My copy and me – Imaginäre des Minduploads
Eine hermeneutische Analyse der Imaginäre von Mensch-Maschine-Interaktionen am Beispiel der Technikzukünfte des Neurointerface in der Science-Fiction

Prolog

It matters…

‣ „It matters what ideas one uses to think other ideas (with)." (Strathern, 1993, S. 10)

‣ „It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with; it matters what knots knot knots, what thoughts think thoughts, what descriptions describe descriptions, what ties tie ties. It matters what stories make worlds, what worlds make stories." (Haraway, 2016, S. 12)

‣ It matters what **imaginaries** we use to **imagine** futures with.

*Das "**Imaginäre**" ist das kulturell geteilte Inventar von Bedeutungen, auf das der Einzelne zurückgreift, um sich etwas vorzustellen.*

*Die **Imagination** ist die kognitive menschliche Fähigkeit, sich etwas Abwesendes vorzustellen.*

HOW DO YOU IMAGINE THE FUTURE?

Strathern, M. (1992). Reproducing the Future: Essays on Anthropology, Kinship and the New Reproductive Technologies. Routledge.

Ernst, C., & Schröter, J. (2020). Zukünftige Medien: Eine Einführung. VS Verlag für Sozialwissenschaften. https://www.springer.com/de/book/9783658300586

Castoriadis, C. (1975). The Imaginary Institution of Society (K. Blamey, Übers.; Reprint). MIT Press.

Haraway, D. J. (2016). Staying with the Trouble: Making Kin in the Chthulucene. Duke University Press Books.

Aufbau

▸ Technikzukünfte & Imaginäre

▸ Das Neurointerface

▸ Die Vorstellung des Mindupload

▸ Spekulative Fiktion als Gedankenexperiment

▸ Greg Egans „Learning to be me"

Technikzukünfte & Imaginäre

Die Pluralisierung der Zukunft

‣ *Zukunft* ist ein „Warenhaus an Möglichkeiten" (Luhmann, 1990, p. 120)

‣ *Zukunft* unterschieden in…

  ‣ **Zukünftige Gegenwart** – als ein Moment später als jetzt.

  ‣ **Gegenwärtigen Zukünften** – als gegenwärtige Vorstellungen möglicher zukünftiger Gegenwarten.

Luhmann, Niklas. 1990. „Die Zukunft kann nicht beginnen: Temporalstrukturen der modernen Gesellschaft". in Vor der Jahrtausendwende: Berichte zur Lage der Zukunft 1. + 2. Band, Preis JE Buch , herausgegeben von P. Sloterdijk. Frankfurt), Suhrkamp.

Umgang mit Unsicherheiten

‣ Risikogesellschaft und Modernisierungsrisiken (Beck, 1986)

  ‣ Technologien haben Folgen, die sich negativ auf Gesellschaft und Umwelt auswirken können

‣ Technologische Pfade werden durch Handlungen und Entscheidungen geprägt

  ‣ z. B. von Politikern, Investoren, Ingenieuren, Unternehmern und anderen

‣ Bedarf an **Orientierungswissen**, um aktuelle Maßnahmen und Entscheidungen zu unterstützen.

Beck, Ulrich. 1986. Risikogesellschaft: Auf dem Weg in eine andere Moderne. 1. Aufl. Suhrkamp Taschenbuch Verlag.

Three Modes of Orientation (Grunwald, 2014)

„Not looking into but looking at the future" (Brown et al., 2000)

exploratory   critical / discursive

FORECAST	FORESIGHT	HERMENEUTIC
(models, calculations)	(scenarios, visions)	(interpretation, reflection)

mode 1   mode 2   mode 3

Grunwald, Armin. 2014. „Modes of Orientation Provided by Futures Studies: Making Sense of Diversity and Divergence". European Journal of Futures Research 2(1). doi: 10.1007/s40309-013-0030-5.

Brown, Nik, Brian Rappert, und Andrew Webster, Hrsg. 2000. Contested Futures: A Sociology of Prospective Techno-Science. Aldershot, England; Burlington, VT: Ashgate Publishing Limited.

Dekonstruktion von Zukünften

„So mode 3 orientation is about trying to learn something about ourselves, our societal practices, subliminal concerns, implicit hopes and fears from the diversity and divergence of futures studies. Of course: first, to this end futures have to be interpreted or even ‚deconstructed' accordingly which calls for adequate assessment procedures and for hermeneutic effort." (Grunwald, 2014, p. 7)

Grunwald, Armin. 2014. „Modes of Orientation Provided by Futures Studies: Making Sense of Diversity and Divergence". European Journal of Futures Research 2(1). doi: 10.1007/s40309-013-0030-5.

Technikzukünfte…

▸ … sind **mediale Darstellungen von Zukunftswelten**, in denen projizierte Formen der Technologie eine zentrale Rolle spielen und die Gesellschaft oder die Umwelt prägen.

▸ … sind **soziale Texte** und Träger von kulturell geteilten Imaginären. Sie können dechiffriert werden und verweisen damit auf etwas anderes, das jenseits der Technologie liegt.

▸ … haben **soziotechnische Auswirkungen**, da sie, obwohl sie fiktional sind, technologische Prozesse durch Diskurse und Visionen prägen und Leitbilder für die Entwicklung der Technologien bereit stellen.

Lösch, Andreas, Knud Böhle, Christopher Coenen, Paulina Dobroc, Reinhard Heil, Dirk Hommrich, Martin Sand, und Christoph Schneider. 2016. „Technikfolgenabschätzung von soziotechnischen Zukünften". 26.

Future studies as Imaginary studies

(Imaginationsforschung)

Wolfgang Iser

▸ „Das Imaginäre also machte Karriere und hat seither Konjunktur, was sich nicht zuletzt darin ausdrückt, daß man es in den verschiedensten Bereichen (…) zu einer Art **materia prima** gesteigert hat. Begriffe wie **Ur-Phantasie** oder ein primärer *état imaginaire* – die heute in der Diskussion eine Rolle spielen – lassen erkennen, **daß das Imaginäre einen Endhorizont verkörpert, von dem her gedacht wird.**" (Iser, 1993, S. 351)

Iser, W. (1993). Das Fiktive und das Imaginäre: Perspektiven literarischer Anthropologie (6. Aufl.). Suhrkamp Verlag.

Cornelius Castoriadis

▸ „The imaginary of which I am speaking is not an image of. It is the unceasing and essentially undetermined (social-historical and psychical) creation of figures/forms/images, on the basis of which alone there can ever be a question of 'something'. **What we call 'reality' and 'rationality' are its works.**" (Castoriadis, 1975, S. 3)

▸ **Social imaginary signifiers:** the phenomenon by which human cultures come to posit a thing as standing in for something that it is not, for example, a sword as symbol of sovereign power.

  ▸ The imaginary in this example is „sovereign power" as the way to structure a society.

  ▸ The signifier is the sword, that refers to the imaginary of sovereign power

Castoriadis, C. (1975). The Imaginary Institution of Society (K. Blamey, Übers.; Reprint). MIT Press.
Gatens, M. (2020). Imaginaries. In G. Weiss, A. V. Murphy, & G. Salamon (Hrsg.), *50 Concepts for a Critical Phenomenology*. Northwestern University Press; JSTOR. https://www.jstor.org/stable/j.ctvmx3j22

Sheila Jasanoff & Sang-Hyun Kim

‣ „**Sociotechnical imaginaries** [are] collectively held, institutionally stabilized, and publicly performed visions of ~~desirable~~ futures, animated by shared understandings **of forms of social life and social order attainable through**, and supportive of, advances in **science and technology.**" (Jasanoff & Kim, 2015, p. 4)

‣ „Science Fiction is **a repository of sociotechnical imaginaries**, visions that integrate futures of growing knowledge and technological mastery with normative assessments of what such futures could and should mean for present-day societies."
(Jasanoff & Kim, 2015, S. 337)

Jasanoff, S. (2015). Imagined and Invented Worlds. In S.-H. Kim & S. Jasanoff (Eds.), Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power (1 edition). University of Chicago Press.
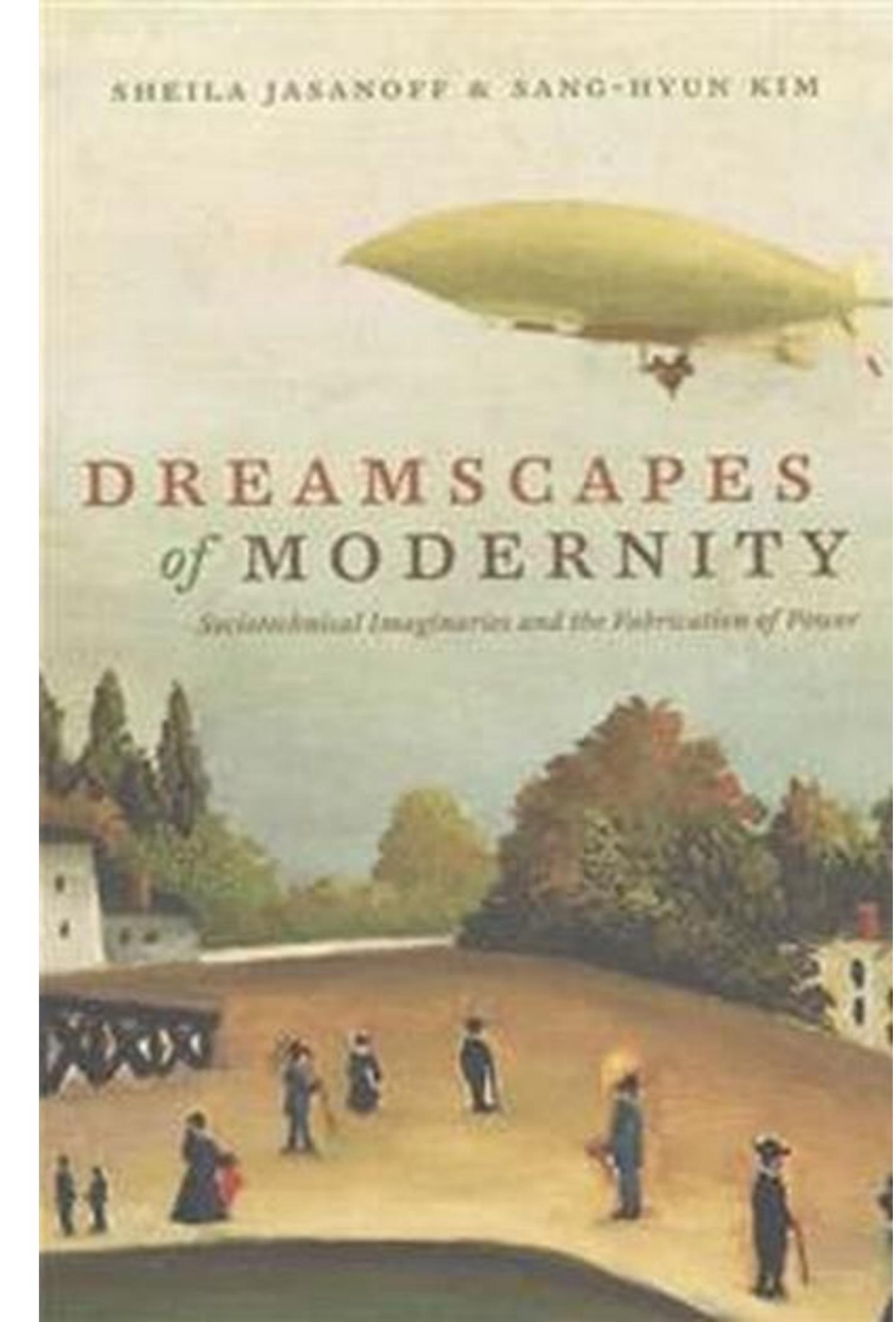
Mimetische Kreislauf (Ricoeur, 1984 - 1986)

