Fictional Technofutures

How Science Fiction attributes meaning to new and emerging technologies from the perspective of Hermeneutic Technology Assessment

Wenzel Mehnert, Berlin, September, 2026
Supervisors:
Prof. Dr. Sabine Ammon, Prof. Dr. Armin Grunwald,
Prof. Dr. Julia Grillmayr, Prof. Dr. Alfred Nordmann

Prologue



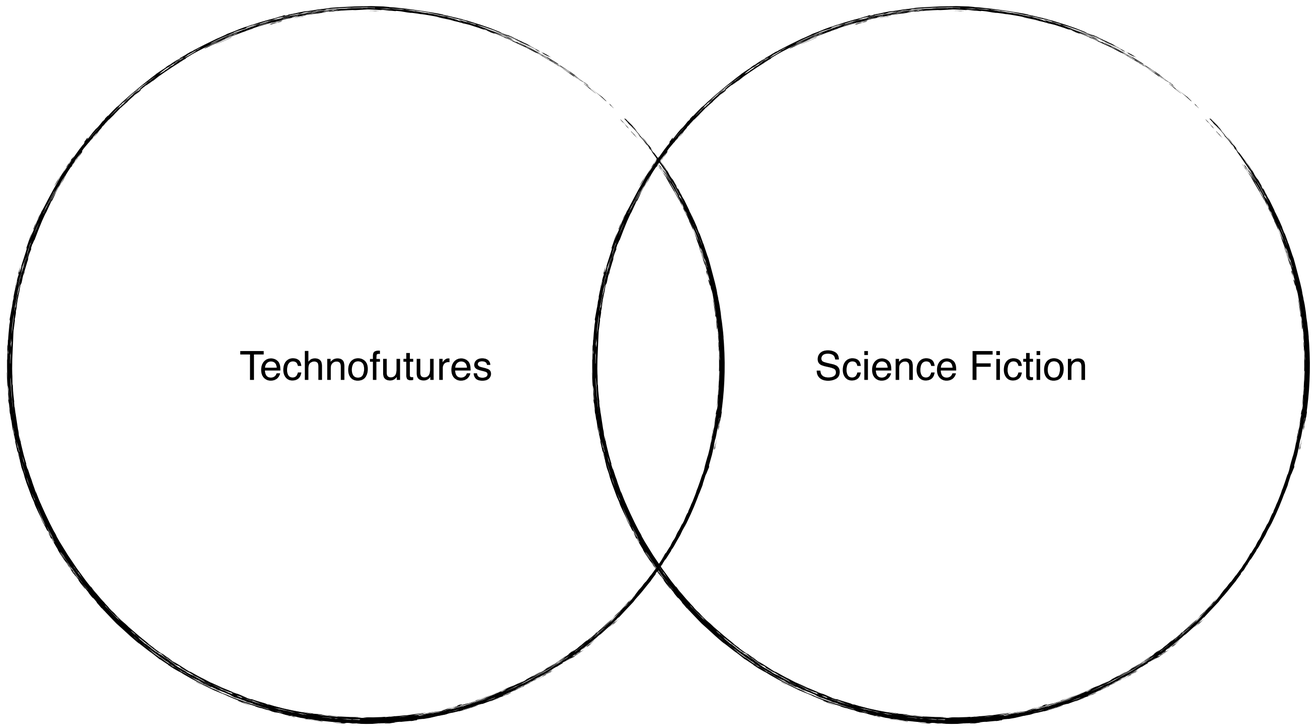
Mason-Wilkes, W. (2026). Science fiction in UK Future Flight Innovation: 'Torment Nexus' resource and sensemaking tool. TATuP - Zeitschrift Für Technikfolgenabschätzung in Theorie Und Praxis. https://doi.org/10.14512/tatup.7277

How is meaning attributed to emerging technologies through Fictional Technofutures?

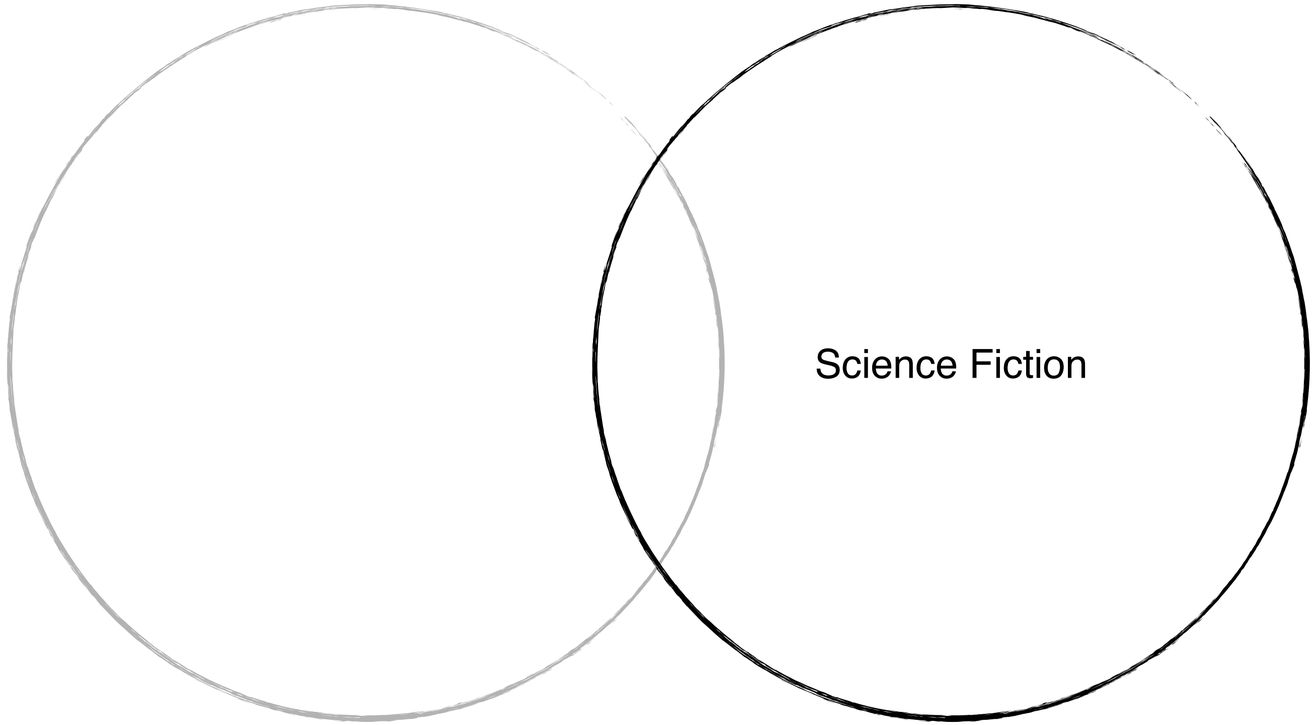
Act 1:
Concepts, Theories & Methods

How is meaning attributed to emerging technologies through Fictional Technofutures?

Concepts



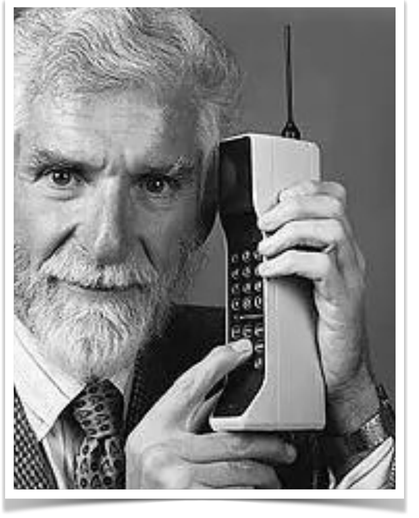
Concepts



What is Science-Fiction?

- … the future?
- … technological prognosis?





- … a metaphor?
- … a priming device?

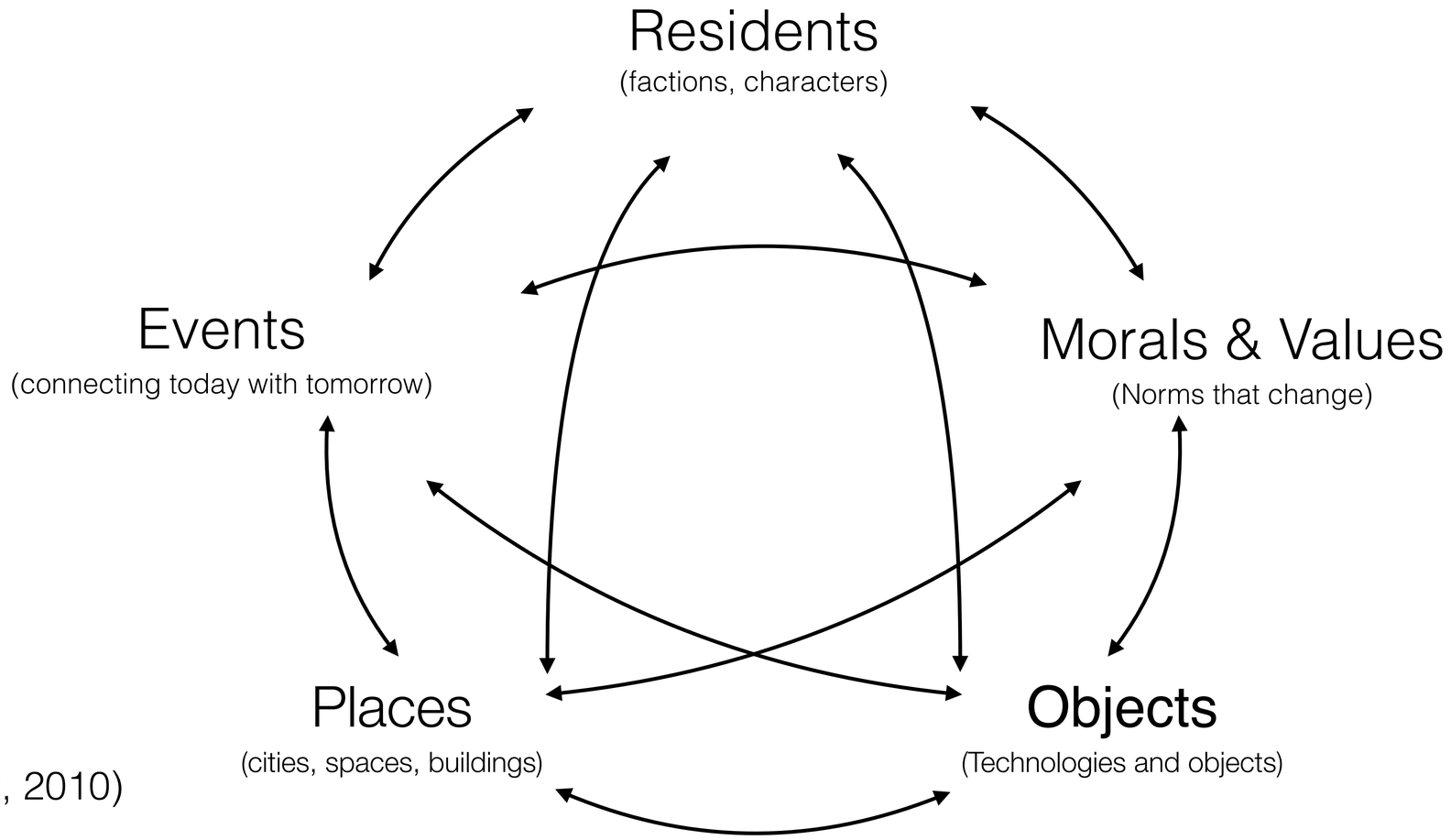
- … **entertainment**!
- … boundary objects!

