

All That Is Solid: speculative, quantum and cognitive aesthetics of telepathy and telekinesis

by

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INTRODUCTION

This paper explores the work of Marina Abramović, Usman Haque, and Gianni Motti, and their artistic work with telemetric sensors, telecommunications, telepathy, and telekinesis at the art–science interface. They each work with mass participation using a range of tele-media, and with analogies to quantum particle intra-action and action at a distance. The aesthetics of these artists are set in dialogue with analogous poetics and politics of telepathy and action at a distance found in the critical philosophies of speculative and cognitive materialisms and immaterial labor.

ABSTRACT

Telepathy is emerging as a significant paradigm of artistic practice at the interface of art and science, with telepathy operating in transferences of media, tele-technologies, and 'techlepathies,' as well as in social and psychological aspects of collaboration and interaction. Artists Gianni Motti and Marina Abramović and design researcher Usman Haque work with telepathic and telekinetic possibilities that arise at this intersection of art and science, as does artist, theorist, and cognitive scientist Warren Neidich. This paper will explore the telepathy of Motti, Abramović, and Haque through their artistic work with brain synchronicity and electroencephalogram (EEG) interaction, telemetrics, crowd empathy, media clouds, electromagnetism, and quantum physics. Their work is further understood through the prism of current philosophical theories, especially speculative aesthetics that engage the telepathy and telekinesis of quantum physics, as well as Marxist 'Operaist' or 'workerist' theories of immaterial labor and cognitive capitalism that engage with the 'action at a distance' of social theory. Further, speculative and cognitive materialisms are shown to intersect, perhaps paradoxically, through engagement with the aesthetics of telepathic and telekinetic immateriality. The aesthetics of this art and theory converge at the telepathy of quantum neurodynamics, which is aligned with, and yet displaces, cognitive intuition in Immanuel Kant's transcendental aesthetics.

MARINA ABRAMOVIC

Abramović's exhibition *Seven Easy Pieces* could be interpreted as a form of collaborative competition with quantum physicist Richard Feynman's popular book, *Six Easy Pieces*. Abramović's artistic interest in telepathy and telekinesis is accompanied by strong interest in many other disciplines, including science. Abramović idolizes Nikola Tesla and is fascinated by his observation that everything has a unique frequency. She

has discussed thought consciousness, telepathy, and quantum physics with Antonio Damasio,¹ and she has expressed the wish to collaborate with scientists to explore vibratory molecular dematerialization, teleportation, and telekinetics in a publication exploring art, science, spirituality, and economics.² Quantum physicists have been harnessing and developing quantum teleportation and telekinesis – albeit with only the smallest atomic particles – for many years now, and could collaborate on speculative art–science projects of the kind suggested by Abramović.

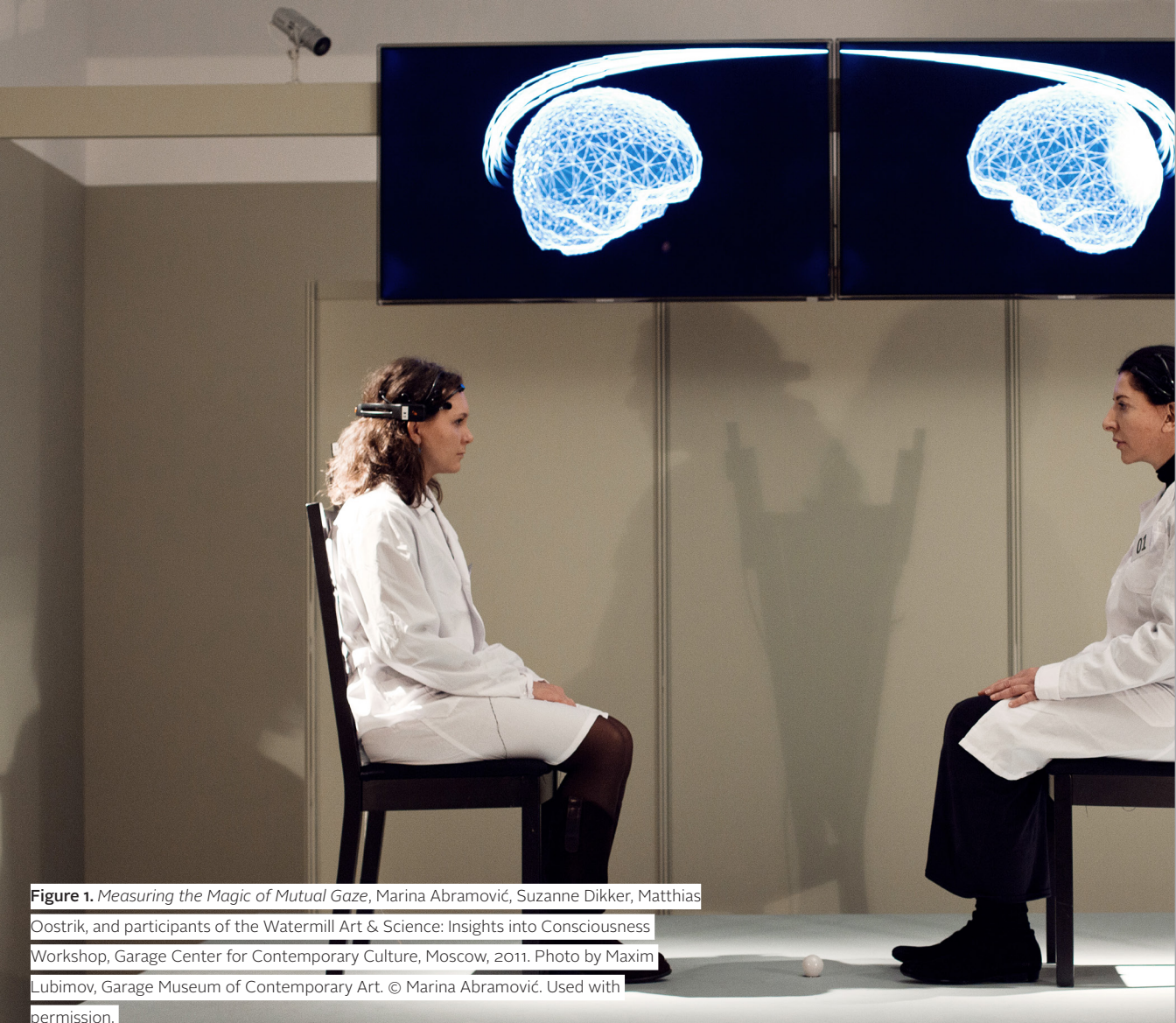


Figure 1. *Measuring the Magic of Mutual Gaze*, Marina Abramović, Suzanne Dikker, Matthias Oostrik, and participants of the Watermill Art & Science: Insights into Consciousness Workshop, Garage Center for Contemporary Culture, Moscow, 2011. Photo by Maxim Lubimov, Garage Museum of Contemporary Art. © Marina Abramović. Used with permission.

In collaboration with neuroscientist Suzanne Dikker and interactive media artist Matthias Oostrik, Abramović has also developed an artwork called *Measuring the Magic of Mutual Gaze* that explores brain synchrony using an Emotiv neuroheadset. Thanks to her global community of Kickstarter collaborators, she now has a related interactive brain device that is tele-metric and kinetic, installed in the science chamber of her new Marina Abramović Institute (MAI). This interactive device is called a *Compatibility Racer* and was developed in collaboration with Dikker and Oostrik, along with a team of others.

