Chapter 7

Logistical Media Theory, the Politics of Time, and the Geopolitics of Automation

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Provincial Media Theory

Like all theory, media theory is troubled by its provincialism, even if it struggles to take note of this common condition. As many readers may recall, Martin Heidegger famously refused a professorial chair in Berlin, instead preferring to stay in the provinces.[1] While the negative attributes of repressive culture, neurotic personas, and social intolerance are readily piled on the experience of provincial life, there nonetheless remains something positive to be said about provincialism: it can provide conditions for the crafting of unique concepts that, when combined with deep historical knowledge, generate a legacy that spans generations. But what happens when ontological conditions change from the security of the earth to the technical contours of media systems? How might such a transition from governance of the self and community to technical architectures of biopolitical control also register an epochal shift of geopolitical proportions as automation increasingly takes command?

Such questions speak to contemporary technological conditions, prompting an exploration of concepts immanent to or coextensive with media situations of patterns and prediction, complexity and control, contingency and failure. Wherever social life manifests in the world, the specter of provincialism appears as a potential organizing condition and institutional

horizon with epistemological implications for disciplinary formation, including media theory. Provincial thought all too often functions as an impasse to engaging contemporary media-infrastructural forces and modes of practice that shape the lives of many.

To foreground the provincial as a limit horizon for media-theoretical analyses of power is not to make a distinction between the provincial and some variant of neoliberal globality. We are always-already provincial. This is our situation. Provincialization is an historical process that afflicts both centers and margins of empire.[2] Indeed, the effects of provincialization on modes of thought may be more profound in spaces that assume the status of center—a structural position or worldview almost always at variance with the cosmopolitanism of strangers. For media theory, the provincializing effect is at once disciplinary and institutional, just as it is geocultural. We could also add that the provincialization of media-theoretical idioms is technical and historical. Software updates build on and inherit the faulty design of legacy architectures. So too does media theory, tinkering at times in different institutional, social, and cultural settings that may register, with a degree of delay, as a school of thought. The Kittler School, The Annenberg School, The New School. 4chan becomes 8chan. And then relaunches as 8kun.

Critically attending to the materialities that define the media situation quickly makes apparent the complication of importing conceptual imaginaries and theoretical tropes that may have accumulated kudos and gained admirers in part due to the economies of publishing and social desire for celebrity scholars who spawn individual and collective neuronal stimulation. The provincializing effect of the knowledge industries concocts asymmetrical forms of reception and circuits of distribution. Dominant knowledge is decoupled from the materialities of the media situation. The trick is to collectively design transversal relations and technical architectures that stitch provinces together in ways that unsettle social-technical regimes of

perception and knowledge production. Cohesion is but a gesture, albeit one that is ratified by the political economy of scale and institutional cultures of consent. Concepts have a limited reach. Philosophy, for instance, rarely generates new concepts these days and more often than not functions to police thought and restrict invention, preferring instead to trawl over the fortified remains of received ideas.

Alert to the intersection between geopolitics and geoculture, and cognizant of computational infrastructures such as data centers and smart grids that generate new sovereign forms, this essay assumes neither the nation-state nor planetary-scale digital platforms ("stacks") as the primary configurations of governance specific to the automation of economy and society.[3] In approaching the problematic of contemporary geopolitics, I set out the case in this essay for practices of method and analytical techniques that start with the media question, which so often nowadays is also an infrastructural question. First and foremost, the media question is alert to the material tendencies and properties of technological forms and their cybernetic systems. As such, the media question is attuned to the environment of technological operations.[4] Devising a media-theoretical approach to address historical and contemporary conditions is therefore antithetical to template theory if one wishes to engage and encounter the world, which is a world fractured by multiple lines of crises that cross ecology and society, economy and politics. Template theory is something like the compulsion to take canonical views and reapply them across conditions and situations regardless of the nuances of phenomena and field of forces. While our historical condition is not entirely new in all aspects, there is a sense of singularity at the current conjuncture that, if nothing else, invites us to revisit ideas of what theory is, what it can do, and what its response to the world might be. In devising a critical theory of our times, we need

media-theoretical approaches alive to the dynamics of the world made technical—approaches that are alert to epistemology and history, but not reducible to them.

Within systems of algorithmic governance, epistemology has become subsumed into techniques of policing society. But the calculus of power is never total. Submission is not the only option. The production of concepts derived from the operational logic of platform architectures can provide explanatory models of the empirical world. Forms of counter-knowledge to algorithmic power can, for example, be produced by reverse engineering or modelling computational operations that exert pressure on performance regimes endured by labor.[5] Media theory need not be obliged or beholden to the ethnographic methods of science and technology studies and cognate fields since it is through the question and instantiation of power that logistical media theory can make intelligible the variational conditions of automated worlds. To the extent that standards enable the technical and organizational interoperability of communication protocols, the capacity for technologies of automation to extend their geopolitical command of territory is challenged by the advent of competing hegemons, as evident in the competition between Chinese and U.S. firms to develop artificial intelligence and machine learning services, which are central to major shifts in automation driven by data extraction, accumulation, and analysis. How these technological developments then play out within specific settings, such as Amazon or Alibaba fulfillment centers in Kuala Lumpur, Brieselang, Grolsheim, or Sydney, adds to the uneven and unforeseen ways in which power is forged from and against the contingencies of labor dispute, technical inoperability, infrastructural failure, supply chain mishaps, environmental intrusion, and the like.