- Science-Fiction is an entry point to an imaginary world that is different from ours but somehow connected.

Le Guin, U. K. (1969). The Left Hand of Darkness (Reprint Auflage). Ace.
Jameson, F. (2005). Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions (First Edition). Verso.

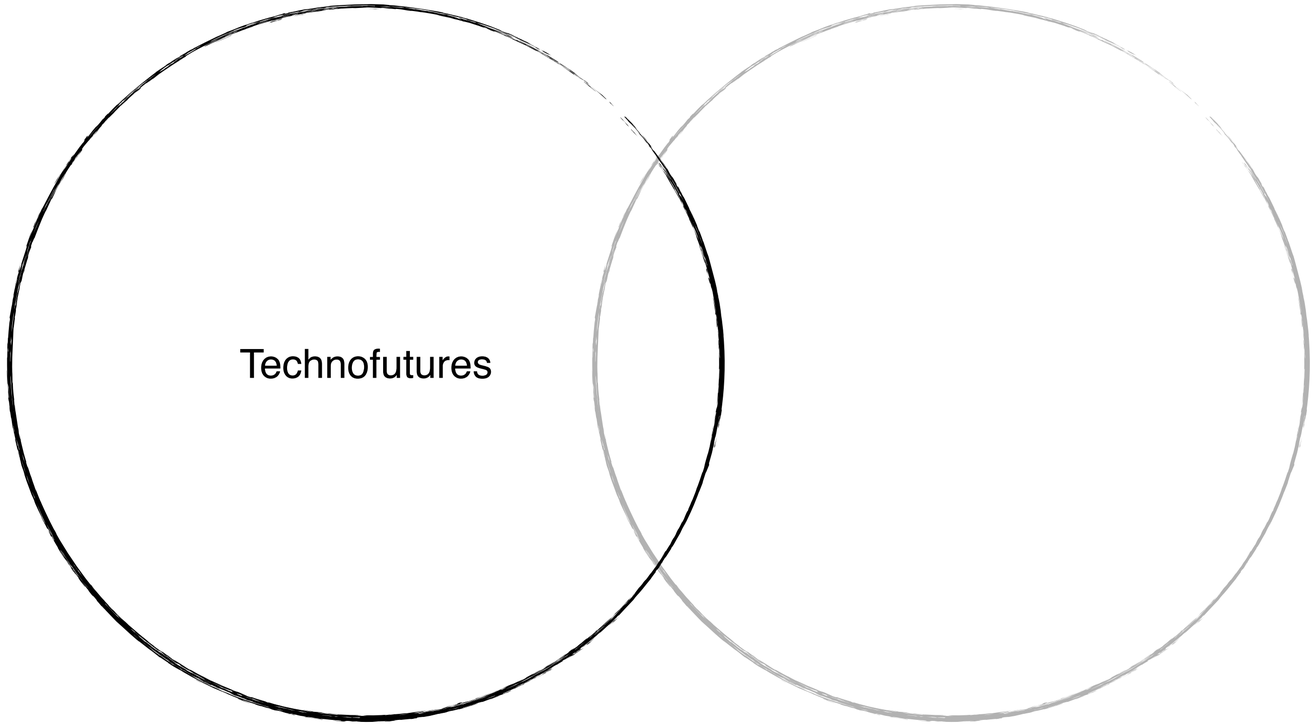
Embarking into Imaginary Worlds

- **Imaginary Worlds** (Wolf, 2016)
  - These worlds are constructed
  - Accessed through media
- **Cognitive Estrangement** (Suvin, 1972)
  - **Novum** estranges the familiar world
- **SF-Megatext** (Broderick, 1996)
  - Neologism, tropes and concepts
- **Cognitively Estranging Referents** (Chu, 2010)
  - A literalized figure of speech



Wolf, M. J. P. (2012). *Building Imaginary Worlds*. Routledge.

Concepts



Technofutures are…

- … **mediated statements** about our world being changed by new sciences or **technologies,** at a time when these technologies **have not yet materialised**.
- They come in the form of presentations, foresight reports, advertising, corporate visions, etc.
- Aims on **impacting** tech development.





Nicolelis, M. (Director). (2015, January 26). Brain-to-brain communication has arrived. How we did it. [Video recording]. https://www.youtube.com/watch?v=HQzXqjT0w3k
https://www.forbes.com/sites/carolinecastrillon/2026/01/27/20-ai-resistant-careers-with-the-lowest-automation-risk-in-2026/

If-and-then statement (Nordmann, 2007)

- Narratives of causal change
- **If**: Function of an emergent technology
- **Then**: Promised / expected change that occurs through the function

- **If** we can create a direct interface between brains and machines
  then this would be an invasion of privacy (Nordmann, 2007).

- Often, neither the **if** nor the **then** can be claimed with certainty.
- Discussion often circle around the **then** and ignore the feasibility of **if** (#speculative ethics; #hype)

Nordmann, A. (2007). If and Then: A Critique of Speculative NanoEthics. NanoEthics, 1(1), 31–46. https://doi.org/10.1007/s11569-007-0007-6

Societal meaning

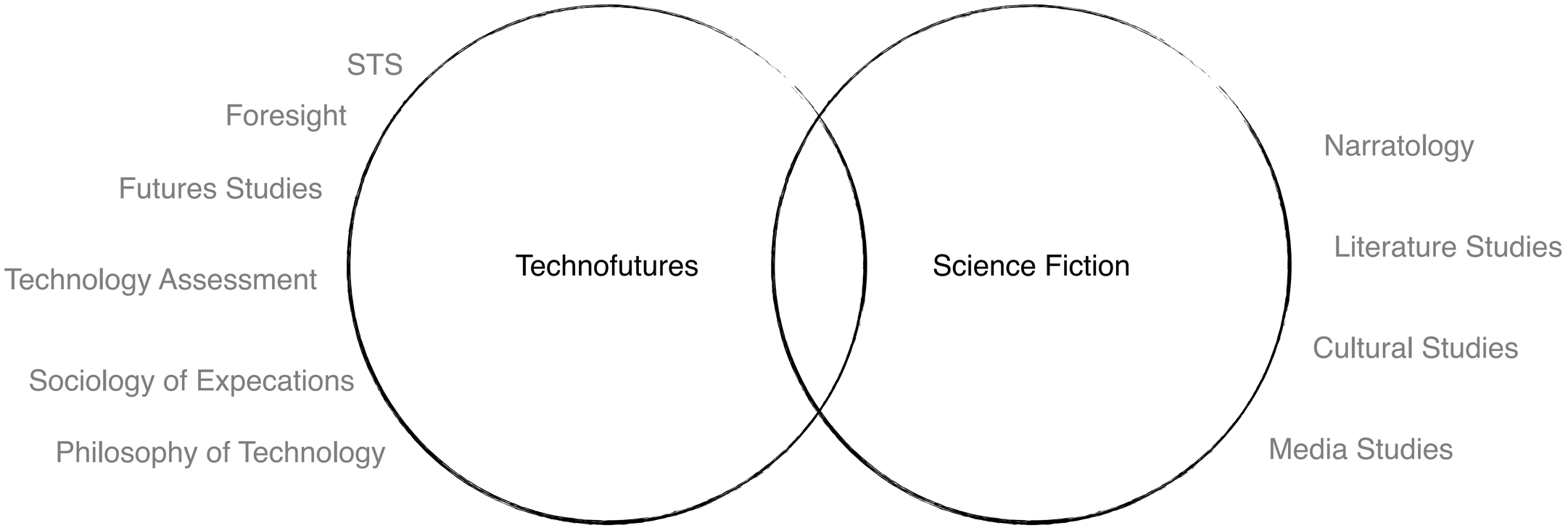
- Technofutures attribute societal meaning to an emerging technology.
- **Then**: Ethical, cultural, economic, social, political or ecological changes (Lösch et al., 2016).
- Emerging technologies become socially meaningful and require actors to **position themselves** in relation to the alleged changes (Grunwald, 2019, p. 105).



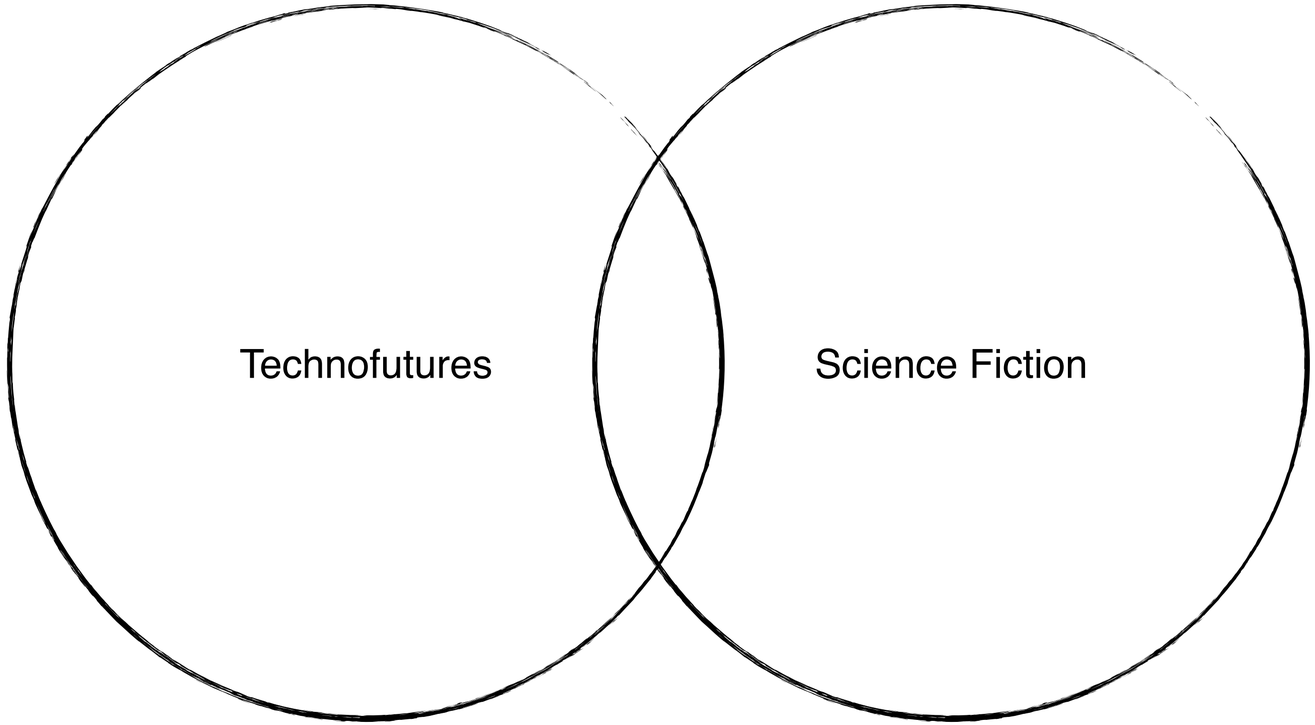
- Attribution of meaning becomes decisive for **social acceptance or rejection**
  - Technology futures forge alliances (Ferrari & Lösch, 2017)
  - Decide on promotion and regulation of the technology (Grunwald, 2019, p. 106)

Ferrari, A., & Lösch, A. (2017). How Smart Grid Meets In Vitro Meat: On Visions as Socio-Epistemic Practices. NanoEthics, 11(1), 75–91. https://doi.org/10.1007/s11569-017-0282-9
Lösch, A., Böhle, K., Coenen, C., Dobroc, P., Heil, R., Hommrich, D., Sand, M., & Schneider, C. (2016). Technikfolgenabschätzung von soziotechnischen Zukünften. 26.
Grunwald, A. (2019). Technology Assessment in Practice and Theory. Routledge.

