

[Wolfgang Ernst: NOTES ON TECHNICAL MEDIA]

NOTEBOOK "MEDIA THEORY, AND TECHNOLOGOS"

[unedited cursory notes, theses, excerpts, grouped into thematic blocks]

Thematic blocks:

- *Media Theory*
- *Technólogos*
- *Artificial Intelligence and "Deep" Machine Learning*

Detailed content of blocks:

Media Theory:

NOTES ON MEDIA THEORY AND MEDIA SCIENCE

- Limits to the Extended Understanding of Media
- Towards a Media Science

ON THE EXTENDED "LOCKDOWN" MODE OF ONLINE UNIVERSITY TEACHING, AND THE UBIQUITOUS ALGORITHMIZATION OF ACADEMIC RESEARCH

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- Digitization of Academic University (triggered by "Corona")
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- "Old European" vs. Chinese / Japanese / Korean techno-logical attitude
- Logocentric priority of "dialogue" vs. communication engineering
- Cosmotechanical ethics?
- (Media-)Experimental "Teknowledge" Economics. "Mediating" economic communication vs. media *technólogos*

- Technológos and / or "terramorphosis"

Giuseppe Longo, *Le cauchemar de Prométhée. Les sciences et leurs limites*

Artificial Intelligence and "Deep" Machine Learning:

NOTES ON ARTIFICIAL INTELLIGENCE AND "DEEP" MACHINE LEARNING

- On the "X"plainability of Artificial Intelligence
- "Memory" vs. Markov chains in artificial (voice) data training

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Media Theory:

NOTES ON MEDIA THEORY

Limits to the Extended Understanding of Media

- current media theory - extending to geological strata, "rare earths", and its extractions of chemical lithium for batteries - about technology no more? epistemic capacity unfolding from material level of "media"; analysis of media technology not to be confused with "mediative" function

Towards a Media Science

- necessary precondition for "media" analysis: sound knowledge of its technological core; from there branching into more social, or phenomenological, economical, political and other contextualization; "radical" media archaeology, though, rather staying *within* the technological analysis, to create epistemic insights from techno-logical materialities themselves

ON THE EXTENDED "LOCKDOWN" MODE OF ONLINE UNIVERSITY TEACHING, AND THE UBIQUITOUS ALGORITHMIZATION OF ACADEMIC RESEARCH

- state of the art in April 2021: looking forward to seeing less "images" from computer screens, and see real student faces again, as soon as post-pandemic university takes place again - but then, is there any knowledge- and *lógos*- related "essence" of academic teaching and learning ("embodied" or not), which cannot be "digitized"?

- on the "non-digitizable element" in university teaching and learning practices: still necessary more than simply "social" argument that the

university must be founded on meetings and exchanges where students and teachers appear to each other in real presence; especially for faculty members "speaking as belonging to the generation before the digital natives" = e-communication Jacob Lund (Univ. of Aarhus) on April 28, 2021 / "old school", a more precise epistemic definition required of what Zoom video conferencing could ever substitute - "maybe in part but never fully" (Lund). / practice; recent "livestreamed" lectures; Agamben's question, whether an academic "contact" can be maintained via Zoom, on the paradox that the "digital", although etymologically related to the hand, does not allow for indexical, only electric "touch"; Agamben's text: <https://illwill.com/philosophy-of-contact>

- urgent to launch a spontaneous response to the challenge of the COVID-19 virus to culture, and practice; facing the "lockdown" of most public life, an ongoing discussion about the "systems relevance" of "soft" issues like culture, and aesthetics in such times; humanities's apparatus of research and text production, however, "much less agile than our minds" - therefore only belated "postpandemic" reflections on its consequences = e-communication Jacob Lund, December 16, 2020 - the usual "lag" of humanities, *versus* Virilio-like capacity for analysis in "realtime" in the military strategic mode; the consequences of the pandemic vs. consequences of the plague / contagion *on* aesthetics

Double "ghost lectures" / "ghost readings"

- students editing Media Theories' "ghost lecture" ("Log book Media") during first semester of Corona lockdown of Humboldt University (summer term 2020) in German; part of the text actually an automated speech-to-text transformation ("Watson") of the video-recorded / transmitted "live" lecture = Wolfgang Ernst, Geistervorlesung. Techniknahe Analyse in Zeiten der Pandemie, edited by Thomas Fecker & David Friedrich, Glückstadt 2021; "[...] intriguing that it was partially done with automatic technologies. This adds an extra layer of interest to it - too bad that I gave up on learning German after reaching B.1 at Goethe Institut which was not enough [...] to even learn how to write an e-mail in German [...]. I am happy to use Deep L for automatic translations of German texts that I want to read, when they are available as digital documents" = response August 7, 2021, Marcus Bastos from Sao Paulo - which actually is the perfect machine learning "reader" response to the automatic "Watson" transcription of my lectures! In the end, algorithmicized readers will read algorithmically produced texts - a different kind of posthuman "academic" knowledge transmission

Digitization of Academic University (triggered by "Corona")

- Jussi Parikka, Digital Contageons; expert on computer viruses (the

symbolical) protecting against the micro-biological virus (the real) once genetically decoded; counter-weapon mRNA (vaccine) built on informational concept (non-invasive, no genetic manipulation)

- academic return to "normal life" / to a life of calm after pandemic COVID-19 plague? even in Wuhan, people's life restarting "after pressing the 'pause button'. Everything seemed the same as before, but something looks different than before"= Chen Wei, 25 September, 2020; a different discursive atmosphere; change for old European university as institution of knowledge dramatic; academic "home office" and the digitization of teaching and research having a serious impact on the self-understanding and definition of what represents the core of university, with restricted seminars or lectures in real presence; urgent need to reflect on that radical transformation; combination of "Corona virus + digitization" actually transsubstantiating the essence of academic university; its delegated to (and subsequent substitution by) online-services

Snippets on Teleconferencing

- participant asking, in the videoconference discussion following Paris *Technologies de la Visibilité* conference lecture WE "The Image Function" (November 2020), on political biases of machine learning and AI, immediately got an invitation to participate at another Zoom conference on "Security" - by human attention, or a machine logic / profiling being Zoom software itself?