To advance critical inquiry into computational conditions that organize economy and society, politics and subjectivity, requires a study of how power is generated within and by

digital infrastructures, systems, operations, and practices. The objective here is to establish empirical coordinates that provide an analytical basis for populating disciplines in the humanities and social sciences, and possibly elsewhere, with a conceptual vocabulary coextensive with contemporary technological conditions. The operational logic of digital communication technology can furnish concepts of power able to describe and explain emergent geopolitical forces. Logistics is geopolitical because it requires new frontiers of extraction. Time is one of the primary frontiers operative within logistical media of communication, control, and coordination. The phantasm of real-time is pervasive across the logistical industries and, indeed, the extraction of value from supply-chain systems and labor regimes is time-critical. Yet the actual synchronization of real-time necessarily evades digital networks of communication since the relationship between time and value is made possible by temporal differences specific to the technics of logistical media.[6] A temporal interval inherent to the operational logic of the digital unsettles the politics of decision. Distributed across networks of supply and demand, the seriality of the interval as technically differentiated time conditions the space of politics. As Bernhard Siegert notes, "Once we read the synchronic segments diachronically, time appears as a function of space."[7] Advancing a critical geopolitical account of automation, this essay explores the political potential of the interval as a concept immanent to the operation of logistical media.

The Geopolitics and Chronopolitics of Media

Datasets define our situation. Such a post-Kittlerian dictum speaks to the massive accumulation of data required to train software to respond to variables within controlled environments. Data on legislation related to driving law within any particular province or state, for instance, fulfill just one category in the parameters of operation necessary for the production

of autonomous vehicles. The programming of contingency as it relates to unforeseen objects launching unexpectedly in front of a moving car is again specific to cultural situations. Children, elderly people, a jogger, dogs, balls, or any other object or thing moving in ways that could produce an accident are going to vary according to cultural and social habits. The rule-bound tendencies of urban populations in western and northern Europe are dramatically different from the behavior of pedestrians on the busy streets of Rome let alone somewhere like Kolkata or Jakarta. The situation, in other words, has become the testbed for a world not easily translatable.

Optimization, control, metrics, dashboards, prediction, preemption, tasks, lists, ranking, transaction, raw data, autonomy, adaptivity, statistical induction, replication. These are some of the many typologies, categories, actions, routines, and processes from which to compile a logistical media theory immanent to the technics of artificial intelligence and machine learning. The coordinates and contours of a media theory attentive to technologies of automation, for example, need to discern how a geocultural encoding within software engineering indexes an optic onto the geopolitics of the tech industry. Whether it is Salesforce, a customer relationship management platform, or Elon Musk's investment in autonomous cars, the parameters of operation coded into these systems are informed by the cultures from which they emerge.[8] But the traffic here is by no means one-way. Parameters and protocols also generate cultural forms, practices, problems, and modes of expression. Witness, for instance, the currency of terms like "algorithmic cultures," "software cultures," and "network cultures" to identify and describe the ways in which culture is always-already technical and, nowadays, computational. The cybernetic process of feedback and contingency makes situations distinct. Variabilities that compose communication systems will exert capacities that produce conflicts and struggles within specific media-cultural arrangements.

Automated customer service technologies and process management systems from companies such as Tencent and Alibaba hold default cultural settings that are not equivalent to the platform capitalism stemming from Silicon Valley. To take just one example, the business models of tech firms such as Amazon and Alibaba manifest in substantively different ways with regard to the structure and management of warehousing facilities, which are effectively testbeds for machine learning systems. Amazon invests substantially in infrastructure, including construction of its own warehouses, while Alibaba's development of third-party digital platforms mirrors its preference to establish partnerships with existing companies in the logistics and warehousing industry. Such differences can be understood, in part, as cultural variations of similar material forms, namely, the warehouse.[9] The ways in which material, infrastructural forms that share a similar typology then populate the world has territorial implications. When territory is understood in technological terms, the warehousing software operations of Amazon and Alibaba index a geopolitical dimension to their business practices.