Concepts

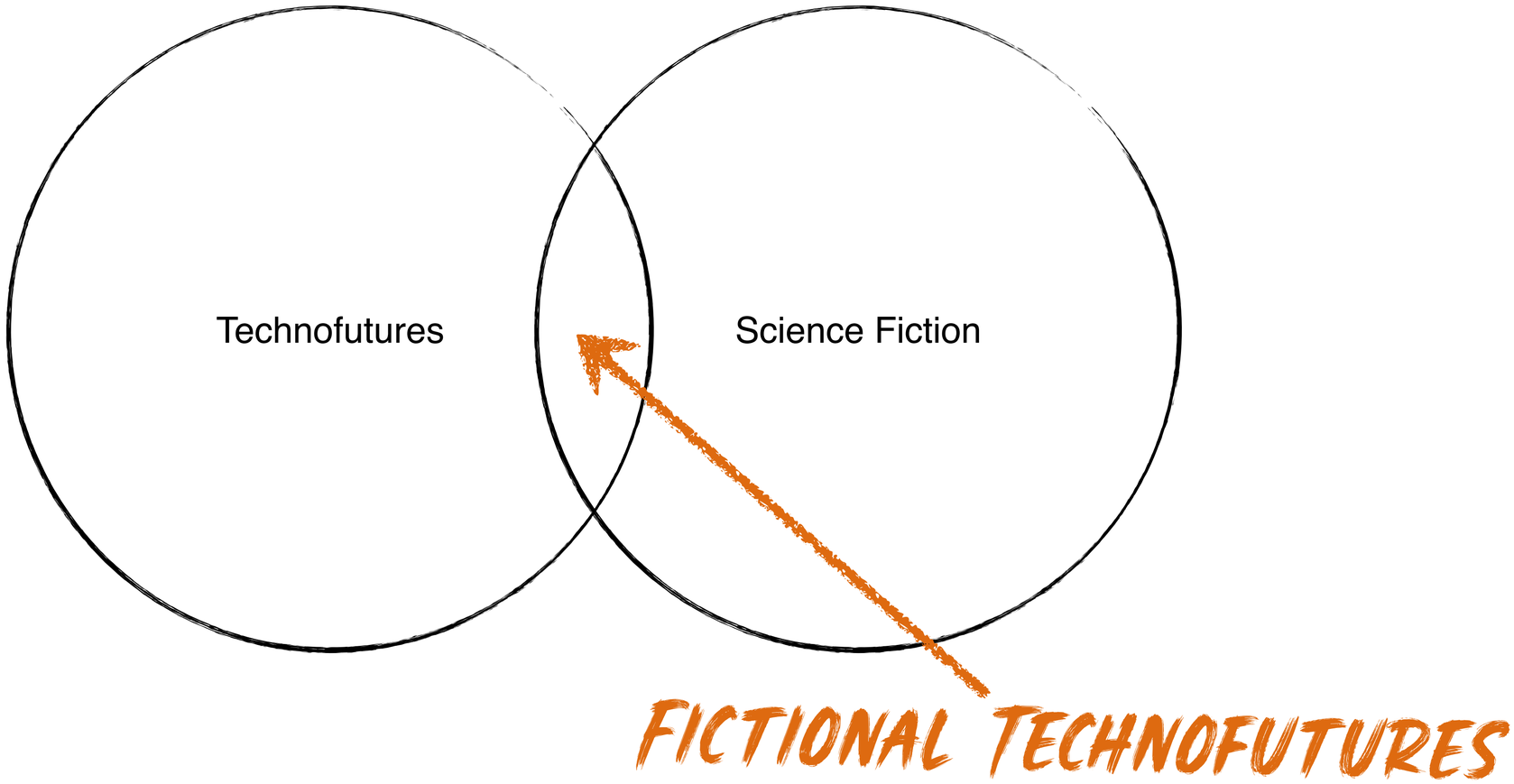

STS
Foresight
Futures Studies
Technology Assessment
Sociology of Expecations
Philosophy of Technology
Technofutures
Science Fiction
Narratology
Literature Studies
Cultural Studies
Media Studies

Concepts



FICTIONAL TECHNOFUTURES

Concepts



Fictional Technofutures

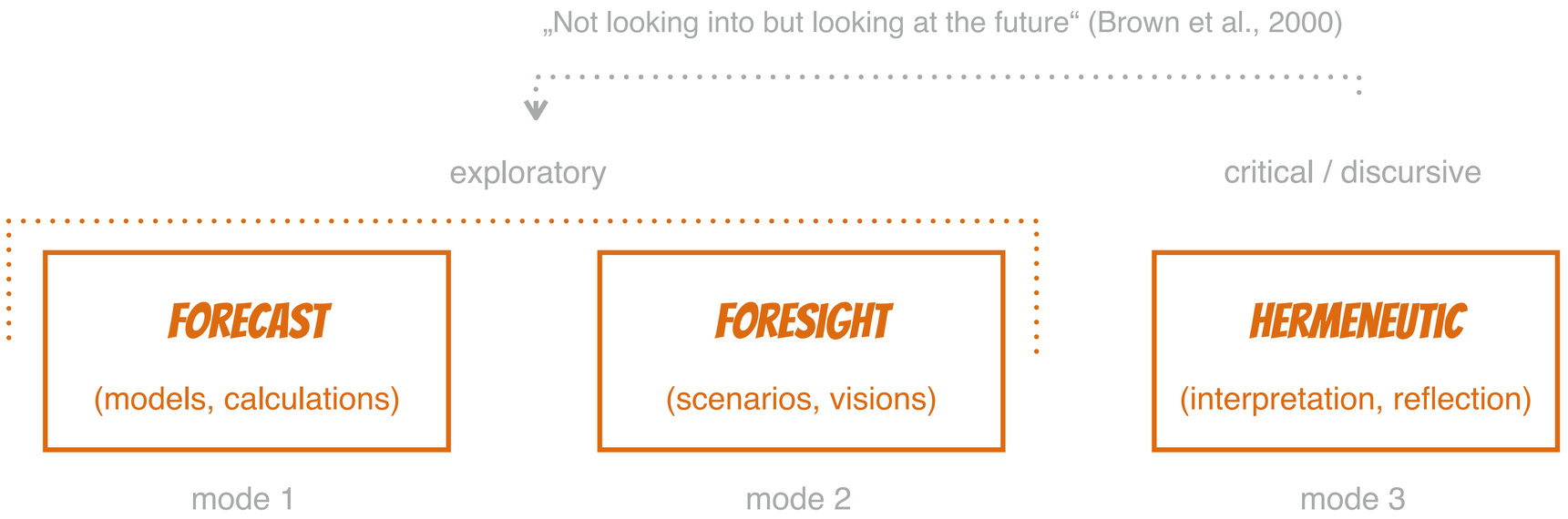
- A specific subset…
  - … of technofutures that originate within Science Fiction and the entertainment industry
  - … of SF that addresses sociotechnical changes and are taken up outside of SF

- They attribute meaning to emerging technologies before these technologies stabilise as material objects
- They originate in the entertainment industry but diffuse into other spheres and impact the development of emerging technologies.
- This diffusion goes along with a **shift of meaning**

How is meaning attributed to emerging technologies through Fictional Technofutures?

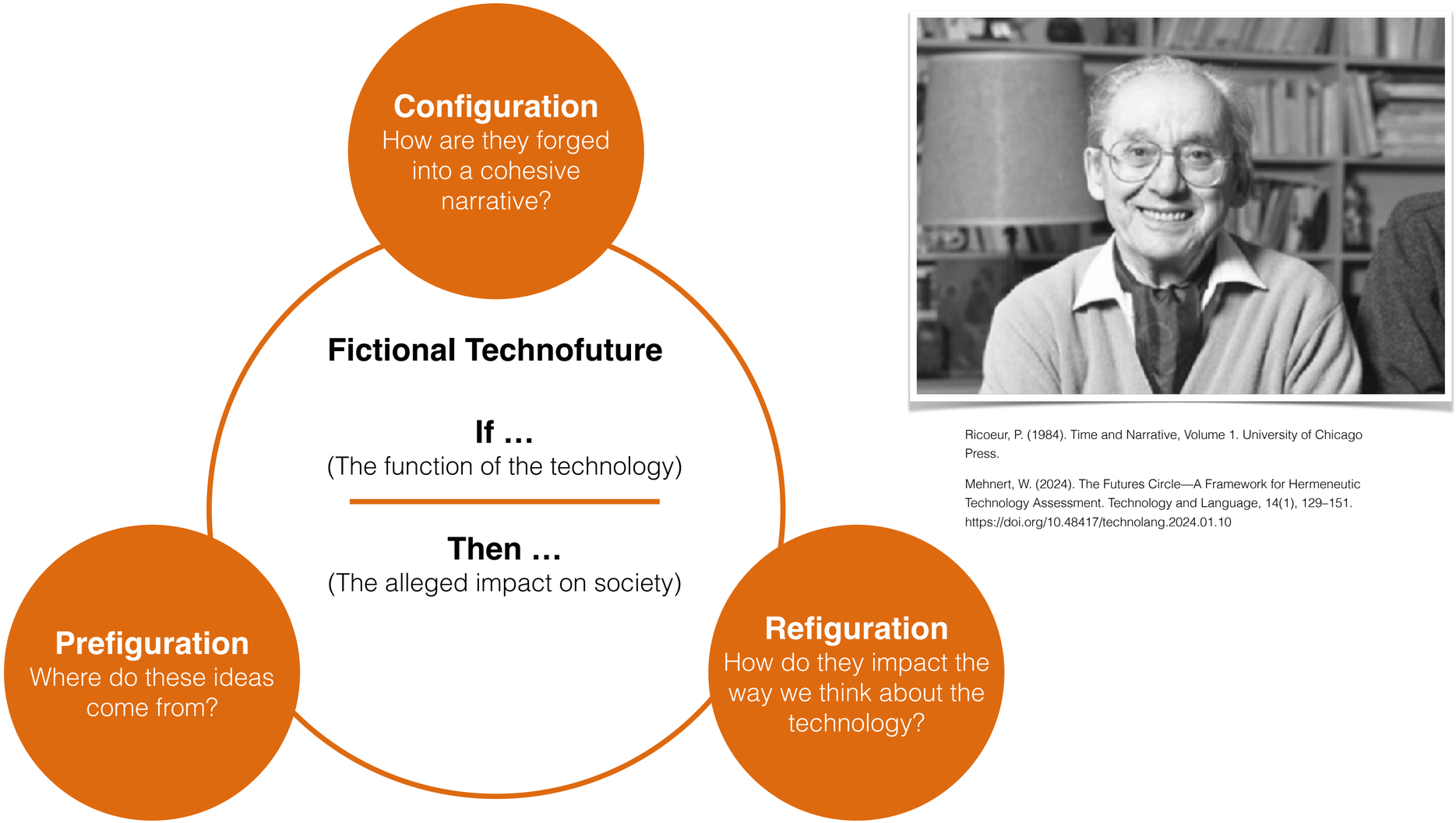
Hermeneutic Technology Assessment

„The hermeneutic approach (...) will contribute to the development and application of **a new type of reasoning and policy advice in debates on future technology** beyond traditional consequentialism. Its objective is **to allow deciphering the meanings assigned to NEST developments** as early as possible in order to allow and support more transparent and enlightened debate.“ (Grunwald, 2016, p. 4-5)“



Grunwald, A. (2016). The hermeneutic side of responsible research and innovation. ISTE; Wiley.
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.