- remembering the first round of lockdowns: a couple of students (professional DJ's in the club scene) organizing online parties *via* YouTube and Facebook streaming services "surprised to discover that when any copyright material, even in short samples, appeared in their streams, the connection was cut within a matter of seconds. Even with obscure small edition albums" = electronic mail Raviv Ganchrow, Dec 4, 2020; Ganchrow "skeptical that their signals were really being monitored considering the amount of data crisscrossing the net in streaming during lockdown and the fact that DJ mixes often have overlapping audio tracks that would make the recognition process all the more calculation heavy" = *ibid.*; according to DSP expertise apparently possible "by way of an older set of algorithms coming from genetics, specifically tree-structure algorithms for DNA sequencing" = Ganchrow *ibid.*; thereby connecting to decoded Corona-19 virus and the mRNA coding of its counter-vaccine; this algorithm "highly efficient in tracking any pre-catalogued sequenced data signatures like those of audio waveforms. And given other advances in speech recognition machine listening, it too could be standard protocol by now every time we go live" = Ganchrow *ibid.*; fascinating evidence of automated "censuring" (aka copyright-protection) for YouTube audio livestreams; what will occur in online transmission of weekly university

lectures; underlying algorithms stemming from genetics making it even more ironic in times of the pandemic virus triggering such explosions of "streaming media" communication

Techno-logical resistance: "I'd prefer not to"

- "other-than-human", living-being perception, vs. machinic perceptronics; idea of machinic interoception

- human fatigue of "online" teaching and conferencing, in the sense of the proverbial "I'd prefer not to" by Barthleby in the eponymous novel of Herman Melville; even case of online participation, all of a sudden, technical reason itself intervenes, turning the "I'd prefer not to" into an articulation of technológos itself (which is inherent technological reason): browser suddenly resisting to install further necessary package updates of the video conferencing software Zoom

In analogy to an interpretation by Slavoj Žižek in his book *The Parallax View*, Bartleby's "I would prefer not to" is to be taken media-literally, "to discern the void that separates material reality from itself" (Žižek *ibid.*)

[For this extract, see web site "Disturbing Bookclub ", <https://disturbingbookclub.tumblr.com/post/160523968635/i-would-prefer-not-to-is-to-be-taken-literally>, accessed February 2, 2022]

- corresponds with core hypothesis of book contribution "Do Media Have a Sense of 'Time'?"

["Do Media Have a Sense of 'Time'? Chrono-Technical Interoception", in: Natasha Lushetich / Iain Campbell (eds.), *Distributed Perception: Resonances and Axiologies*, London / New York (Routledge) 2021, 49-63]

since radical media archaeology - the method proposed - takes the "parallax" view of technology *from within* (in perfect media-archaeological alliance with Conor McKeown's contribution "Autobiographing our computing organs. Rereading past uses of Intel CPU as xenotransplantation" in *Distributed Perception* book, and Adrian Mackenzie's article on Machine Learning), asking: is there something like a temporal perception within technology itself, comparable to Edmund Husserl's "Phenomenology of the Inner Sense of Time", or is the time dimension a human projection upon such devices?

- a specific reason why a minority group of authors in *Distributed Perception* book focuses on technologies, since different from more speculative realism, the technical scene allows to ground such inquiries in experimentally verifiable "phenomenotechnical" scenarios, granting a "veto right" to matter and energy itself

Technólogos:

NOTES ON TECHNOLOGOS

- combining, in the shadow of alphabetic scripts, the numerical / computational code with the voice via telephone "call", thereby testing Lacan's notion of the Borromean knot which (impossibly, since voice is digitized in transmission) entangles the symbolic with the real
- "How are the mental and the material, mind and matter, related to one another? [...] one of the big questions of sciences and humanities through centuries." = web site Society for Mind-Matter Research <https://www.mindmatter.de>, accessed June 27, 2023; still semantically continuing dichotomy, though, vs. "radical" media-archaeological analysis: originary co-evolution, avoid binary vocabulary, still taking differentiation into account
- rather differentiate into triple: mind / brain / embodiment; degrees of "objectivation" of the mind; technological analogy: hardware / software / robotics (sensors) & "mind"; transitive corporeal bias vs. intransitive "mind"; in between: neural signal processing
- easier in (spoken) English, as Derridean *différance*: correlation of "technology" and ("techno-logical") "tec-knowledge" as the essence of *technólogos*; implicit vs. external techno-knowledge
- following philosophies of technologies which define them as co-evolutionary with the definition of the "human" itself
- question concerning technology not just a contemporary, but a principal one. "Strictly speaking every Age of mankind is, since from the very beginning", *en arché*, "a technological" and not simply technical "age" = "Presentation" of the forthcoming *Mechane Journal of Philosophy and Anthropology of Technology* (January 2019) - at least in terms of coding (the symbolical regime) by articulated language. In favour of a genuine media-epistemology, differentiation between "technology" and "technique" (as technical "extensions of man"; this relation not simply an evolutionary one), rather a media-archaeological rupture
- mind and / as machine: unlike the unconscious of psychoanalysis, according to Marie-Luise Angerer, *Nonconscious. On the Affective Synching of Mind and Machine*, Lüneburg (meson) 2022, the nonconscious "no longer coupled to a subject grounded in language, instead acting as an affective link between technical, mental, and physical processes" = <https://meson.press/books/nonconscious>, access 4th April, 2022; according to *technólogos*-hypothesis still a different kind

of "language"; logocentrically assuming a machine-induced logic unfolding in coupling with human mind, different from *alógos* of brute matter; knowledge-informed matter (*technológos*) confronting matter's idiosyncrasies and entropy (*technalógos*)

Lógos / sarx: Technology and / or "embodiment of the mind"

- nicht schlicht "translate the statements of the logical calculus into / mechanical switching elements of any other physical implementation. This final step in the process would 'make the words flesh' [...]. Zuse proposed the name *Logistik* for such work." = Paul E. Ceruzzi, *The Early computers of Konrad Zuse, 1935-1945*, in: *Annals of the History of computing*, vol, 3, no. 3 (July 1981), 241-262 (247 f.)