Measuring the Magic of Mutual Gaze brings Abramović's interest in telepathy and meditative endurance performance together with Dikker's research into cognitive processes of prediction, human con-

nectedness, and the ability to effectively communicate and use language.³ Dikker approached Abramović regarding art–science interactive, neuro-collaborative performances after learning of Abramović's work with brain synchronicity in *The Artist is Present*, a 736-and-a-half-hour static, silent piece that involved members of the public sitting opposite Abramović, one at a time. *Measuring the Magic of Mutual Gaze* restages *The Artist is Present* (and her earlier work with Ulay, *Nightsea Crossing*), allowing two participants to gaze at each other for 30 minutes with real-time recording of their EEG signals, which are visualized as lightning animations representing those moments “when the participants brains oscillated in synchrony.”⁴

Compatibility Racer facilitates an instruction-based, telematic telekinesis competition. This competition is



linked to Abramović's own use of crowdfunding as a mass-participation collaboration for MAI. The Emotiv brand neuroheadset used by Abramović also gained crowdfunding development support and advertises telekinetic promises. Similarly, two Kickstarter-funded computer game campaigns have promised telekinesis through neuroheadset interaction: *Son of Nor* and another game that invites one to throw trucks with one's brain. *Compatability Racer* has instructions for its use, called *Come Pat a Bull (CPAB)*, that make clear that this interactive work operates as a competitive game: "Your *CPAB* score is a measure of distance travelled over time. High scores will be recorded and rewarded."⁵ The telekinesis competition of *CPAB* is facilitated by a twin-seated, wheeled device called a 'compatability racer.' *Compatability Racer* is a vehicle for racing, as well as for accelerating a sense of telepathic con-

nection and competition. In the *CPAB* instructions, it is also referred to as a 'bull', evoking coin-operated mechanical bulls and rodeo competitions, and perhaps even the stock market bull, representative of optimistic, ascendant animal spirits. Although Abramović was not part of the project team for *Compatability Racer*, she was closely involved with it; indeed, a ride on the *Compatability Racer* is offered as a reward in Abramović's Kickstarter campaign. An article promoting *Compatability Racer*, *CPAB*, and Abramović's Kickstarter campaign asks readers to donate money to the MAI that will house the *Compatibility Racer* when the institute is opened.⁶ "COME PAT A BULL is a competitive, interactive brain-robotics installation and works with synchronized brain activity between people and what it means scientifically to be 'on the same wavelength'"⁷ – the collaborative gaming and interactive consumer neuroscience technology of the Emotiv headset combined with Kickstarter updates to Karl Marx's nineteenth-century caricature of commodity fetishism. Marx's commodity takes the form of a grotesque, telekinetic, and spiritualist table-tapping market table. Further para-psychologies and psychopathologies of capitalism are explored in this paper's section on 'Telepathologies of Cognitive Capitalism.' The mass-participation performance of Abramović's MAI Kickstarter event shares, disperses, and dilutes the extremely intense collaborative telepathy she first developed in her dyadic relationship with Ulay.⁸ Abramović and other artists who are strong collaborators acknowledge telepathy as a central affect generated by collaboration. Gilbert and George have achieved the longest dyadic collaboration among contemporary artists, yet they have denied that they collaborate. Instead, they declare that what they do together is, in fact, move towards a telepathic cloud.⁹

Abramović's collaborator, Dikker, explores what it is like to be 'on the same wavelength' in academic neuroscientific research. Dikker writes, "brains are

‘proactive’ organs” that are “prediction machines.”¹⁰ Predictive language processing employs ‘top-down’ neurocognitive processing¹¹ of the human brain’s unique ‘online’ neuronal workspace to access multiple brain areas, rather than the ‘bottom-up’ approach based on the brain’s slower processing of direct-sense stimulation. Prediction is linked to our social brain’s capacity for language to express common ground. For example, prediction is linked to our ability to finish other people’s sentences. Dikker points to the role of telepathy in defining the boundaries between art and science: “Marina might say: ‘Well, that’s some sort of telepathic transfer of energy.’ ... But we as scientists are trained to ask: What in the physical world mediates that connectivity?”¹² Neurocognitive scientists and technologists developing artificial intelligence, media, and military telepathies such as DARPA may refer to synthetic telepathies and ‘psychotronic’ telepathies – for example, ‘preemptive’ engineering of telepathic ‘nanosoldiers’¹³ where telepathy and telekinesis de-territorialize future soldiers’ bodies.¹⁴ In general, though, neurocognitive scientists have found more scientific currency and traction with other widely used terms that share meaning with the term ‘telepathy,’ such as extended mind/cognition, empathy, sympathy, hypnosis, memory, prediction, preemption, theory of mind, and mindreading, following the turn toward the social within neuro-cognition in the last ten years. Avant-garde artists like Abramović are pioneering new telepathies of the revolutionary social brain in performances both with and without the collaboration of scientists. However, as Charles Wolfe points out, it would be naïve to ignore organizations such as DARPA and Rand Corporation that are also pioneering new telepathies in the service of neuro-capitalism.¹⁵

USMAN HAQUE

Usman Haque’s *Sky Ear* installation may resemble an artwork, but it is in fact an experiment designed to explore interactive mobile-sensor and architectural systems and how people relate to each other and their spaces through mass participation. Haque creates clouds that reproduce the effects of the aurora borealis using carbon fiber, balloons, mobile phones, and miniature sensor circuits that respond to electromagnetic fields (EMFs) linked to LED lighting. The phones communicate with each other via infrared and via participating members of the public, who are given the numbers of the airborne phones and can listen to the atmospheric ‘whistlers’ and ‘spherics’ of electromagnetic phenomena in the sky. This interactive work responds particularly to EMFs of Hertzian mobile phones, text messaging, television, radio transmissions, and laptops. Calling the cloud changes the electromagnetic environment and the color of the balloons. *Sky Ear* thus demonstrates the pervasiveness of both natural and manmade invisible electromagnetism, as well as the impact of mobile phones and text messages upon stratospheric energetics. Some of Haque’s *Burble* works explore other kinds of public interactions, such as the use of any remote-control devices in a communal display of illuminated, interactive helium balloons.¹⁶

Haque explores the telepathic nature of today’s urbanized cities, in which telecommunications, smart technologies, telemetric media, and even tiny mobile sensors of ‘smart dust’ permeate every aspect of architecture.¹⁷ There are fantastical promises of awe and freedom of telepathy in contemporary telecommunications, telemetric and smart-dust-sensor technology, and urban-sensor connectivity. Intelligent communication ecologies consist of clouds and oceans. The transcendental poetics of machines that anticipate human needs and commands are

