscope of sensations and states ... a form of activation that is not necessarily available to the conscious mind, but is shared nonetheless by the synaesthetic perceptual faculties of the body substrate – including the proprioceptive [and] the visceral.' Agency acts through combinatory practices, assemblages 'that span familiar designations and ontological distinctions, and which connect deep into the realms of ... the somatic-sensorial, and the imaginary.'

Bergson's pathology of duration is here echoed in what I would like to call Crandall's pathology of the (performative) event. What actors may become, what new molar organizations take place – that is the concept of organism or machine – depends also on the event as understood by science. In the theory of science as *événementielle*, scientists are more and more concerned with singular events of an incorporeal nature that are effected in bodies, in states of bodies, in completely heterogeneous assemblages. In Crandall there are heterogeneous actors, bodies and the events that pass across irreducible domains, there are lines that shoot between domains – interregnums – and science and technology are part of a new geography of resonances to which the term 'radical relationality' may here well apply.²⁶

The final contribution to this section diverges from the three just discussed. In 'Figure, Discourse: To the Abstract Concretely,' Andrej Radman addresses a fundamental problem within architecture, which is its tendency toward establishing a literal correspondence between ideas and forms. While Crandall discusses the effects of tracking, spatial sensor networks, and manners of coding movement as matters of relevance to urban planning and practices, Radman reminds us that in the hands of the architect such relations of correspondence can too often end in mere mimetic representation. In other words the author argues against isomorphic relations between 'statements and visibilities.' Radman writes: 'Formed materiality (territorialization) and its expressivity (coding) are irreducible and must not be confused with specialized lines of expression.'

Radman will take from J.J. Gibson's 'ecological perception' the importance of the relation between perception and action, as well as from C.S. Peirce regarding the 'centers of indetermination,' where an 'interval between perception and action is inserted' (identified as the brain). The author turns to Brian Massumi who has recently 'cautioned against the military and right-wing monopoly over the "soft power" of *Noopolitik* where perception is targeted not on the level at which actions are decided but on the level at which the very capacity for action is forming.' And further, (Radman quoting Massumi): 'This is a point before "knowability" and "actability" are differentiated from one another. At that point modulation of perception is directly and immediately a change in the parameters of what a body can do.'

In the *Logic of Sense*, Deleuze writes that 'aesthetics suffers from a wrenching duality. On the one hand, it designates the theory of sensibility as the form of possible experience; on the other hand it designates the theory of art as the reflection of real experience.' Radman too refers to the 'logic of sensation,' to Deleuze's turn to the figural in Francis Bacon who turns sensation into the very material of his work. Cézanne, too, took sensation as the basis of his work, and with this believed himself to be impenetrable: beyond the confines of rational thought. As Radman reminds us as well, there is nothing discursive in the practice of architecture. 'The architect too might be said to be in the business of the "distribution of the sensible."'

Radman's paper points to ideas taken up by various contributors to this collection. But in the end his concern returns to the following: 'Knowledge, whether intellectual or intuitive, becomes relative only when the faculty of knowing applies to things it is not made for. Such is the knowledge of life that conceptual intelligence (mechanism) claims to give us; and such was the way we represented matter long ago, with images taken from the world of life (hylozoism).'²⁷ With this passage I have taken the liberty to quote Bergson, however, I am quite certain that the author would well agree.

Capitalism and the Mutating Intellect Here we would like to contend that there is an important distinction to be made between so-called neoliberal economies (global capitalism) and emerging theories on cognitive capitalism. Not that the mental and cognitive were absent in the earlier forms of capitalism, but that the degree to which the mind and the mental are engaged by those power structures and how they have been inflected into the very thought patterns of humans has never been as rigorously pursued or intense. One might add simply that if globalization can be generally said to act to spatially reconfigure our geographic world, then cognitive capital further acts through a reconfiguration of the temporal structures that also serve to mediate such things as memory and attention. We are no longer referring to capitalism solely as a mode of production of material goods and labor nor simply to immaterial labor and goods prevalent in neoliberal economies (and the organizations of power and distribution of intensive networks such production reproduces). But we must now recognize highly complex sets of tangible and intangible forces and factors simultaneously integrated and dispersed in the production of new political-aesthetic cosmologies and socioeconomic ecologies, networks of relations, and subjectivities. These are both empowering and coercive means and distributions of relations of forces – biopower and noopower, operating through and within both biopolitics and noopolitics.