- such transitive medium *aisthesis* in the Aristotelean sense reminding of another, rather theological figure of thought: according to the *lógos / sarx* theorem, pure *lógos* (a. k. a. "god") becoming subject to physical - that is: entropic - existence by becoming flesh - to be dialectically reconciled by Jesus Christ's final ascension; technologies, though, different configurations of this (supposed) mind / matter dichotomy, coming into existence as an equiprimordial entanglement

- at Pentecost, the Holy Spirit, as language, literally embodied into humans (wetware) in tongues; alternatively, by compilers, symbolic software becoming implemented not simply *in*, but *as* techno-logically informed hardware

Expressing *lógos* in / as technical being

- technical (in)formations of matter / as machine; misleading translation "in being" in German: "im Sein"; German "im Vollzug" rather: "in execution"

- (in)formations of matter, and the computational machine; "technology" as subject of investigation, and "media archaeology" as method

- tracing / identifying *technológos*, towards a radical media-archaeological understanding of technology

- technical media epistemology / *technológos* hypothesis, about sparks of knowledge springing *from within* technological devices (both hard- and software), below the "audio-visual" phenomenal media interfaces, though

"Algorithmic Thought" and / or Media Thinking

- in analogy to computation / computing differentiation
- beyond Heidegger, the "Question concerning algorithm": essence of algorithm, once implemented, nothing algorithmic, rather time-discrete, processual / procedural analytics / machine; replace ontologic question "what is" by "what it does"
- non-philosophical approach, first of all: inductive, derive epistemic sparks from within the techno-mathematic object; metaphysics returning into / becoming the machine; a non-human becoming "medium" of thought
- Heidegger's critique of technical instrumentality vs. techno-logical implementation; "embedded mind" (Andy Clarke) returning *via* computing"; *lógos* becoming processual in sense of (data-procedural) "collecting" (*legein*)
- automation of thinking replacing philosophical quest for "truth" by Cartesian procedure / method / algorithm; ex-carnated thinking (parallel to Deleuze, on cinema)
- not only "glitches" breaking logic, but logic itself incomplete = Luciana Parisi, as proposed at TCS-Research Workshop "Algorithmic Thought / Digital Power", March 18, 2019, at SAGE Publications, London; formal reasoning becoming incomplete with Church / Gödel; experimental axiomatics (Dewey)
- from computation to computing: Turing's 1937 negative answer to Entscheidungsproblem, but resulting in the most effective turingmachine
- from AlphaGo "machine intelligence" to AlphaGoZero: playing against itself, from learning rules, no human supervision / no "big data" input
- TM not simulating human brain ("Deep" Learning), but emulation; if mind / computing relation can not be measured / mapped, literally "incommensurable" = Beatrice Fazi, as proposed at TCS-Research Workshop "Algorithmic Thought / Digital Power", March 18, 2019, at SAGE Publications, London); Leo Breiman, Statistical Modeling: The Two Cultures, in: Statistical Science, vol. 16, no. 3 (2001), 199-231
- "hermeneutic ghost" DARPA's "explainable AI" initiative (Fazi), vs. "flat ontology"
- non-linear "layers"; new metaphysics lurking behind the hermeneutic "hidden" rhetoric; "black box" input / output, as long as the between can be mathematically modelled, remaining within the symbolic regime

- neural networks realized in computer graphics chips: schematic concept of "image"; visual pattern-recognizing "Perceptron" (Rosenblatt 1957)

- McLuhan's lococentrism: "If it is asked, 'What is the content of speech?', it is necessary to say, 'It is an actual process of thought, which is in itself nonverbal.'" = Understanding Media. The Extensions of Man, 5th ed. London et al. (Routledge) 2005, 15

Escaping "Ontology": Articulations of Technológos with Freud / Lacan

- "typo" *massage* in stead of *message* for book title *The Medium is the Message*" (Marshall McLuhan, with Quentin Fiore, 1967) a "slip of tongue" in the techno-logical sense, both materially, and logically; see Website "Commonly Asked Questions about McLuhan - The Estate of Marshall McLuhan", marshallmcluhan.com, accessed April 3rd, 2021; answer by Dr. Eric McLuhan to 'Why is the title of the book The Medium is the Massage and not The Medium is the Message?

- human typesetter one the one hand, but more immediately: the typeset letter frame itself, in its materiality and probabilities (Shannon / Vief)

- technical knowledge from within, a "real" which desires to be articulated in / as the symbolic order; therefore depending on human embodiment (brain / thought) respectively (electro-)technical embedding / implementation of source code in computing in order to become operative (being-in-time, with Heidegger); equation of the real with "to be", but technology always in being ("ontology", participle present); "enactment" = Martin Carlé, Dance as a means of programming in Networked 4E Performance Environments, 1st draft March 26, 2023

The Techno-Logical Allurement

- techno-mathematical "standing reserve" (Heidegger's *Ge-stell*) inviting to be inhabited by / as (human) intelligence, while at the same time being subject to physical limitations; weak interpretation: heuristic media-theoretical hypothesis / depends on human scientific curiosity to become explicit (technológos); strong interpretation: technológos "in being", involving human intelligence like "memes"

Media-Aesthetics from within Technology

- "The partial tones are part of something that they themselves produce in the first place." = Bernhard Siegert, Mineral Sound or Missing Fundamental: Cultural History as Signal Analysis, in: Alexandra Hui / Julia

Kursell / Myles Jackson (eds.), *Music, Sound, and the Laboratory from 1750 to 1980*, Chicago. Il. (Univ. of Chicago Pr.) 2013 [Osiris series, vol. 23], 105-118 (117)

- thinking and writing *with* and *by means* of objects of media-aesthetic experience, instead of cold, distant reasoning about art forms; aesthesiographical focus on moving images, sound art, and other media-cultural practice; "practical aesthetics" the academic companion to practice-based artistic research; Herzogenrath (ed.), *Practical Aesthetics*; Barck et al. (eds.), *Aisthesis. Wahrnehmung heute*

- media art works no intransitive objects of distant intellectual analysis, but inviting analytic reason to get affected by their own *modus operandi*; "sensitive thinking" (Herzogenrath) *with* the matter of aesthetics, widening the analytic scope to its embodied channels; aesthetics in its own medium (and media); conquering *aisthesis materialis*

- replacing lofty philosophical judgements on media art works by precise case studies in materially, or technically, embodied *aisthesis* in its original sense, ranging from technical media such as VR, to cultural techniques such as museology and dance

- material (if not "medial") *aisthesis*, in the Aristotelean sense of the actual matter of perception; against conventional logocentric, word-centered approach, paradigmatic case studies re-interpreting the aesthetics of multi-media artworks and artifacts as an encounter between human cognition and the physically real

- tracing the matter of artworks and technical artifacts *from within* its own inherent qualities; striking sparks of aesthetic knowledge by precise case studies in applied material practice; instead of getting lost in philosophical abstraction, taking into account the productive frictions which arise from the encounter of cold academic analysis, and empathetic co-aesthetic experience

- technology and aesthetics contradictory realms? "practical aesthetics" an operational (rather than passively analytical) approach to media objects of research, without reducing its effect to the straightforward apparatus; aesthetic matter linked to, but not exclusively determined by technical practices; focus on the aesthetic message of material practice, rather than aesthetic content