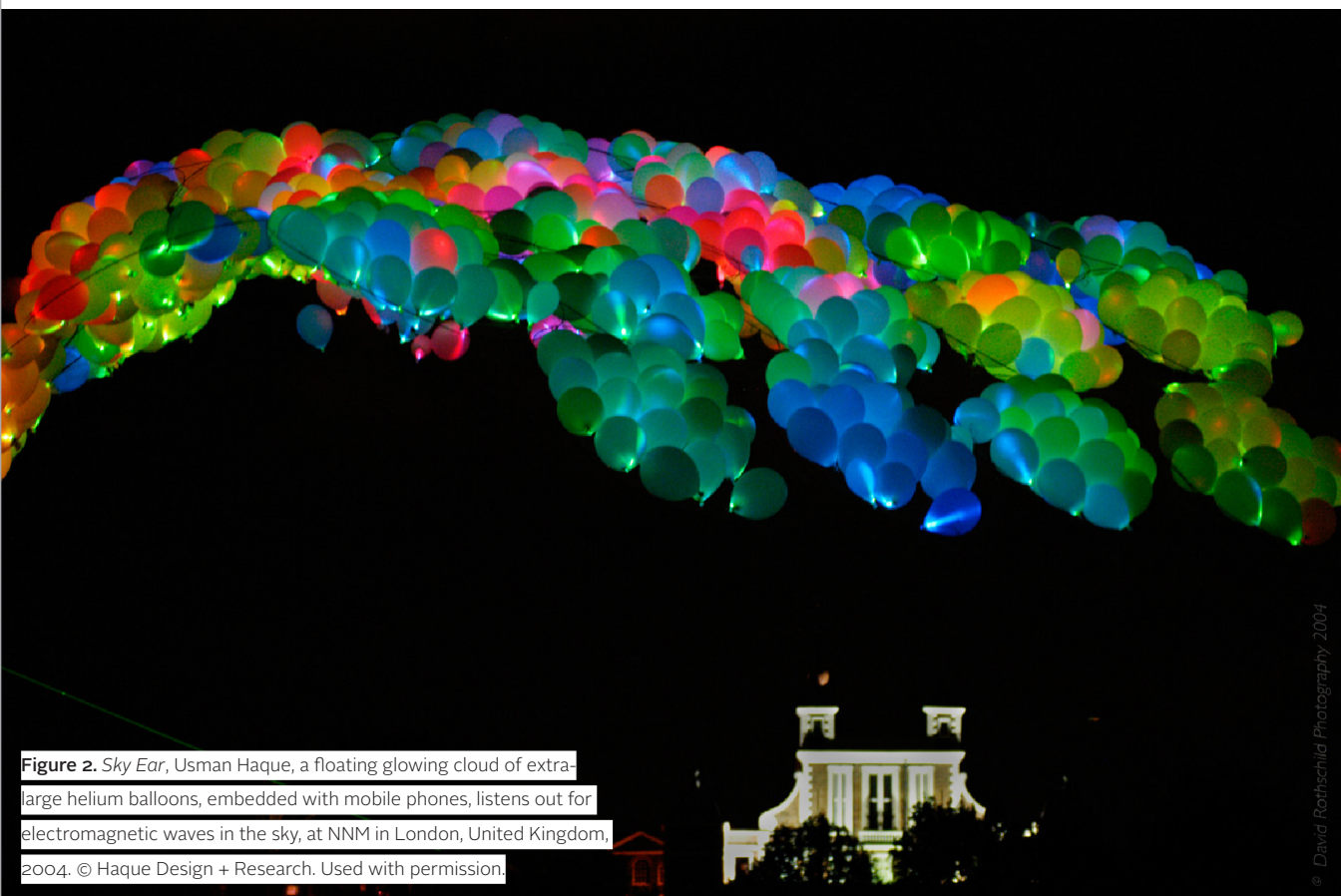


Figure 2. *Sky Ear*, Usman Haque, a floating glowing cloud of extra-large helium balloons, embedded with mobile phones, listens out for electromagnetic waves in the sky, at NNM in London, United Kingdom, 2004. © Haque Design + Research. Used with permission.

© David Rothschild Photography 2004

celebrated in Jennifer Gabrys' text *Telepathically Urban*, which explores sensor architectures and mobile smart-dust, extending early-twentieth-century radio, electromagnetic transmission technologies, and the long history of utopian futurist aesthetics.¹⁸ Smart-dust can be linked to a telepathic understanding of the nineteenth-century interest in atomized ether and atomic dematerialization, as well as to the future development of tiny neurobiological sensors of neural dust. The high ambience of smart sensors, accompanied by florid promises of telepathy, relates to the invention and reinvention of telecommunications as it is accompanied by the invention and reinvention

of telepathy. The history of communications shows a strong rivalry between spiritualism and radio in the effort to signals out of the air.¹⁹ Haque's conception of telecommunications as a drift of mote-like sensors points to the analogy of telepathic smart dust in the 'crowd contagion' theories of Gustave Le Bon and Marcel Mauss, who are recognized theorists of telepathy and telekinesis within sociology.

Synesthetic telepathy of futurist poetics is discussed by Franco Bifo Berardi, whose work resonates with the poetics of Haque's *Sky Ear*. Berardi shows how the nineteenth-century poet Velimir Chlebnikov worked

with technology, trans-mentalism, and psychedelics to explore emotional and mental transmission over things through the use of color, phoneme, image, and word to generate a synesthetic telepathy.²⁰ Futurist telepathy relates to issues of cognitive capitalism and the techno-cultural transformation of Gaia telepathies in the work of Haque and Chlebnikov. Machine-to-machine telepathy, as well as the problem of telepathic-‘machinic’ interference that Alan Turing emphasized, can be extended to code aesthetics, where algorithmic code is shown to have a telepathic, preemptive, ‘soft’ thought process of its own.²¹

GIANNI MOTTI

Motti’s work *“Higgs” à la recherche de l’anti-Motti*, CERN, Geneva maps the path of quantum-particle action onto human experience, using performance and video cameras to compare the artist with an atom by walking the 27-kilometer-long Large Hadron Collider (LHC). Atoms lap the LHC 11,000 times per second, but in his performance, Motti took six hours at a constant five kilometers per hour, along with a cameraman. The long film depicts a lost sense of time, an anthropomorphized atom in an uncanny relativity.

In another artwork called *Psy Room*, Motti worked with post-Lacanian, psychoanalytic, ‘transferential’ telepathy in a Colombian gallery, where gallery viewers discussed their problems with Motti. After Motti and the media realized that visitors were all complaining about the president, the psychoanalytic artwork morphed into a media event, a kind of passive and telepathic protest that threatened to destabilize the president of Columbia from outside of his palace, using the media-modulated telekinetic powers of thought consciousness aligned toward popular revolution.

Motti’s creative laboring is aligned with a Deleuzian molecular aesthetic that understands that art, performance, and political events involve capturing forces invisible to the human eye, as well as with a Simondonian aesthetic that recognizes the ‘dividual’ in processes of collective individualization. In *“Higgs” à la recherche de l’anti-Motti*, CERN, Motti replaces a few tiny particles with the massive swarm of particles embodied by his own body within the LHC. In *Psy Room*, individual psychological surveys morph into a swarm of democratic protest, individuating a crowd.

