Wiener + Macy Meetings + AI = Piloting a New Course = #NewMacy

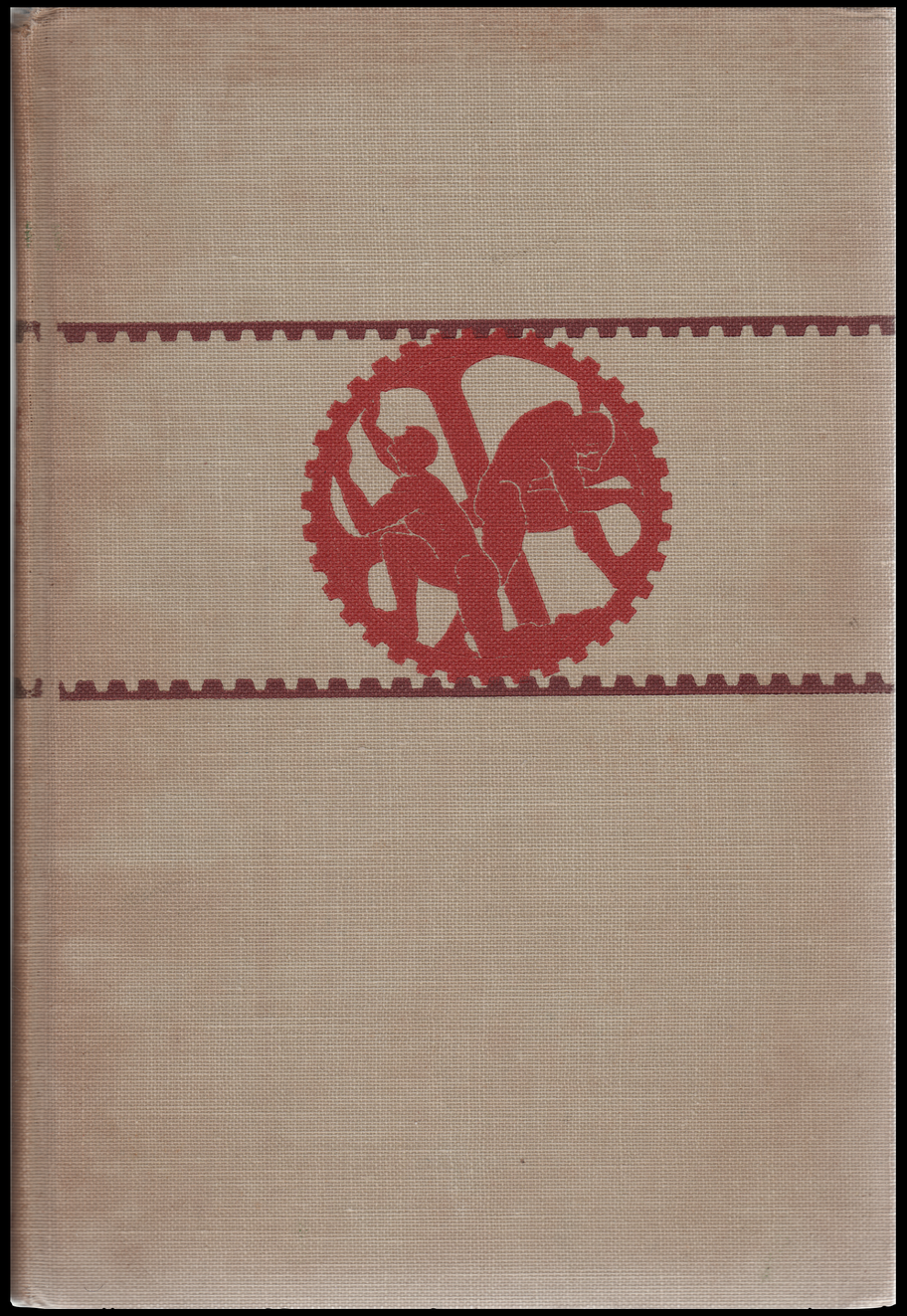
"Moreover, if we move in the direction
of making machines which learn
and whose behavior is modified by experience,
we must face the fact that
every degree of independence we give the machine
is a degree of possible defiance of our wishes."