- "tecknowledge": its inherent *technológos* and experiential "phenomenotechnique" (Gaston Bachelard) the reason for the emergence of technology as cultural agency

Relating Technology to Ontology

- main media-technical / -archaeological issues epistemological rather than ontological

- analytic ontology (Alfred North Whitehead) focusing on the processual "event"; processual ontology close to the essence of media technologies itself (since only when being in operation a medium is in its medium state); media archaeology (different from the apparent archaeological metaphor) not uncovering artefacts but events

- "ontological reversal" whereby activities of cultural techniques such as counting *precede* the associated concepts such as number, normally thought to come first" = Winthrop-Young, Geoffrey, Cultural Techniques: Preliminary Remarks, in: Theory, Culture and Society 30, no. 6 (2013): 3-19 (15); material symbol manipulation (material *token*, Hilbert)

- matter / energy *preconditions* of technical media, but not yet media archaeological objects; rather processes like electro-magnetic induction (and not steel and magnetism for Wire Recorder); Aristotle's Metaphysics focussing on form and matter, not process: "[...] from Aristotle onwards ontology has dealt with the matter and form of things rather than the relations between things in time and space" = Friedrich Kittler, Towards an Ontology of Media, in: Theory, Culture & Society 2009 (SAGE, Los Angeles et al.), vol. 26 (2-3), 23-31 ("Abstract")

-technologies in ("media") being escaping the ontological question (not simply "forgotten", or rather: systematically "forgotten")

- not static "ontological" objects, but micro-momentary processes revealed in media-experimental settings (a kind of Heideggerian *aletheia*, "Lichtung" / electric lightning) media processes defined by patterns of signals unfolding in time; *dynamic ontology*: frequencies instead of beings, quantities instead of qualities and functions instead of attributes, to paraphrase Bernhard Siegert (referring to Max Bense) = Siegert, Cacography or Communication? Cultural Techniques in German Media Studies, 40: "Like physics, aesthetics is a science whose primary object is signals, the physical materiality of signs."

- instead of meta-discursive approach to the phenomenon of material aesthetics, inductive argumentation *from within* the techniques and aesthetic matter, close to object-oriented ontology; signal-processing point of view of the machine instead of "sensual" aesthetics privileging human experience on the phenomenological level

- Beatrice Fazi actually writing a piece comparing "different ways of relating technology to ontology according to three frameworks - digital humanities, cognitive science and German media theory"; any "virtual

mediation" co-articulating *technológos*; message after interrupted Zoom teleconference; while discussing this topic: "The unbearable lightness of being has killed our internet connection! [...] Maybe we can continue via email, or attempt virtual mediation in the future again" = Beatrice Fazi, electronic (re-)communication 2nd. March, 2021; old computer, for overheating in Skype / Zoom video conferencing, interrupting communication by its sudden breakdown; the machine probably afraid of the conversation topic, the "ontology of media", since this concerns the question of computing itself

- a more critical distinction between the metaphysical question of ontology ("to be") vs. the technological question of the processual ("in being") required; Kittler's use of the term in his "Towards an Ontology of Media" in TCS 2009; some thoughts in proposed contribution to the book which might never "come into being" (*Philosophy After Computation*)

- paraphrasing / redefining from *TECHNOLÓGOS IN BEING. Radical Media Archaeology, & the Computational Machine*:

- lofty philosophical deductions, with its rather liberal, extended and generalized notion of a "machine-oriented ontology" (Bryant 2014: 15), metonymically musing about the essence of machines but rarely coming close to their specificity as technology / their *technológos* in detail; avoiding ontological metalanguage by deriving epistemic insights from close analysis of technological processes from within

- for radically process-oriented media ontology, any technology only coming into being by its very material / energetic ("mateReal") embeddedness *a priori*

- radical media archaeology, in combination with object-oriented ontology, tracing technological operations down to its material and logical roots, such as its core algorithm; emergent phenomena in big data processing revealing their algorithmic knowledge only when in action

- media archaeology checking human-centred media cognition against an ontology of technology from within, thereby avoiding the metaphysical allure

- non-anthropocentric philosophy of technology recognizing the inherent epistemic relevance of technology from within, towards a process-oriented ontology

- disability studies (such as Jonathan Sterne's *Diminished Faculties*) vs. non-anthropocentric approach to media *technológos*

- techno-locative and time-critical identification / archaeological description of the interlacing of *lógos* and matter in concrete media-technological scenes; attempts towards a more comprehensive ontology of *technológos-in-being*
- against media-philosophical ontology asking for what computers are in essence, "one should focus on what they do: they *execute*" (Gauthier 2018: 156); algorithms requiring to be implemented in the material technique itself to become active
- very term "technology" reminding of this split ontology: It is not only the science of *techné* but of its *lógos* as well
- with the analysis of the materialities of technical operations, philosophical ontology enriched with a processual, temporal turn: *lógos-in-being*, a being-in-operation; technologies "being" in their analogue respectively digital "media" state only when transducing signals and processing data, as systems with *eigentime* (Berressem 2018: 86)
- even if not primarily considered the decisive epistemological condition of human culture, avoiding reduction of technology to a mere subset of a more fundamental ontology
- technologies inexorably operating by exact definitions of their own; can be analysed in the media-scientific laboratory, instead of getting lost in otherwise speculative techno-realism; media archaeology insisting on such grounding, precisely identifying the techno-logical scenes
- tracing the *arché* of technical media, the primary confusion stemming from the question of the "essence" of technology. According to my media-theoretical definition, "media" come into existence only when in operation, signal-processually. There is no "to be" but only "being" for technologies, which is often mistaken for their "ontology". Of course, literally "ontology" already refers to a present participle (ancient Greek *on*), that is: the operative "mateRealities", rather than to "to be", but is conceptually mistaken when used to identify timeless (transcendental, metaphysical) qualities.
- Kittler on media ontology, in: TCS 2009; still inserting the question into a "history of being" (Heidegger's "Seynsgeschichte"), whereas more radical media-archaeological approach keeps the question of technology apart from ontology right from the beginning (*en arché*, or diagrammatically "from scratch" as expressed by Kittler, p. 30) in a non-historical epistemic frame. While most of Kittler's examples still refer to cultural techniques (alphabetic writing, the book form, etc.), a more rigid restricting of technical media to events like the electro-magnetic induction cannot be linked to the history of ontological debates but rather create a break; question of technology has not simply be