In short, the geopolitics of data economies signals an emergent contest of territoriality that unsettles post–World War II geopolitical world orders defined by the legacies of colonialism, inter-governmental treaties and trade agreements, legal regimes, and supranational organizations such as the World Trade Organization, the World Bank, Association of Southeast Asian Nations, and the like. The rise of China over the past decade as a world hegemon, manifest in transcontinental infrastructural projects such as the Belt and Road Initiative, provides one key to an emergent geopolitical remaking of territory. The development of software systems as logistical media designed to manage activity and govern the movement of people, finance, and commodities in tandem with supply chain infrastructures offers another point of entry into a study of the relation between technical systems, territorial arrangements, and geopolitical

configurations. Such an investigation would include an analysis of the role of standards and protocols, which are central to the efforts of firms, especially, in maximizing the potential for interoperability across operations whose spatial relations are orchestrated by economic interests channeled through the nexus of software and infrastructure.

Here, one might take note of two Chinese government policy initiatives, *Made in China 2025* and the *New Generation Artificial Intelligence Development Plan*.[10] These strategic plans on artificial intelligence and machine learning lend an optic onto the contours of geopolitics through infrastructure. Oscillating between exuberant business and tech media reports on a thriving start-up sector and the ominous rise of state endorsed surveillance programs, China is engaged in a political-economic tussle with the United States to expand its geopolitical power modulated through algorithmic architectures and digital infrastructures. With a massive digitally connected population at hand to generate the volume of data required to fuel the training of machine learning systems, China's State Council is poised to become "the premier global AI innovation center" by 2030.[11] The transfer of intelligence from the human mind to the logistical state registers the geopolitical status of media as a technology of governance in the management of economy and society.

Within an Innisian framework the "territorial state" of ancient civilizations and their empires was predisposed toward a spatial or temporal bias as a result of the material properties of prevailing transport systems and communication technologies.[12] And this made civilizations and empires vulnerable to external forces able to exploit such infrastructural oversight or limits to capacity. The logistical state, by contrast, encompasses both dimensions simultaneously. The global networks of supply chains expand the territorial reach of producers and suppliers required for the operation of the logistical state. Enterprise resource planning (ERP) software systems

calibrate labor productivity and coordinate the movement of goods and finance in an approximation of real-time and data centers store, process, and transmit the data integral to logistical operations governed by computational systems. These are the infrastructural components that generate the possibility of imperial rule for the logistical state. Importantly, the spatial and temporal dimensions described here are not synchronic or spatial equivalents. Time and space are peculiar to each, forming layers or, more likely, a complex undulation of planes that overlap and intersect on some occasions while colliding and disconnecting on others.[13]

Media are geopolitical because they extend over space. And they are also chronopolitical because they produce the rhythms and pulses of economy, labor, and life. The allusion to the writings of urban theorist Paul Virilio on "dromology" (the "science" of speed) is no accident here, although I invoke the term quite differently.[14] Virilio's chronopolitics of speed and acceleration of history exceeding the human capacity to govern space may be offset against another theorist of time and technology, namely, German media archaeologist Wolfgang Ernst and his organizing concept of chronopoetics.[15] Where Ernst offers a micro-description of the temporal properties of media forms that impact on perception and epistemology, Virilio diagnoses how the acceleration of time wrought by technological intensification in effect decimates the assertion of human life to self-govern.

In *Polar Inertia*, Virilio registers the triumph of "real time" over "real space."[16] With such terms of reference, we may consider Virilio as the first theorist of logistical media, even if nineteenth century colonial technologies such as telegraphy inaugurated the social-technical experience and perception of time eclipsing space. Whether it is the exertion of labor, the outputs of manufacturing processes, the packing of inventory, the distribution and delivery of goods, the management of workplaces, the monitoring of air particles, the anticipation of accidents, or the

preemption of crime—all are instantiations of contemporary logistical media where the *chronos* of calculation is calibrated by digital media of real-time. Virilio was perhaps too hasty in prioritizing the temporal dimension of media and communication technologies when, indeed, the political-poetic beauty and horror of logistical media lie in their capacity to command space and time simultaneously.

Logistical media depart from Harold Innis's concern that all communication media are prone to either a spatial or a temporal bias.[17] Logistical media approximate real-time and may be regarded, historically, as the first media of quasi-equilibrium. Both spatial and temporal dimensions of logistical media jostle for primacy in the shadow of interoperability. However, like economic theory that supposes an optimum balance in supply and demand will result in a general equilibrium of market forces and "perfect competition," projecting a condition of equilibrium or balance onto logistical media only holds to the extent the phantasm of an interoperable model of real-time excludes dissonance and the far-from-equilibrium forces or disequilibrium operating within any system. As Niklas Luhmann notes, the metaphor of a "balance of trade" took root in the seventeenth century, and "by the end of that century it also motivated the idea of an international, specifically European, balance of power between nations (or political factors)."[18] Inherently provincial in cosmopolitical outlook, the equilibrium assumed by classical economics as a possible stabilizing mechanism or condition of behavior in markets and geopolitical relations between nation-states is underscored by disturbance. Luhmann points out that "imbalance or disequilibrium might function as a condition of stability."[19] Jeremy Walker and Melinda Cooper reverse this assessment in their account of the influence of ecologist Crawford S. Holling on neoliberal approaches to financial, environmental, and security crises: "the long-term expectation of stability may be inherently destabilizing."[20] Given the partiality of

knowledge and uncertainty of forecasting technologies, which include automated techniques of

preemption and prediction, a necessary condition of disequilibrium is the force of the constitutive

outside. A world exists external to techno-economic operations. The organization of space and

time is not reducible to relations of cause and effect, inputs and outputs.[21] As I discuss below, the

temporality of the interval internal to the operation of the digital is pregnant with that which

evades capture in the binary switch between zeros and ones.[22] Within this slither of time subsists

a universe of possibility from which a politics of time may emanate as "a competition or struggle

between … different forms of temporalization."[23]