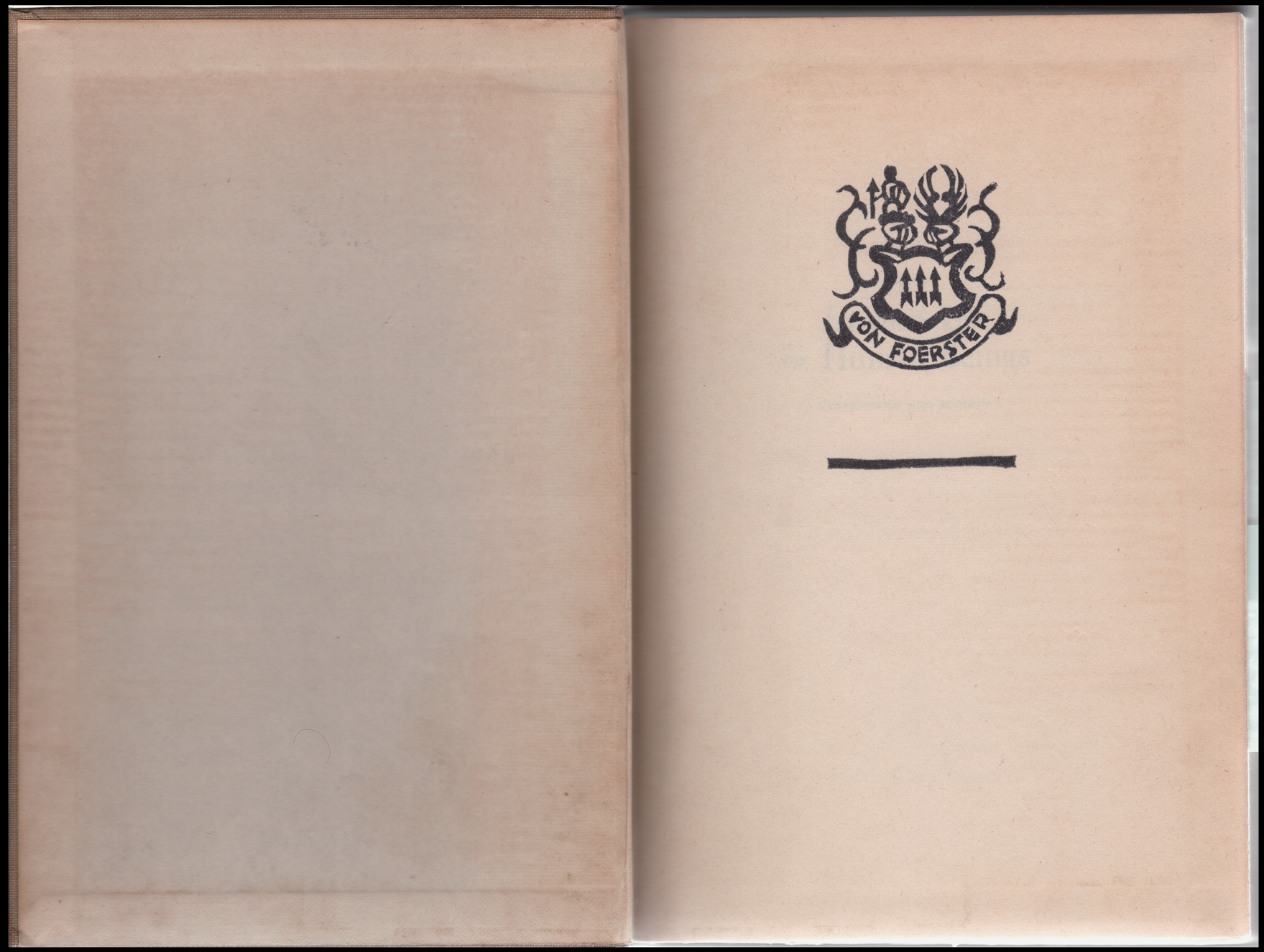
—Norbert Wiener 1949

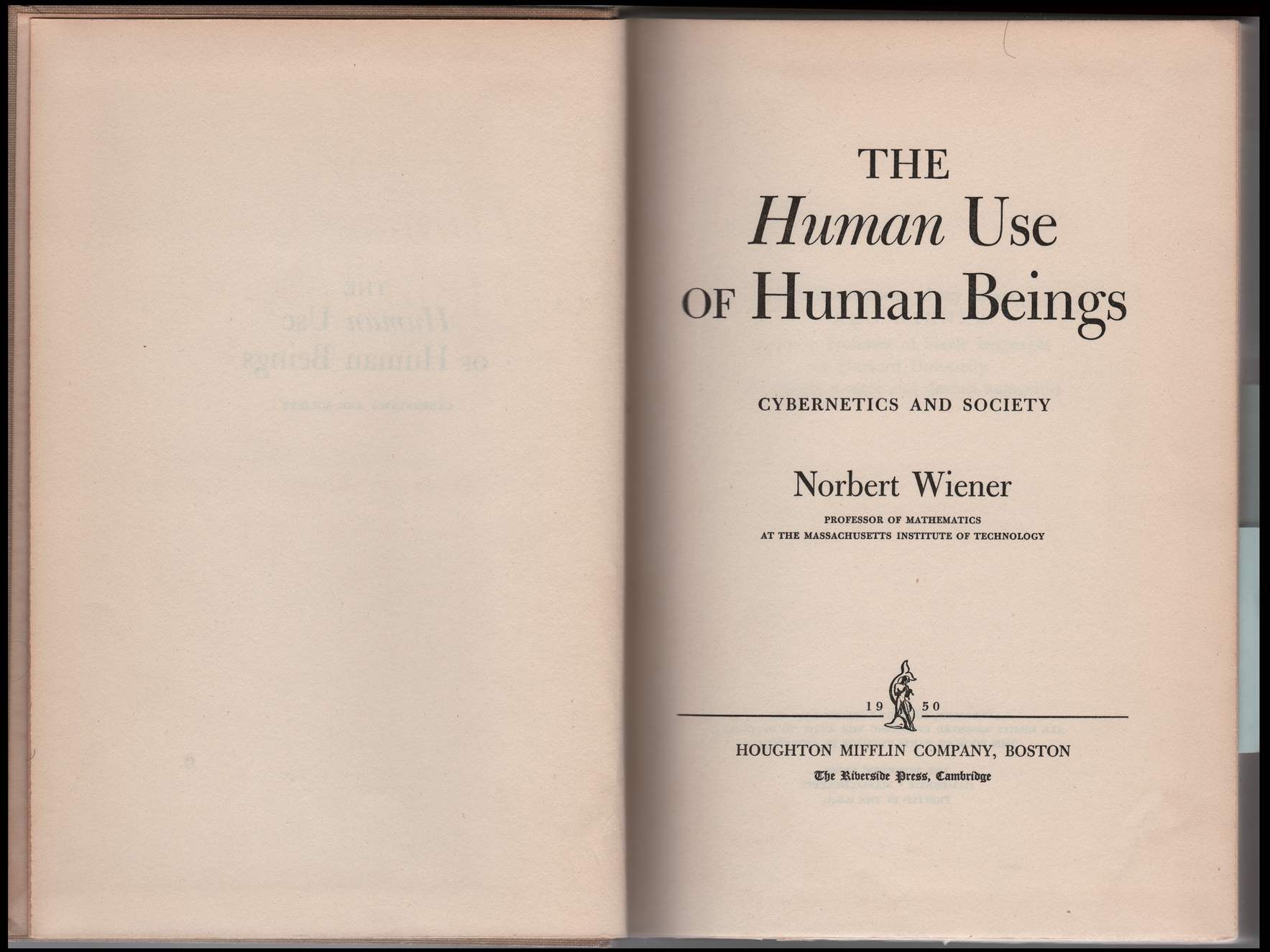
Wiener + Macy Meetings + AI = Piloting a New Course = #NewMacy

IEEE Conference on Norbert Wiener in the 21st Century
July 2021
pangaro.com/wiener2021/

Paul Pangaro, PhD
President, American Society for Cybernetics &
Professor of Practice, Human-Computer Interaction Institute,
Carnegie Mellon University
ppangaro@cmu.edu




VON FOERSTER



THE *Human* Use OF Human Beings

CYBERNETICS AND SOCIETY

Norbert Wiener

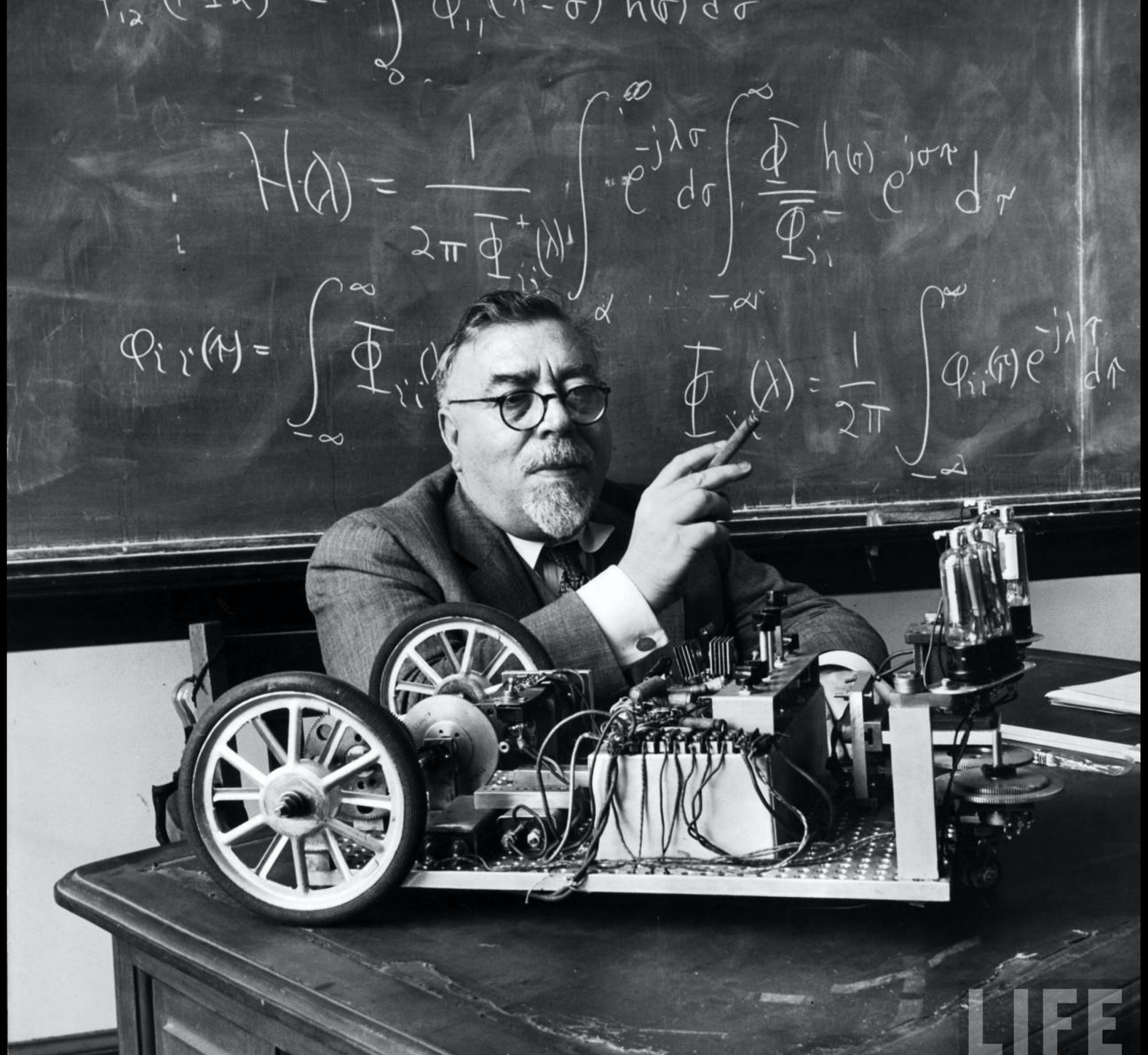
PROFESSOR OF MATHEMATICS
AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