"forgotten" in the history of ontological ideas (McLuhan, Heidegger, Kittler), but has / is a distinct epistemic field at all; remain two options: either widening the concept of "ontology" in a more literate sense, with the "on" as participle present addressing processual being (close to Whitehead, but this time not applied to natural science, but to its coupling with technical *lógos*), or keeping "ontology" distinct from the thinking of technology, since the philosophical tradition has limited "ontology" too much, therefore in combination with technology, it will always make associate the wrong questions; actually not fundamentally different from Kittler in TCS, but maybe a more radical emphasis of his implicit argument. Where Kittler still enframes the relation of technology and ontology within a historical (explicitly "recursive" knowledge frame as two related emanations, radical media archaeology tries to rethink them apart with an different tempoR(e)al; where Kittler still sees technological autonomy within history (after all, as introduced by TCS, Kittler has been the "chair of Aesthetics and Media History" at Humboldt University), rather grant technológos an autonomy of its own, not related to any "historical ontology", in favour of a more processual ("atemporal" in a double sense) ontology

- "An anti-ontological approach to media, a radical opening of the analytical domain to any kind of media process, has been more productive and theoretically challenging than any attempt [...] at answering the question of what media 'are'" = Eva Horn, There is No Media, in: Grey Room 29 (Winter 2008), 7-13 (8)

- with Turing, the "human" - when in a "thinking" / reasoning / calculating condition - defined as inhuman: a paper machine; long desire of human thinking to get liberated from its "human" idiosyncrasies in favour of pure *lógos* (Platonic idea); becomes material in technologies, now re-entry of human cultural knowledge (technology) in nonhuman "cyber"space; pure "Geist" not meta-physical any more, but implemented in the real of technology (matter / energy), becoming "active" as in-formatized matter" a. k. a. computing; concrete: cultural techniques (alphabet) returning from within: alphanumeric code (symbolic) and microchip silicon "printing" production "lithography" (matter) = see Kittler, There is no Software - but this time operative itself; technológos taking over

Cybernetics / Interface

- intuitive, "immediate man-machine communication" = Licklider 1960 vs. symbolically coded (*lógos*) input by teletype / alphanumeric keyboard; even "speech assistants" (Alexa, Siri) forcing human to adopt to machine understandability / "formal" language as phemonemal equivalent to machine language; no "symbiosis" (term justified only for coupled organisms) but coupling of organism (man) with machine

(computer): asymmetric "symbiosis", suspended by cybernetic premise of signal traffic "in the animal and the machine" (Wiener 1948)

Embodied knowledge and / or *lógos*

- logocentric knowledge genealogy of the European University; current transformation of academic life *via* pandemically enhanced "digitalization" no simple extension of classical teaching / learning into the "hybrid" realm, but a fundamental metamorphosis; *Geistervorlesung* facing a camera instead of a lecture hall, in allusion to the "Geisterspiele" which means soccer plays in empty arenas

- idiosyncratic "social" factor; to what degree even academic knowledge rooted in "extended mind" (Clark) / "embedded mind" (Varely), which is reduced by "digitization" of University communication (Zoom); according to Judith Butler, Notes toward a Performative Theory of Assembly, Cambridge (Harvard University Press) 2015, "assemblies of physical bodies have an expressive dimension which is not reducible to speech, since their physical presence affect the outcome of their gatherings" = as paraphrased by Katharina Loeber, Big Data, Algorithmic Regulation, and the History of the Cybersyn Project in Chile, 1971–1973, in: Soc. Sci. 2018, 7, 65; doi:10.3390/socsci7040065; vs. (techno-)*lógos* hypothesis; assembly close to *legein* as "collecting"

Techno-logical correlationalism

- according to techno*lógos* hypothesis, technically embodied knowledge a specific form of revealing (Heidegger) which can only unfold in / as operative media; material reasoning; thought (symbolical order) implemented in *mateReal* an asymmetric correlation

- in Kantian "correlationalism", human insight restricted "to the correlation between thinking and being, and never to either term considered apart from the other" = Quentin Messailloux, After Finitude: An Essay On The Necessity Of Contingency, trans. Ray Brassier (Continuum, 2008), 5

- media-active (techno-logically appropriated / controlled) correlationism: *lógos* must relate to matter / energy in order to know it as "information"

- prior to discovery of fossils no knowledge about existence of dinosaurs = Levi R. Bryant, entry CORRELATIONISM. An Extract from Peter Gratton / Paul J. Ennis (eds.), The Meillassoux Dictionary, Edinburgh University Press, <https://eupublishingblog.com/2014/12/12/correlationism-an-extract-from-the-meillassoux-dictionary>, accessed July 20, 2021; "archaeological" pre-historic notion of *arché* (Messailloux' "ancestry")

turned principal resp. structural by media archaeology: against Kantian "correlational" scepticism that whether or not things-in-themselves are this way something never knowable, media-active correlation of investigative *lógos* with *téchne*

- Karen Barad's generalization of quantum entanglement; Nils Bohr: measuring instrument entangled in observed object; measuring media themselves form of materialized thought / investigative matter; techno-correlationism: we must relate techno-logically (that is, in technically implemented thought) to matter and energy in order to know it, such as unpredictability of algorithmic behaviour once coupled to big data (MA thesis Johannes Maibaum, on Fast Fourier Transform)

- different understanding of *technology*: no technical "being" apart from being "thought" by a subject, or (formal) language

Logocentric priority of "dialogue" vs. communication engineering

- difference between "communication studies" and technically-oriented "media science"; at German universities, "Kommunikationswissenschaft" mainly referring to the verbal (and audiovisual) content of public mass media - which is communication between humans; from a more technical point of view, in communication engineering (such as Claude Shannon's Mathematical Theory of Communication from 1948 which is still the standard for "digital" communication media today), there is a *non-dialogical* (or rather: techno-dialogical) understanding of "communication as well": between machines; in terms of cybernetics, even the confrontation between weapons (such as an "enemy" airplane and local anti-airplane artillery) constituting a moment of "communication" when signals are being received and processed; Roch / Siegert "Maschinen, die Maschinen verfolgen"; Hiller "Maschinen lesen", e-commentary March 4, 2022 tanghaijiang: "what puzzles me is that if the world were purely physical, inorganic, there would seem to be no good or evil. How did you solve this?"