The idea of logistical media as a system of relative equilibrium does not result in a

balanced society, as Innis supposed, with power and control kept in check. Rather, across any

number of reports and academic studies we find an increasing disparity in the distribution of

economic wealth and a widening gulf across the class spectrum between the wealthy and the

rest.[24] The political economy of automation technologies and the monopoly effects of platform

economies produce further divides in the form of highly uneven access to and distribution of data

that drive machine learning systems, despite the often prevalent ideologies of openness. These

forms of division in economy, society, and data are obtained through seemingly conflictual

modes of organization: the centralization of planned economies as distinct from data scattered

across network architectures and digital infrastructures. Common to the multiplication of

organization and distribution is the consolidation and entrenchment of division.

Paradoxically, the quasi-equilibrium of logistical media generate an intensification of

disequilibrium in Virilio's sense of human disorientation and the surrender of decision. Pure

chronopolitics is the complete annihilation of time, a temporality with no past, present, or future.

Time as the pulsation of sensation amplified to serve capital's appetite of synchronic extraction.

This is the end point of logistical ambition: the instantaneity of capital accumulation unshackled from the externality of the interval.[25] The temporality of the interval restores to logistical media the property of bias. With the interruption of time offered by the logic of the interval, media again become a scene of contestation and power made manifest.

Spatial Scales and Technical Regimes

Set against the predicament of provinciality, the transcontinental perspective I adopt across a number of collective research projects foregrounds the variational ways in which digital technologies of control and *interoperability* are troubled and disrupted by social-technical instantiations of *inoperability*.[26] Systems, in other words, are always prone to breaking down. Networking, as Geert Lovink reminds us, is also about Notworking.[27] Such forms of unsettling regimes of power manifest in many ways. Take, for example, peasant communities in the new IT town and smart city of Rajarhat on the outskirts of Kolkata who engage in willful acts of infrastructural sabotage in response to the violence of dispossession wrought by the West Bengal government's invocation of a colonial administrative remnant, the Land Acquisition Act of 1894. In tandem with changes to this Act in 2013 and the Special Economic Zone Act of 2005, the government was able to legally conjure a zoning technology for Rajarhat designed to attract foreign capital to finance the transformation of fertile agricultural land and fisheries into non-agricultural use.[28] Peasant populations numbering in the tens of thousands experienced economic and social displacement as a result of this process of "primitive accumulation," or what David Harvey prefers instead to term "accumulation by dispossession."[29] In the case of Rajarhat, the expropriation of land and the partial remobilization of peasant labor forced into "service villages" are the conditions of possibility for the logistical city and its data economy.

Infrastructural sabotage of roads and fiber-optic cables is one way of thinking the constitutive outside that attends the media-infrastructural transformation currently underway across many sites in the world.

In the case of electronic waste industries in China we see a quite different form in which "supply chain capitalism," to invoke a term by anthropologist Anna Tsing, is confronted with the limits of protocological totality.[30] The logistical software architectures that feature in shipping industries, warehousing, and distribution centers are also operative within supply chains that shift toxic infrastructural and technological waste around the planet. However, there is a strong informal sector at work in the collection and dismantling of discarded, decommissioned electronic devices. This informal sector does not use the hugely expensive, technically complicated, and frequently bug-prone enterprise resource planning software such as that produced by SAP and Oracle. Rather, the often-illegal e-waste industry maintains its networks using everyday software preinstalled in computers or easy to download—MSN, Skype, Weibo, and so forth. Or at least that's how the informal sectors in the e-waste industries were working in Zhejiang around ten years ago.[31]

My point is that the universe of software in the informal sector presents a protocological incompatibility or border with high-end ERP software. This means that the logistical world driven by an impulse to make everything accountable, calculable, and transparent is confronted with a constitutive outside not figuring within the technical operation of the interval—secondary economies of waste that, due to protocological disjunctures and platform silos, are not registering within meta-level technologies of control despite their inclusion within a larger ecology and economy of waste. Wherever it subsides, waste carries a potential value, as evidenced in the mass accumulation of data made valuable again by analytics, machine learning, and so forth. The

constitutive outside also generates a special form of subjectivity: the production of what I call non-governable subjects, which is an interesting proposition in a country like China where, as we repeatedly hear, there is a massive rise in investment and research and development in artificial intelligence and facial recognition technologies.