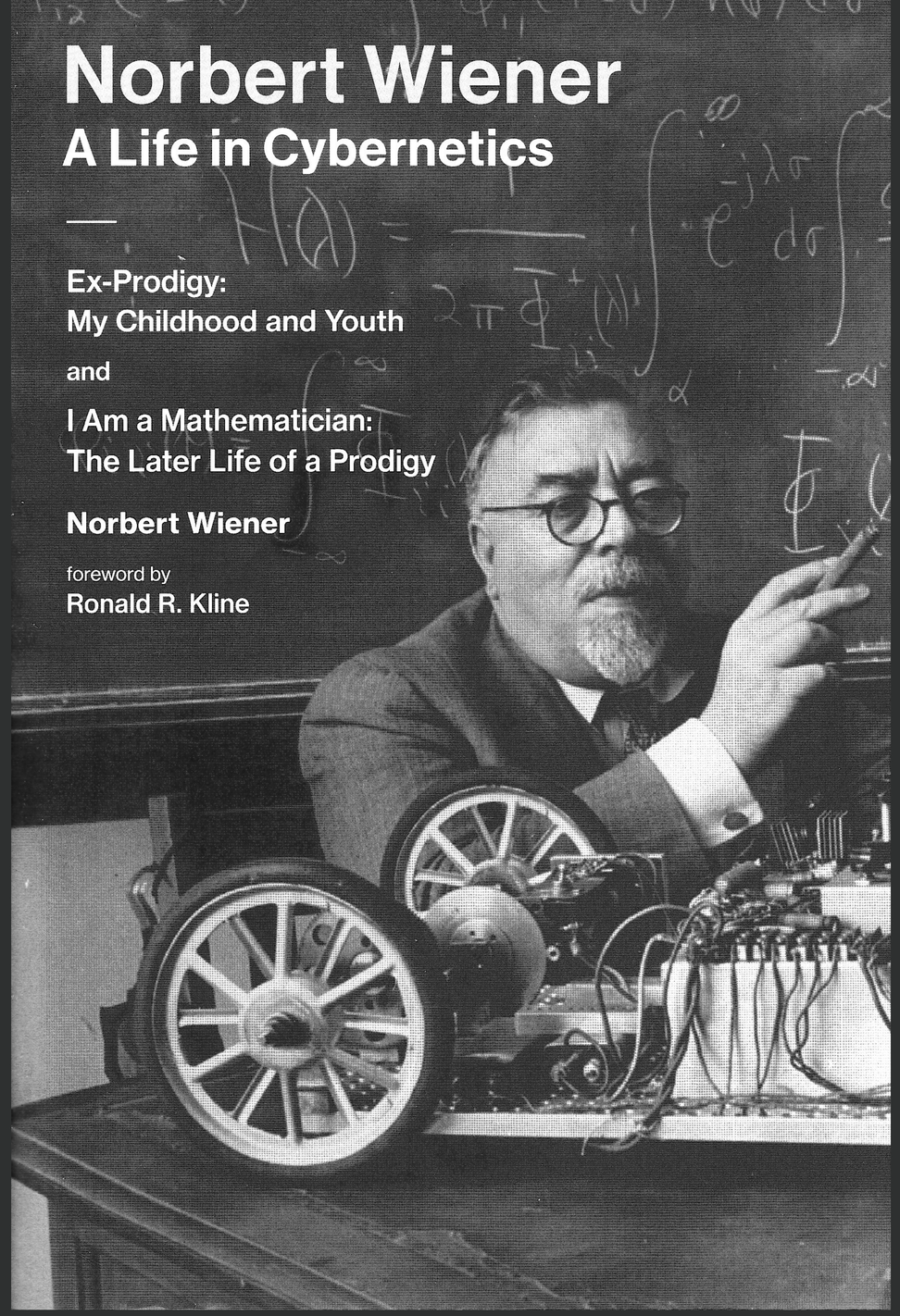
1950

HOUGHTON MIFFLIN COMPANY, BOSTON

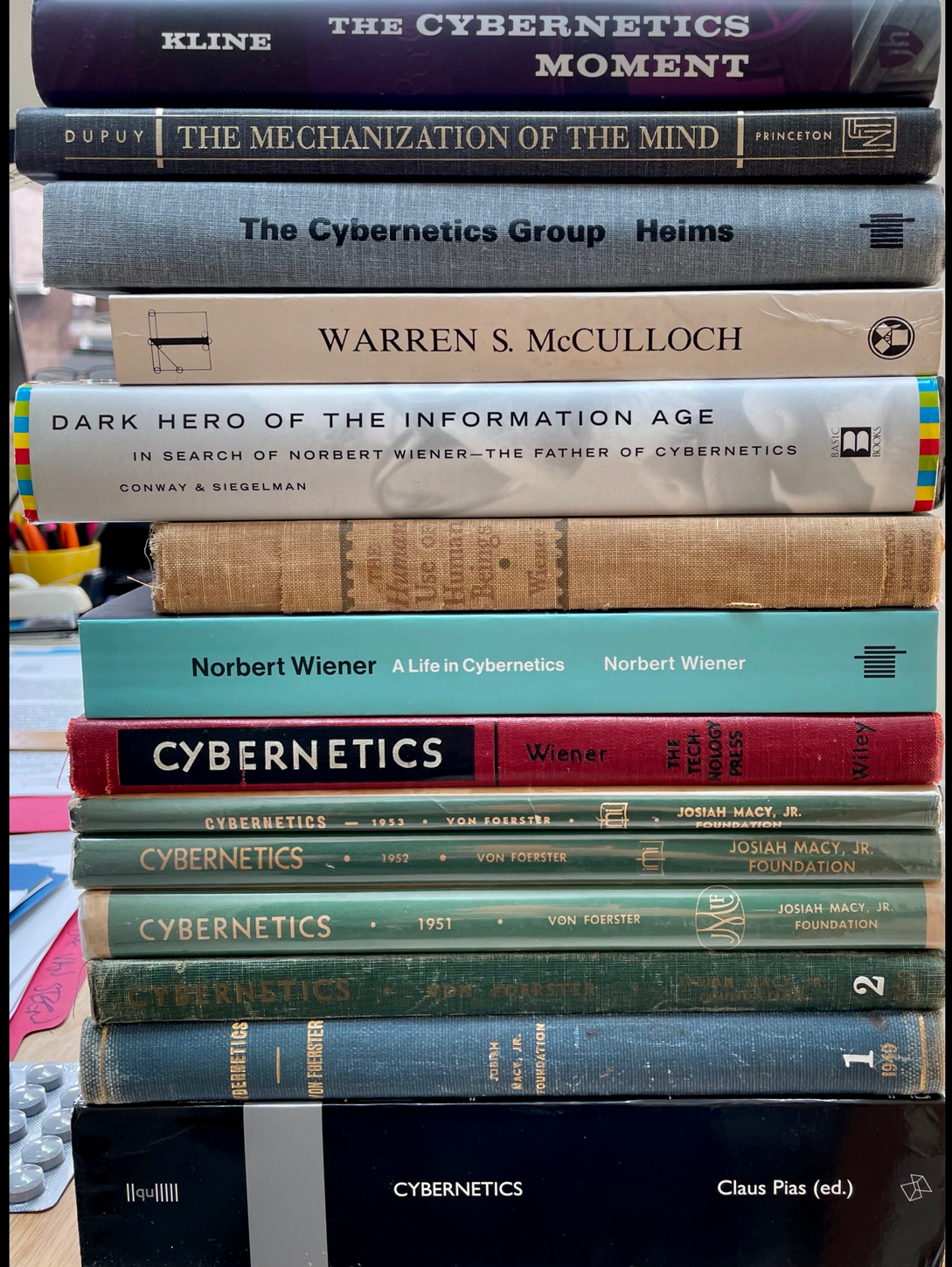
The Riverside Press, Cambridge

First Edition
1950


LIFE



Autobiography
1953 & 1956


KLINE
THE CYBERNETICS MOMENT
DUPUY
THE MECHANIZATION OF THE MIND
PRINCETON
The Cybernetics Group Heims
WARREN S. McCULLOCH
DARK HERO OF THE INFORMATION AGE
IN SEARCH OF NORBERT WIENER—THE FATHER OF CYBERNETICS
CONWAY & SIEGELMAN
BASIC BOOKS
Norbert Wiener A Life in Cybernetics Norbert Wiener
CYBERNETICS
Wiener
THE TECHNOLOGY PRESS
Wiley
CYBERNETICS — 1953 • VON FOERSTER •
JOSIAH MACY, JR. FOUNDATION
CYBERNETICS • 1952 • VON FOERSTER
JOSIAH MACY, JR. FOUNDATION
CYBERNETICS • 1951 • VON FOERSTER
JOSIAH MACY, JR. FOUNDATION
CYBERNETICS
VON FOERSTER
JOSIAH MACY, JR. FOUNDATION
1949
CYBERNETICS
Claus Pias (ed.)

Wiener’s Concerns

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of making machines which learn
and whose behavior is modified by experience,
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Wiener’s Concerns

Pandemic of "Today’s AI"

Facebook & Instagram

Google & Youtube

Amazon

Twitter

+ + + + + +

Wiener’s Concerns

Pandemic of "Today’s AI"

- Manipulation of attention by Internet platforms
- Warping of sentiment in politics & elections
- Loss of privacy through "Surveillance Capitalism"
- Deceptions of "Dark Patterns" & "Deep Fakes"
- Bias in law enforcement algorithms
- Facial recognition leading to social control
- Overpowering of human capacity & "Human Downgrading"
- AI is making the world we see and the world we live in.
- Human purpose is lost.

Wiener’s Concerns

Pandemic of "Today’s AI"

The word "pandemic" comes from "all" and "people", meaning something negative that affects all in our community—in the case of "Today’s AI", at global scale.

The Internet and digital devices connect to 4 billion people and "Today’s Artificial Intelligence" is inside the vast percentage of tech that we touch every day.

It foments polarization, pushes irrelevant products, spreads social bias, and surveils our lives.

Its impact on daily living is growing every day.

Wiener's Concerns

October 31, 1946

Mr. George E. Forsythe
Physical Research Unit
Boeing Aircraft Company
Seattle 14, Washington

Dear Mr. Forsythe:

Since the termination of the war I have highly regretted the large percentage of scientific effort in this country which is being put into the preparation of the next calamity. I therefore am much gratified to find that my publication on "Extrapolation, Interpolation, and Filtering of Stationary Time Series" is no longer available to those who construct controlled missiles.

I can, of course, furnish you with no advice as to where to find them.

Sincerely yours,

Norbert Wiener

NW:rg

78

Wiener’s Concerns

Pandemic of "Today’s AI"

Facebook & Instagram

Google & Youtube

Amazon

Twitter

+ + + + + +

CODE =

AUTOMATION =

CODIFICATION

Artificial Intelligence Inside (™)

Artificial Intelligence Inside (™)

Facebook & Instagram

Google & Youtube

Amazon

Twitter

…

PANDEMIC

CODE =

AUTOMATION =

CODIFICATION

Cybernetics — Why? Why Cybernetics?