Both of these projects work with human structures that analyze invisible processes, structures that enable telepathy to be observed in both psychoanalysis and physics. Sigmund Freud’s recognition of telepathy occurring in psychoanalysis, which was accompanied by his curiosity and intellectual anxiety about the discovery of radium and quantum relativity, is continued today. These ideas find expression, for example, in Bracha Lichtenberg Ettinger’s work involving contemporary psychoanalysis. Albert Einstein’s reluctant observation of quantum telepathy is now embraced by contemporary quantum physicists such as a Karen Barad. In previous papers, I have shown this aesthetic dimension to be a telepathic, psychoanalytic dimension, and am supported by Marcel Duchamp and Bracha Lichtenberg Ettinger (Ettinger is also an artist).²² This theory overlaps analogous concepts of telepathy and telekinesis with speculative aesthetic engagement with quantum causality. Barad and other theorists of Speculative Materialism and Speculative Reality such as Timothy Morton put forth the argument that the aesthetic dimension is the causal dimension, and thus also the telekinetic quantum dimension.²³ Morton says:

The causal dimension – that is, the aesthetic dimension – is nonlocal and nontemporal, which is another way of saying that objects are closer than

*they appear in the mirror of our habitual patterns. Objects are somehow entangled together in the casual-aesthetic dimension – I borrow the image from quantum theory, in which when objects do come very close, they become the same thing.*²⁴

Morton uses quantum theory to challenge what we define as matter and solidity so that consciousness can be understood as a form of action at a distance.²⁵

Barad brings a transversal theory of quantum action at a distance and 'intra-action' between objects to other arts and scientific disciplines.²⁶

For Motti to walk the LHC, it must be turned off, as a single energized proton passing through the body can injure and even kill. Motti's performance is 'tele-pathologica' in that it is at a distance ('tele') to the pathology of killing the artist or at least making him



Figure 3. "Higgs" à la recherche de l'anti-Motti, CERN, Geneva, Gianni Motti, 2005. Video, 5:50 minute, performance 5:50 min, walk in the underground LHC tunnel (particle accelerator), 27 km. © Gianni Motti and Gallerie Perrotin. Used with permission.

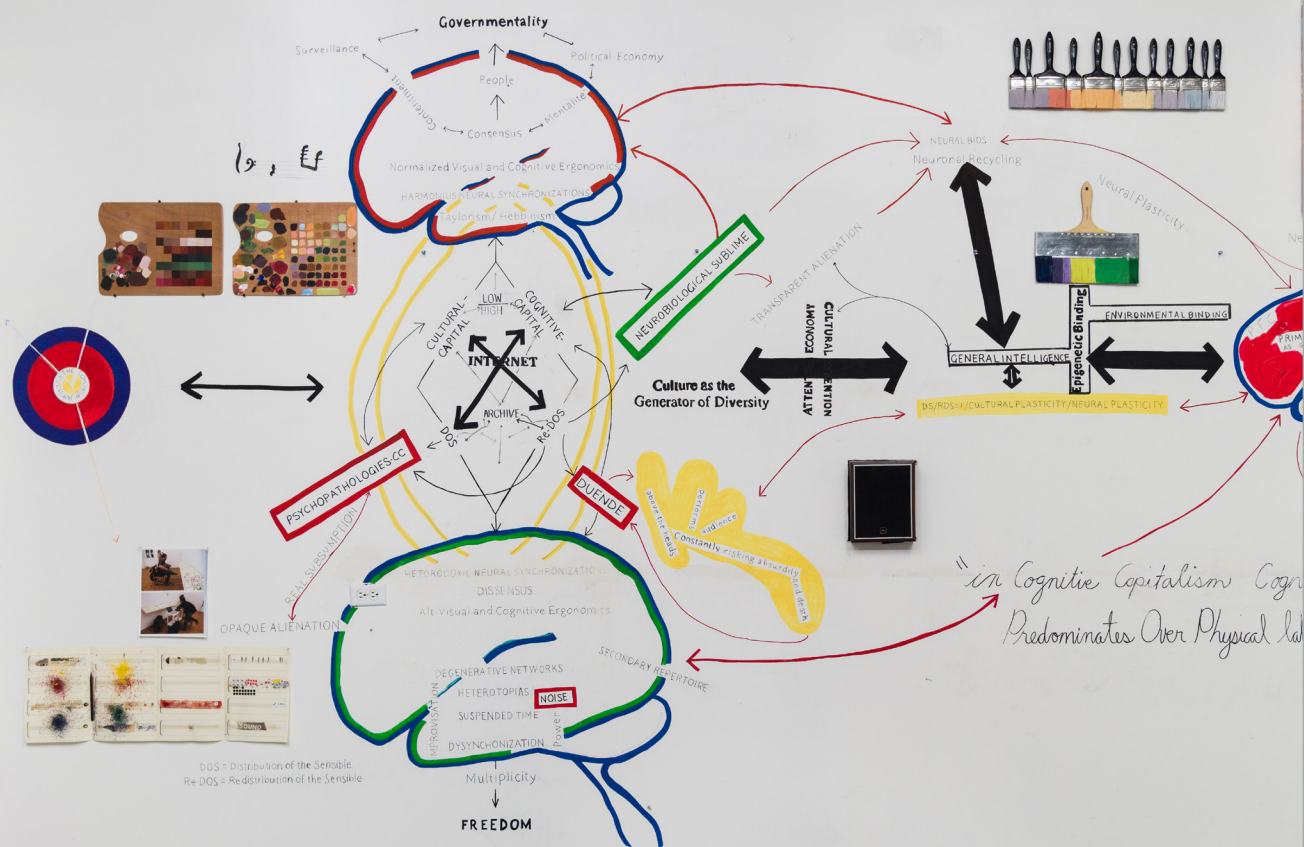
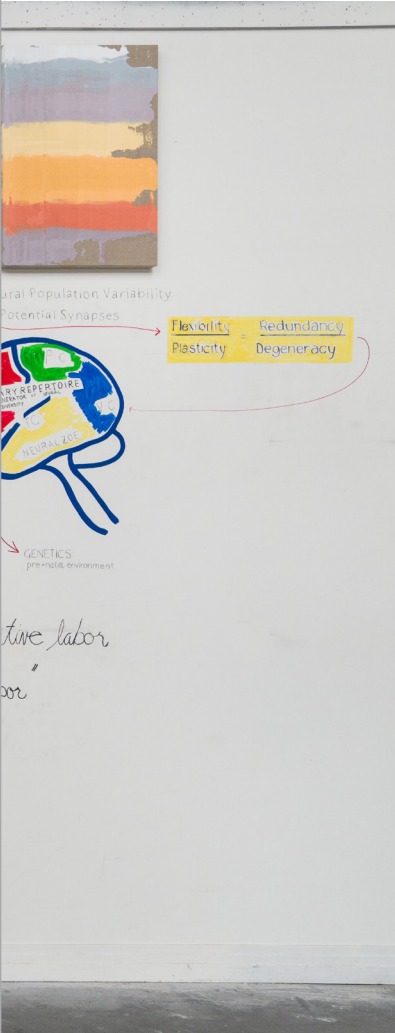


Figure 4- Duende Drawing, Warren Neidich, 2014-2015. Wall Drawing, 9 feet x 12 feet. © Warren Neidich. Used with permission.

very sick. The word ‘telepathology’ already exists as a medical term for the digitized study of disease at the molecular level. Microscopic telepathology enables the invisible to be seen, and the immaterial nature of materiality to be observed at the molecular level. Perceiving at the quantum-nano level through the Atomic Force Microscope (AFM) – beyond the scope of the human eye and optical microscopes (including those of telepathology) – quantum physics has shown us that there are also empathetic, telepathic, telekinetic, and ‘spooky’ events happening at the atomic level, where particle bodies are simultaneously material and immaterial. Einstein famously referred to telepathic and telekinetic phenomena of quantum physics as “spooky action at a distance.” Unlike medical telepathology microscopes, the AFM does not work with optical magnification; instead, it uses a physical probe to touch and even gently etch the surface of nanoparticles in order to map and visualize them using digital algorithms. Thus, AFM extends from medical telepathology’s genealogy of microscope technology,

working at a distance through digital mediation (tele) of touch/feeling (pathy) as a kind of touch-based digital telepathology.