‣ „A narrative text is (1) **prefigured** by its cultural context with its specific symbolic order. It (2) **configures** extra-literary elements (the 'real' and the 'imaginary') into an exemplary temporal and causal order. In the act of reading, finally, the narrative composition is actualised. It becomes part of the symbolic order of a cultural formation, which is thereby (3) **refigured** and – here the circle closes functions in turn as the source of narrative preunderstanding on the level of mimesis I." (Errl, 2010, p. 93)
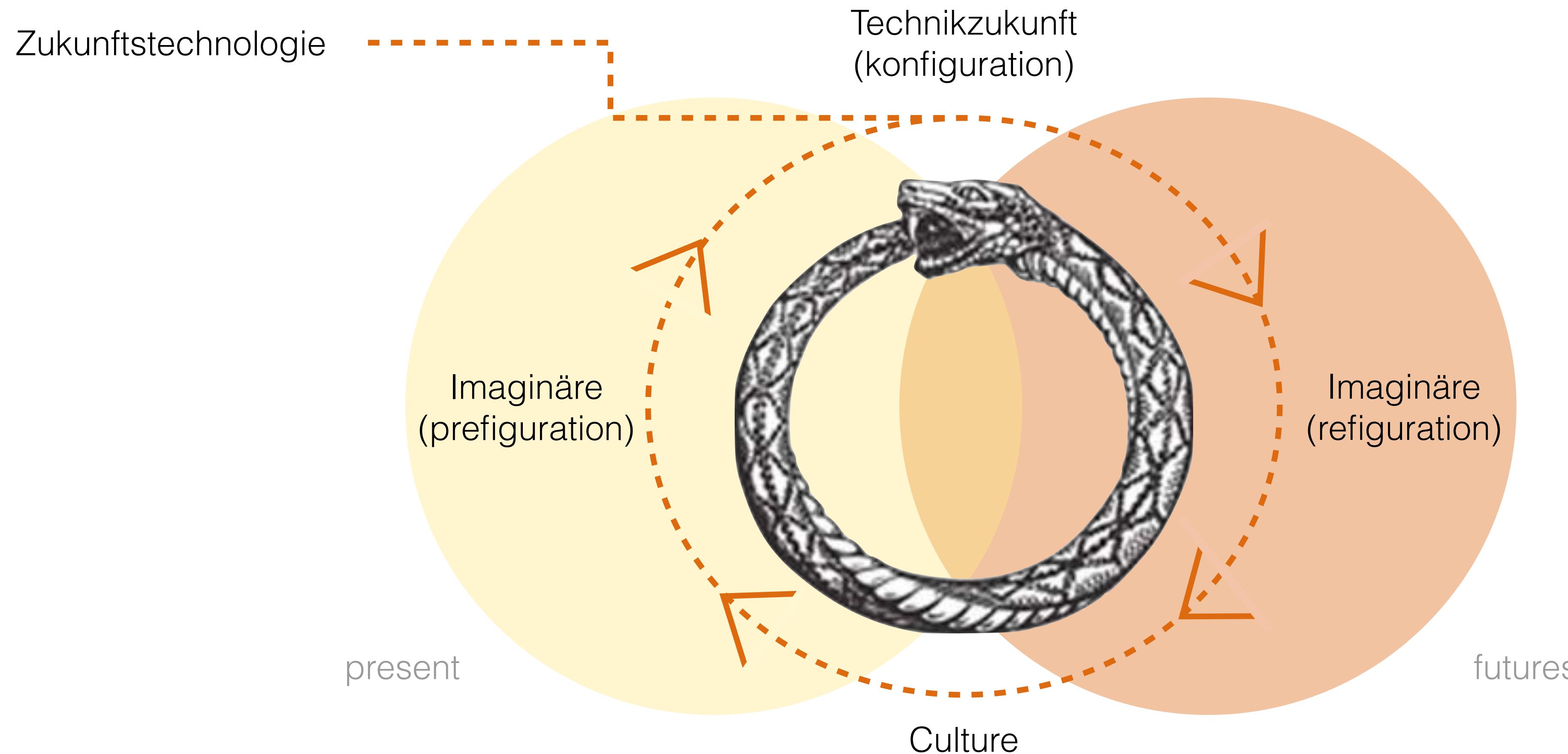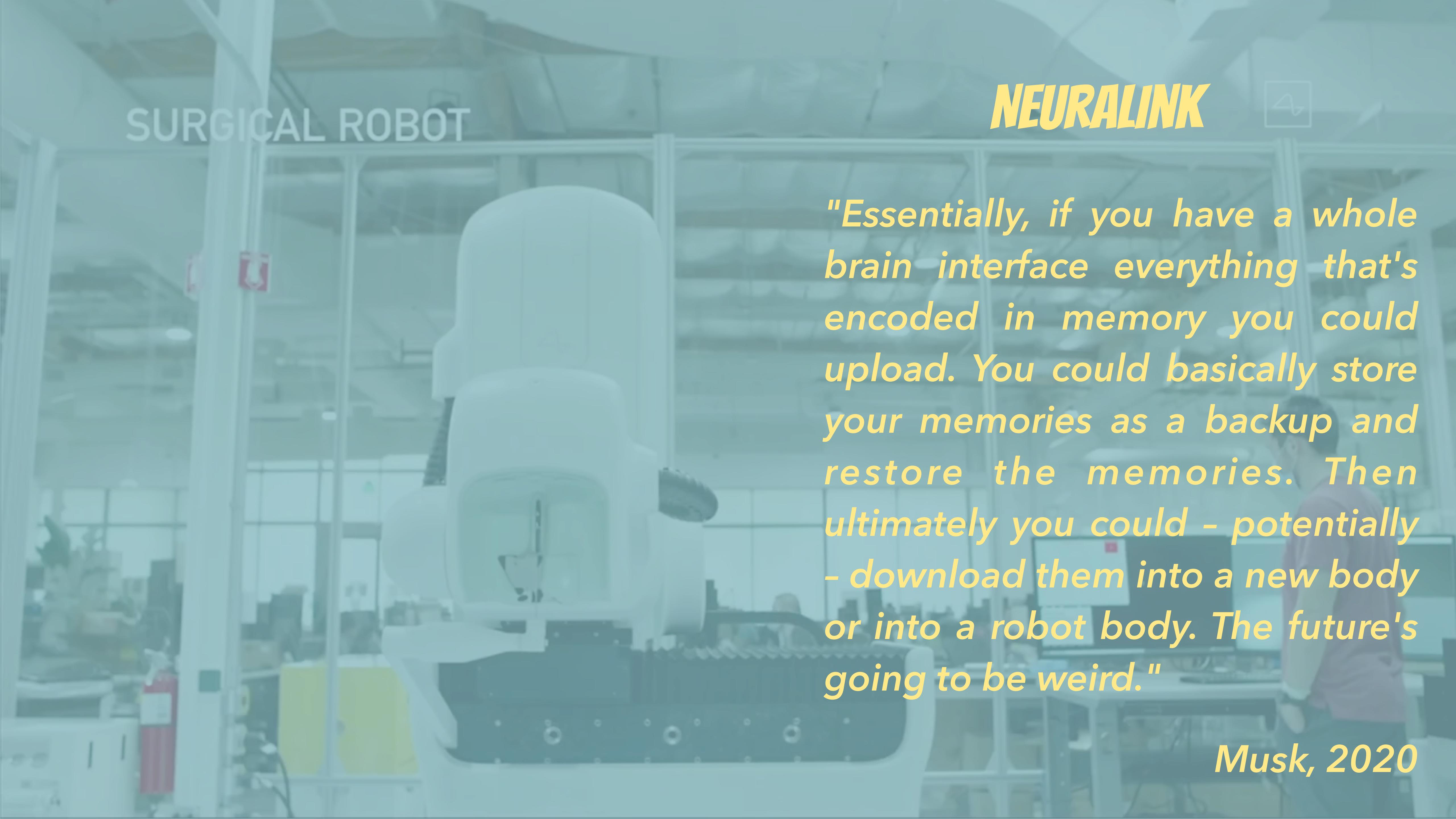
Erll, A. (2010). Cultural Studies approaches to narrative. In D. Herman, M. Jahn, & M.-L. Ryan (Hrsg.), *Routledge Encyclopedia of Narrative Theory*. Routledge

Technikzukünfte als Verschmelzungsmaschinen

Zukunftstechnologie

Technikzukunft
(konfiguration)

Imaginäre
(prefiguration)

Imaginäre
(refiguration)

present

futures

Culture

SURGICAL ROBOT

NEURALINK

"Essentially, if you have a whole brain interface everything that's encoded in memory you could upload. You could basically store your memories as a backup and restore the memories. Then ultimately you could – potentially – download them into a new body or into a robot body. The future's going to be weird."

Musk, 2020

Das Neurointerface

Neurointerface

‣ aka Brain-Machine Interface oder Brain-Computer-Interface

‣ Funktion:

 ‣ misst das Aktionspotenzial im Gehirn

 ‣ Überträgt die Signale an einen Computer

 ‣ Verschiedene Formen (z.B. invasiv oder nicht-invasiv)

Alvin Lucier – Music for solo Performer (Lucier, 1965)

Mangan, Andrew. 2018. Plugged In: How Mind Machine Interfaces Will Transform the World. New Degree Press.