Cybernetics = Origin of Neural Nets & AI

1940s **Cybernetics + Neural Nets**

1960s **Symbolic AI**

1980s **Expert Systems**

2010s **Neural Nets + Big Data + Massive Compute**

2020s **"Today's AI"—AI everywhere in our lives**

But Cybernetics is very different from AI

Cybernetics vs. "Today's AI"

How & why does Cybernetics move us forward?

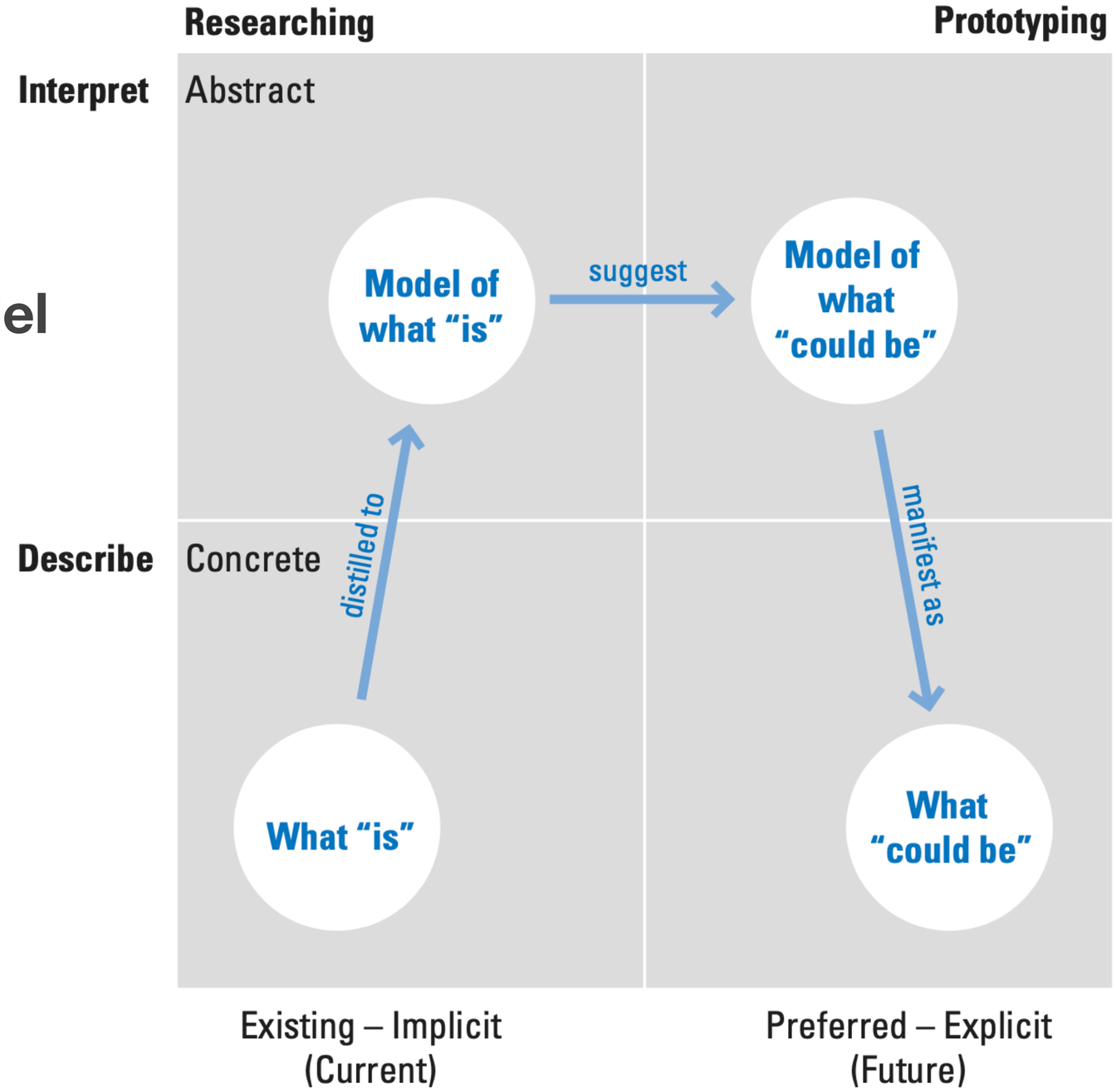
- developed before AI—and was AI's foundation
- embodies "the art and science" of purposive systems
- offers detailed models of regulation in complex adaptive systems
- brings an ethical imperative to human action
- founded as transdisciplinary / antidisciplinary *
- applies across siloed disciplines
- embraces the unknowable and the unpredictable

* Andrew Pickering coined "antidisciplinarity" in "Ontology and Antidisciplinarity", 2010

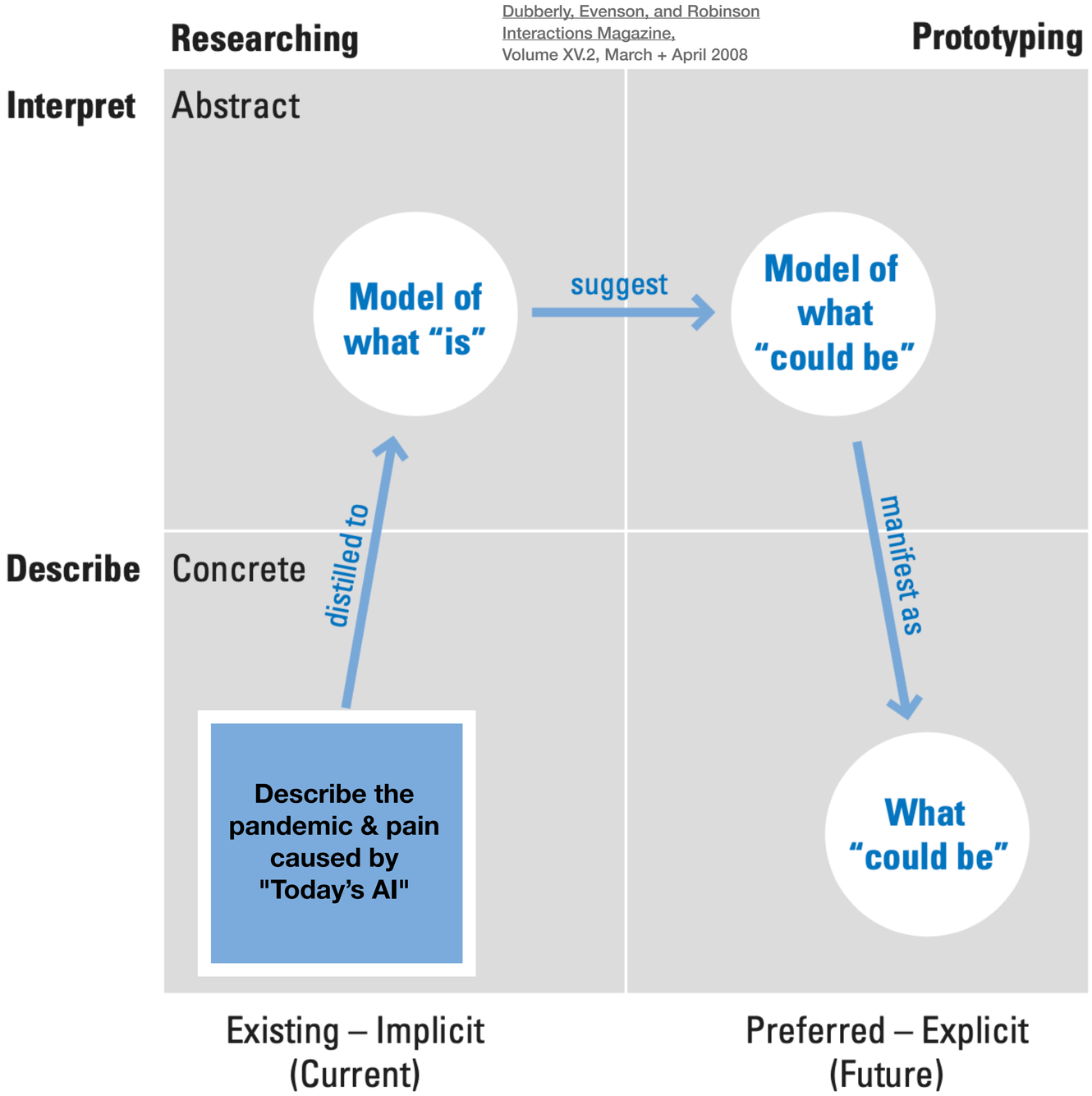
A Path Forward

Analysis-Synthesis Bridge Model

Dubberly, Evenson, and Robinson
Interactions Magazine,
Volume XV.2, March + April 2008