Futures Circle & Narrative Hermeneutics



Ricoeur, P. (1984). Time and Narrative, Volume 1. University of Chicago Press.

Mehnert, W. (2024). The Futures Circle—A Framework for Hermeneutic Technology Assessment. Technology and Language, 14(1), 129–151. https://doi.org/10.48417/technolang.2024.01.10

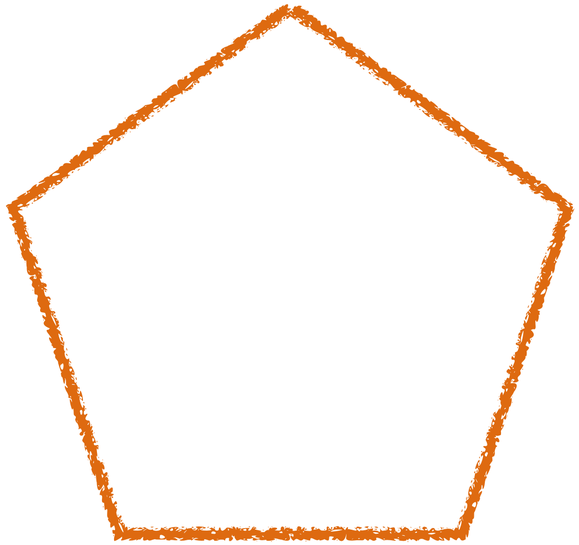
Act 2

Analysis

Five Readings

The Extrapolative Reading

Attributing meaning through worldbuilding



The Narrative Reading

Attributing meaning through plot structures

The Utopian Reading

Attributing meaning based on hopes and values

The Metaphorical Reading

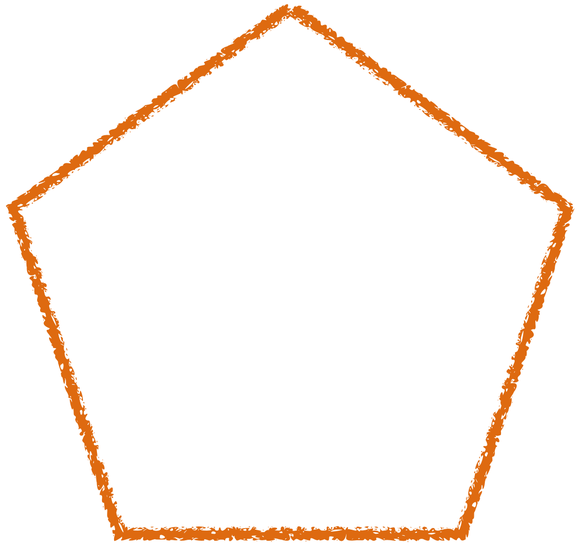
Attributing meaning by reflecting on the present

The Strategic Reading

Attributing meaning based on learned expectations

The Extrapolative Reading

Attributing meaning through worldbuilding



[Cyberpunk]



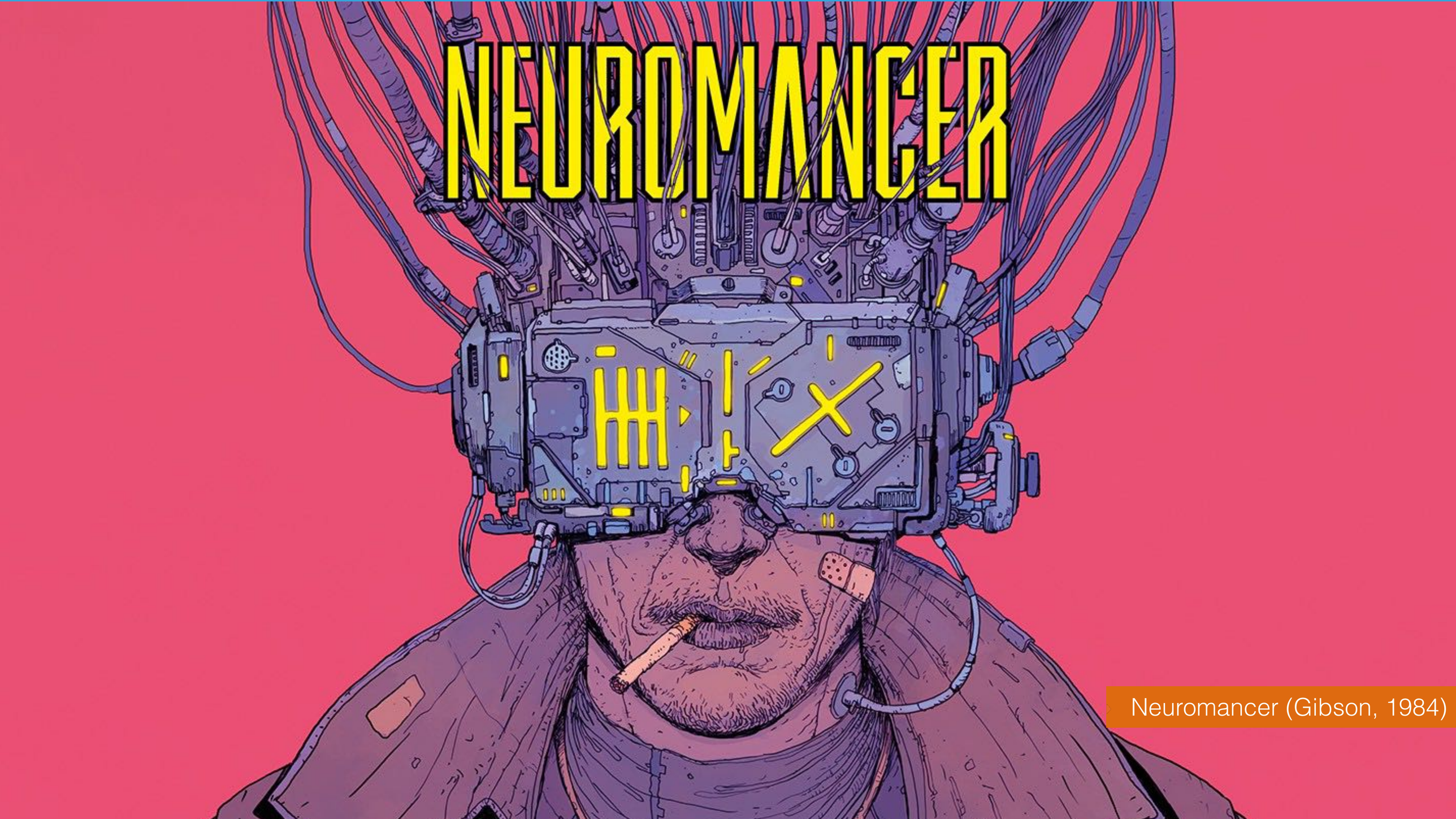




Scott, R. (Director). (1982, October 14). Blade Runner [Sci-Fi, Thriller]. http://www.imdb.com/title/tt0083658/ (Original work published as Blade Runner)

CD Projekt Red. (2020). Cyberpunk 2077 [Computer software]. https://www.cyberpunk.net/de/de/

Wachowski, L., & Wachowski, L. (Directors). (1999, March 31). The Matrix [Action, Sci-Fi]. Warner Bros., Village Roadshow Pictures, Groucho Film Partnership.



Neuromancer (Gibson, 1984)

Configuration



Haven, T. D., & Jensen, B. (1989). Neuromancer—The Graphic Novel—Volume 1. Epic Graphic Novel.

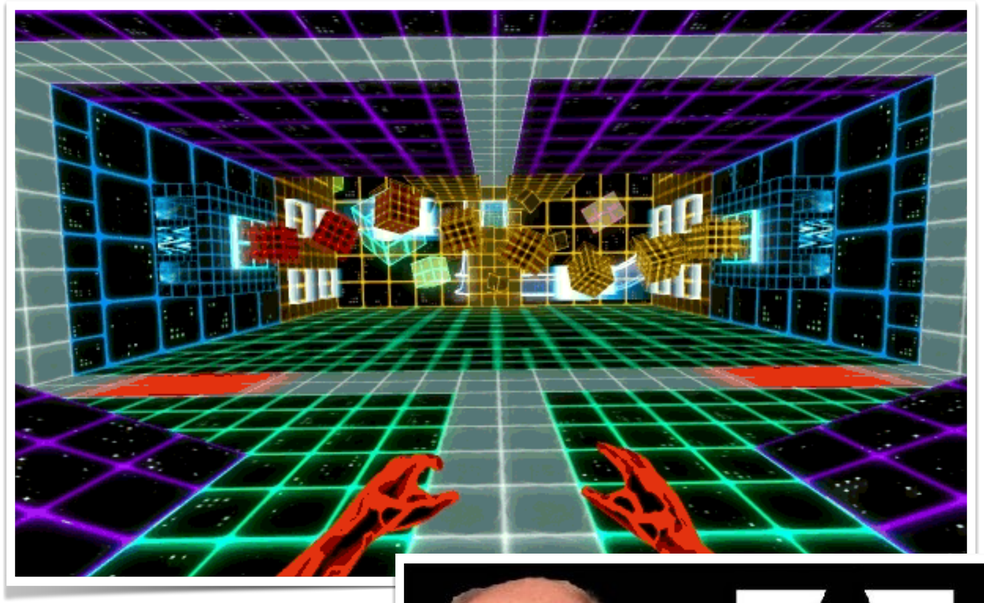
Prefiguration

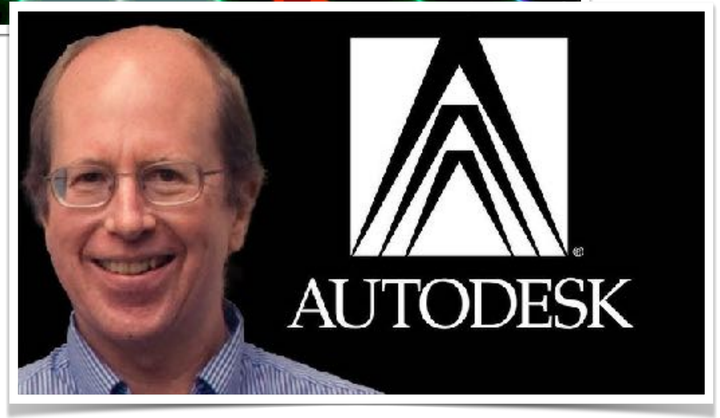
- **1980s “structure of feeling”**: losing oneself technological progress and neoliberal economy
- **Technology becomes everyday**: affordable consumer electronics move from expert niches into mass culture and closer to the body
- **Rise of late capitalism**: Reagan/Thatcher-era privatisation, globalisation and expanding multinational corporations.
- The “‘**dance of biz**’ can whirl free and infiltrate the desires of the soul” (Gibson quoted in McCaffery 1991, 5).