As mentioned, Motti’s *Psy Room* works with psychoanalysis, crowds, and politics, which can be elaborated on as it relates to the telepathy of herd behavior. It uses telepathy as a revolutionary intensification force similar to that described by Jean Jacques Lebel in his text *On the Necessity of Violation*, a May 1968 manifesto for artistic and revolutionary European happenings.²⁷ Motti’s LHC-walking work slows down the constantly accelerated mining of quantum forces, almost but not quite placing the artist’s body on the gears of the machine. Accelerationism, currently undergoing a revival thanks to Nick Land appreciators associated with Speculative Materialism, has its roots in one of Marx’s more problematic solutions to capitalism – namely, to drive the individualism of capitalism so hard and fast that it collapses faster. A more recent confrontation with accelerated capital-



ism through crowd contagion appeared in the form of the Occupy movement. According to McKenzie Wark,²⁸ the movement resulted in an abstract embodiment of global 'telesthesia,' a concept inseparable from telepathy, with more of an emphasis on thesis as theory, rather than the affect, sensation, or pain of 'pathy'. This Occupy telesthesia reacted against the animal spirits of the charging stock market bull and worked to extend the radical telepathy attested to by Lebel's treatise, the action at a distance observed by Gabriel Tarde and Maurizio Lazzarato, and the savage telepathy in crowds observed by Marcel Mauss. 1968 was not only the moment when a number of conceptual artists created important works with telepathy, such as Robert Barry and Susan Hiller, but also when the society of control truly began working with modulations of action at a distance through media and cognitive capitalism. The Simondonian and trickster 'dividual' figure of Motti in the LHC is capable of transforming into a quantum telepathic swarm in *Psy Room* as an individualized crowd of many. Motti's trickster

approach to quasi-mystical mischief brings the persistent mysteries of crowd telepathy and quantum physics into close alignment with the psychosocial 'molecular revolution' as understood by Deleuze and Guattari, which combines psychiatry and politics with transversal aesthetics.

The following section continues to explore Deleuzian molecular aesthetics through a discussion of *Operaist*/activist cognitive immateriality, with a connection to the speculative aesthetics of quantum neurodynamics.

TELEPATHOLOGIES OF COGNITIVE CAPITALISM

Immaterial Labor of Activism, Culture, and Cognition

Neidich is interested in telepathy as it relates to psychopathologies of cognitive capitalism.²⁹ For example, he explores the parapsychology of the commercialization of capital through neuro-power and neuroplasticity.³⁰ 'Operaist' thinkers are aligned with Italian 'workerist' or labor activism and Negrian philosophies, including Italian San Precario activists who respond to the immaterial labor conditions that are replacing Fordist labor. San Precario activists identify as 'precognitive' precariat workers inspired by the futurist, telepathic 'Precogs' of Phillip K. Dick's *Minority Report*.³¹ Another *Operaist* Deleuzian is Berardi, already mentioned in relation to futurist telepathy poetics that extend into contemporary society's increased media-tion and modulation through virtual realities.³²

Key to Neidich's thinking is the event structure of reading and writing in human cognitive evolution, which occurred too recently – just 5-6000 years ago – to be the product of Darwinian evolution. Human reading and writing skills could be a form of bio-

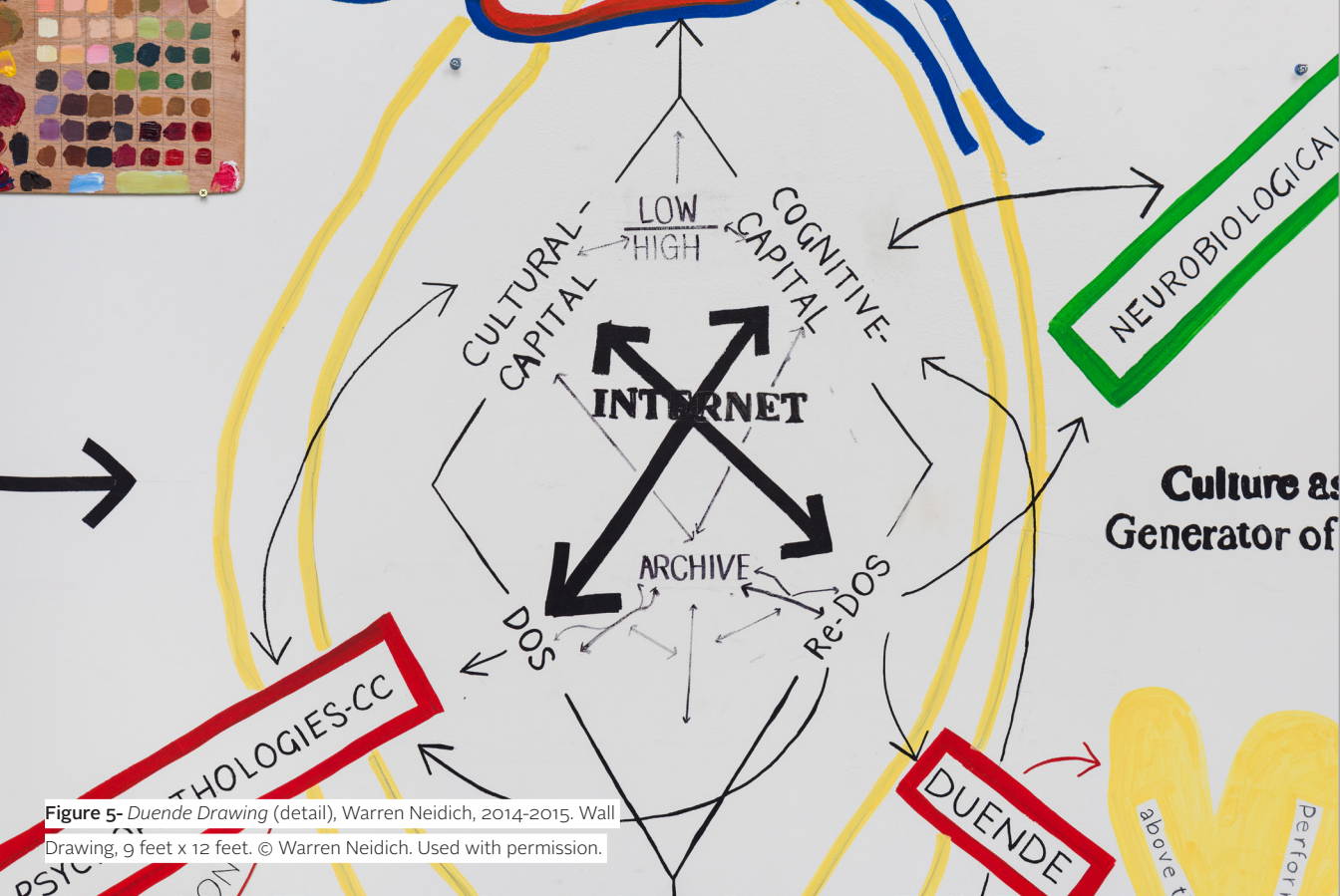


Figure 5- Duende Drawing (detail), Warren Neidich, 2014-2015. Wall Drawing, 9 feet x 12 feet. © Warren Neidich. Used with permission.