Aktuelle Use-Cases

▸ Beispiele für gegenwärtigen Einsatz

  ▸ Robotic Arm Fist Bump (Nathan Copeland, 2015)

  ▸ Locked-In Patient*innen

  ▸ Cochlear implantate

▸ AM / FM

  ▸ Actual Machines

  ▸ Fucking Magic

Mangan, Andrew. 2018. Plugged In: How Mind Machine Interfaces Will Transform the World. New Degree Press.
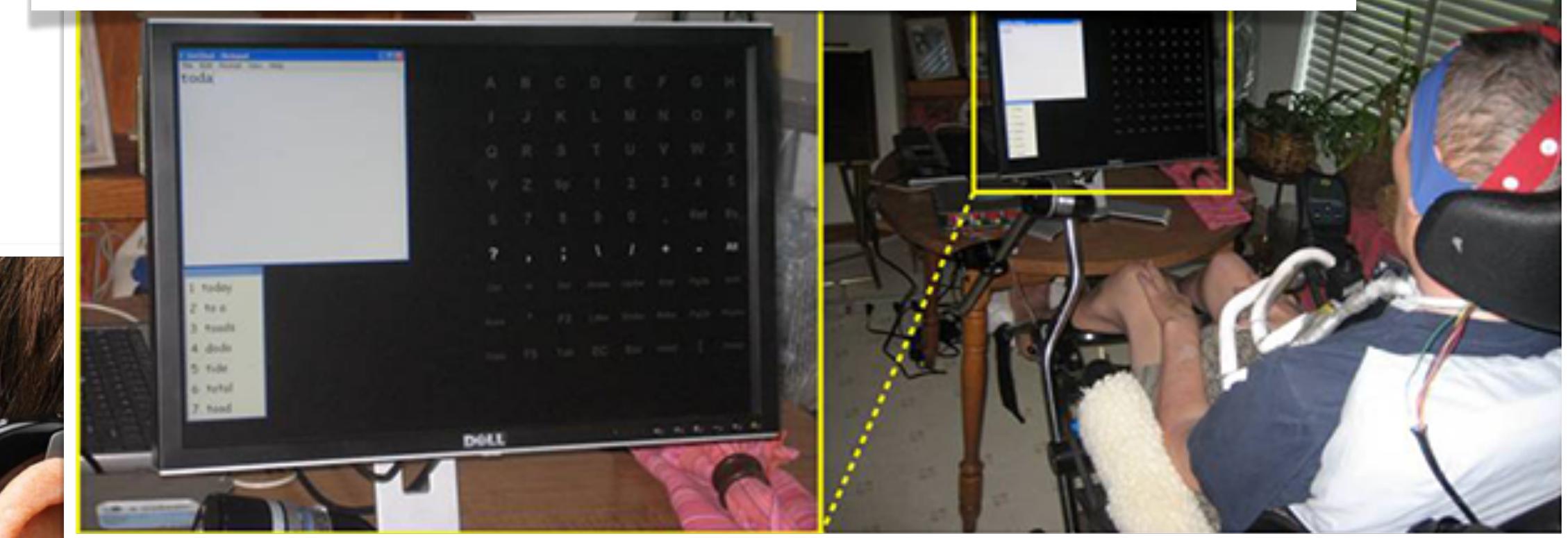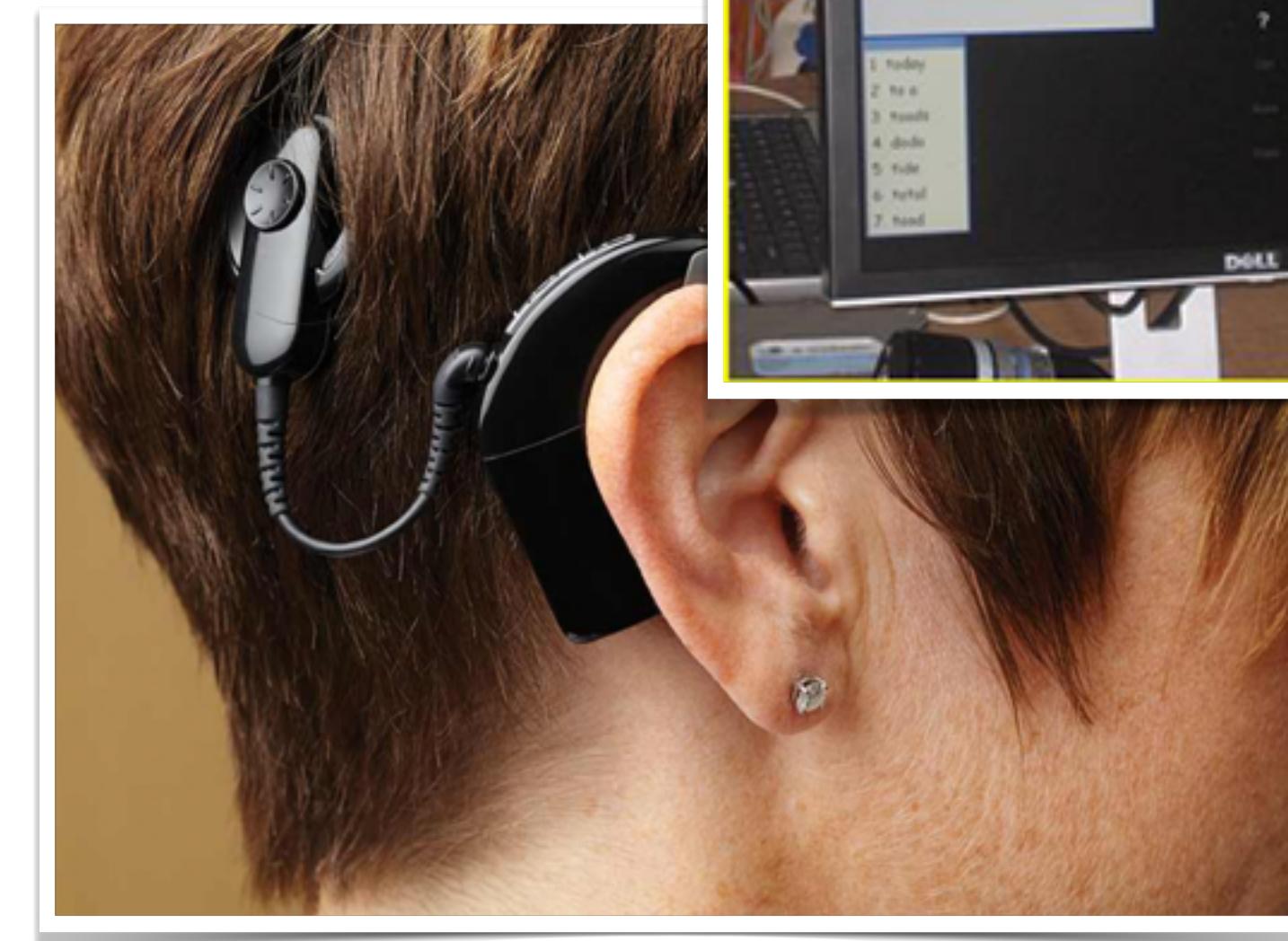
Dekonstruktion von Neurofutures

‣ Analyse von Imaginären und ihrer Verbreitung

‣ **Neuropunk**

  ‣ SF-Subgenre

  ‣ Korpus: 50+ Erzählungen

  ‣ Gemischte Medien: Text, audiovisuelle Medien, Performance, Spiele, etc.