Describe



Dubberly, Evenson, and Robinson
Interactions Magazine,
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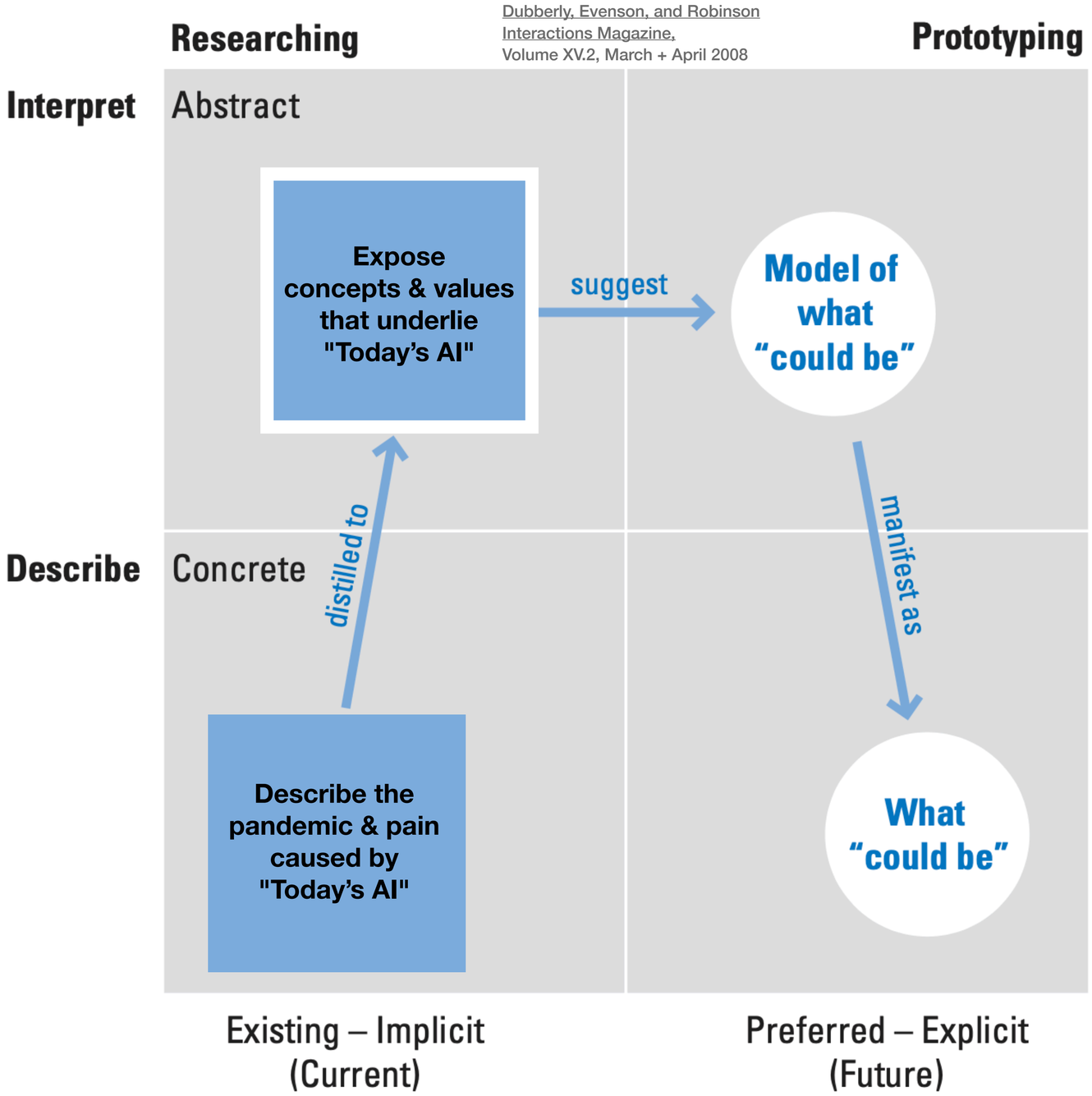
Expose



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Interactions Magazine,
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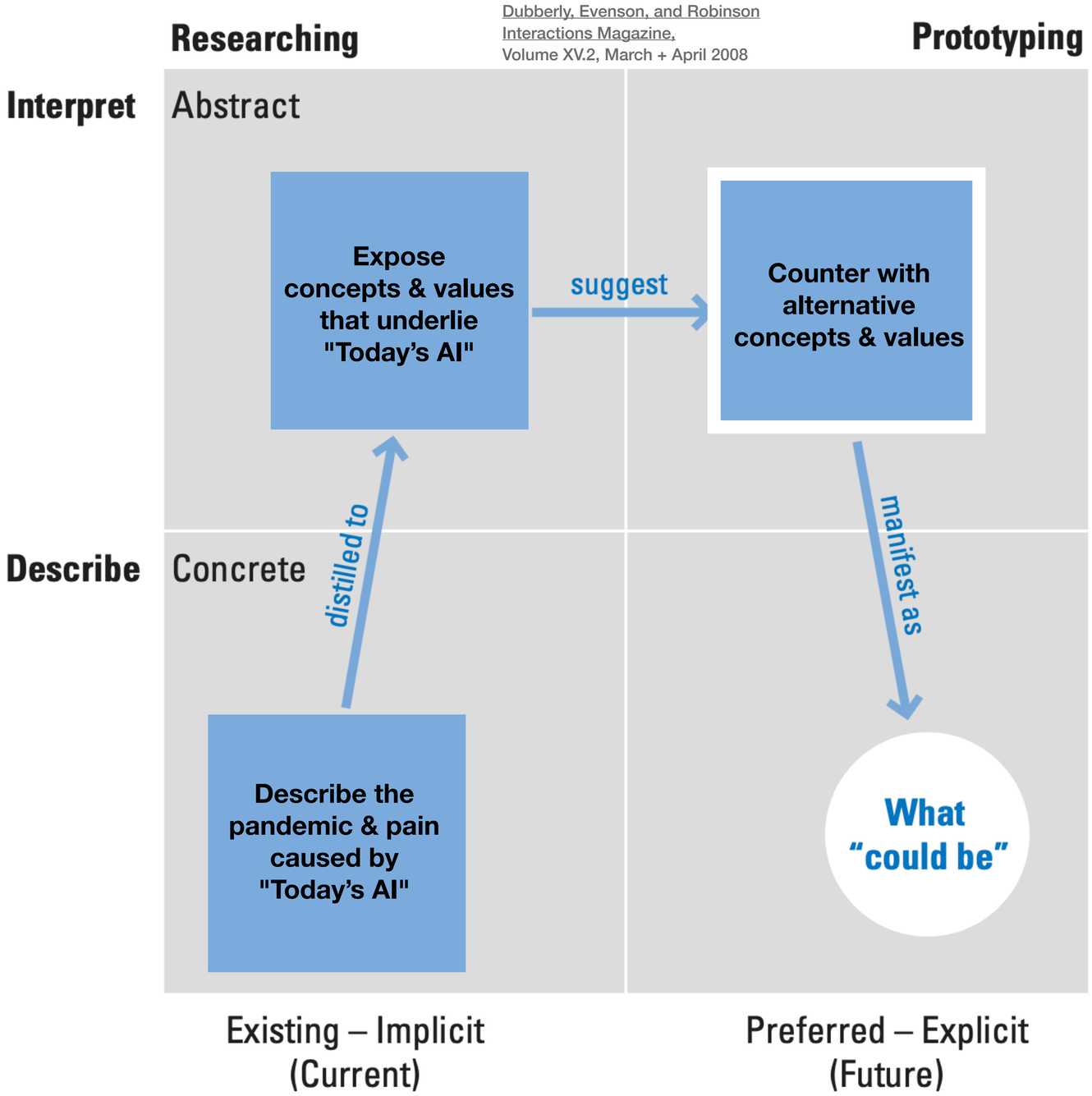
Counter