- human cultural discourse on technology always ethically biased, but truly scientific analysis of technology necessarily (as much as possible) unrestricted from such discourses, since pure love for knowledge has to be unlimited in the first place; "radical" media archaeology experimentally assuming the view of the machine itself, or the "physical" view (if possible), coming close to what is nowadays called "speculative realism" (such as in *Meeting the Universe Half-Way* by Karen Barad); in his more popular introduction to Claude Shannon's *Mathematical Theory of Communication*, Warren Weaver pointing out that this kind of media analysis does not ask for the meaning, of ethical values, of what is transmitted over a media channel, but rather calculates the stochastic probabilities for coded signals to be successfully transmitted at all - the difference between a technology-prone media science, and more discourse-oriented communication studies; this antithesis (roughly overstated) does not need to be "solved", but remains productive exactly because of its differences; e-commentary Haijiang Tang, March 8, 2022, on the value of an information theory or technological perspective: media-archaeological vision not "solving" the question of meaning (ethics). "The question is, how can technology escape the question of meaning?"; media-archaeological view very different from understanding of phenomenology; main differences between account of "truly scientific analysis of technology" and Husserl's account of the scientific crisis in Europe; closely related to the question of time; media phenomenology, and media archaeology (or "media science") complementary in their different approach to technology - just like *Chronopeotics* book approaching the question of time both from the phenomenal human experience of media time, such as "live", "recorded", and "real time", and

from the inner-technical "sense of time"

- decisive difference whether technologies thought, and developed (even "invented") in a discourse which "roots" technology in given environments (the "cosmotechnics" approach), which may be ethical as well, or whether mechanical symbol operations are radically "liberated" from any such references, to allow for the free play of techno-mathematical thought (a.k.a. "technológos"); Husserl, in his *Krisis*, obviously defending a concept of technology which does not lose contact with phenomenal perception of the "world", while "radical" media theory reconstructing the progressive autonomization of machine operations (both hardware, and software) - otherwise, digital computing would not have arisen, starting from Leibniz, up to the Turing machine; a remarkable temporal coincidence that Husserl's *Krisis* lectures were delivered the same years when Turing published his seminal article "On computable numbers": script by Friedrich Kittler from a previous conference on phenomenology in Istanbul: "Phänomenologie versus Medienwissenschaft", <http://hydra.humanities.uci.edu/kittler/istambul.html>

Cosmotechnical ethics?

- Jussi Parikka's *Geology of Media* looking at technologies in terms of their matter and supply chains, replacing "media" by their concrete hardware and / or energy matter (rare earths, like Lithium), but only Lithium's affordance in / as in-formatized matter, that is: its techno-*logification* turning brute matter into *medium*

- cosmotechnical ethics? = Martin Pogačar (research fellow Institute of Culture and Memory Studies, ZRC SAZU, Ljubljana, https://www.internationaleonline.org/research/politics_of_life_and_death/27_and_the_earth_along_tales_about_the_making_remaking_and_unmaking_of_the_world); against the free spirit of technical experimentation (European science in contrast to Chinese high culture); Yuk Hui's approach when applied to a concrete media-archaeological object: the escapement-driven mechanical clock.

- *Kulturtechniken* = Siegert 2023; concept of "cultural techniques" regarding anthropogenic impulse: a core of defining the knowledge-driven human neg-entropically against other (non-)beings

(Media-)Experimental "Teknowledge" Economics. "Mediating" economic communication vs. media technológos

- socio-anthropological / anthropocentric "mediation" approach to economy ("embedded" or "embodied"?), and / or epistemic economy of

techno-logical knowledge (short cut: "teknowledge") transfer in its double sense of knowledge channels and technological knowledge as such; comparison Europe / China; reminder of Harold Innis pre-conditioning media studies from the economic side of trade channels / staples already, the second one rather philosophy of technology

- media message (McLuhan) of digital video conferencing: still human, or already pixel artefacts, turning communication partner into android appearance; "human relatedness" (Xiang) rather shining through the audio channel which is technically easier to process for hard- and software; dialogic human performance becoming more operative via Zoom; preference of acoustic "persona(re)" against visual inter"face"

- mediate ("vermitteln", "medial"); "mediation" oscillating between active, intentional participle present ("vermittelnd"), and self-acting media agency

- title suggesting rather traditional role of technical media as "mediating" communication between human agents - the anthropological / anthropocentric approach (draft Biao Xiang) which is body-related "performative" (cultural techniques, phenomenological "intentionality" with Husserl) vs. truly techno-logical "operative" (task-oriented): full machine agency; Brett Neilson / Sandro Mezzadra, book on logistics, featuring (inter-)operationality / operation; subtitle of W. E. *Chronopoetics* on operativity of technical media; Lash editing a special issue of Theory Culture & Society journal on "Ecologistics", including Xiang's piece on Yiwu in China: "a bit of an experiment" (Lash) about channels (Shannon), extending to computational media; Brett Neilson and Ned Rossiter working on logistics and operativity, joining November 2021 workshop on Zoom: tele-communicative logistics

- (inter-)operativity no abstract logi(sti)cal diagram, but embedded in actual electronic circuitry; techno-logical (negentropic / cultural) difference from un-informed, brute "active matter" (Schäffner); *lógos*-driven technical activity

- activized matter like painting incompatible with techno-logically in/formatized matter a. k. a. hardware (silicon chips); logified matter itself becoming media-active

- radical media archaeology rather assuming the machine from the beginning (Turing 1936/37), and in times of post-automata, when the technológos (such as in AI) becomes rather autonomous, self-adaptive algorithms, about truly "mediative", endogenic machine-to-machine communication

- "mediated" economy vs. "logistics of media" (inverse of "mediated logistics"), in alliance with Matthew Hockenberry, and related research

project on raw materials of Humanities ("Rohstoffe der Geisteswissenschaften", research agenda Viktoria Tkaczyk)

- media-archaeological reminder: operative understanding of "media economy"; time-critical inner-technical processes as "economy of the machine" (Marx, Machine Fragment / Babbage)

- if "mediating economic life" is about human relations and non-human operations, "life" itself becomes a metaphorical function of techno-logical experimentation

- organicist "life" metaphor; redefine in terms of cybernetics

- the technológos hypothesis is about structural causation, against the relativities of cultural discourse.

- technológos hypothesis as an abductive (Peirce) form of experimental economics: intercultural knowledge transfer vs. co-originary, primordial emergence of inner-technical logics, defined by the various (historical / cultural) degrees of technological autonomy from human / "cosmic" / environmental / holistic discourse

- media studies growing out of Harold Innis' logistical economy, as it has been pointed out in Ned Rossiter's "Logistical Media Theory"¹.