‣ **Unternehmensvisionen**

  ‣ Building 8, Neuralink, Nectome, Muse

‣ **Transhumanistische Philosophie**

  ‣ Moravec, Bernal, etc.
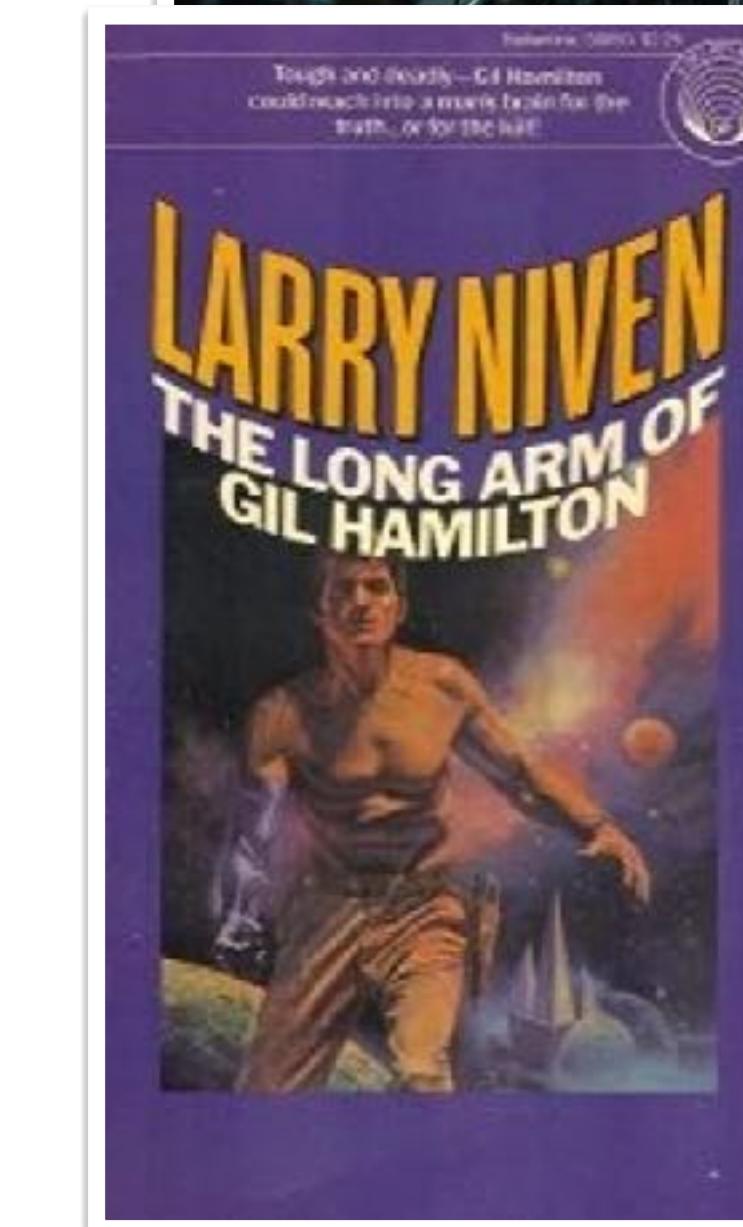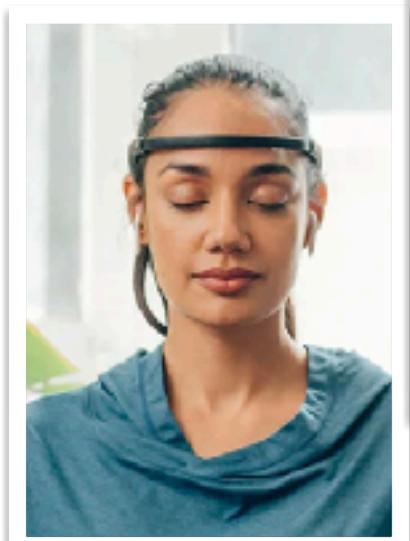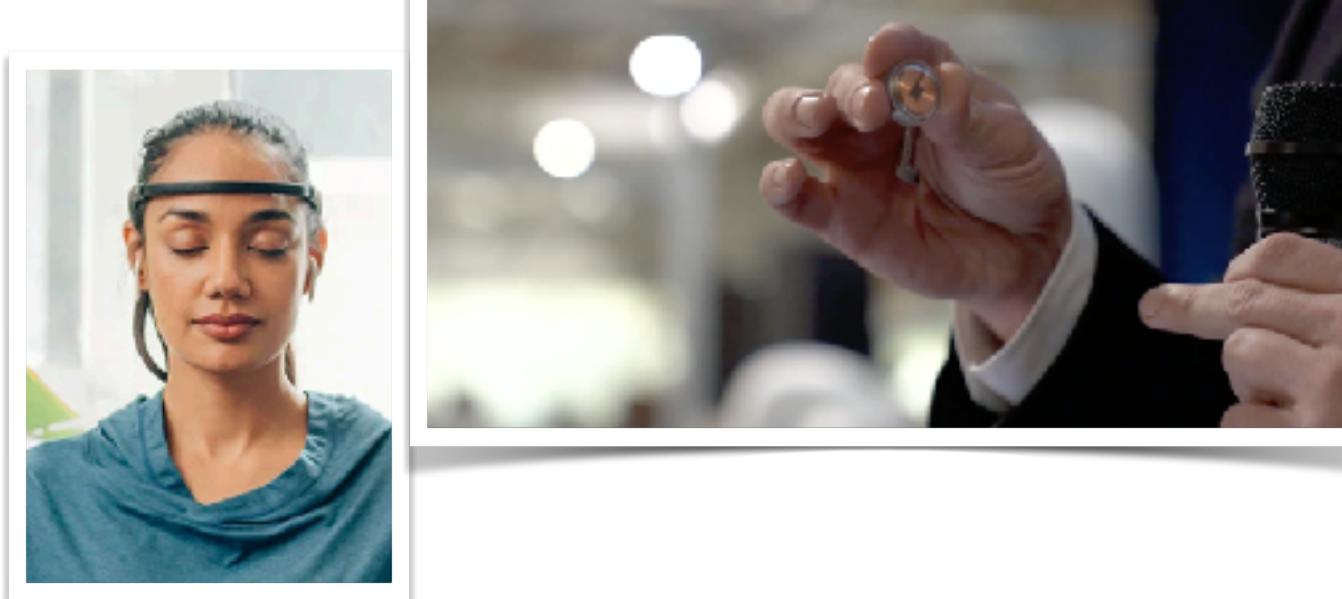
Drei wiederkehrende Imaginäre

The neurointerface to enhance the body

The neurointerface as an immersive
media experience

The neurointerface to upload the mind

Die Vorstellung des Mindupload

Rapture / Entrückung

‣ *And the dead in Christ shall rise first; then we who are alive and remain shall be caught up together with them in the clouds to meet the Lord in the air. And so shall we ever be with the Lord. (Thessalonians 4:16-18)*

‣ *There will always be people who cavil this: ‚How do the dead rise again? Or with what manner of body shall they come?' (Corinthians 15:35)*
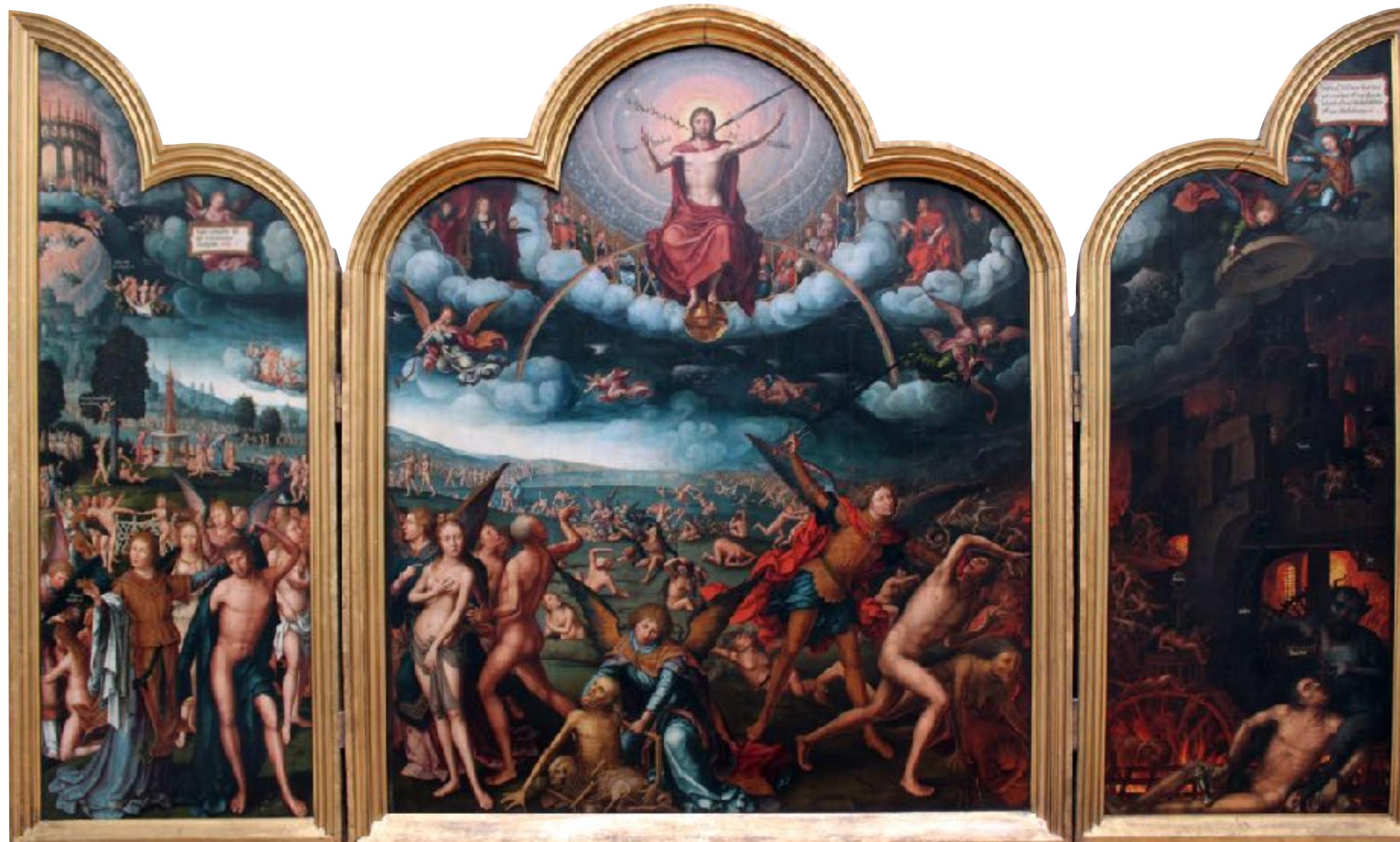
The Last Judgment

(Jean Bellegambe, 1523)

Spekulative Eschatologie

▸ „No question was too trivial for the early Church fathers: Will we all be the same sex in heaven? Will aborted fetuses rise? Will conjoined twins be two people or on in the afterlife? Will our resurrected bodies need food and aleep? Will the hair we cut and the nails we clipped over the course of our lives be returned to us in resurrection?" (O'Gieblyn, 2021, p. 59)

▸ Was wäre, wennn… ?

▸ Spekulation [speculatio; specere]:
„umherspähen, auskundschaften, beobachten"

Aphrahat 3. Jhd. n Chr.