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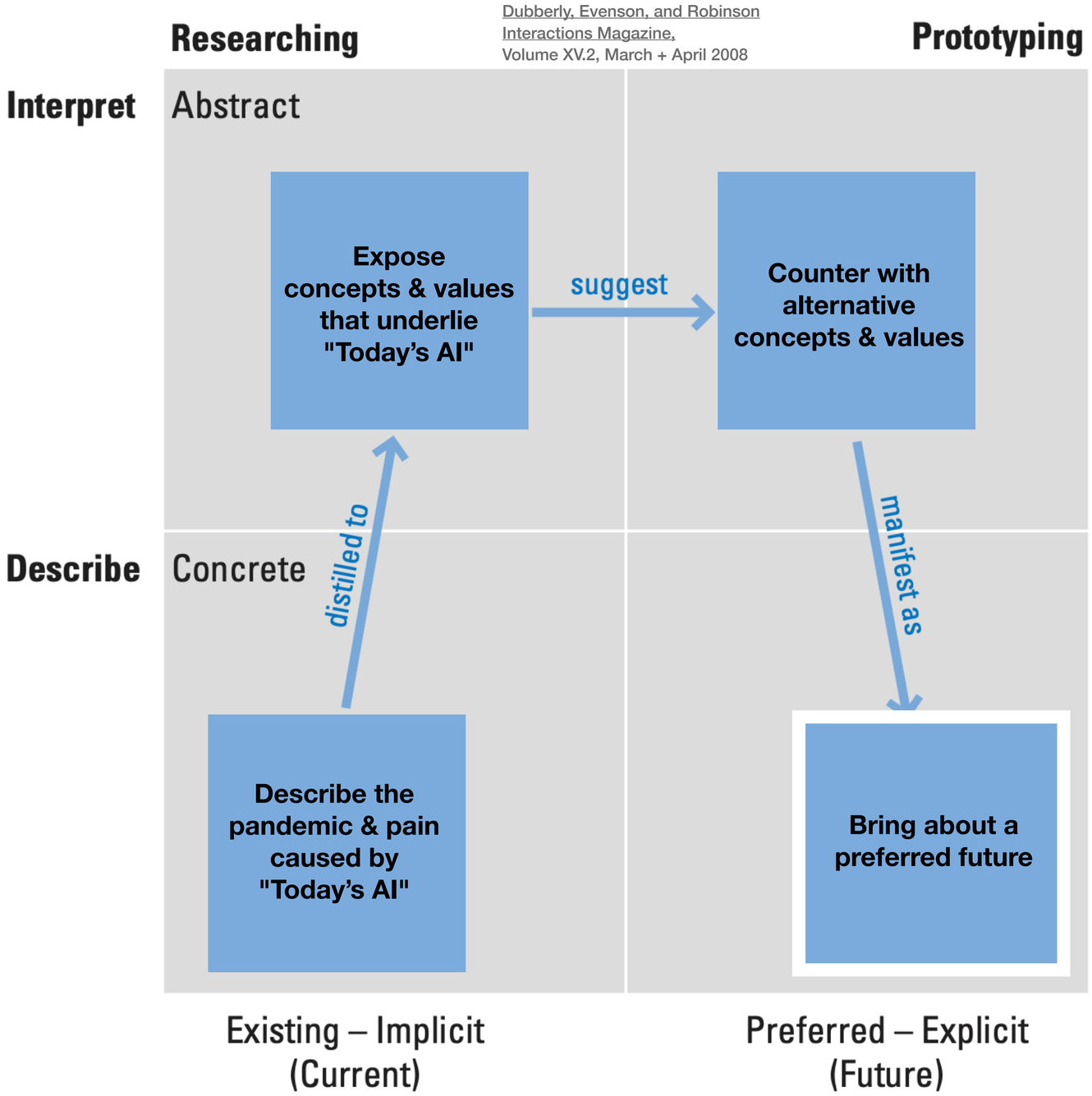
Volume XV.2, March + April 2008

Improve



Dubberly, Evenson, and Robinson
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Volume XV.2, March + April 2008

Describe

Wiener's Concerns
Pandemic of "Today's AI"

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- Warping of sentiment in politics & elections
- Loss of privacy through "Surveillance Capitalism"
- Deceptions of "Dark Patterns" & "Deep Fakes"
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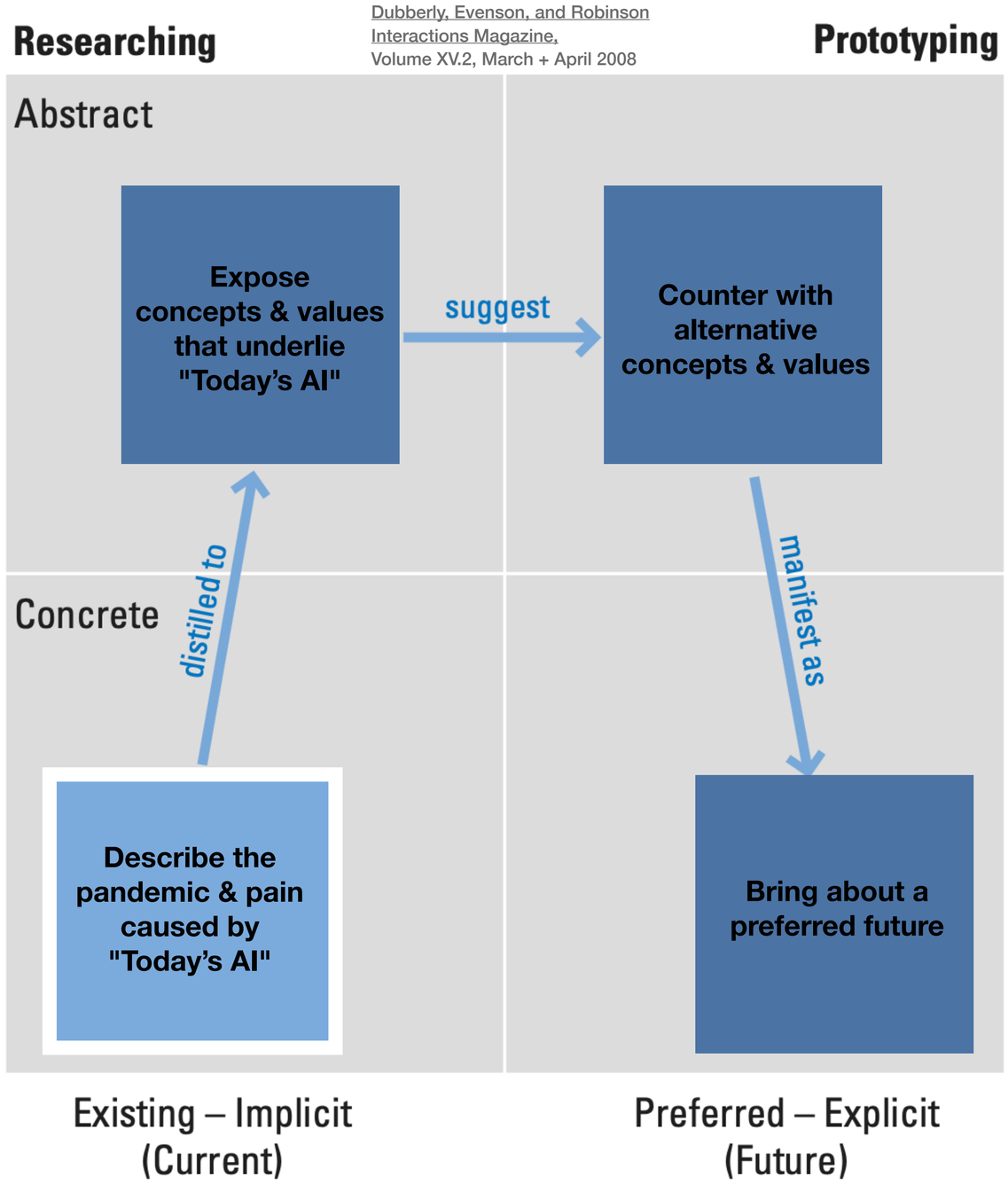
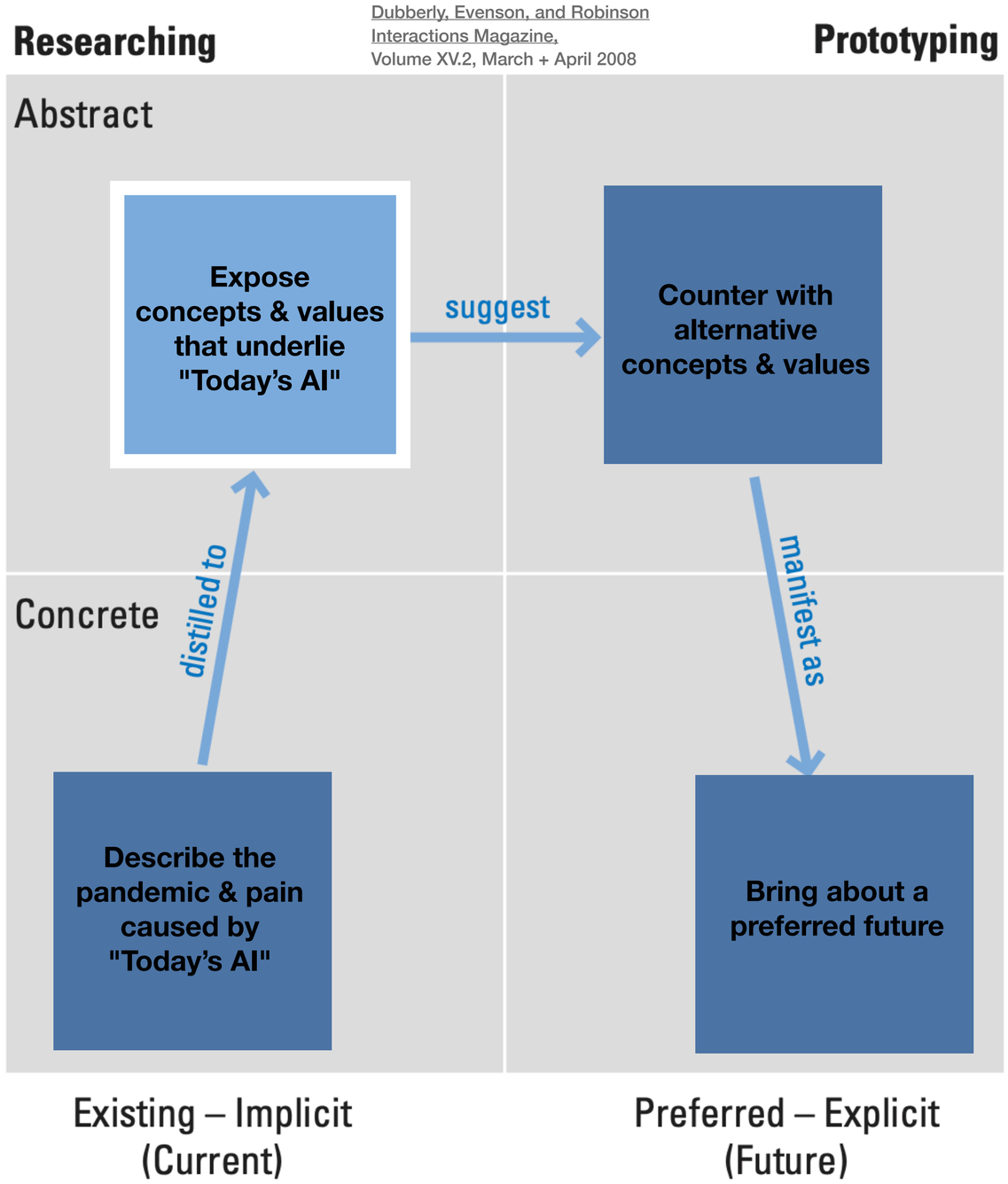