neuro-cultural evolution resulting in technologically mediated telepathy, as theorist David Porush proposes.³³ Another related theory that Neidich draws attention to is Stanislaus Dahaene's notion of Neuronal Recycling, which considers that new skills, such as reading and writing, emerge within underutilized, older parts of the plastic human brain in response to new environmental pressures. The cultural and neural plasticity demonstrated by Baldwinian notions of evolution through culture and learning are aligned to Marx's dialectical materialism, and it is this speculative toolbox of telepathy that Neidich is interested in. Neidich writes, "I want to speculate that art research and experimentation is a prerequisite for the study of future conditions of the brain in which telepathy, like its predecessors reading, writing and mathematics, will become a cerebral organ."³⁴ The existing telepathic aspects of the human brain – the predictive, proactive, and preemptive aspects of social neuroplasticity already linked to reading, writing, and the 'mindreading' aspects of the 'theory of mind' – are updated and mutated across generations through Baldwinian evolution in response to environmental pressures of new 'techlepathies' and 'tele-technologies.' Reading and writing are immaterial and semiotic cerebral abilities

that transform the materiality of the brain, and individuals learn these abilities within their lifetimes. Neidich asks:

*Could telepathy be the result of similar and as yet unrealized generational and transgenerational plasticity? Are the cultural contingencies of mind reading, social neuroscience, theory of mind, [and] consumer neuroscience creating a new ecology of telepathic dispositions? Does our society abound with telepathic conditions ready to be concretized?*³⁵

It is no mistake that Dikker came to collaborate with Abramović on her neurocognitive research into eye tracking being linked to language skills, brain synchronicity, and social production of common ground. The visual word form area associated with reading and writing skills, located at the posterior of the human brain, is analogous to the infero-temporal section of the macaque monkey's brain that is associated with numerosity, and this leads Dahaene to conclude that, in humans, the older technology of primate communication has been colonized by the cultural evolution of socially learnt reading and writing language codes.³⁶

Dahaene's "Neuronal Recycling Hypothesis" explicitly links bio-neuro-cultural neuroplasticity to the preemotive, predictive mechanisms of the human brain, or what Abramović and experimental artists such as Neidich refer to as 'telepathy.'

Maurizio Lazzarato's *Operaist* theories of action at a distance operating in societies of control are central to much of Neidich's thinking about immaterial labor and cognitive capitalism, as well as to Neidich's collaborative peers publishing in his *Psychopathology of Cognitive Capitalism* publications. Lazzarato extends social theorist and criminologist Gabriel Tarde's theories of telepathy of society and crowds, very similar to those of Le Bon and Mauss, mentioned above.

Lazzarato is a theorist of immaterial labor who explores how the human mind is constantly doing physical work. Lazzarato's descriptions of how modulations of power and mechanisms of social control are distributed and telecommunicated in society are highly suggestive of telekinesis, and he uses the term 'action at a distance' a number of times. For example: "In the societies of control, power relations come to be expressed through the action at a distance of mind on another, through the brain's power to affect and become affected, which is mediated and enriched by technology."³⁷ Supporting this alignment of telekinesis with cognition is Lisa Blackman's book *Immaterial Bodies*, which reasserts the telepathic foundation of affective phenomena and contemporary affect theory.³⁸ Blackman argues that consciousness and extended cognition are a form of telekinesis, a concept that resonates with Neidich's interest in neuroplasticity and oscillatory dialogue with the environment through epigenesis.³⁹ The transformative process of epigenesis, or symbiotic gene/culture evolution, works like a cybernetic feedback loop between brain, biology, culture, and environment to evolve new symbolic organs, telepathies, and telekinetics aligned

to language and number skills, both within individuals and across generations. Due to accelerated capitalism, there is now increased competition for invention-power.⁴⁰ Lazzarato shows that contemporary capitalism automatically and constantly seeks out new creative invention-powers through telekinetic 'collaboration of brains.'⁴¹

Tiziana Terranova elaborates further on this telekinetic 'collaboration of brains' and extends Lazzarato's and Tarde's thinking on action at a distance in society. She looks at the difference between cooperation and capitalistic competition in social production. Action at a distance and sympathetic cooperation work as 'waves' of spirit, soul, and love that connect brains across 'seas' and noospheric atmospheres, with the brain understood as extending beyond the biological and individual. Sympathetic cooperation in social production works as "action-at-a-distance by spirit (or another memory-brain)."⁴² Terranova, Lazzarato, and Tarde see wealth in terms of networked imaginations, psycho-power, and invention-power, such that wealth is "neither in land, nor labour, nor capital, nor utility but within invention and association." Sympathetic cooperation counters the neoliberal ethos of individualistic, capitalistic competition, but it also counters "exclusion of sympathy and love, strongly present in utopian socialism". Terranova locates telekinetic force within both capitalism and anti-capitalist alternatives to the "neoliberal paradigm of market production" and competition.⁴³

Quantum Neurodynamics

Social, psychical, political, economic, and aesthetic developments will be radically impacted by the challenge to human consciousness presented by emerging developments in quantum computing. These include recent breakthroughs in internet-facilitated brain-to-brain communication, lauded as a new telepathy, and

successfully achieved on more than one occasion since 2014 by international teams of neuroscientists and computer–brain interface scientists. There is also serious scientific speculation that consciousness may in fact be a material substance, dubbed ‘perceptonium.’

Whilst the brain has multiple specific modalities for processing sense data, it then perceives these data in a unified way. Immanuel Kant’s ‘transcendental conditioning’ anticipated contemporary cognitive science’s interest in cognitive binding, which is shared with quantum physicists’ interest in the entanglement of various wavelengths with the objects and immaterialities of the world. Kant’s ‘transcendental aesthetic’ and his concept of intuition are supported by relativity theory, as well as the quantum neurodynamic hypothesis – just recently proven – that the brain can support quantum coherence in microtubules despite being “warm, wet and noisy”.⁴⁴ Quantum coherence, thought to be too delicate to be observed outside of the cold temperatures of controlled labs, is also being found in the warm quantum coherence of plant photosynthesis, bird-brain navigation, and the human sense of smell.⁴⁵ Speculative aesthetics of cognitive and quantum immateriality are engaged with materially through science and philosophy, as well as through art.

CONCLUSION

Artistic work with telepathy and telekinesis is significant both in and beyond the art–science interface, and it sustains a critical dialogue with Speculative Materialist and Cognitive Materialist philosophies in which telepathy and action at a distance are key to understanding causality, aesthetics, and immaterial labor. Telepathy and telekinesis have now been shown to be at work in art and theory through integral and material engagement with quantum, cognitive, and media

aesthetics. The work of artists who mobilize telepathy and action at a distance (telekinesis) involves transversal and molecular aesthetics associated with psychological and political complexities. This paper finds that artists and theorists of telepathy and telekinesis are redistributing the sensible, and that they are aligned with – and yet displacing – modernist notions of brain intuition found in the Kantian transcendental aesthetic.