Recent governmental technologies like Alibaba's Sesame Credit system and the platform variations that make everything and everyone visible and financialized within a control paradigm of preemption and prediction are hardly exclusive to China. Such technologies are being rolled out across the world. It's important to note that while Anglophone news media report on China's facial recognition technologies and social credit systems of Tencent and Alibaba as if they were totalizing technical regimes, there is considerable variation in platform architectures and their techniques of capture across and beyond the provincial spaces of the nation.

The extent to which these data extraction and aggregation platforms step into the world with such power is indicative of the erosion of trust and amplification of despair and depression following decades of social upheaval wrought by structural and economic transformation. Computational systems and technical architectures may address the problem of trust in transactional ways that scale. However, despair and depression tend not to respond well to "solutions." If the production of subjectivity is key to processes of capital accumulation, is there a temporal regime that is also specific to processes of subjectivation? Since the production of subjectivity intersects with the technics of production, this is also a question of time and technology. In short, what is the time of digital media? And can the temporality of digital media hold implications for geopolitical formations? Operations of digital media have both temporalized attributes and temporalizing capacities. They interact cybernetically with environments, but they also create new temporal orders, producing a politics of time.

Decisionism and the Interval

In some ways the media question has become more uncertain than ever. If media were once supposed to have an organizing, transformative power to produce effects, giving rise to the academic discipline of "media studies," nowadays the nexus between media power and disciplinary borders is less certain. Yet the battle persists over who owns the infrastructure and data of communication, who designs and controls the standards and protocols, and who determines the right to be heard. These are among the core features that continue to define the media question. Media theory seems eclipsed by the ubiquity of its objects. As technologies of mediation increasingly find their way into societies of sensation and economies of calibration, the monopoly of knowledge hitherto enjoyed by the discipline of media and communications is now harangued in a world where everyone is an expert. Within the academy, many disciplines claim the authority to speak about digital technologies—mathematicians, urban planners, engineers, biologists, health scientists, sociologists, and architects, to name just a few.

Across society at large we are all invited to comment and find it increasingly difficult to extricate ourselves from the pressure to connect. Yet a crystallization of thought often enough emerges from moments of crisis—if that is indeed the current situation of media theory. While many of us identify with transdisciplinary methods or embrace forms of disciplinary promiscuity, there remains a distinction of media theory within environments governed by digital objects. As media approach a universal condition of integration with labor and life, the organic and inorganic, the question of power becomes amplified. Media theory asserts its ontological and epistemological dimensions when a curiosity in the material properties and tendencies of communications media is coupled with a critical interrogation of the operation of power.

If calculation machines have displaced representational regimes, then the ontological properties of media become secondary to the procedural routines of sorting, classifying, correlation, pattern recognition, prediction, and preemptive action. If power is understood as immanent to processes of subjectivation and technics of governance, then the production, distribution, and force of power are similarly internal to these more epistemological procedures as distinct from the ontological properties of media. But it is a mode of power whose limit is defined by the interval.

As much as systems of classification aspire to totality, their logic is haunted by the intervention of the fissure that distinguishes one category from the next. Within ecological conservation professions this problem is referred to as the taxonomic impediment in which insufficient information and knowledge of planetary biodiversity can be overcome by additional training of taxonomists and museum curators. Certainly this is one way to formulate a discourse to make claims on funding for the future of particular professions. But it does not address the epistemological void and political potential that subsists in the interval between zeros and ones, which is also the mathematical foundation of the digital and the basic architecture on which computational procedures are built.

The concept of the interval can thus be understood as a space of pure contingency and unintelligibility or incommensurability: the interval comprises that which evades the power of decisionism but is nonetheless subject to it. In contrast to the "discrete points" of the digital—the *decisionism* of the digital, if you will—the world of the analog is defined by "continuous variation."[32] In defining the relation between the digital and the logic of division, Alexander Galloway writes: "As the one dividing in two, the digital describes processes of distinction or decision. Both distinction and decision involve the separation of a formerly indistinguishable

mass into separate lumps. To decide means to choose, but it also means that the choice has been rendered into discrete paths that may be chosen."[33] This illusion of freedom instantiates the engineering constraints that define the situation of media.

When such a notion of decision "motivated" by the digital is extended to a consideration of Carl Schmitt's notion of decisionism, the power to decide inflects the operation of the digital as an assertion of sovereign media.[34] While for François Laruelle, in Galloway's account, the event of the decision is "a kind of *static preemption*",[35] which we might understand in Schmittian terms as a potency of suspension not yet cleaved to material transformation (politics of action), the decisionism of the digital nonetheless is also setting futurity in motion insofar as the parameters of the decision always-already assume and, importantly, reveal a contour of possibility. In other words, a prehistory attends the event of static preemption. Concretely, one might point to the ways in which engineers program into the functionality of software systems algorithmic routines that have already defined the set of permutations possible in the course of finite combinations and computational processes. The technical *a priori* or preemptive logic of computational decision is internally coherent to the extent that it precludes the disruptive force of the outside.[36] The outside to decision is contingency: the crash, the virus, protocological inoperability across platforms, and any number of material perturbations (labor strikes, climatic interference, infrastructural sabotage, failure, etc.).