Expose

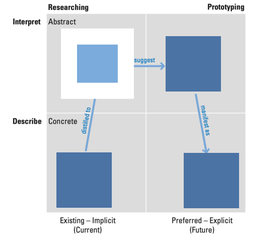
Digital technology creates a culture focused on whatever computers can easily do.

Values inherent in the code of Today's AI are so often at odds with being human.



Dubberly, Evenson, and Robinson
Interactions Magazine,
Volume XV.2, March + April 2008

Premise—It’s the "Digital Culture"



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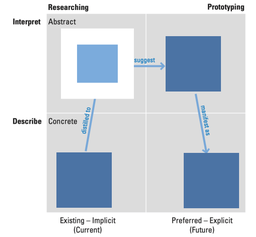
Assumptions from Digital Culture



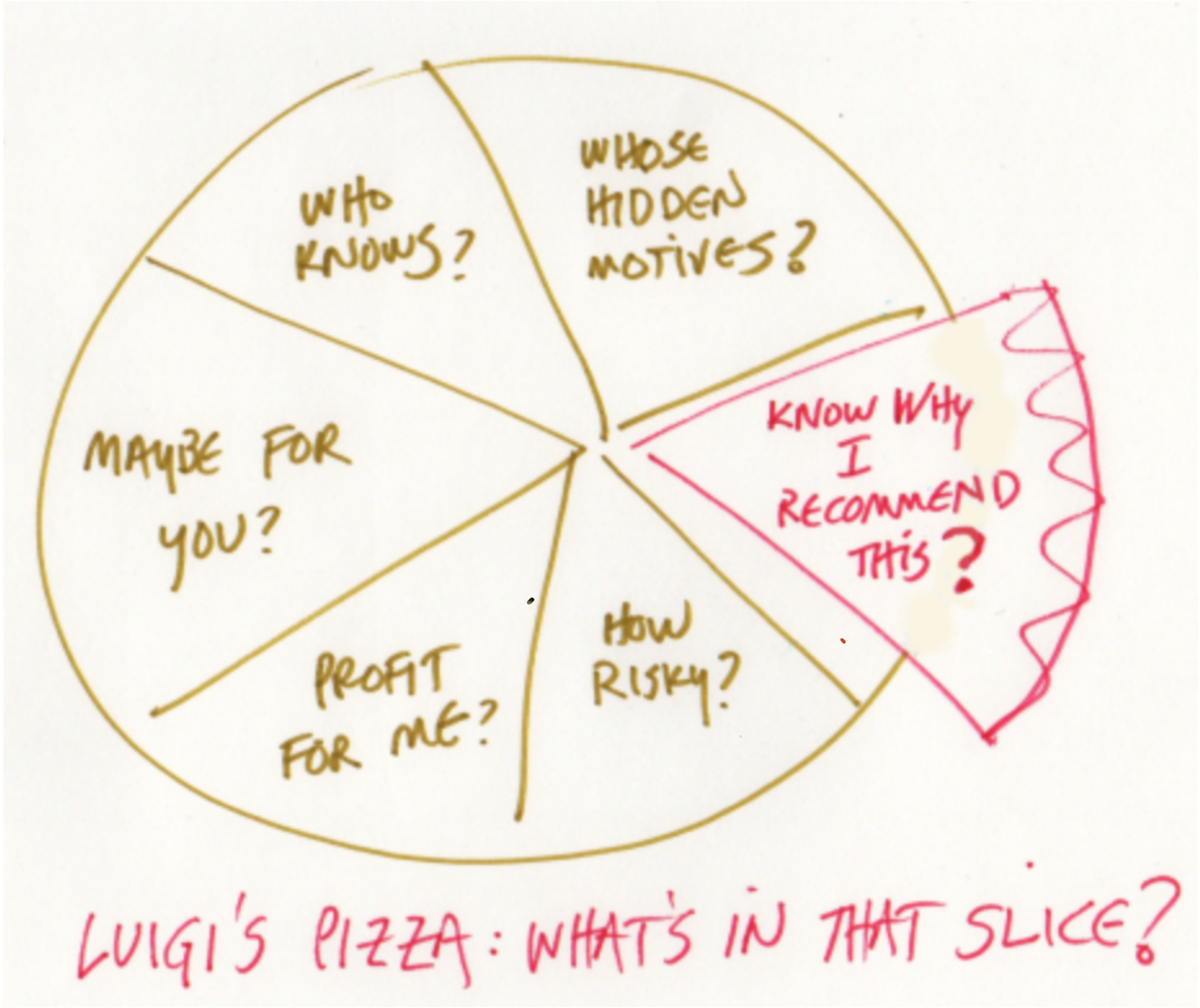
Digital Culture assumes:

- interaction is mechanistic
- information is objective
- intelligence is a process that sits inside a person or computer

So it is assumed:

- human behavior can be generalized and accurately predicted
- the same option offered at an interface has the same meaning for everyone
- machine prediction is intelligent—so the machine's selection need not be questioned or tested by the human

The Parable of Luigi's Pizza



More about Luigi's Pizza

EXAMPLES

- Google "Page Rank" — Lack of Transparency of Intent
  You cannot learn why choices were offered
- Youtube "Up Next" — Asymmetry of Control of Focus
  You cannot question or redirect choices offered
- Facebook "News Feed" — Lack of Control of Choice
  You can decline options but not define them

CODE = CODIFICATION

- Lack of Transparency of Intent
  You cannot learn why choices were offered
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  You cannot question or redirect choices offered
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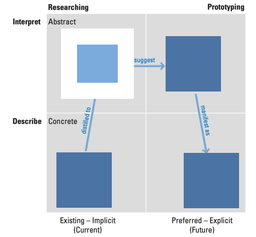
CODIFICATION enshrines values that control outcomes

Premise—It's not Technology



Technology itself is not at fault—it is how we fashion it and the traits we embed in it.

In pursuit of profit, we build engines that dazzle our brains and addict us to our human & biological vulnerabilities.

This is not the only option.

We can shift technology from digital assumptions and swing back toward our analog roots—our physical, organic, biological selves.

Countering Culture with Culture

Digital Culture ≠ **Analog Culture**

binary → inert → inflexible → mechanistic → TRANSACTIONS

biological → fluid → maleable → humane → CONVERSATIONS

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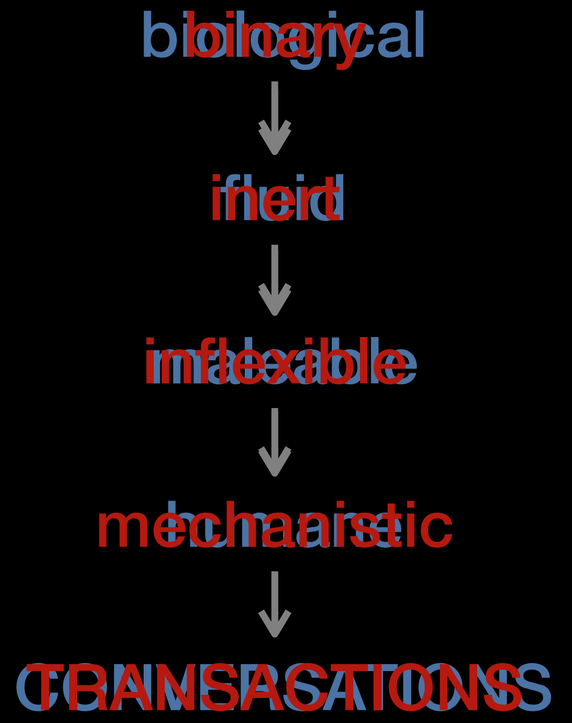