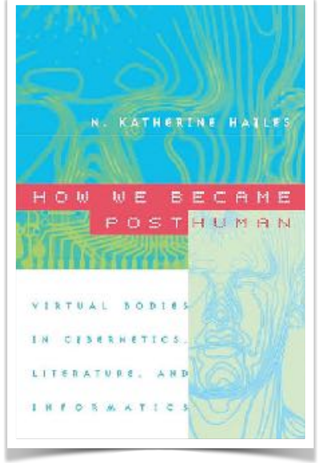


Refiguration

- **Cyberspace:** Popular term outside of SF.
- **From fiction to Leitbild**: Autodesk used the term for their vision of three-dimensional virtual reality image software.
- **Shift of meaning:** Gibson's critique of capitalism and technological power is appropriated as a glossy promise of the "next big thing"







Hayles, N. K. (1999). How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics (1. Edition). University of Chicago Press.

Walker, J. (1989). Through the Looking Glass. Autodesk. https://www.fourmilab.ch/autofile/e5/chapter2_69.html

Cyberspace

Configuration
How are they forged into a cohesive narrative?



Prefiguration
Where do these ideas come from?

Refiguration
How do they impact the way we think about the technology?

Cyberspace



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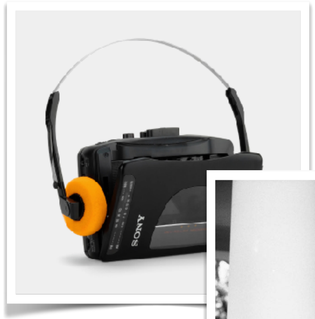



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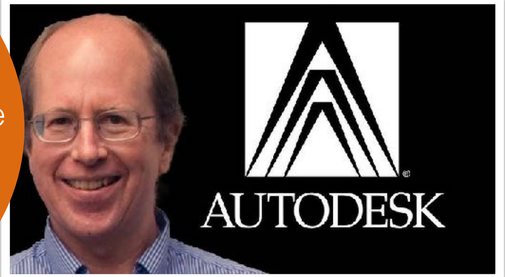
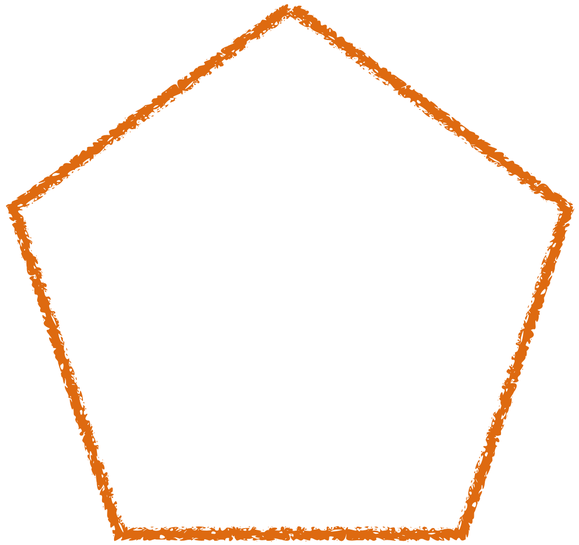


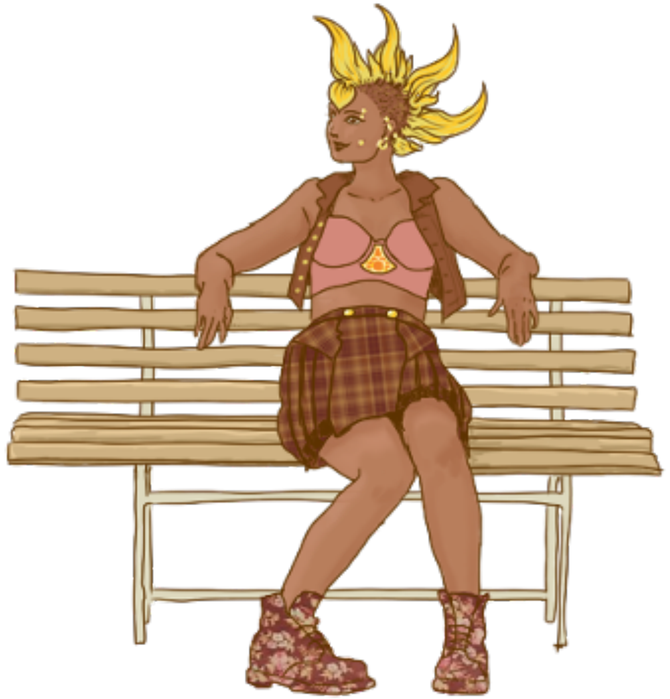


The Utopian Reading

Attributing meaning based on hopes and values

[Solarpunk]

Configuration





“Natural colors! Art Nouveau! Handcrafted wares! Tailors and dressmakers! Streetcars! Airships! Stained glass window solar panels!!! (…) No-cars-allowed walkways lined with independent shops! Renewable energy-powered Art Nouveau-styled tech life!” (Louise 2015)

Illustration of Solarpunks by Olivia Louise (2015)

Configuration





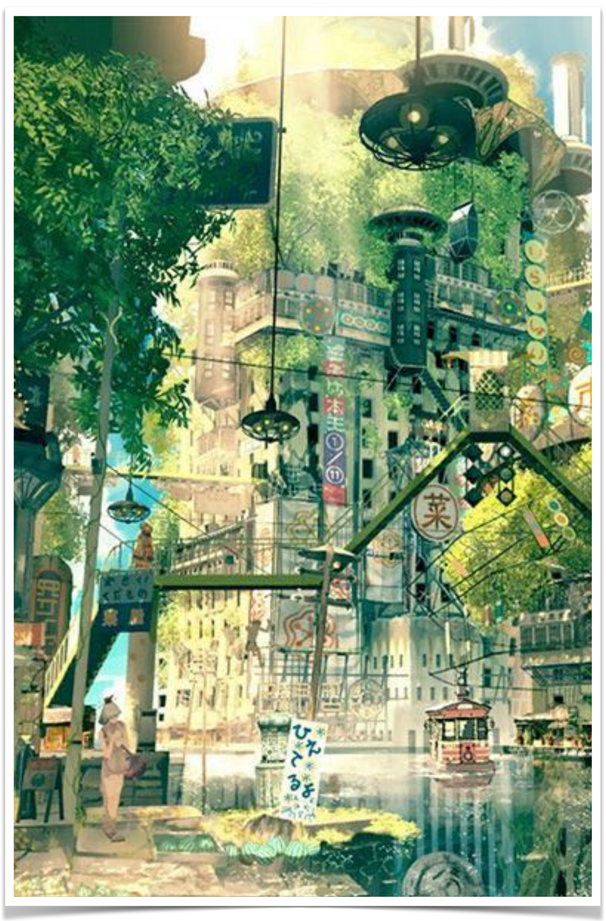


Illustration of Solarpunks by Olivia Louise (2015)

Dear Alice (The Line Animation Studio, 2021)



Dear Alice (The Line Animation Studio, 2021)

Solarpunk

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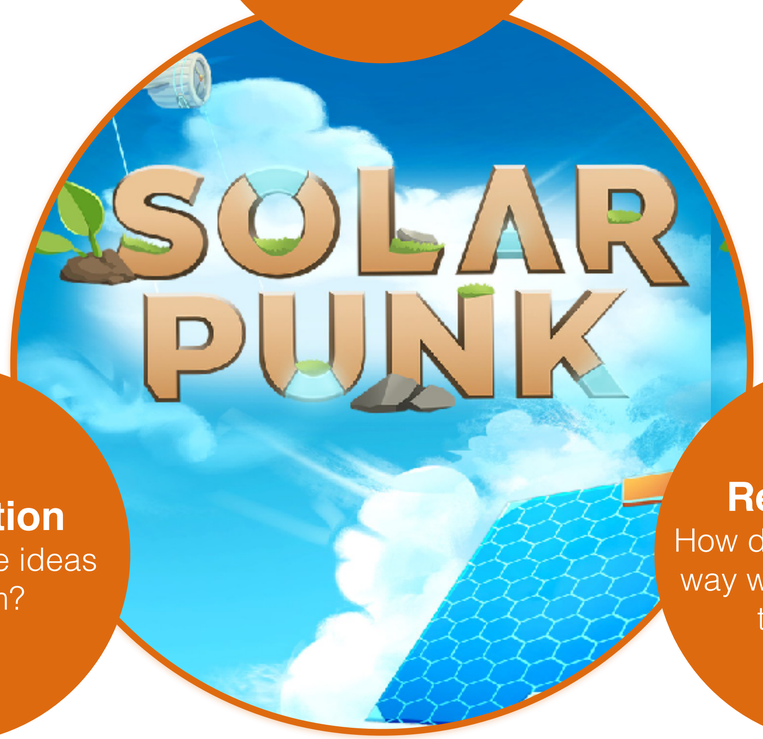

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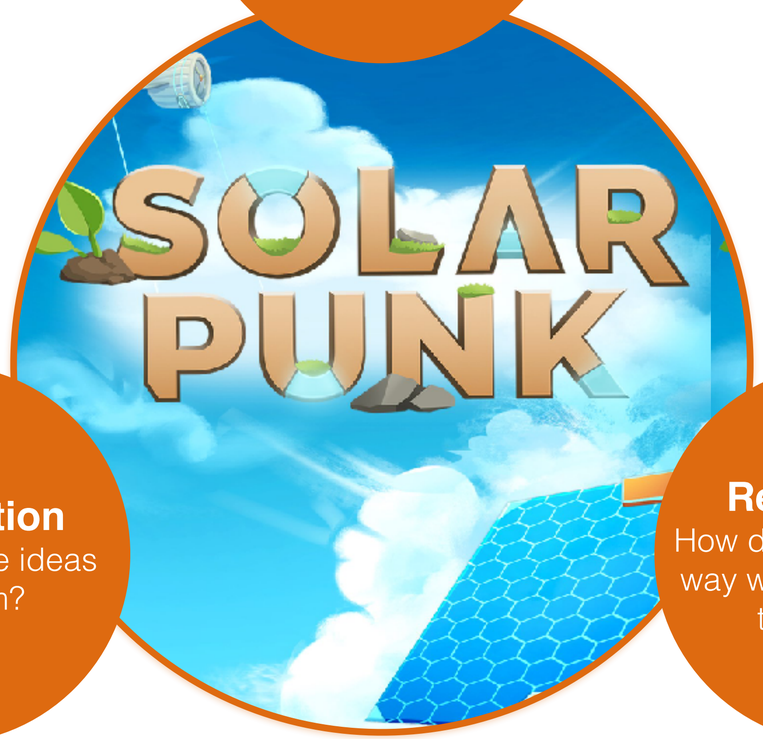