O'Gieblyn, M. (2021). God, Human, Animal, Machine: Technology, Metaphor, and the Search for Meaning. Doubleday.
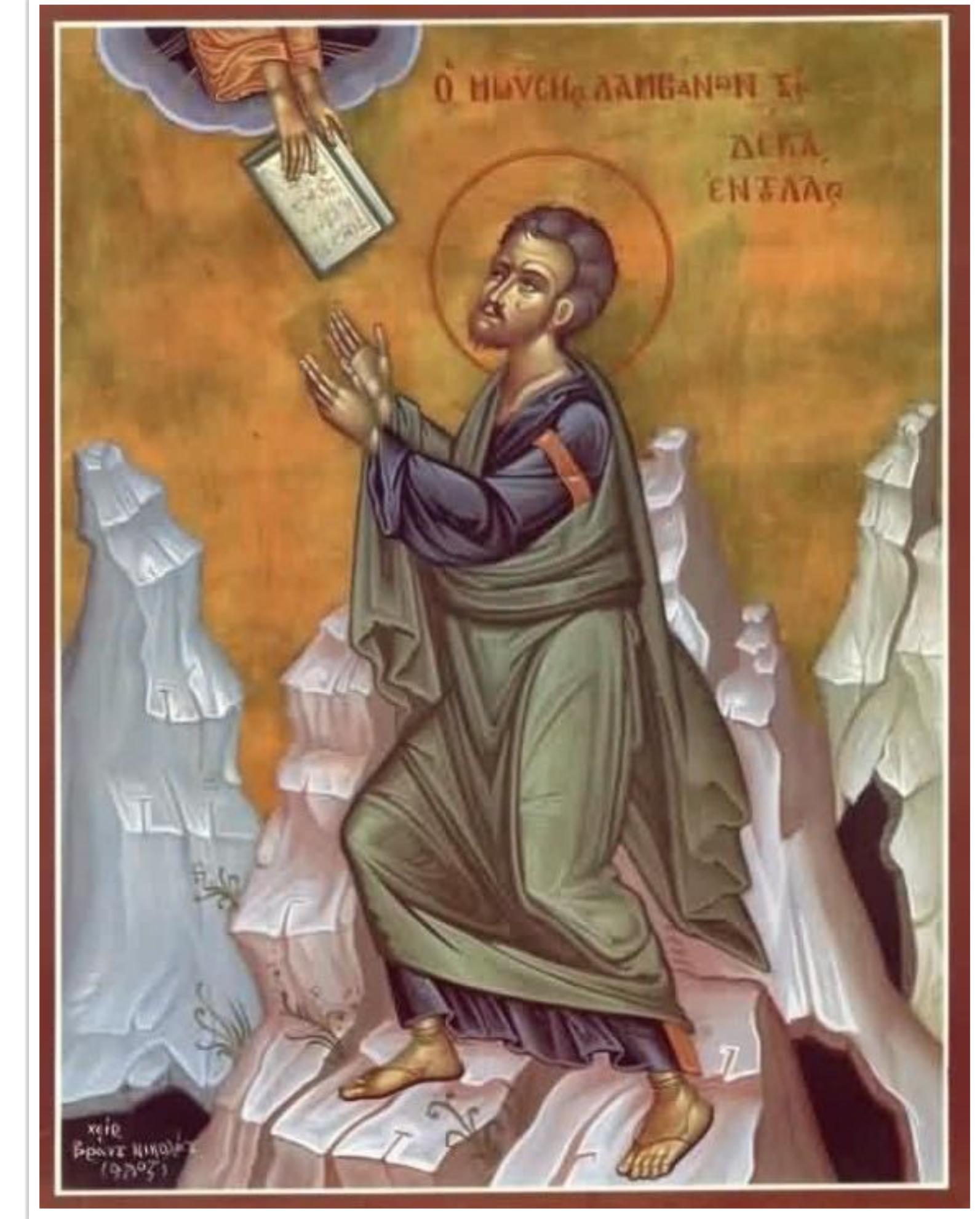
Upload in die Cloud

‣ Christliche Mythologie als Präfiguration des Mind-Uploads

‣ „Dante dramatizes the Resurrection by imagining that it will be like to be given a glorified body. After completing his journey through Paradise and ascending into the spheres of heaven, **he describes the process by which his human flesh is transformed**. (…) In the end he is forced to make an entirely new word ***transhumanar***." (p. 53)


O'Gieblyn, M. (2021). God, Human, Animal, Machine: Technology, Metaphor, and the Search for Meaning. Doubleday.
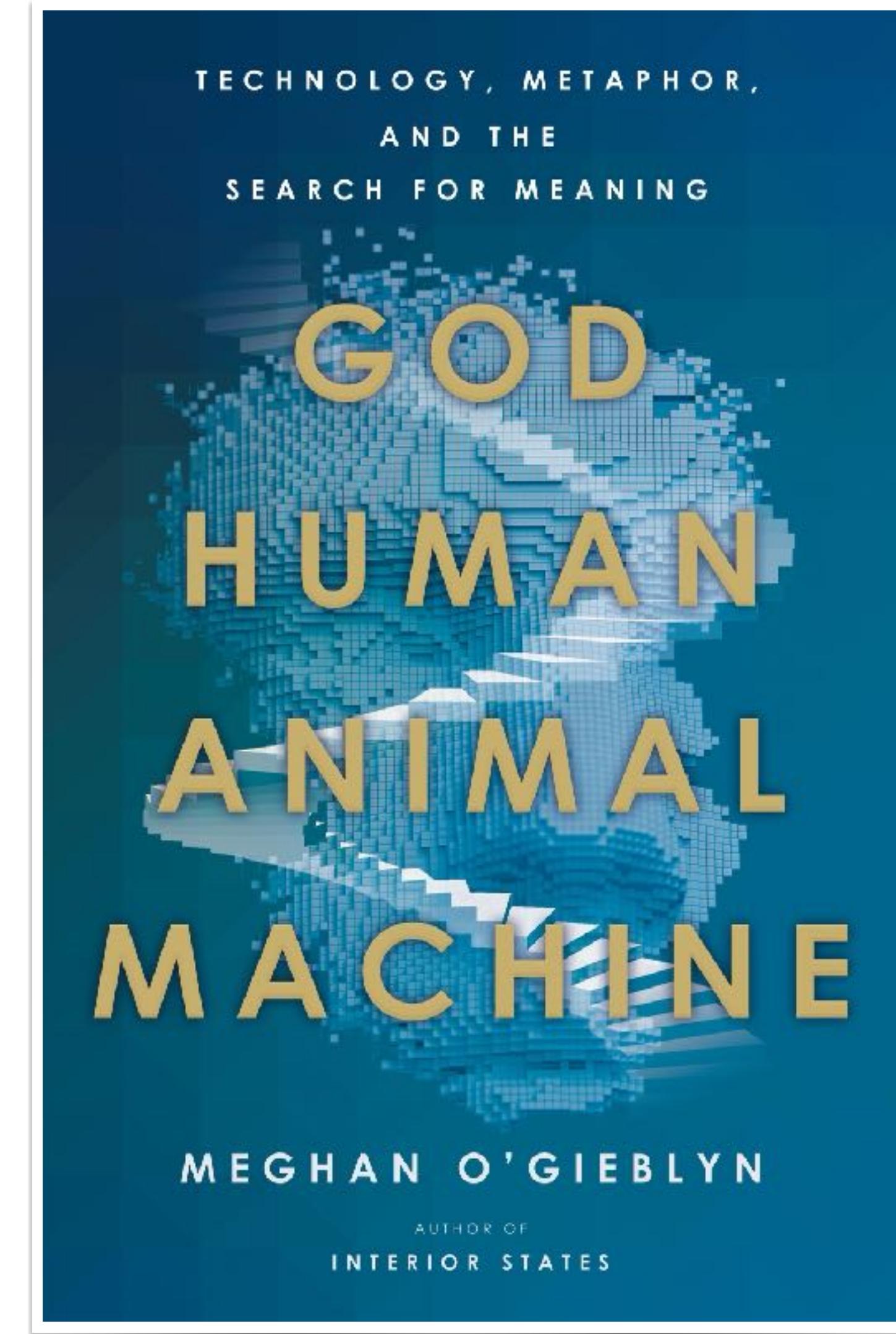
Refiguration des Geistes

▸ Technomorphisierung des menschlichen Körpers

▸ „But if you want to make the **transition from the old religion**, where you hope God will give you an afterlife, **to the new religion**, where you hope to become immortal by getting uploaded into a computer, then you have to believe **information is real and alive.**" (p. 23)

▸ Das Neurointerface kann den Geist messen, somit ist der Geist das, was das Neurointerface messen kann.

O'Gieblyn, M. (2021). God, Human, Animal, Machine: Technology, Metaphor, and the Search for Meaning. Doubleday.

Technikzukünfte als Verschmelzungsmaschinen

Zukunftstechnologie

Technikzukunft
(konfiguration)

Mindupload

Neurointerface

Imaginäre
(prefiguration)

Imaginäre
(refiguration)