In architecture and urbanism we might point, for instance, to the well-known example of Frank Gehry's Guggenheim Bilbao, not merely as it appears as material form (though iconic, and

²⁵ This reading on the body in Deleuze is extracted from my opening statement in **The Body in Architecture** (Rotterdam: O10 publishers, 2006). If one replaced the term body with actor and the name Deleuze with Crandall, this passage would, with minor exceptions, hold.

²⁶ See previous note, different here, however, is that I have revised my account with respect to Crandall. Four years ago, when I wrote the opening statement for **The Body in Architecture** I recognized that the contributions to the publication did not quite reach to the implications of this statement. Implications that I myself have now only grasped while preparing this volume.

²⁷ Henri Bergson, 'Letter to Harold Höfding,' in Höfding's **La Philosophie de Bergson: Exposé et Critique** (Paris: Editions Alcan, 1917), 163. I have taken the translation from: Henri Bergson, *Key Writings*, eds. K.A. Pearson and J. Mullarkey (New York: Continuum, 2002), 367.

now embedded in cultural memory and imagination); but as it functions as an economic generator of cultural industry (the so called ‘Bilbao Effect’), evidencing a direct impact on *ethos*, city and life.

By the ‘mutating intellect’ we wish to indicate the moving, shifting, and transformative capacity of ideas, or we might say of ‘thinking’ as opposed to ‘thought.’ It is not necessarily evolutionary (if evolution implies an ascendance to a more refined or advanced organization); neither do we intend a so-called ‘global-mind’ or ‘universal-consciousness.’ Thus we have steered away from the concept of the ‘Noosphere’ as initiated by Vladimir Verdansky or Teilhard de Chardin (although, as we will see, Yan Boutang utilizes this term to great effect). This does not, of course, mean that the mutated intellect is not based in a collective or commons, in fact it may well loosely approximate the *Ego Sum = Eco Cum* as formulated by Jean-Luc Nancy. And naturally, as the above should have already made clear, we do not consider the notion of intellect as solely belonging to the domain of ‘human’ thinking, as it transgresses into both natural and artificial agency in all its complex and nuanced permutations. Finally, although none of the papers in this section speak to this concept directly, we understand it as an underlying disposition on which many contributions to this collection lean.

We open this section with a paper that holds particular significance for architecture and urban practice. In ‘Mutations in Contemporary Urban Space and the Cognitive Turning Point of Capitalism,’ Yan Moulier Boutang presents an insightful reading of the current state of political economy and cognitive capitalism grafted upon the economy of contributions and an ecological argument based upon what he refers to as ‘beeconomics,’ concluding with a compelling call to urban designers. Situating the discussion of noopolitics primarily upon a reformulation of the ‘noosphere,’ his opening comments point out that since the scientific turning point that enunciated man’s capacity to decimate the globe (identified with Oppenheimer at Los Alamos), what once sat comfortably in the domain of the biosphere shifted to the noosphere: ‘The potential of catastrophic actions are both implicit and explicit within the efforts of intellectual activity.’

Both literally and figuratively, Boutang extols the beehive as an exemplary model of a healthy socioeconomic and ecologically viable society. Bee colonies are endangered and the author reminds us that without bees the entire ecosystem will collapse. Literally. He projects the idea of pollination (one of the bee’s most fundamental functions) on society. Corresponding to pollination we find the various modes of ‘circulation of information, knowledge, affect, and care.’ In turn, we might say, this corresponds well to our understanding of noopower. According to Boutang, an information-based society (whether codified or implicit) increasingly relies on intangibles. But, as previously discussed, these immaterialities are reconfiguring the entire socioeconomic system through growing intensities of

diffusion (‘networks of networks’) at a virtually global scale. The question to ask, the further parallel to be made, is how capitalism can engender ‘positive externalities’ such as those found in pollination? Positive externalities (negative ones as well) are understood as conditions resulting indirectly from the activity of a primary function. Positive (or negative) spin-offs some might say in a simplified way.