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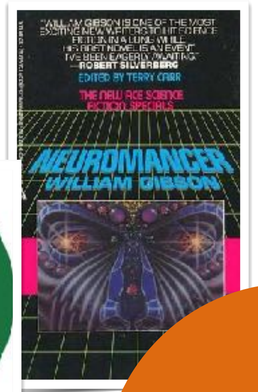







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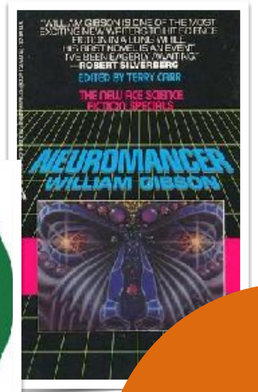





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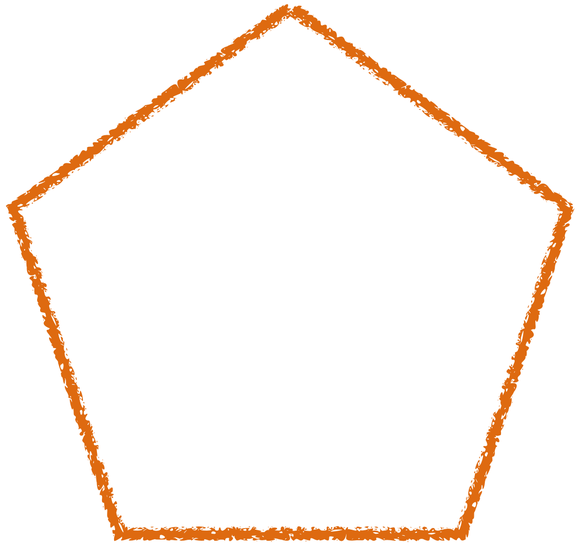
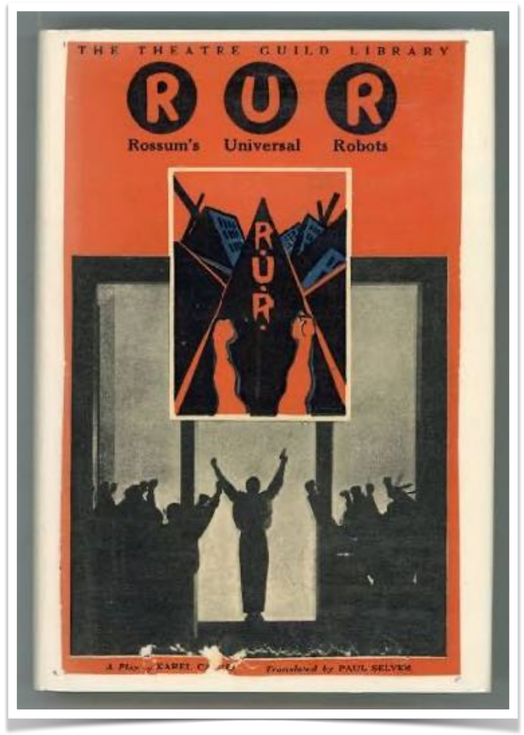


The Metaphorical Reading

Attributing meaning by reflecting on the present

[Robotics and Automation]

Configuration



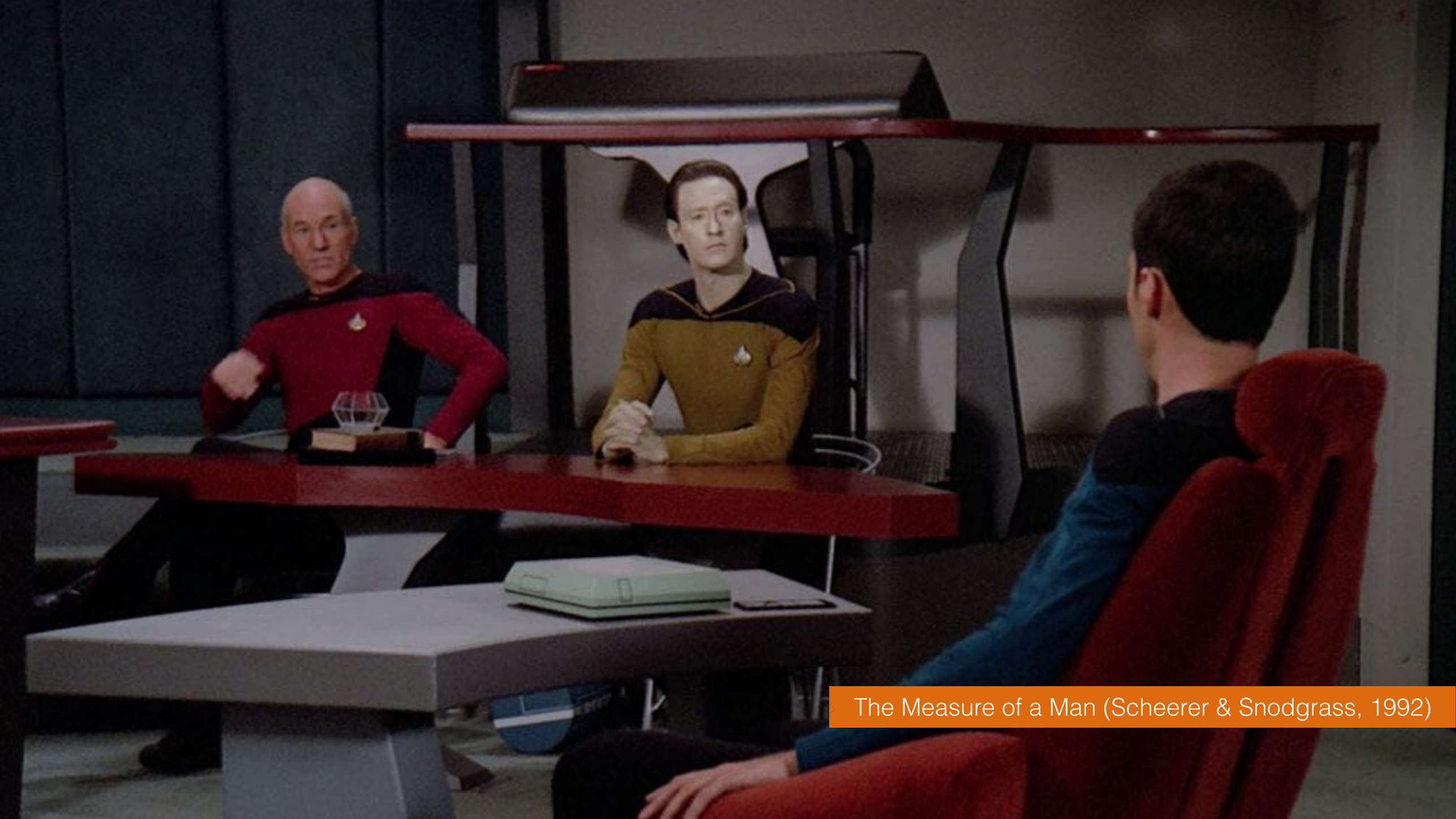


"Robots of the world! The power of man has fallen! A new world has arisen: the Rule of the Robots! March!" (57)

Čapek, K. (2004). R.U.R. (Rossum's Universal Robots) (C. Novack-Jones, Trans.). Penguin Classics.

Bussell, J. (Director). (1938, February 11). R.U.R. [Video recording]. British Broadcasting Corporation (BBC).

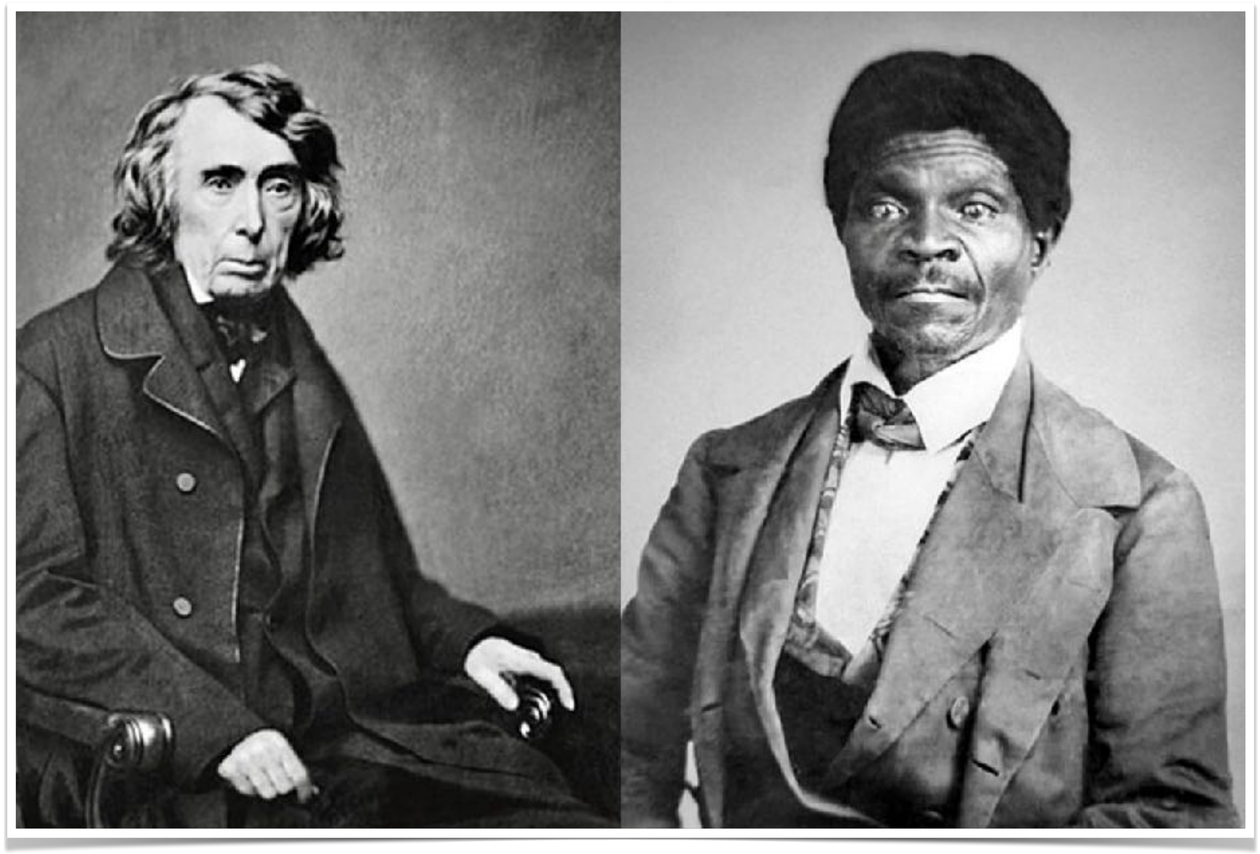



The Measure of a Man (Scheerer & Snodgrass, 1992)



The Measure of a Man (Scheerer & Snodgrass, 1992)

Prefiguration



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Bussell, J. (Director). (1938, February 11). R.U.R. [Video recording]. British Broadcasting Corporation (BBC).