**„Mind" ist
messbar**

**Rapture /
Resurrection**

present

futures

Culture
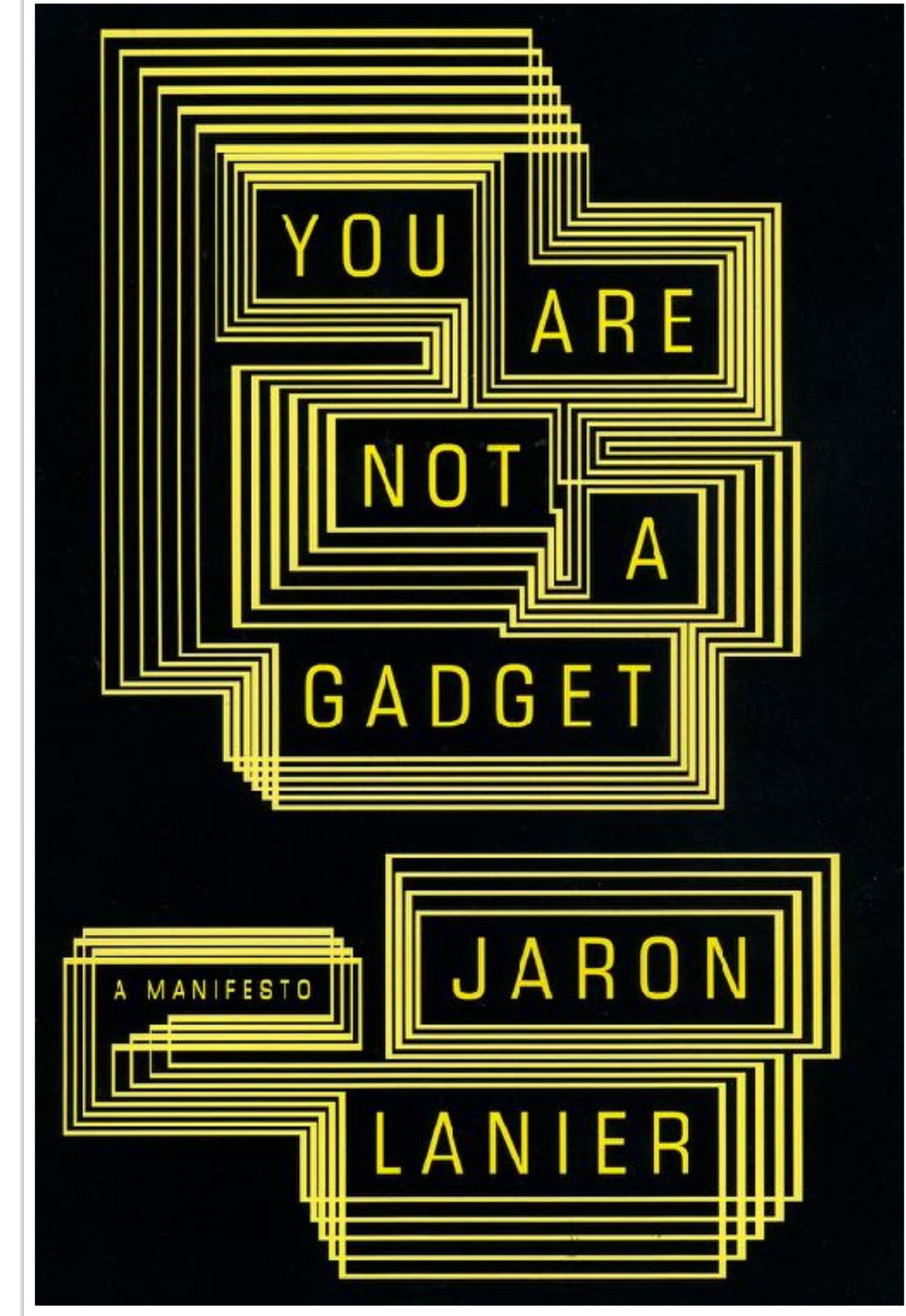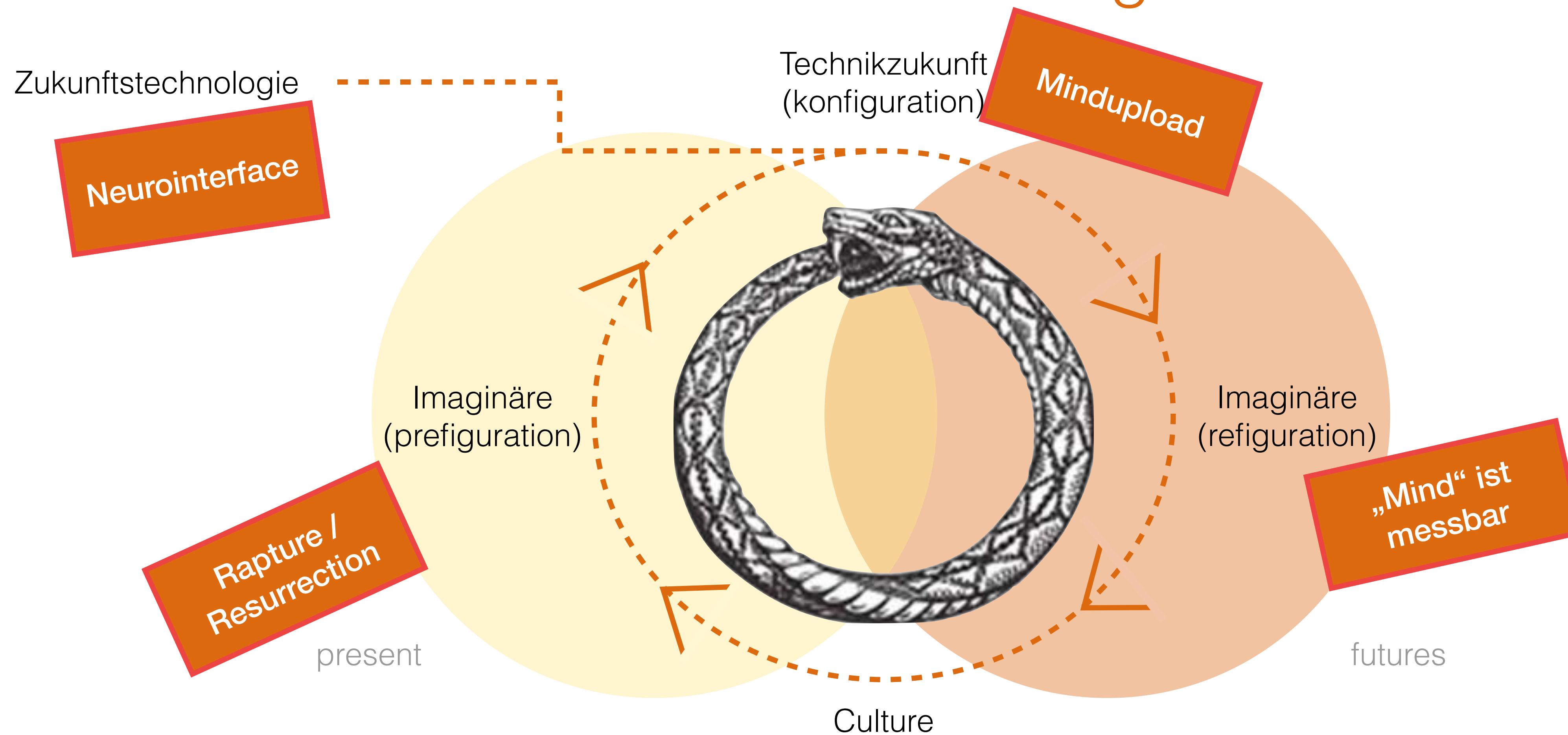
Zwei Imaginäre des Minduploads

‣ **Exkavierender Scan:**

    ‣ Analysiert das Konnektom des Gehirns, dafür wird das Gehirn Schicht für Schicht abgetragen.

    ‣ Die Person stirbt bei dem Prozess. Erst danach kann die Struktur des Gehirns auf einem Computer nachgebildet werden.

‣ **Elektromagnetische Scans:**

    ‣ Nicht-Invasiv: MRT-ähnliche Geräte (die erst noch erfunden werden müssen), damit eine Person eine Kopie ihres Bewusstseins erstellen kann, während sie noch lebt.

    ‣ Invasiv: Neuronale Elektroden, welche die Impulse zwischen den Neuronen messen und dadurch die Gehirnaktivitäten nachahmen können.

O'Gieblyn, M. (2021). God, Human, Animal, Machine: Technology, Metaphor, and the Search for Meaning. Doubleday.

Cut and Paste (Moravec, 1991)

"Layer after layer the brain is simulated, **then excavated**. Eventually your skull is empty, and the surgeon's hand rests deep in your brainstem. Though you have not lost consciousness, or even your train of thought, **your mind has been removed from the brain and transferred to a machine**. In a final, disorienting step the surgeon lifts its hand. **Your suddenly abandoned body dies**. For a moment you experience only quiet and dark. Then, once again, you can open your eyes. Your perspective has shifted. The computer simulation has been disconnected from the cable leading to the surgeon's hand and reconnected to a shiny new body of the style, color, and material of your choice. **Your metamorphosis is complete.**"

Moravec, H. (1991). The universal robot. In Visions of the future: Art, technology and computing in the 21st century (pp. 65–73). St. Martin's Press, Inc.
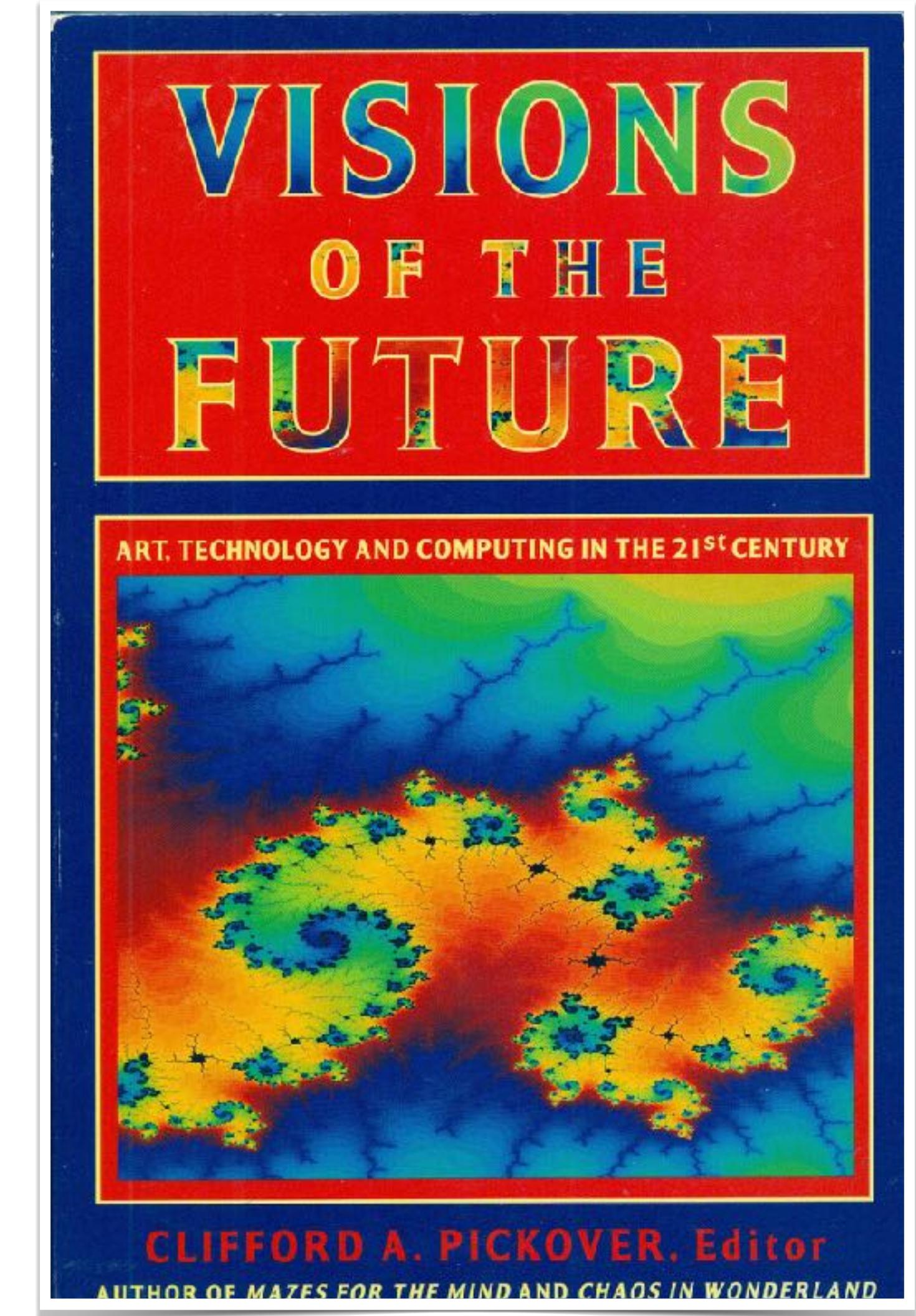
Brain Banking (Nectome, 2018)

‣ „Preserve your brain to bring you back in the future" & "back up your mind"

  ‣ $960,000 federal grant from the U.S. National Institute of Mental Health.

‣ Commodification of Imaginaries

  "Any suggestion that you can come back to life is simply snake oil."

  - Hendricks (2015)

For $10,000, A Silicon Valley Startup Will Kill You And Upload Your Brain To The Cloud

By Katie Serena
Published March 16, 2018

The company claims that with their technology, one day scientists will be able to scan your brain and create a digital you.