Future directions for this research include further reflection on immaterial labor, algorithmic ‘soft thought,’ and the extra-scientific – that is, the facticity outside science that refuses to be a science fiction – as well as further artistic research dialogue with neurocognitive scientists and quantum physicists.⁴⁶

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AUTHOR BIOGRAPHY

Jacqueline Drinkall is a research-driven artist, performer, writer, curator, thinker, and para-academic. She holds a BA in Visual Art H1 University Medal (Painting), a Masters by Research in Visual Art (Painting), and a PhD in Art History and Theory. She is recipient of two awards each from the COFA Student Association, AGNSW, and NAVA, as well as an APA and the Marten Bequest Travelling Art Scholarship in Painting, and more. She recently received a DART Sponsorship to attend the conference where this paper was first presented. She investigates and pioneers the discipline of integral telepathy in art, science, society, and aesthetics, and is currently focused on new materialisms in speculative and cognitive philosophy, affect theory, and immaterial labor. She has pioneered focused attention on working with telepathy in art for over twenty years, since studying with Marina Abramović and Krzysztof Wodiczko in Paris whilst on an Australian National University Telecom Travelling Art Scholarship. Her art practice involves painting, real and virtual world performance and interactions, kinetics, audio, video, photomedia, EEG interaction, drawing, weaving with telecommunications wire, performative objects, sculpture, and installation, and she also works collaboratively on occasion. She exhibits regularly in Australia and internationally.

GLOSSARY

Baldwinian evolution: The effect of learned behavior on evolutionary gene expression modulation that occurs generationally and trans-generationally; not to be confused with Darwinian evolution, which takes much longer.

Cognitive capitalism: The age of the information and network society and knowledge economy. It emerged around 1975 just after societies of control emerged around 1968, and the two are inextricably linked.

Epigenesis: In genetics, epigenesis involves gene expression and modification of gene expression. It is not genetic mutation, which takes much longer, but genetic translation and differentiation made in response to environmental conditions, both 'natural' and cultural.

Immaterial labor: Post-Fordist aspects of labor that have a new emphasis on mental, affective, cognitive, and informational labor rather than physical labor, accompanying increased automation of commodity production. Immaterial labor is also aligned to artistic and cultural forms of labor, the production of subjectivity and generation of aesthetics, and the distribution of the sensible within society. Closely associated with Italian Operaist recognition of new labor conditions and the social theories of Maurizio Lazzarato

Noosphere: The sphere of thought and mind analogous to the atmosphere and stratosphere. It is a distinct layer of consciousness emerging from a geosphere and biosphere consisting of a collaboration and interaction of social brains/minds.

Neuronal Recycling Hypothesis: Stanislaw Dohaene's explanation of recent human cognitive evolution, especially the reading and writing paradox that cannot be the product of Darwinian evolution. The plasticity of the brain 'recycles' existing circuitry of the monkey brain. New cognitive functions invade, and are closely related to preexisting functions.

Neurocapitalism: The industry of neural enhancement; for example, drugs for neurological problems, prosthetics for people with neurological disabilities, and a range of technologies for soldiers and workers to enhance neurological capabilities and performance.

Quantum telekinesis: Associated with quantum nonlocality, entanglement, field theory, and Bell's Theorem, and also known as 'spooky action at a distance,' 'action at a distance,' 'empathy at a distance,' 'passion at a distance,' and even ironically as 'fashion at a distance.' It refers to the uncanny action of atomic particles.

Soft-thought: Intelligence, internal logic, and comprehension of digital algorithms that affects design, especially in architecture.

Speculative Materialism: A term referring to the current speculative turn in contemporary philosophy and continental materialism closely associated and synonymous with the realist metaphysics of Speculative Realism.

'Spooky action at a distance': see 'quantum telekinesis.'

Tele-technologies: Technologies of distance; for example, telecommunications, television, radio, Skype, satellite communications.

Techlepathy: At the extreme, this refers to synthetic telepathy or 'psychotronics' associated with psychic warfare and 'extreme tech' telepathies that resemble telepathy chips and exotic, experimental forms of military mind-control devices; however, it can also be used to refer to gentler forms of technologically mediated telepathy or the technology of telepathy itself, such as language.

Telemetrics: Automatic measurements that are remotely transmitted.

Transference: In this paper I primarily refer to the therapeutic

psychoanalytic process known as 'transference' that occurs between patient and analyst. Freud considered transference to be inseparable from telepathy. It can also refer to the transformative transmission of energies such as electricity.

REFERENCES AND NOTES

1. Charles Green, *The Third Hand: Collaboration in Art from Conceptualism to Post-modernism* (Minneapolis, MN: University of Minnesota Press), 169. Jacqueline Drinkall, "Politics of Telepathic Collaborations: The 60's, the 80's and Now" (paper presented at *Collaborations in Modern and Postmodern Visual Art*, hosted by Social and Aesthetics Research Centre (SARU), School of English and Communications and Performance Studies, Arts Faculty, Monash University. Presented at Monash Conference Centre, September 30-October, 2010). Podcast available: <http://podbay.fm/show/390323811/e/1285905601>.
2. David Sylvester and Gilbert and George [Gilbert and George in interview with David Sylvester], "I Tell You Where There's Irony In Our Work: Nowhere, Nowhere, Nowhere," *Modern Painters* (Winter 1997): 18-25.
3. Suzanne Dikker, Lauren J. Silbert, Uri Hasson, and Jason D. Zevin, "On the Same Wavelength: Predictable Language Enhances Speaker-Listener Brain-to-Brain Synchrony in Posterior Superior Temporal Gyrus," *The Journal of Neuroscience* 34, no. 18 (2014): 6267-6272.
4. Suzanne Dikker and Liina Pykkänen, "Predicting language: MEG evidence for lexical preactivation," 55-63. "Predictive language processing recruits a top-down network where predicted words are activated at different levels of representation, from more 'abstract' lexical-semantic representations in temporal cortex, all the way down to visual word form feature."
5. Maryam Zaringhalam interviews Suzanne Dikker, "On the Same Wavelength," ArtLab, <http://thisisartlab.com/tag/>