Refiguration

- **Robots:** appear as an interchangeable labour force that supplements workers and secures capitalistic interests

- **The term has moved out of SF into the actual world:** SF references become the promised future of tech entrepreneurs

- **Shift of meaning:** The social critique is ignored; the metaphorical reading not understood.



Elon Musk predicts humanoid robots will hit one billion in 10 years and outproduce 'all humans'

SpaceX and Tesla CEO Elon Musk predicts there will be a staggering amount of humanoid robots within the next decade.

Tamika Seeto

3 min read September 3, 2026 - 8:52AM news.com.au 49 Comments

Hören Sie sich diesen Artikel an

4 Min

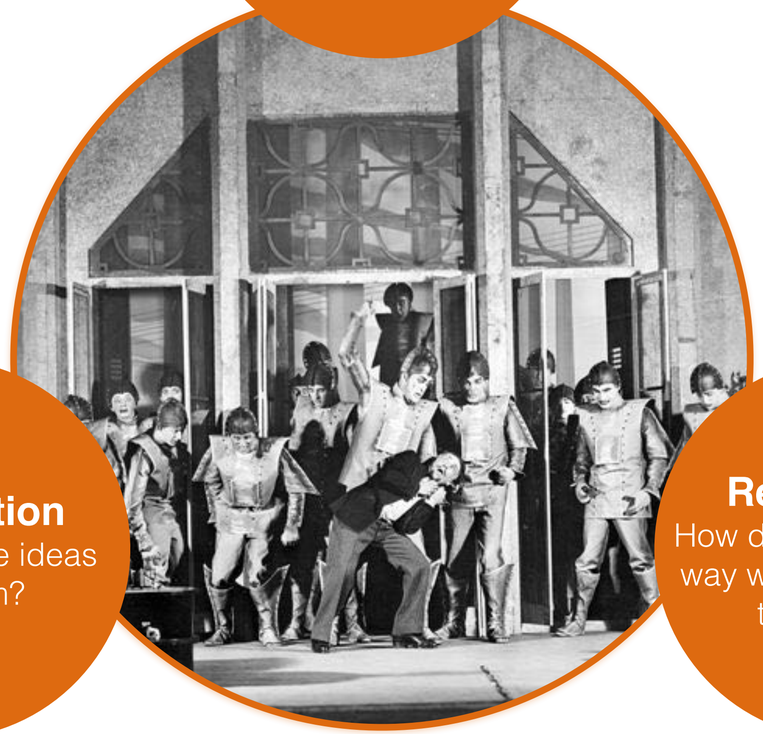
"But a metaphor is never only what it stands for; it is always also a little of what it is" (Hacks 2010, 190 [author's translation])

https://www.news.com.au/finance/work/trends/elon-musk-predicts-humanoid-robots-will-hit-one-billion-in-10-years-and-outproduce-all-humans/news-story/39eab7f36d83c98b7248e4c0dea08951

Hacks, Peter. Die Maßgaben der Kunst: Gesammelte Aufsätze 1955-1994. Suhrkamp Verlag, 2010.

Robot

Configuration
How are they forged into a cohesive narrative?



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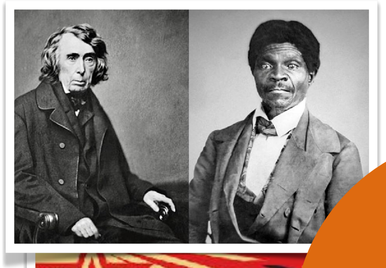



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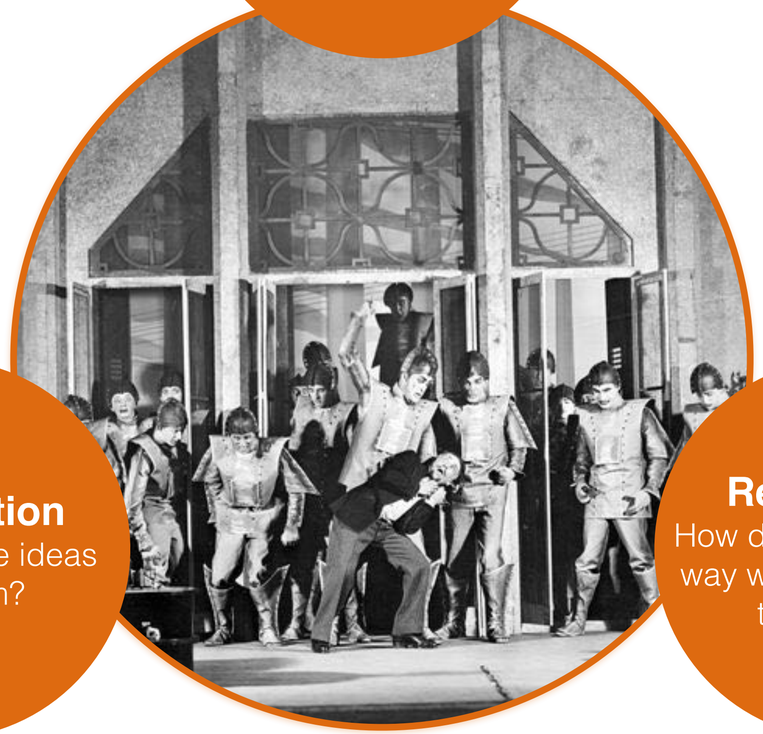

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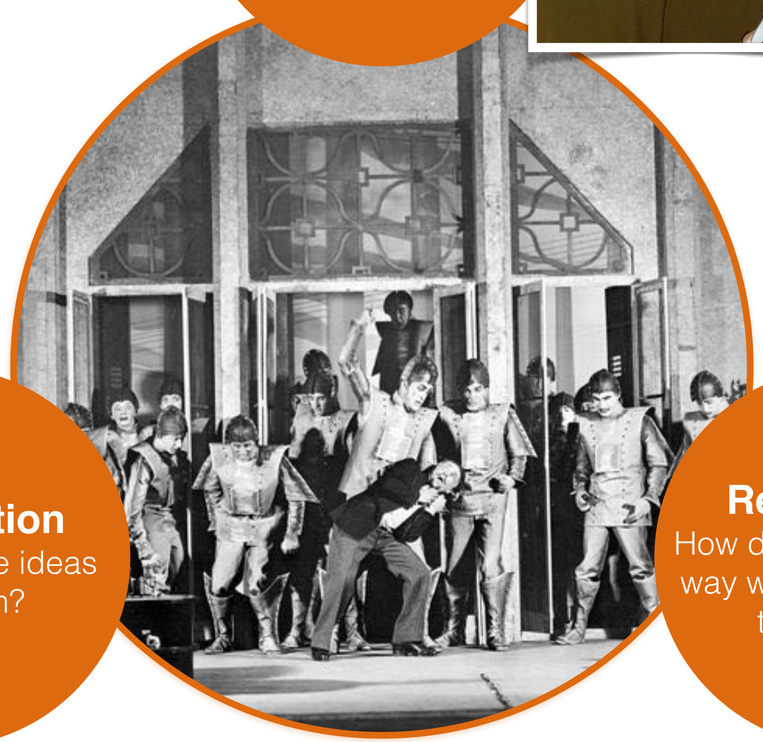

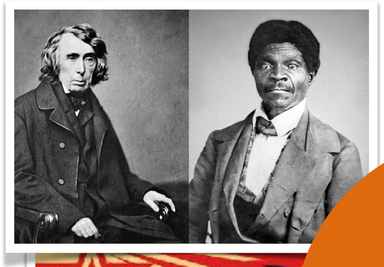



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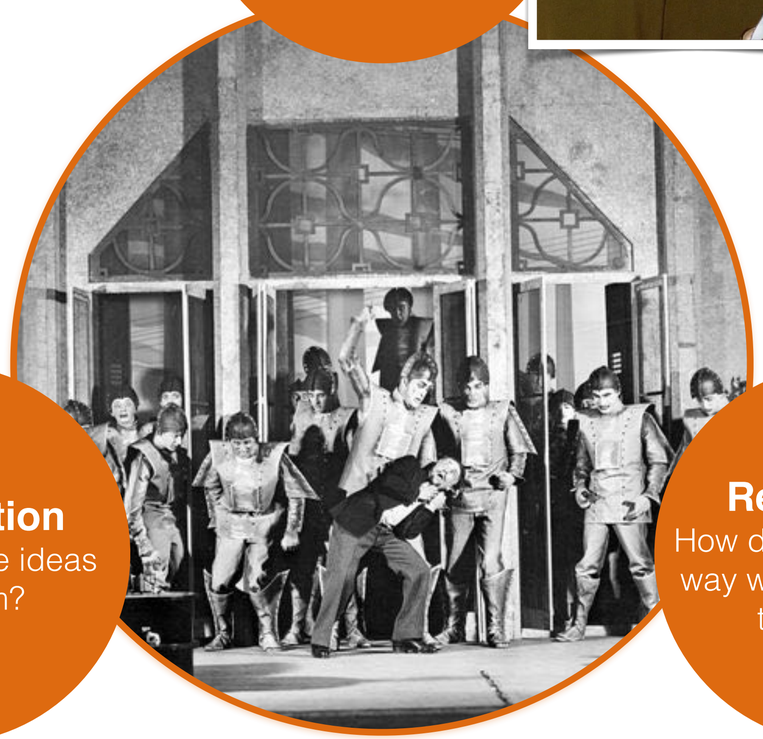
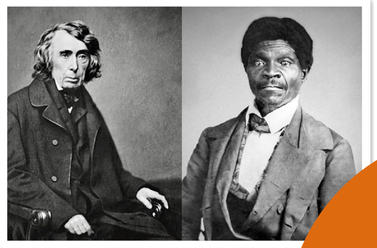
Configuration
How are they forged into a cohesive narrative?



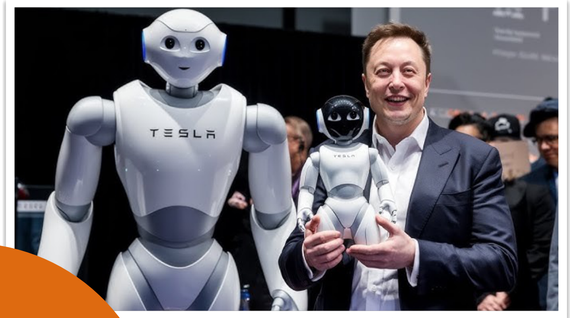


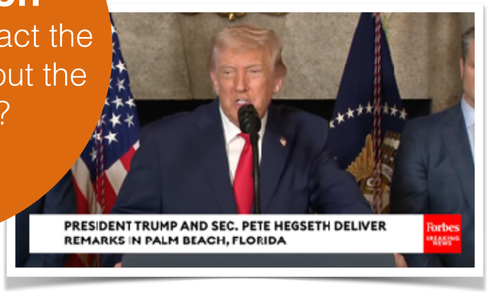
Prefiguration
Where do these ideas come from?