NECTOME

Technology Review

https://brobible.com/culture/article/billionaire-pays-10k-brain-uploaded-cloud/

https://www.technologyreview.com/2015/09/15/109906/the-false-science-of-cryonics/

Neuroscience

A.I.

Metropolis (1927)

Neurotechnology

Neuromancer (1984)

The Infinite Brain (1930)

Nectome (2018)

Descartes
(1642)

Walkaway (2016)

...

Upload (2020)

Moravec (1991)

J.D. Bernal (1929)

Delgado (1970)

La Mettrie (1747)

Upload (Daniels, 2020)

▸ Amazon Prime Sci-Fi Series

▸ Excavating the brain

▸ Creating a digital simulation of your mind

▸ Dealing with questions of…

　▸ power dynamics

　▸ ownership & control

　▸ accessibility & equality
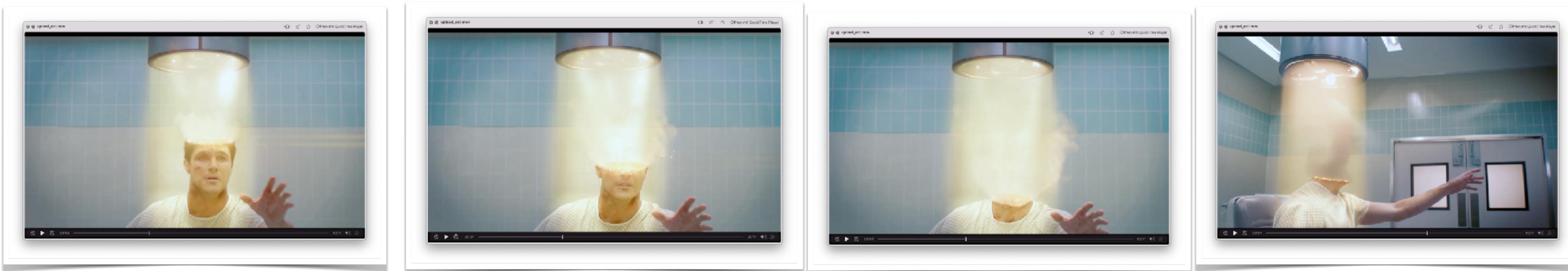
Spekulative Fiktion als Gedankenexperiment

Novum

Novum
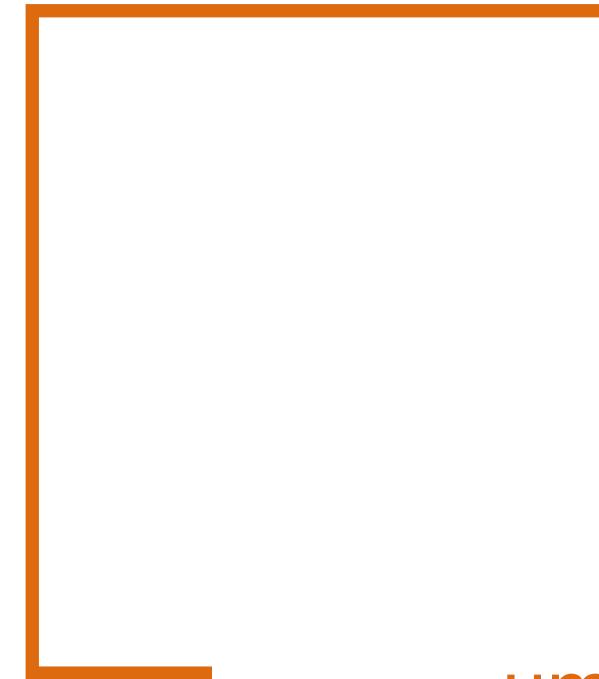
„zoom in"

…um die technische Beschaffenheit des
Novums zu begreifen.

Funktionales Imaginär

„zoom out"

…um den gesellschaftlichen Kontext des
Novums zu verstehen.

Soziotechnisches Imaginär

Novum

„zoom in"

…um die technische Beschaffenheit des
Novums zu begreifen.

Funktionales Imaginär

STORYWORLD

„zoom out"

…um den gesellschaftlichen Kontext des
Novums zu verstehen.

**Soziotechnisches Imaginär**

Novum

„zoom in"

…um die technische Beschaffenheit des
Novums zu begreifen.

Funktionales Imaginär
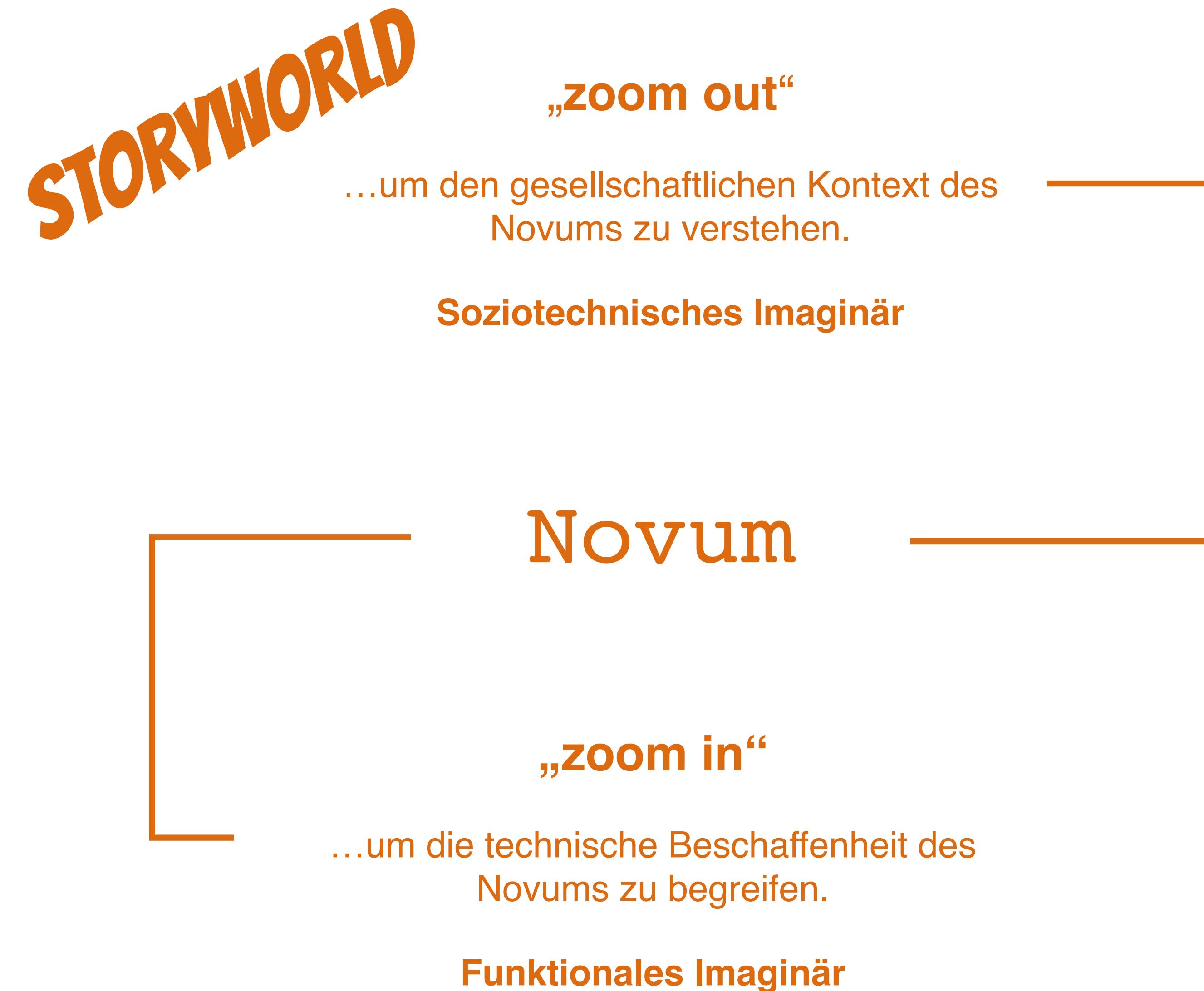
SF als Simulationsraum

▸ „Storyworlds can provide a ‚sandbox' [to] do thought experiments or prototype increasingly detailed interactions between different elements in the storyworld [and] explore emerging science and technology" (von Stackelberg & McDowell, 2015)

von Stackelberg, P., & McDowell, A. (2015). What in the World? Storyworlds, Science Fiction, and Futures Studies. Journal of Futures Studies.
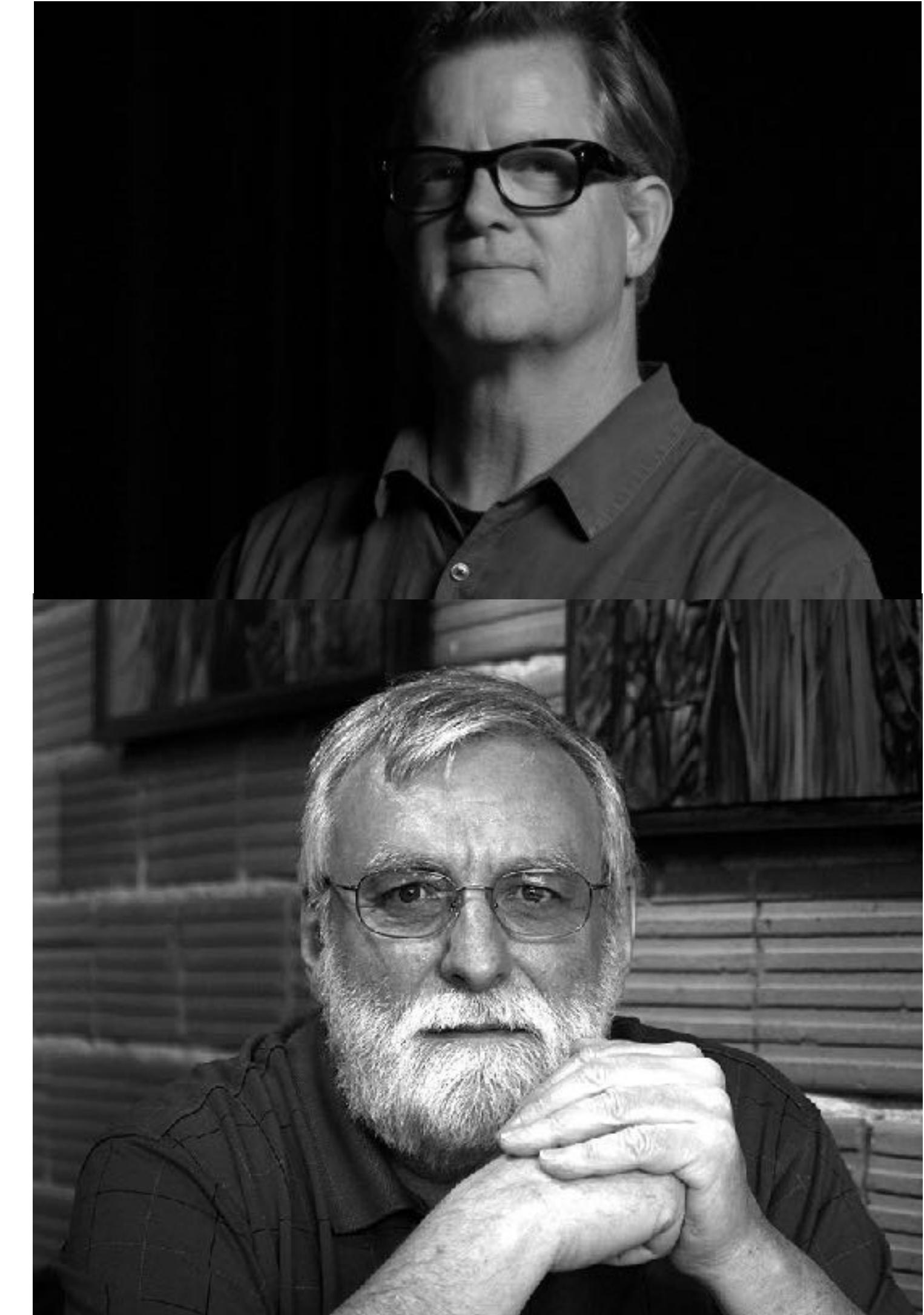
Reading Storyworlds