- protocols, rather than material hindrance, as "the immaterial groundwork of material infrastructures" = entry "Protocols", chapter "Concepts", in: Brett Neilson / Ned Rossiter (eds.), Logistical Worlds. Infrastructure, Software, Labour, No. 2, Kolkata (Low Latencies) 2017, 104

- historical economist Harold Innis. Empire and Communication (1950), with focus on the *bias* of communication in spatial and / or temporal channel and transport / storage media; underlying orientation towards conquering either time (alias tradition) or space (alias telecommunication) no metaphysical or social construction, but a function of its material or logistical techniques; is it only with electronic media that communication transcends body-related cultural techniques to autonomous technologies

- techno-(know)lical exchange / the logistics of knowledge economy; case study West vs. China (Needham)

¹ Ned Rossiter, chap. 7: Logistical Media Theory, the Politics of Time, and the Geopolitics of Automation, in: Matthew Hockenberry / Nicole Starosielski / Susan Ziegler (eds.), Assembly Codes. The Logistics of Media, Durham (Duke University Press), 2021 132-150

- modelling Chile recursively: Project Cybersyn; PhD research Diego Gómez-Venegas on Stafford Beer's project Cybersyn as self-controlled ("backpropagating", in terms of Deep Machine Learning) "viable" ecosystem; failed / deconstructed in the frictions of concrete implementation (apart from the more obvious destruction by the military coup in 1973)

- government all about controlling society / esp. (nationalized) economy = argument video lecture Stafford Beer, professor of Cybernetics at Manchester University (produced at the Business School) "Cybernetics part 3" Manchester University May 24, 1974, after Chile experience: <https://youtu.be/g6Fc3BqcRNU>; proposal for Chile: *instant* data flow required; economy data measured every day and transmitted to communication center; diagram: set of nodes, with comm. center (cp. ARPANET); more or less instantaneously by telex

"Old European" vs. Chinese / Japanese / Korean techno-logical attitude

- more direct Japanese attitude to artificiality / technicality, less irritated by epistemic irritations in the old European sense / a different philosophy? "AI and Society Series" webinar February 2021 c/o Tomoko Tamari, Goldsmiths College, London *Robotics and Embodiment*

Technólogos and / or "terramorphosis"

- *technólogos* addressing level between materialist "active matter" (Schäffner) and sociological ANT (Latour); technology based on already formed matter (*techné / hylé*), becoming in-formed as logified matter: still from within? activated matter as cultural techniques; *technólogos* not simply culturally "mediated" (program poster Lash) matter = *Terramorphosis: The Intentionality of Matter* = independent project (workshop) at Architectural Triennale in Lisboa, October 10, c/o Scott Lash 2022, but more epistemic question concerning materialist emanations of *lógos* in / as technology / closed circuitry

- "terramorphosis" approach still organismic a priori; rather: entanglement of matter with spirit / *lógos*

- "terramorphosis" neologism very close to *Technólogos* hypothesis indeed, esp. "Architecture from within computing" chapter; still "terramorphosis" concept more centered on the metaphor of life and the organic (somewhat in accordance with Bachelard and Jacob) while TL hypothesis more focused on the techno-logical entanglement of logics with / and matter; iconic photo book: *Open Circuits: The Inner Beauty of Electronic Components*. Autoren: Windell Oskay und Eric Schlaepfer

- still "extension" paradigm, vs. genuine *technólogos*
- matter (*matrix*) vs. pattern / patriarchal (logocentrism)
- organic / material vs. technically informed matter / energy (radio carrier frequency modulation, e. g.) vs. "active matter"
- focus on patterns instead of algorithm; Chinese non-alphabet / numbers (Shiquiao Li)
- study of being (*ontos*) ontological "what is ...", vs. study of processual artefacts *in being* "what it does"; Jannet Bennet *Vibrant Matter* / Bergson
- biochemical morpho"genesis" vs. computational morphotechnologies / AI pattern generation from noise; ANNs more like second-order "morphogenesis"
- epistemology of media developed from within technologies (like scientific material studies)
- whether technologies as such are (en-)active knowledge differenz from physically "active matter" / patterns of activity (*patterning*)
- critique of computational / discrete approach to bio-physical nature: Husserl, *Krisis* - contemporary / contrary to Turing same year 1937 and Heidegger *Weltbild*
- "nature does is all[ready]" = Peter Fratzl
- technology not reducible to pure science; rather: negentropic "cultural" knowledge
- "down to earth" (Ribault) / *grounding* the symbolical regime in materiality

Giuseppe Longo, Le cauchemar de Prométhée. Les sciences et leurs limites:

- Presses Universitaires de France 2023; replace / additional preface from computational science / machine learning expert admitting the technical aspect of numerical vs. continuous approach (analogue / alternative computing)
- epistemology of the "discrete" scientific approach to physics / matter / biology; rising relevance of "deep" artificial neural nets and doubts about the numerical (computational) approach to the natural order

- technology instead of direct dichotomy between mathematics and nature: less human-centred, rather objectifications of mind (Hegel) for experimentation

- Longo mathematical philosopher; critique / limits of "digital" computation, while neglecting actual computing, where numbers are not confronted with matter, but enacted as matter itself (electromagnetic relay)

Artificial Intelligence and "Deep" Machine Learning

NOTES ON ARTIFICIAL INTELLIGENCE AND "DEEP" MACHINE LEARNING

- media-archaeological approach to AI not softening AI / ML practice in discourse analysis, but rigidly trying to cover the mechanism / machine behind the more phenomenal aesthetic implications; chapter 14 of *Technólogos* (2021) devoted to criticism of a certain "metaphysics" in AI discourse; rather "explainable" AI

- allowing for unrestricted "phenomenotechnical experimentation" with AI tools

- David Barry, paper "Humanities and Artificial Intelligence" (read at Warwick in 2023), on applied AI in literally archaeological and philological conjectures of broken material or defect textual artefacts from antiquity - not in any lofty speculative philosophical sense, but in the mathematical tradition of Jacob Bernoulli's *Ars conjectandi*, in "a redefinition of human existence under the sign of a chance" = Hans Christian von Herrmann, xxx; Carl von Clausewitz, in his 1832 treatise *On War* (*Vom Kriege*), using the physical concept of "friction" to refer to the fact that modern war, with its complex processes organized in space and time, is "everywhere in contact with chance" and therefore produces "phenomena" that "cannot be calculated at all" = von Herrmann, referring to: Carl von Clausewitz, *Vom Kriege* [1832], Bonn (Dümmlers) 1991, 262 - by AI / ML?! "With thermodynamics and its statistical models, however, the "mathematical formalization of the Chaos of old" = Friedrich Kittler, *Signal-to-Noise Ratio* [1988], in: *Disruption in the Arts: Textual, Visual, and Performative Strategies for Analyzing Societal Self-Descriptions*, edited by Lars Koch / Tobias Nanz / Johannes Pause, Berlin / Boston (De Gruyter) 2018, 347-361 (357) was soon to move onto the scientific agenda" = von Herrmann 2023 (197); cybernetic premise "not the assumption of an equality of essence, but an observation and description procedure [...] by which living beings and machines were entering into a new relationship of close proximity" = Hans Christian von Herrmann, *Epilogue: The Cybernetic Revolution*, in: Diego Gómez-Venegas (ed.), *FRICATIONS. Between Cybernetic Thinking and its Attempts of Mate[real]ization*, Lüneburg (Meson Press) 2023, 195-