- suzanne-dikker/ (accessed April 3, 2015).
6. Luciana Parisi and Steve Goodman, "The Affect of Nanoterror," *Culture Machine* 7 (2005), <http://www.culturemachine.net/index.php/cm/article/viewArticle/29/36> (accessed May 30, 2014).
 7. Paul Thomas, *Nano Art: The Immateriality of Art* (Bristol and Chicago, IL: Intellect, 2013), 24-25.
 8. Charles Wolfe, "Cultured Brains and the Production of Subjectivity: The Politics of Affect(s) as an Unfinished Project," in *The Psychopathologies of Cognitive Capitalism Part Two*, ed. Warren Neidich, 245-274 (Berlin: Archive Books, 2014), 249-250.
 9. Haque Design + Research, "Sky Ear," <http://www.haque.co.uk/skyear/information.html> (accessed April 23, 2014).
 10. Jennifer Gabrys, "Telepathically Urban," in *Circulation and the City: Essays on Urban Culture*, eds. Alexandra Boutros and Will Straw (Montreal: McGill-Queen's University Press, 2010), 48-63. Available online: http://research.gold.ac.uk/4544/1/Gabrys_Telepathically_Urban.pdf. Gabrys refers to Roger Luckhurst's book *The Invention of Telepathy*.
 11. Ibid.
 12. John Durham Peters, *Speaking into the Air: A History of the Idea of Communication* (Chicago, IL: The University of Chicago Press, 2000).
 13. Franco Bifo Berardi [sic Berardi], "ZaUM and Technomaya," Posthuman Destinies { Science, Culture & Integral Yoga }, <http://www.sciy.org/2011/12/17/zaum-and-technomaya-by-franco-berardi/> (accessed May 30, 2012). Also published in Franco Bifo Berardi, *After the Future* (Edinburgh: AK Press, 2011). Gabrys refers to art historians Linda Dalrymple Henderson and Douglas Kahn work on futurist engagement with electromagnetism and telepathy.
 14. Luciana Parisi and Stamia Portanova, "Soft Thought (in architecture and choreography)," *Computational Culture* (November 2011), <http://computationalculture.net/article/soft-thought> (accessed May 14, 2013). Parisi/Portanova conclude that pre-emptive power exists within algorithmic soft thought, but that this pre-emptive power of soft thought is contained autonomously within-itself. Parisi/Portanova express wonder at the complicated nature of very specific number-code to number-code communication of algorithmic computation, in contrast to the Parisi/Goodman text that overtly identifies the emotional affect generated by telepathic nanosoldiers as invasive state sanctioned fear. Different telepathies attach not just to different technologies, but to different affects their medias generate.
 15. Jacqueline Drinkall, "Politics of Telepathic Collaborations: The 60's, the 80's and Now." Jacqueline Drinkall, "Human and Non-human Telepathic Collaborations from Fluxus to Now," *COLLOQUY Text Theory Critique* 22 (2011), www.arts.monash.edu.au/ecps/colloquy/journal/issue022/drinkall.pdf (accessed 17 January, 2014).
 16. Timothy Morton, *Realist Magic: Objects, Ontology, Causality* (Creative Commons Online: Open Humanities Press, 2013), 34, 67, 172, <http://hdl.handle.net/2027/spo.13106496.0001.001> (accessed 17 January, 2014).
 17. Timothy Morton, *Realist Magic: Objects, Ontology, Causality*, 67.
 18. Timothy Morton, "Here Comes Everything: The Promise of Object-Oriented Ontology," *Qui Parle* 19, no. 2 (Spring/Summer 2011): 163-190, 177, 180.
 19. Karen Barad, "Nature's Queer Performativity," *Qui Parle* 19, no. 2 (Spring/Summer 2011): 121-158, 125.
 20. Jean-Jacques Lebel, "On The Necessity of Violation," *The Drama Review: TDR* 13, no. 1 (Autumn 1968): 89-105.
 21. McKenzie Wark, *Telethesia: Communication, Culture and Class* (Malden, MA: Polity Press, 2013).
 22. I am invited by Neidich to develop a closely related text exploring telepathy and psychopathologies of cognitive capitalism for a forthcoming edition of *Psychopathologies of Cognitive Capitalism*.
 23. Warren Neidich, "Neuropower: Art in the Age of Cognitive Capitalism," in *Psychopathologies of Cognitive Capitalism: Part One*, ed. Arne de Boevre and Warren Neidich (Berlin: Archive Books, 2013), 223.
 24. Marcello Tari and Illaria Vanni, "On the Life and Deeds of San Precario, Patron Saint of Precarious Workers and Lives," *The Fibreculture Journal* 5 (2005), <http://five.fibreculturejournal.org/fcj-023-on-the-life-and-deeds-of-san->

- precario-patron-saint-of-precarious-workers-and-lives/ (accessed November 3, 2009). Matteo Pasquinelli, *Animal Spirits: A Bestiary of the Commons* (Rotterdam: NAI Publishers / Institute of Network Cultures, 2008), 103.
25. Franco Bifo Berardi [sic Berardi], "ZaUM and Technomaya." Leibniz's dream of an alphabet of human thought emerged with the boom in global commerce, so that traders might communicate beyond the limits of linguistic difference. Berardi's telepathy of the virtual and of creative language experimentation feeds back into questions of trade, as does Bruno Latour's discussion of action-at-a-distance brought by modern powers of colonization, measuring, mapping, mobilization of resources and commodification in his text *Action at A Distance* in his book *Science in Action*.
26. David Porush, "Telepathy: Alphabetic Consciousness in the Age of Cyborg Illiteracy," in *Virtual Futures: Cyberotics, Technology and Post-human Pragmatism*, ed. Joan Broadhurst Dixon and Eric J. Cassidy (London: Routledge, 1998), 45-64.
27. Warren Neidich, "Telepathy, The Next Frontier", emailed word document to author of unpublished draft work-in-progress of proposed collaborative paper, August 23, 2013.
28. Warren Neidich, "Telepathy, The Next Frontier."
29. Stanislas Dehaene, "Evolution of Human Cortical Circuits for Reading and Arithmetic: The 'Neuronal Recycling' Hypothesis," online paper, pre-publication version, published in *From Monkey Brain to Human Brain*, ed. Stanislas Dehaene et al. (Cambridge, MA: MIT Press, 2004), <http://peterdanpsychology.ro/ro/pagina/25/files/docs/Dehaene-FyssenChapterPre-emption2004b.pdf> (accessed August 3, 2013). Gratefully sent to me by Warren Neidich with other texts on material engagement of extended cognition.
30. Maurizio Lazzarato, "The Concepts of Life and the Living in the Societies of Control," in *Deleuze and the Social*, ed. Martin Fuglsang and Bent Meier Sorensen (Edinburgh: Edinburgh University Press, 2006), 180. See also Warren Neidich, "From Noopower to Neuropower: How Mind Becomes Matter," in *Cognitive Architecture. From Biopolitics to Noopolitics: Architecture & Mind in the Age of Communication and Information*, ed. Deborah Hauptman and Warren Neidich (Rotterdam: Delft School of Design Series on Architecture and Urbanism, 2010), 539-81.
31. Lisa Blackman, *Immaterial Bodies: Affect, Embodiment, Mediation* (London: Sage, 2012).
32. Warren Neidich, "Telepathy, The Next Frontier."
33. Nigel Thrift, introduction to *Cognitive Capitalism*, by Yann Moulier Boutang, trans. Ed Emery (Cambridge: Polity Press, 2011), viii.
34. Sven-Olov Wallenstein, "Noopolitics, Life and Architecture," in *Cognitive Architecture. From Biopolitics to Noopolitics. Architecture & Mind in the Age of Communication and Information*, eds Deborah Hauptman and Warren Neidich, 47-60 (Rotterdam: Delft School of Design Series on Architecture and Urbanism), 54.
35. Tiziana Terranova, "Another Life: Social Cooperation and A-organic," *Digithum* 12 (2010), <http://digithum.uoc.edu/ojs/index.php/digithum/article/view/n12-terranova/n12-terranova-eng>. (accessed July 11, 2013).
36. Tiziana Terranova, "Another Life: Social Cooperation and A-organic."
37. Amara D. Angelica, "Discovery of Quantum Vibrations in Microtubules Inside Brain Neurons Corroborates 20-year-old Theory of Consciousness," *Kurzweil Accelerating Consciousness, News*, January 16, 2014, <http://www.kurzweilai.net/discovery-of-quantum-vibrations-in-microtubules-inside-brain-neurons-corroborates-controversial-20-year-old-theory-of-consciousness> (accessed May 26, 2014).
38. Amara D. Angelica, "Discovery of Quantum Vibrations in Microtubules Inside Brain Neurons Corroborates 20-year-old Theory of Consciousness."
39. Jacqueline Drinkall, Peter Hill, Gianni Wise, "Aesthetics of Quantum Action At A Distance in Transdisciplinary Art and Theory" (poster presented at the Australian Institute of Physics congress The Art of Physics. Presented at Melville Hall, Australian National University, December 7-11, 2014).