▸ „While it is usually the plot-driven parts that draw the reader into the story, **it is the descriptive passages** that slow down the story to **give a deeper understanding of the world** surrounding the character. It is these descriptive passages that are at the center of an analyses of a storyworld."

Wolf, M. J. P. (2012). Building Imaginary Worlds. Routledge.
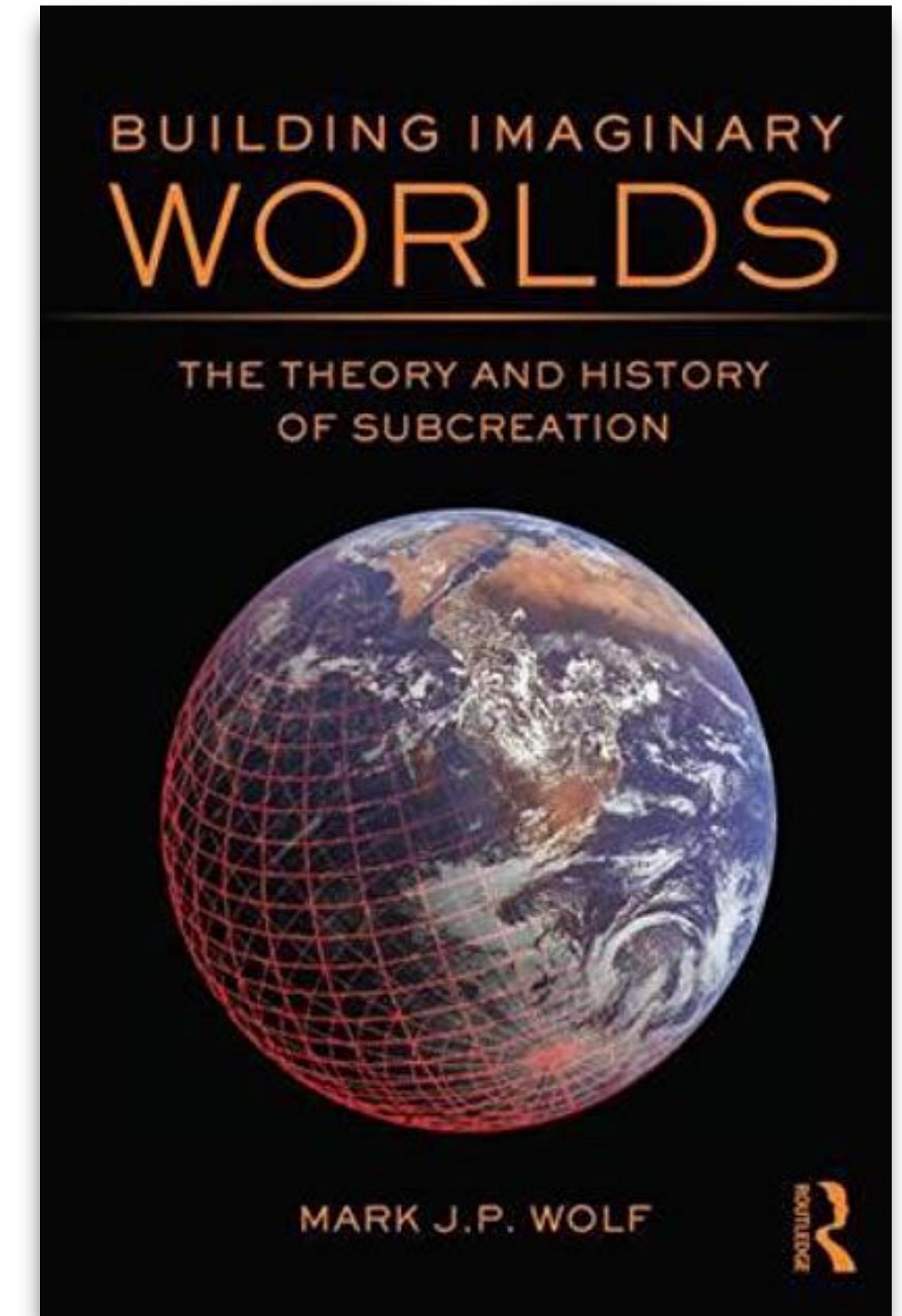
Learning to be me (Greg Egan, 1995)

Novum: Jewel

Anfang

„I was six years old when my parents told me that there was a small, dark **jewel** inside my skull, learning to be me.

Microscopic spiders had woven a fine golden web through my brain, so that the jewel's teacher could listen to the whisper of my thoughts. The jewel itself eavesdropped on my senses, and read the chemical messages carried in my bloodstream; **it saw, heard, smelt, tasted and felt the world exactly as I did**, while the teacher monitored its thoughts and compared them with my own. Whenever the jewel's thoughts were wrong, the teacher — faster than thought — rebuilt the jewel slightly, altering it, this

Novum: The Switch

„**The brain is removed, discarded, and replaced** with a spongy tissue-cultured object, brain-shaped down to the level of the finest capillaries, but no more capable of thought than a lung or a kidney. This mock-brain removes exactly as much oxygen and glucose from the blood as the real thing, and faithfully performs a number of crude, essential biochemical functions. In time, like all flesh, it will perish and need to be replaced.“

„Most people underwent the switch in their early thirties. **By then, it's downhill for the organic brain, and it would be foolish to have the jewel mimic this decline**.“

„By the time I was twenty-eight, **almost everyone I knew had switched.** All my friends from university had done it. Colleagues at my new job, as young as twenty-one, had done it. Eva, I heard through a friend of a friend, had done it six years before.“

Implikation: Kollektiver Selbstmord

„Maybe the destruction of my organic brain would be the merest hiccup, compared to all the changes that I'd been through in my life so far. **Or maybe not. Maybe it would be exactly like dying.**"

„Eva asked, 'Does that mean you'll never switch? You'll have your jewel removed? You'll let yourself die when your brain starts to rot?'

'Maybe,' I said. '**Better to die at ninety or a hundred than kill myself at thirty, and have some machine marching around, taking my place, pretending to be me.**'"

Implikation: Sozialer Druck

„I drifted apart from my friends, I stopped searching for a lover. I took to working at home (I put in longer hours and my productivity rose, so the company didn't mind at all). **I couldn't bear to be with people whose humanity I doubted**."

„Finally, **I made an appointment for the operation**. I thought, what is there to lose? Sixty more years of uncertainty and paranoia? If the human race was replacing itself with clockwork automata, I was better off dead; I lacked the blind conviction to join the psychotic underground — who, in any case, were tolerated by the authorities only so long as they remained ineffectual."

Implikation: Fehlfunktion

„Oh, I ought to have managed, at the very least, a good, solid bout of hysterical laughter, when I realised that **I was the jewel.**"

„When I enter hospital and the switch takes place, if the nerve impulses I transmit to the body are not exactly in agreement with those from the organic brain, the flaw in the teacher will be discovered. And rectified. The organic brain has nothing to fear; his continuity will be safeguarded, treated as precious, sacrosanct. There will be no question as to which of us will be allowed to prevail. I will be made to conform, once again. I will be 'corrected'. **I will be murdered.**"

Implikation: *Simulation* des Geistes

„As for the man who claimed that he loved her — the man who spent the last week of his life helpless, terrified, suffocated by the knowledge of his impending death — I can't yet decide how I feel. I ought to be able to empathise — considering that I once expected to suffer the very same fate myself — yet somehow **he simply isn't real to me**. I know my brain was modelled on his — giving him a kind of causal primacy — but in spite of that, **I think of him now as a pale, insubstantial shadow.**"

„After all, **I have no way of knowing if his sense of himself**, his deepest inner life, his experience of being, **was in any way comparable to my own**."

Ende

Philosophische Gedankenexperimente

Philosophical Zombie / Chinese Room

„The longer I delayed, the harder the decision became. I could talk to a thousand people who had switched, I could grill my closest friends for hours about their childhood memories and their most private thoughts, but however compelling their words, I knew that the Device had spent decades buried in their heads, **learning to fake exactly this kind of behaviour**."

Das Schiff des Theseus

„'Suppose you had a stroke,' I said glibly, 'which destroyed a small part of your brain. Suppose the doctors implanted a machine to take over the functions which that damaged region had performed. Would you still be "yourself"?' 'Of course.' 'Then if they did it twice, or ten times, or a thousand times—' 'That doesn't necessarily follow.' **'Oh? At what magic percentage, then, would you stop being you?**"

Diffusionsmomente

`Philosophie dürfte man eigentlich nur dichten`

Thank you!

Wenzel Mehnert

wenzel.mehnert@ait.ac.at