If industrial and mercantile capitalism captured the value of mental effort through such things as patents and copyrights and intellectual property (still belonging to internal models of equivalency); cognitive capitalism has long understood that greater value can be extracted from such ‘pollinations’ than from material production; opening, in fact, an entirely ‘new continent of wealth for capitalist valorization.’ Examples such as data mining, information search engines, and on-line networking exemplify new forms of cognitive capitalism that have become apt at capturing externalities. The problem, Boutang points out, is that economics based on market output (relations of equivalencies in their measurable or monetary form) has yet developed a model to correctly value these externalities. ‘The noosphere as such can provide criteria or motivations’ for such economies.

Borrowing from Karl Polanyi’s *The Great Transformation* of 1944 (identifying three fundamentals of market economy in capital, labor, and money), Boutang suggests that there is a ‘new’ great transformation taking place due to new relations between ownership and property. And with this he turns to the crisis of the city, as such transformations cannot help but have ‘great repercussions and impacts on the conception of space (both noosphere and biosphere).’ Structures, form, geometric segregations, conventions, order, and hierarchies are discussed, so too the advent of digital techniques, computational repetition and networks – *res extensa* extended. Boutang offers brief glimpses of the history of architecture. ‘The complex coexistence of pieces of Euclidian space situated between a global arrhythmic fabric reflects the incorporation of the virtual through digital devices with respect to the way in which the brain works, communicates and lives.’ But then, there is the ‘chiasmus’ of political economy and ecology: a structure that requires urban architecture to fundamentally change. If bee populations are in danger, then so too are human populations, at least if a city is meant to provide a nourishing thriving environment for its inhabitants, equally in danger of bringing about their own collapse. I will not recount the author’s arguments, but he seamlessly weaves arguments on the biosphere with matters related to noopolitics, raising the relevance of intangibles such as implicit knowledge – apprenticeship, knowhow, cooperation, trust, and care – in relation to innovation: cognitive capitalism’s contribution to renewable urban space.

Of course the terms we use to identify these relatively new configurations, as we will see in many contributions to this volume, must also be held to scrutiny. For instance Callard and Margulies, as well as Ebinsperger, Choudhury and Slaby warn against the tendencies in the humanities and social sciences to appropriate terms and ideas issuing from the neuro and cognitive sciences too

quickly. Here we find not so much a guarding of disciplinary boundaries as an entreatment to grasp the full consequences of the cross-application of terminologies within diverse discursive practices. And, as Gabriel Rockhill will argue, we must also challenge the moniker of ‘globalization’ as a reckless ‘conceptual abbreviation’ that holds everything from economics, politics, society, culture, to technology within its grasp. In ‘A Specter is Haunting Globalization,’ Rockhill argues that the implicit belief that globalization is actually as geographically extended as the term itself implies identifies the distance that exists ‘between words and things.’ Reminding us that if globalization has indeed, as it purports, created a singular world – a unified economic market, world-wide information network, homogenized cultural products, and so forth – then ‘globalization allows us to resist its consequences only if we are already subject to its effects.’ The implications of such a reality (virtual or actual) should be seen to have profound effects on cognitive constructions of self and world. Naturally, globalization cannot be captured as a ‘word,’ or reproduced as a ‘thing,’ as the author argues, it ‘emerges from practices linked to specific schematization of the world, practices that have, moreover, been effective insofar as they have helped produce “the thing” supposedly described by “the word.”’ Biopower and noopower are clearly implicated here.

But it is to the ‘specter of vulgar Marxism’ that Rockhill turns his focus. The ‘supposed adversary of globalization,’ it would seem, unwittingly providing the tenants for its (historical) inevitability. Globalization’s ‘historical center of gravity’ seems indeed to be immense. The consequence of accepting such an inevitability, the author shows, leads to an abandonment of all political and economic responsibility. The invisible hand of the market instantiated from Thatcher’s acclaim of neoliberalism in her ‘There Is No Alternative’ slogan, to Bush’s bail out of the us economy (businesses and institutions that had become too large to be allowed to fail), as well as his non-apologetic hubris that delivered a blow to the us constitution (from the Patriot Act, to illicit wiretapping, the list goes on and on). This, the author sees, as ‘naturalizing the economy and transforming it into an autonomous authority,’ which acting independently of any singular or collective agency has the unfortunate consequence of promoting ‘passive reactivity.’ Rockhill, borrowing from Rancière, speaks of the *idée-force*, which ‘intertwined with political, social, technological, and economic practices ... has played a fundamental role in the imposition of a new world image in which a determinist teleology dictates our destiny.’ And indeed, when any image of thought becomes a ‘world-image’ then we are witnessing the (noopower) effects of an action at a distance (*resisting the consequences of globalization only once we are already subject to its effects*).