Refiguration
How do they impact the way we think about the technology?





From Hermeneutics to

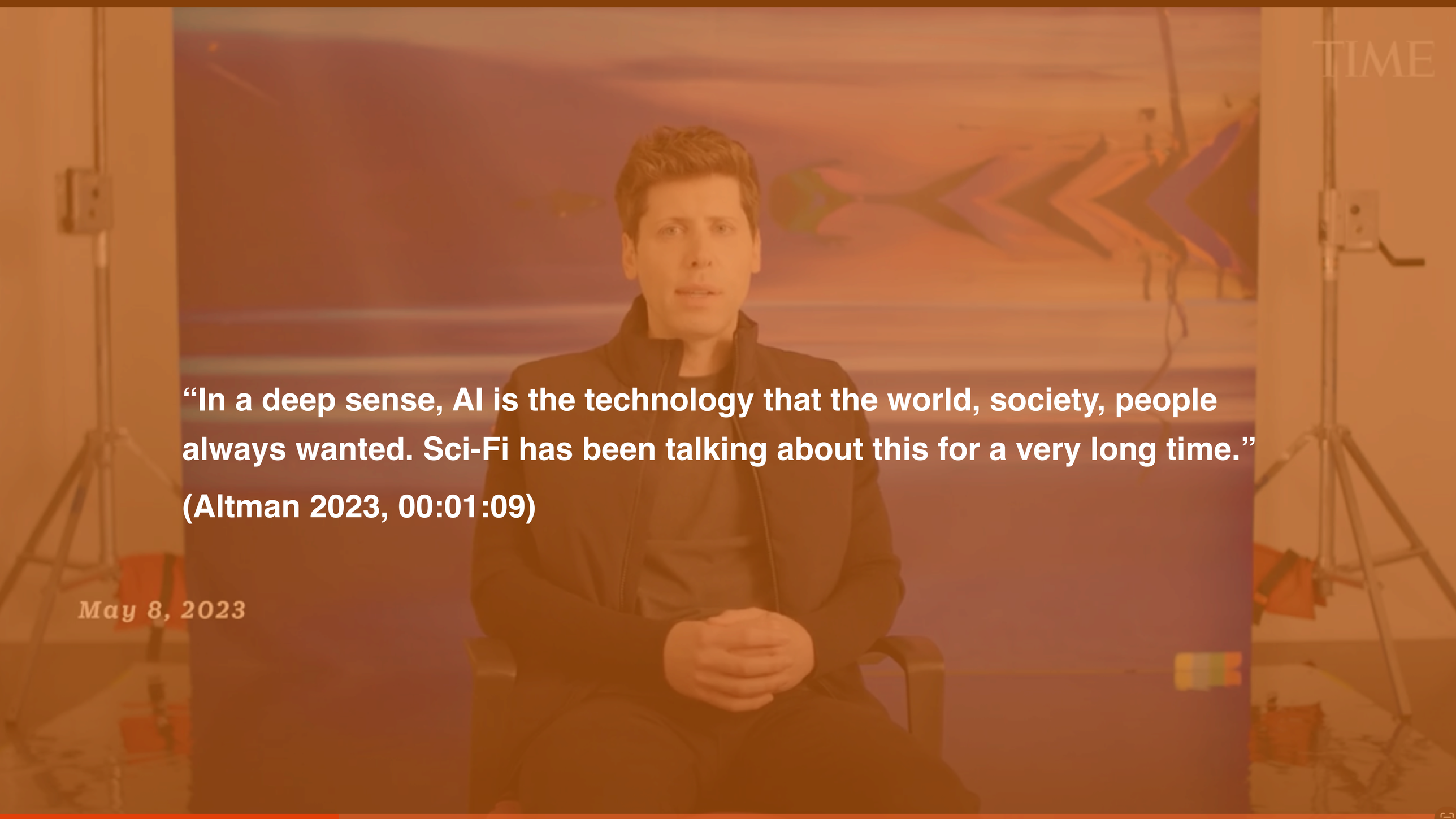



You've been living in a dream world, Neo.

“It's like the matrix. (...) Every Science Fiction will become reality one day.”

(Comment from a workshop participant, Buchinger et al. 2023, 85)


Sam Altman
@sama
her
3:45 AM · May 14, 2024 · 6.5M Views


TIME
“In a deep sense, AI is the technology that the world, society, people always wanted. Sci-Fi has been talking about this for a very long time.”
(Altman 2023, 00:01:09)
May 8, 2023



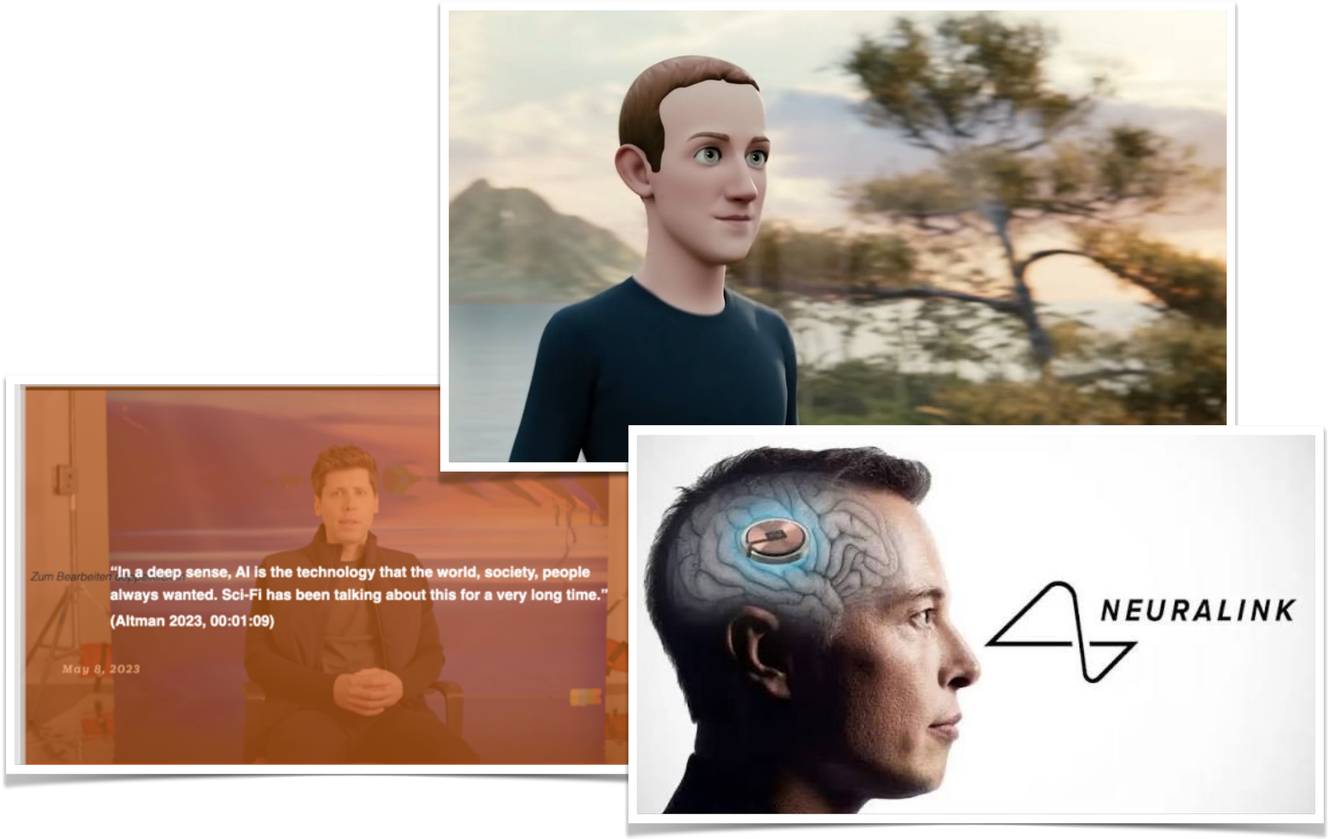

NEURALINK

Commodification of SF-Imaginaries

- The **deployment of SF to generate hype** by promising to manifest the learned expectations for the future.

- **Strategic reading of SF:** It is designed to render emerging technologies more conceivable.

- **Challenge**: When a privately-held company appropriates a collectively-shared vision of the future public deliberation about technological direction becomes difficult.



Act 3
Conclusion

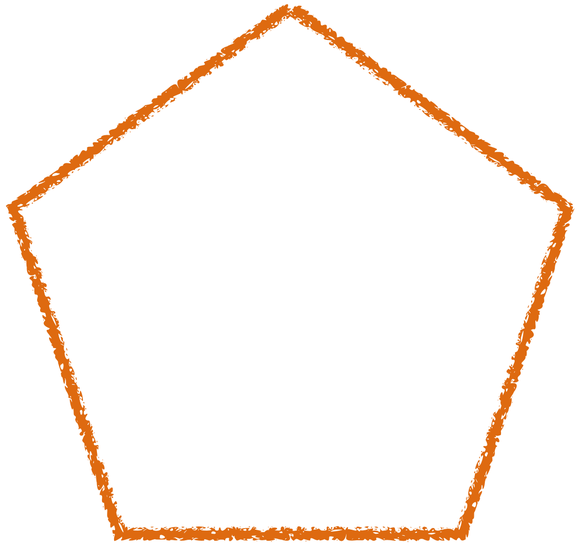
How is meaning attributed to emerging technologies through Fictional Technofutures?

It depends…

Five Readings

The Extrapolative Reading

Attributing meaning through worldbuilding



The Narrative Reading

Attributing meaning through plot structures

The Utopian Reading

Attributing meaning based on hopes and values

The Metaphorical Reading

Attributing meaning by reflecting on the present

The Strategic Reading

Attributing meaning based on learned expectations

Contributions

- **Conceptual** Fictional Technofutures
  - Extending the analytical scope of research on technofutures to include cultural narratives as a primary site of meaning-making
- **Methodological** Futures Circle
  - Approach for Hermeneutic Technology Assessment
- **Analytical** Five Readings
  - Analytical vocabulary to investigate SF from the perspective of STS or TA
- **Practical** Foresight & TA
  - Deconstructive: Handling SF imaginaries in tech discourse
  - Construction: Inspiration for stakeholder workshops

Limitations and Outlook

- **Hermeneutic and interpretive approach**
  - Different researchers may arrive at different interpretations of the same texts
- **Case studies**
  - Goal is to generate theoretical insight (e.g. not tracing direct connections between SF and technological development)
  - Topics not addressed: climate fiction, biotechnology narratives, space colonisation fiction, emerging quantum tech, and others
- **(Lack of) Perspective**
  - Western SF: Technology as Gestell that orders the world (and the future)
  - Non-Western SF not addressed: Global South, Sinofuturism or Afrofuturist
  - Potential for future research: Adoption of Readings? Additional Readings?

Emerging Technologies arrive pre-loaded with stories…

Emerging Technologies arrive pre-loaded with stories…

… „and to engage with these stories critically is to engage with the conditions under which futures become imaginable“ (Mehnert 2026, 282).

Thank you

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