In digital facilities such as data centers, low latency is the optimal economy of time. To be sure, low latency is not equivalent to real-time. In the case of high-frequency trading, low latency is key to the time required to switch packets of data containing information on financial derivatives or to algorithmically analyze stock options and market performance. Indeed, as Florian Sprenger argues in his long-form essay on the politics of micro-decisions and

communication networks, real-time information is "technically impossible to attain."[37] Through an extended reading of Paul Baran's technical paper "On Distributed Communication Networks" (1964),[38] Sprenger retrieves the political and epistemological significance of interrupted time that arises from "bursts of information" that define the transmission of data divided into packets and switched from node to node across network architectures. The micro-decisions made by computational systems in the process of switching packets of data are never instantaneous but rather "in time," creating a human perception and experience of simultaneity or "real-time" in the traffic of information.[39]

Of the many riveting insights developed across Sprenger's essay, perhaps none is more significant for network politics than his identification of technical interruptions that accompany decision-making processes specific to the operation of digital networks.[40] Interruption can also be understood as a form of temporal interlude or interval manifest in the switching of packets. When interruption conditions the possibility of decision by machines, a form of vulnerability is inherent to sovereign power migrated from the subject to data processing systems and digital infrastructures. In network architectures control proceeds on the basis of interruption that defines the instantiation of decision as packets of data switch at nodes in the system. Such is the internal limit, as noted, to the decisionism of the digital. Unlike Schmitt's conception of sovereignty as the power of the state to assert a legitimate right to decide the exception, within network architectures decision exceeds the sovereign state: the act of control is a technical operation predicated on interruption, or what I have defined in this essay as the digital logic of the interval. Paradoxically, the sovereign act of technical decision is necessarily interrupted. At this moment the interval conditions the passage of decision.

Politics of the Non-Digital

It is tempting to attribute to the analog the verdancy of materiality in all its splendor. Yet we know all too well the materiality of the digital: from the monocrystalline silicon substrate of printed circuit boards to the architectural form of data centers stuffed with server racks, from the copper alloy of coaxial cable to the bodies in pain that mine elemental metals such as copper from the Chilean mountains.[41] As a technological object and electronic system, the digital is both produced and conditioned by multiple variants of the material world. Needless to say, at an operational level the digital is constitutive of habits and routines across a panoply of institutional settings, urban systems, and industrial sectors to the extent that what at first glance might appear as non-digital—the work of teaching and administration in universities, preparing meals in a commercial kitchen, or driving long-haul trucks across the Nullarbor Plain that stretches from the east to west coasts of Australia—is in fact intimately tied to and can be read back against the digital.

The material world, in other words, is losing sight of itself. Which is not to say that it vanishes so much as persists in ways beyond registration and external to the calibration machines of the digital. Outside the calculated emptiness of the interval blossoms the triumph of material worlds not yet surrendered to the command of the digital. The earth's tectonic plates continue to punctuate the surface of the planet with fault lines, volcanoes, and earthquakes. The celestial motion of stars, comets, and planets negotiate gravitational forces. The moon tugs away on oceans and rivers. The worm makes its way through crevices in the sand. These are forms of materiality not touched in substantive ways by the digital, if at all. As ubiquitous as digital media and computational operations are in daily life and economy, their reach is not total. Needless to say, the extension of the digital is sufficient enough to attract critical attention. That is obvious.

In the society of metrics, neopositivism assumes authority within the disciplinary context of both the university and organizations such as government departments, think tanks, NGOs, lobby groups, and service companies tasked with the production of knowledge. Paradoxically, one task for a media theory of the digital is to pursue thought and practice that is non-digital.[42] This amounts to a politics as well, a politics that contests the digital decisionism of calculation and code, synthesis and connection, procedure and preemption. When decision is dependent on the numeric, the technics of interruption assures the orientation of data by the activation of the TCP/IP protocol in the instance of packet switching. At a functional level this form of interruption is not an act of revenge immanent to the logic of the digital. But subsisting in the interruption is an interval that enunciates the non-digital component of digital operations. The micro-temporality of the interval signals the externality of the digital.

A media theory of the digital explores the properties of media to devise an aesthetics of disappearance in the society of tracking. The generation of social-technical systems of non-standardization and indeterminacy amounts to a politics of secrecy and non-transparency alive to contingency and the incomputable.[43] The political question of how to stage and make operational an "aesthetics of disappearance" would turn back, precisely, to the digital logic of the interval. An aesthetics of disappearance consists of media, because they are ubiquitous. The digital, because its binary decisions don't register the materiality of the interval. And the material, because the interval evades total accountancy by the digital. Within an aesthetics of disappearance, or what we might now call the materialities of digital media, time accumulates, no matter the micro-temporality of the interval within computational systems whose operationality requires machine decision. Time outside extraction technologies is time that

pulsates to rhythms, time that has not been captured by chronopolitics in Virilio's understanding

of that term. The heartbeat of an insurgent geopolitics is the multiplication of the interval.