So easy it is, or so it appears, to fall into the dark matter of such intellectual constructs. Of course, Rockhill does not let off with any such conclusion. Against ideology he puts forward instead the idea of ‘political imaginaries: ‘a “mode of intelligibility” ... anchored in the practical sense of agents.’ A political imaginary, on this account, allows for a world-image that is ‘interwoven with practical, dis-

cursive, perceptive dispositions.’ And dispositions, according to Easterling, offer an unfolding relationship between potentials, and resists codification in favor of practice. Certainly, if Rockhill is concerned with the power of words, their force of form as codifications into what some may see as ideological meta-narratives working toward the production of subjectivities. Then the contribution of Maurizio Lazzarato offers much for consideration.

The work of Maurizio Lazzarato, it is no doubt clear, is central to many of our own concerns. However, we have opted not to include a reprinting of his critical essay ‘Life and the Living in Societies of Control,’ but requested instead a new entry for this publication. In response he has provided a paper that hinges on linguistic theory; in fact, though it was not our intention, it seems that this contribution contains the only such directed address of capitalism and selfhood through the semiotic register.²⁸ In his paper, “‘Exiting Language”, Semiotic Systems and the Production of Subjectivity in Félix Guattari,’ he speaks to the construction of subjectivity as that which is now most widely produced by modes of capitalism within a ‘global mass industry.’ Subjectivity, he suggests, must be considered a ‘key commodity’ in Guattari. The author begins by outlining ‘pitfalls’ of structuralist theories of subjectivity as constructed through language and subsequently utilizes Guattari’s work (as well as others) as a foil with which to conceptualize a more adequate understanding of our contemporary capitalist condition. A critical point, at least for the purpose of this brief overview, is his argument that the world is no longer logo-centric, but instead has become ‘machine-centric.’ Machines here include not only those of technology, but equally those produced by ‘scientific, social, theoretical, economic, [and] immaterial’ models; in other words, machine-centric productions of subjectivity as they have been posited in various forms throughout this collection, albeit without the application of this moniker. Lazzarato argues that ‘statements are issued and received not by individuals, speakers and listeners – as in a communicative version of methodological individualism,’ but instead (and here citing Guattari) ‘by complex assemblages of individuals, organs, material and social machines, of semiotic, mathematical and scientific machines.’ And importantly, such machine-centric modalities, or ‘expression machines’ are as much ‘extra-human, extra-personal’ (economic, scientific, technological, etcetera) as they are ‘infra-human, infra-personal’ (perception, memory, sensibility, affect).

But this brief reiteration only identifies the starting point for this work, as the paper articulates an account of relevant semiotic systems (symbolic semiologies and semiologies of signification) and theories necessary in order to ‘work toward a semiotic theory beyond the semiotics of the human,’ one which will better address contemporary modes of capitalist organization. Semiotic systems which, as modes of operation, simultaneously organize the ‘production of subjectivity’ and the ‘production of the real.’ Here we find Guattari’s assertion that we must ‘exit language.’ An assertion that Lazzarato will reiterate in discussing what he finds to be Guattari’s most ‘ground

²⁸ In developing this publication we originally had a section on language and for various reasons this section was pruned. We hope to revive it in a subsequent volume, in the meantime, my apologies to those readers who will no doubt consider this an oversight.

breaking innovation’ – the notion of a-signifying semiotics. ‘A-signifying semiotics are the semiotics of mathematics, stock quotes, money, business and national accounting, computer languages, the functions and equations of science; but they are also the semiotics of music, art, and so on.’ They work outside the necessity of human (linguistic) signification, or systems of correspondence, whereby meaning can be said to take place. Here, correspondence takes the form of equivalencies based on an entirely other measure – diagrammatic, functional, operative, etcetera; in other words, citing Guattari, we simply ‘exit the semiotic register.’ Of course, no single semiotic register operates in isolation (though they can be analyzed as such), semiotic systems are ‘mixed’ and Lazzarato will return to the signifying semiologies on two accounts: first, that of economics to show the power of the market to bring about a ‘mutation of subjectivity,’ secondly, that of human ‘mixed semiotics’ in respect to the emergence of the ‘senses of self.’ The paper concludes with a critique applying ‘mixed semiotics’ to the language and organization of film.