202 (198)

- trained artificial photoelectric "retina" stimulated and "weighted" according to Donald Hebb's neural stimulation model; alphabetic character recognition like in Rosenblatt's Perceptron around 1960 allowing for a mathematical modeling of such neural activity; unsupervised Machine Learning now advanced to recognizing hidden patterns in big data banks which are too huge for human "intelligence" to be figured at all (in both senses, both military reconnaissance and mental activity)

- European "Transputer" for massively-parallel data processing in early computer graphics (vector imaging)

- adversarial increase of error rates in machine learning systems (against computational identification of *trait unaire* in Lacan's sense); discovering deep learning's literal "blind spots" and "what escapes the algorithmic eye" = panel abstract; hiding one message in another (steganography); notion of *Adversarial Hacking in the Age of AI* = workshop organized by consortium "Künstliche Intelligenz und Medienphilosophie" (KIM) at HfG Karlsruhe, in cooperation with transmediale festival "End to End", 29 - 30 January 2020, at Medientheater / HU Berlin Media Science; still remaining within the thinking of AI / reinforcing the strengths of the technological regime in the sense of Baudrillard, *Es gibt keine Medientheorie*, in: idem, *Cool Killer* (Berlin: Merve); alternative: *asymmetric warfare against AI*: no alternative technology, but (non- or inner-Western?) alternatives to "technology" as such

- "machine vision" extension of *Suchbilder* claim; "subtractive" imaging, starting from a noisy image vs. additive *gestalt*; combining texture images with image content; adding artificial constraints for low frequency representation which can be recognized by humans, vs. high frequency "noisy" information in AI images; resist privileging the image-centered phenomenology of machine learning in favour of sonification; Heidegger's "Zeit des Weltbilds" in its mathematical sense; output "image" from machine learning already optimized by filters to enhance shapes / regularization; implicitly privileging human perception and "image" cognition

- "XAI" claim: techno-mathematically, and epistemologically at the same time; the question of explainability - to humans, or rather: to (other) machines

- media-archaeologically advisable to "ground" XAI analysis from the (meta-)symbolic algebraic formulation over verbal description and diagrams down to the encoding of actual (but pre-formatted) material signal processing and "reasoning"

- "opening the black box" still appropriate for XAI? no "mechanism" any more but (big) data-dependent processuality, probabilistic rather than logic, non-linear, still "causal" but based on circular negative feedback operations (original Macy conference proceedings title)

On the "X"plainability of Artificial Intelligence

- media-archaeological assumption of "hidden" metaphysics in AI / ML discourse / semantics itself a hermeneutic gesture; rather: "implicit"; can non-hermeneutic analysis only be achieved by another machine, such as in adversarial neural nets (GANs)

- "x"plainability itself the question: on what level to be "explained"? media-archaeological triple claim: electrophysical layer / operative diagram / mathematical algebra, against discourse analysis of conceptual design

- *human* desire for analytic explainability (itself an epistemological effect of vocal alphabet, with McLuhan): "Künstliche Intelligenz: Resultate endlich erklärbar für Menschen" = title of note Stefanie Terp, <https://idw-online.de/de/news821715>, entry October 4, 2023

"Memory" vs. Markov chains in artificial (voice) data training

- "Deep" Machine Learning (AI) deductive from "social media memory" / massive data acquisition / harvesting (no "archive"), thereby revealing "social / cultural memory" (Halbwachs) itself as a circulating data construct

- GANs not based on massive data storage / "memory" any more; rather Markov chain model (immediate "past" / probabilistic prediction / *futurum exactum*); discrete state machines (Turing 1936 / 37); "memoryless channel" (Shannon); no demand for massive data repositories / "digital archives any more

- Markov chain incorporating transition probabilities / stochastics: "a sequence of neither purely random, nor purely deterministic transitions from one state to any other in a system" = International Encyclopedia of Systems and Cybernetics, ed. by Charles François, Munich (Saur) 1997; Markov source (mth order) "an alphabet of events in which the probability of occurrence of a given number of the alphabet is a function of the m preceding occurrences" (K. Sayre, 1976: 29); Markov process based on symbol (rather than: signal) sets

- cp. concatenative speech synthesis: same phoneme sounding different depending on previous / sequential one; apply Hidden Markov Model

(developed in speech recognition first and then applied to speech synthesis) / Viterbi algorithm

- deep learning: statistical domain, no phonetic theory: system extracts features directly from data, rather than statistical / archival listing

- HMM step between; from HMM to Deep Neural Network

- different logics of the archive: a) model-based reproduction logic; voice stored in the code, mimicking human behaviour; b) corpus-based database logic (concatenative synthesis): voice stored in micro-archives / sound samples and then "operationalized" c) machine learning: abductive logic (Peirce); voice stored in big archives used as training data sets, from which statistically rendered new voices, finding optimal output by approximation = Domenico Napolitano, lecture *Artificial voice. A media-archeological investigation of the speaking computer from model-based synthesis to deep learning*, colloquy *Media in our Sense*, HU, November 20, 2019

- cp. Max Bense / Harig, Monologue of Terry Jo

- "Incomprehensible utterances by the machine express its innermost mind" (Tomomi Adachi 2014) / *technológos* arising from the machine

- in AI "learning" meaning "sorting", "classifying"; statistics (in the absence of knowledge) rather providing a corrective to the machinic propensity towards exactness - rather stochastics? *alógos* as ultimate *technológos*

- correlationalism vs. causality; algorithmic (the non-existent) vs. reproduction of the existent

- unsupervised learning input without annotations; networks extract its own features through statistical classification automatically - no logocentrism / metadating

- generative adversarial networks: generator creating fake samples from mix of latent space data plus noise: Shannon positivized; discriminator (from real samples) learning to tell apart fake data from true data (fine tune training)