[1] Martin Heidegger, "Why Do I Stay in the Provinces?," in *Heidegger: The Man and the Thinker*, ed. Thomas Sheehan (Abingdon and New York: Routledge, 2017), 27–30.

[2] I am thinking here of Dipesh Chakrabarty, *Provincializating Europe: Postcolonial Thought and Historical Difference* (Princeton: Princeton University Press, 2000).

[3] See, respectively, Immanuel Wallerstein, *Geopolitics and Geoculture: Essays on the Changing World System* (Cambridge: Cambridge University Press, 1991) and Benjamin Bratton, *The Stack: On Software and Sovereignty* (Cambridge, Mass.: MIT Press, 2015).

[4] See Erich Hörl, "Introduction to General Ecology," in *General Ecology: A New Ecological Paradigm*, eds. Erich Hörl with James Burton (London: Bloomsbury Academic, 2017), 1–73.

[5] See, for example, Robert W. Gehl, "(Critical) Reverse Engineering and Genealogy," *Le foucaldien*, 3, no. 1 (2017), DOI: 10.16995/lefou.26

[6] Thanks to Florian Sprenger for bringing these points to my attention.

[7] Bernhard Siegert, *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (New York: Fordham University Press, 2015), 102.

[8] For an analysis of Salesforce and the relationship between epistemology and algorithmic governance, see Eva-Maria Nyckel, "Investigating Organizational Powers of Process Management Systems Through the Origins of Process Management: Taylorist Techniques in Contrast to Salesforce Technology," unpublished paper, 2017.

[9] See Dara Orenstein, *Out of Stock: The Warehouse in the History of Capitalism* (Chicago: University of Chicago Press, 2019).

[10] See State Council of the People's Republic of China, *Made in China 2025*, May 19, 2015 and State Council Notice, *New Generation Artificial Intelligence Development Plan*, July, 2017. An English translation of the latter is available at Graham Webster, Paul Triolo, Elsa Kania, and Rogier Creemers, "A Next Generation Artificial Intelligence Plan," *China Copyright and Media* (blog), July 20, 2017, https://chinacopyrightandmedia.wordpress.com/2017/07/20/a-next-generation-artificial-intelligence-development-plan/

[11] Elsa Kania, "China's Artificial Intelligence Revolution," *The Diplomat*, July 27, 2017, https://thediplomat.com/2017/07/chinas-artificial-intelligence-revolution/.

[12] See Harold A. Innis, *The Bias of Communication* (Toronto: University of Toronto Press, 1951).

[13] Here, I am drawing on Ned Rossiter, "Imperial Infrastructures and Asia beyond Asia: Data Centres, State Formation and the Territoriality of Logistical Media," *Fibreculture Journal* 29 (2017), http://twentynine.fibreculturejournal.org/fcj-220-imperial-infrastructures-and-asia-beyond-asia-data-centres-state-formation-and-the-territoriality-of-logistical-media/

[14] See Paul Virilio, *Speed & Politics*, trans. Mark Polizzotti (New York: Semiotext(e), 1986). See also John Armitage, "Beyond Postmodernism? Paul Virilio's Hypermodern Cultural Theory," *Ctheory* a090 (2000), https://journals.uvic.ca/index.php/ctheory/article/view/14598.

[15] On Virilio's concept of "chronopolitics," see Paul Virilio and Sylvère Lotringer, *Pure War*, trans. Mark Polizzotti (New York: Semiotext(e), 1983) and Eric Wilson, "Chronopolitics," in *The Virilio Dictionary*, ed. John Armitage (Edinburgh: Edinburgh University Press, 2013), 45–47. See also Wolfgang Ernst, *Chronopoetics: The Temporal Being and Operativity of Technological Media*, trans. Anthony Enns (London and New York: Roman & Littlefield, 2016).

[16] Paul Virilio, *Polar Inertia*, trans. Patrick Camiller (London: Sage, 2000).

[17] Innis, *The Bias of Communication*.

[18] Niklas Luhmann, *Introduction to Systems Theory*, trans. Peter Gilgen (Cambridge: Polity, 2013), 26.

[19] Luhmann, *Introduction to Systems Theory*, 27.

[20] Jeremy Walker and Melinda Cooper, "Genealogies of Resilience: From Systems Ecology to the Political Economy of Crisis Adaptation," *Security Dialogue* 42, no. 2 (2011): 143–60.

[21] See Sandro Mezzadra and Brett Neilson, *The Politics of Operations: Excavating Contemporary Capitalism* (Durham and London: Duke University Press, 2019), 5.