My co-editor, Warren Neidich, concludes this collection with a tour de force handling of virtually every issue I have so far raised in this introduction. Perhaps I should refrain from the reciprocal contamination of interlacing my words within his: as in doing so the pronoun ‘we’ which I have often employed in the above will be emptied of all meaning. Still, I would like to comment on a few things. Neidich’s paper, ‘From Noopower to Neuropower: How Mind becomes Matter,’ is directed at a future, one that recapitulates the future upon which cognitive capitalism is now coursed. He discusses this under the figure of ‘neoliberal cognitive capitalism.’ Here he identifies processes so embedded in our contemporary society that they have fallen beyond the pale of internal or external critique. Thinking is hereby repressed and dominated by ‘structures of thought’. This exemplifies the domain of noopolitics. Neidich will further expand the discussion on noopower and noopolitics with a concept he calls ‘neuropower.’ As he writes: ‘I would like to extend this idea of noo-politics to include a new focus of sovereignty: that of neural plasticity itself and its potential as a generator of fields of difference. I am referring to this as Neuropower especially when it administers the pluripotential of neuroplasticity in the *curating* of a homogenous people both in the present and future.’

In traversing the issues raised in this publication the concept of neuropower is developed at length throughout Neidich’s paper. Impossible to summarize here, I will however point to two primary aspects which can be said to underpin his argument: First, the author believes that neuropower is exemplified by economic and political systems, and new forms of sovereignty as they are now involved in exercising the administration of neuroplasticity; thus installing systems that serve to delimit and determine what people in the future may or may not become. This point is more or less a reiteration of the quote included just above. Secondly, neuropower is not so much concerned with the production of subjects within a

sensorial (bottom-up) mediation between self and environment; but instead directs itself to the decision making processes of the brain in (top-down) strategies effecting prognostication, faculties inherently involved in the newly evolved regions of the brain such as the prefrontal lobes.

Additionally, it is worth noting for those readers unfamiliar with Neidich’s work, that his contribution will span areas ranging from highly specific readings on neuroscience through to nuanced discussions on philosophy, architecture and particularly art, for instance in the context of John Cage’s (noise-music) composition *4’33”*.

Before these section introductions close it is necessary to point to an absence, or perhaps instead non-presence. Within this collection we have included contributions from four practicing architects. We consider these to act like hubs or attractors, moments inserted as flickering intervals, or perhaps again, we might think in terms of ‘perchings’ as opposed to ‘alightings.’ These contributions can be found in various sections and yet I did not discuss them above. This is because we did not wish to over filter these contributions through our own critique. This said I would nevertheless like to take a moment to briefly comment on each.

The work of Andreas Angelidakis exemplifies the potential of architecture to engage both critically and spontaneously with the mechanisms of computer based and Internet technologies. In ‘Screen Spaces: Can Architecture Save you From Facebook Fatigue,’ Angelidakis examines the interface between the virtual and the real (this is, naturally, not to say that the virtual is not in itself very ‘real’) and exposes new forms of spatiotemporal relations resulting in vital new modes of experiences. Here we find the ‘screen’ as a *dispositif* that garners attention, mutates memory and facilitates the emergence of multifarious subjectivities.

Philippe Rahm, in his contribution entitled ‘Edible Architecture,’ reveals an architecture that returns to the ‘biochemical’ core of the human body. Architecture here is no longer considered as an autonomous object with external relation to beings or things; it is internalized within the biologic and neurologic systems and processes of bodies. With what he identifies (in modern biology) as corporeal and extracorporeal space, Rahm proposes the potential of architecture to act upon (and integrate) both the internal and external concerns of the body within its environment. Suggesting that it is time to consider other forms of perception and sensorial relations, he relocates architecture within new domains, which offer clues to a further understanding of the noo-sensorium.

In ‘From Politics of Nostalgia to Politics of Change,’ Markus Miessen offers insights into thinking inclusionary and exclusionary practices related to architecture as it unfolds within the public sphere. In challenging the notion of democratic participation he reminds us of the complex relation between the audience (as actor) and the protagonist of architecture and the urban (be they designers or economic and political agents). Miessen argues that democratic models of con-

sensus are fundamentally flawed and that ‘mass intellectuality,’ as such, needs to be challenged by new forms of criticality. Agonism, as described by Chantal Mouffe among others, might be considered as an essential theoretical principle through which Miessen’s discussion plays out. Conflict on this account can be understood as a creative generator of noo-power and a deterritorializing force in urban politics and practices.

Finally, Elizabeth Sikiaridi and Frans Vogelaar, develop a network theory (and practice) of hybridity (hybrid space) that fuses physical and informational space. Arguing that our contemporary condition is one in which both media and the physical environment have been reconfigured into hybrid relations which course through every aspect of our daily lives. The space we now live in is diffuse and ambivalent (at once digital, analogue, virtual material, local, global, tactile and abstract), and thus new form of intensities and identities emerge. This they refer to as ‘Idensity,’ this is also the title their paper. These authors offer a theoretically informed account of many of the issues discussed above, and they provide filters and mechanisms for thinking agency and agents within new cognitive regimes.

The reader may feel I have said to little about these contributions, but, in fact, I fear I might have said too much as we feel that these pieces should be left open to be encountered by the creative reader. These contributions naturally contain both text and images and although we agree that there can be ‘no isomorphism between statements and visibilities;’ it is nevertheless perhaps worth our effort to imagine the possibility that, for some, the eye-writes and the voice-sees.²⁹

In concluding this general introduction it remains to make a brief comment on what may be seen as a subtext regarding the cosmology of this collection itself, being that of the approach to the topic of *Cognitive Architecture* from a transdisciplinary perspective. Brian Massumi has written, that ‘just as the body lives between dimensions, designing for it requires operating between logics... A translogic is different from a metalogic. It doesn’t stand back and describe the way multiple logics and the operative levels they model hold together. It *enters* the relations and tweaks as many as it can to get a sense of what may come.’³⁰ Thus, this volume includes contributions by scholars, scientists, and practitioners in the areas of philosophy, neuroscience, economics, sociocultural theory, and architecture and sets to task a transdisciplinary approach³¹ to the issues at hand; it does not attempt to offer a comprehensive or definitive account within any of the areas of research it draws upon. Although we support the idea that there is much to be learned from transgressing previously constituted (methodologically sanctioned) research boundaries, this book certainly makes no claims toward developing new research methodologies. In fact, the idea of transdisciplinarity does not only occur ‘between’ the text presented here, but also ‘within’ the individual contributions – philosophers and scientists discussing art, film, architecture, and urban

theory and practices; architects and architecture, culture, media theorists treating psychology and neuroscience – evincing both the nature and necessity of transtinking through multiple discourses and logics. What we are searching for with this publication is a vocabulary, one that will open new constellations of thoughts and ideas that are not only relevant to our time, but critical if we are to keep up with a rapidly transforming world, a reality, in fact, that is set to leave the academe behind.

Finally, it is our hope that just as we have drawn together a diverse set of voices, that with this will follow a diverse readership. We understand that various texts included herein will be graspable by many and others only by a few; however, whatever potential dangers of failure (or incommensurability) lurk within the manner in which different disciplines approach an understanding of what we here term cognitive architecture and noopolitics, the point remains that if we are going to extend our theoretical understanding of these highly complex conditions, we must seek to grasp not only the methodological instants, but the theories and movements that fluctuate and thereby exceed our analytic filters.

²⁹ See: Christian de Portzamparc and Philippe Sollers, **Writing and Seeing Architecture** (Minneapolis: University of Minnesota Press, 2008), for which I wrote the foreword.

³⁰ Brian Massumi, **Parables For the Virtual: Movement, Affect, Sensation** (Durham: Duke University Press, 2002), 207.

³¹ Transdisciplinarity (a term introduced in the early 1970s by Jean Piaget), aims at an understanding of the present world. In architecture transdisciplinary discourse attempts to bridge the sciences and humanities, it thinks within and between art, technology, science, and philosophy. The prefix ‘trans’ indicates that which is at once between, across, and even beyond individual disciplines. According to Basarab Nicolescu, transdisciplinarity can be outlined with three postulates: the existence of levels of reality, the logic of the included middle, and complexity.



[1]



[2]

1, 2 Warren Neidich: **Resistance is Futile / Resistance is Fertile**, 2006
Neon sculpture, 2 x 30', Kunsthaus Graz,
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6 Cognitive Architecture. From biopolitics to noopolitics

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