[22] Suffice to say one would be hard-pressed to identify a messianic dimension within global logistical industries, yet there is some structural affinity here with Peter Osborne's reading of Walter Benjamin's critique of historicism and the temporality of modernity: "New-time (*Neuzeit*) becomes the now-time (*Jetztzeit*) of a materialist messianism for which the exteriority of the messianic is found to be paradoxically immanent to the structure of temporality itself." Peter Osborne, *The Politics of Time: Modernity and Avant-Garde* (London and New York: Verso, 1995), 116.

[23] Osborne, *The Politics of Time*.

[24] Among such studies perhaps none has gained more attention and fewer readers in recent years than Thomas Piketty, *Capital in the Twenty-First Century*, trans. Arthur Goldhammer (Cambridge, Mass.: Harvard University Press, 2014).

[25] It is important to note that empirically, and therefore analytically and conceptually, capital accumulation does not function exclusively through some incremental logic of increasing speed. Rather, there are multiple and often conflicting temporalities that underpin capital accumulation. The phenomenon of "slow steaming" in the shipping industry, for example, is pushed by pressures of capital accumulation that includes energy costs, labor strikes in ports, smaller cargoes, reduced traffic in global commodity flows, etc. A multitude of time, in other words, defines the economies of the logistical industries. My point, however, concerns the temporality of logistical media. See Brett Neilson and Ned Rossiter, "Still Waiting, Still Moving: On Migration, Logistics and Maritime Industries," in *Stillness in a Mobile World*, eds. David Bissell and Gillian Fuller (London and New York: Routledge, 2011), 51–68.

[26] These projects include Transit Labour: Circuits, Regions, Borders (2009–12), http://transitlabour.asia, Logistical Worlds: Infrastructure, Software, Labour (2013–17), http://logisticalworlds.org, and Data Farms: Circuits, Labour, Territory (2016–20), http://www.datafarms.org/.

[27] Geert Lovink, *The Principle of Notworking: Concepts in Critical Internet Culture*, public lecture, Hogeschool van Amsterdam, February 24, 2005, http://www.hva.nl/lectoraten/documenten/ol09-050224-lovink.pdf

[28] See Ishita Dey, Ranabir Samaddar, and Suhit K. Sen, *Beyond Kolkata: Rajarhat and the Dsytopia of Urban Imagination* (New Delhi: Routledge, 2013).

[29] David Harvey, *The New Imperialism* (Oxford: Oxford University Press, 2003).

[30] Anna Tsing, "Supply Chains and the Human Condition," *Rethinking Marxism: A Journal of Economics, Culture & Society* 21, no. 2 (2009): 148–76.

[31] During this time I was conducting collective field research on e-waste industries with my students at the University of Nottingham, Ningbo. Material from their research can be found at http://orgnets.cn. See also Ned Rossiter, "Translating the Indifference of Communication: Electronic Waste, Migrant Labour and the Informational Sovereignty of Logistics in China," *International Review of Information Ethics* 11 (2009), http://www.i-r-i-e.net/issue11.htm.

[32] See Alexander R. Galloway, *Laruelle: Against the Digital* (Minneapolis: University of Minnesota Press, 2014), xxix.

[33] Galloway, *Laruelle*, xxix.

[34] For an overview of Schmitt's thinking on sovereign power, see Carl Schmitt, *Political Theology: Four Chapters on the Concept of Sovereignty*, trans. George Schwab (Chicago: University of Chicago Press, 2005).

[35] Galloway, *Laruelle*, 20.

[36] For a fascinating account and critique of the technical *a priori*, see Stefan Heidenreich, "The Situation After Media," in *Media After Kittler*, eds. Eleni Ikoniadou and Scott Wilson (London and New York: Rowman & Littlefield, 2015), 135–53.

[37] Florian Sprenger, *Micro-Decisions: Snowden, Net Neutrality, Internet Architectures*, trans. Valentine A. Pakis (Lüneburg: Meson Press, 2015), 97.

[38] Paul Baran, "On Distributed Communications Networks," *IEEE Transactions* CS–12, no. 1 (1964): 1–9.

[39] See Sprenger, *Micro-Decisions*, 98.

[40] See Sprenger, *Micro-Decisions*, 111–13.

[41] See Ned Rossiter, "Copper," in *The Oxford Handbook of Media, Technology, and Organization Studies*, eds. Timon Beyes, Robin Holt, and Claus Pias (Oxford: Oxford University Press, 2020), 160–71.

[42] See Galloway, *Laruelle*, xxix.

[43] See Timon Beyes and Claus Pias, "Secrecy, Transparency, and Non-Knowledge," in *Non-Knowledge and Digital Cultures*, eds. Andreas Bernard, Matthias Koch, and Martina Leeker (Lüneburg: Meson Press, 2018), 39–51, https://meson.press/books/non-knowledge-and-digital-cultures/. See also M. Beatrice Fazi, *Contingent Computation: Abstraction, Experience, and Indeterminacy in Computational Aesthetics* (London and New York: Rowman & Littlefield, 2018).