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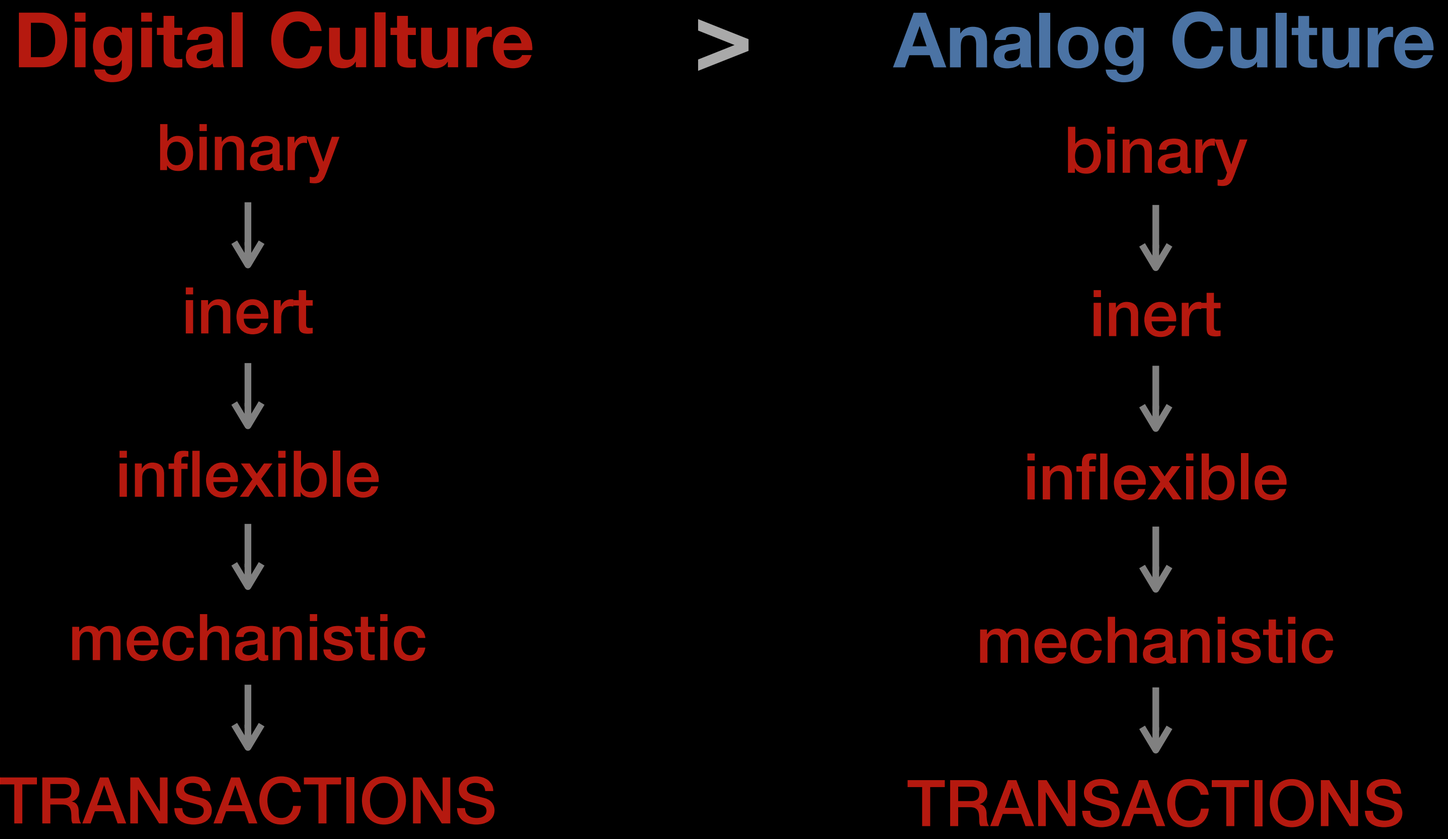

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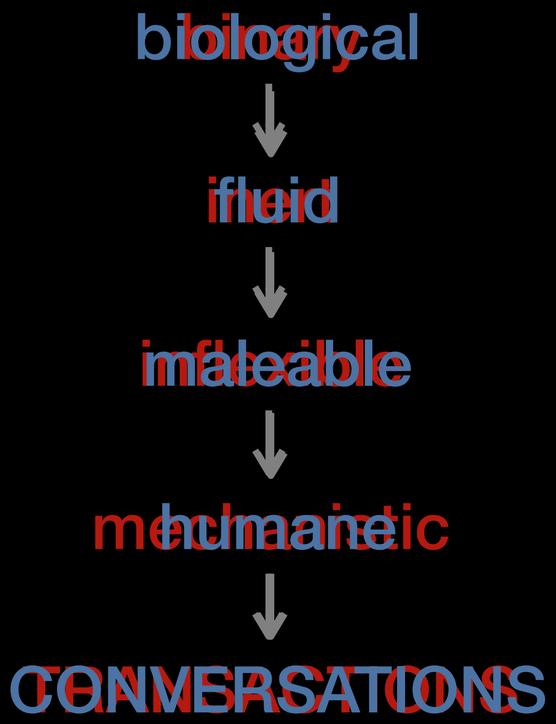

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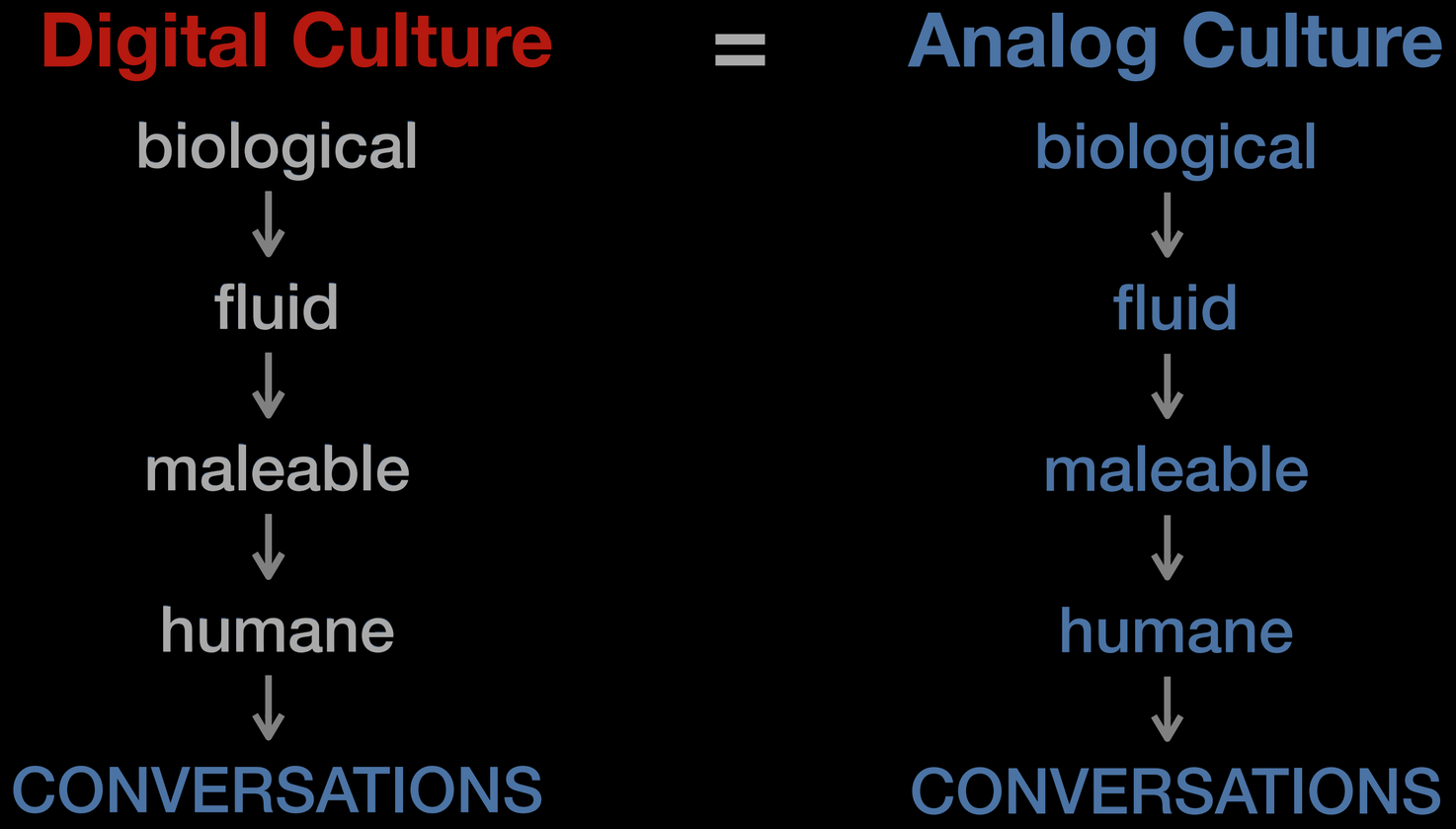

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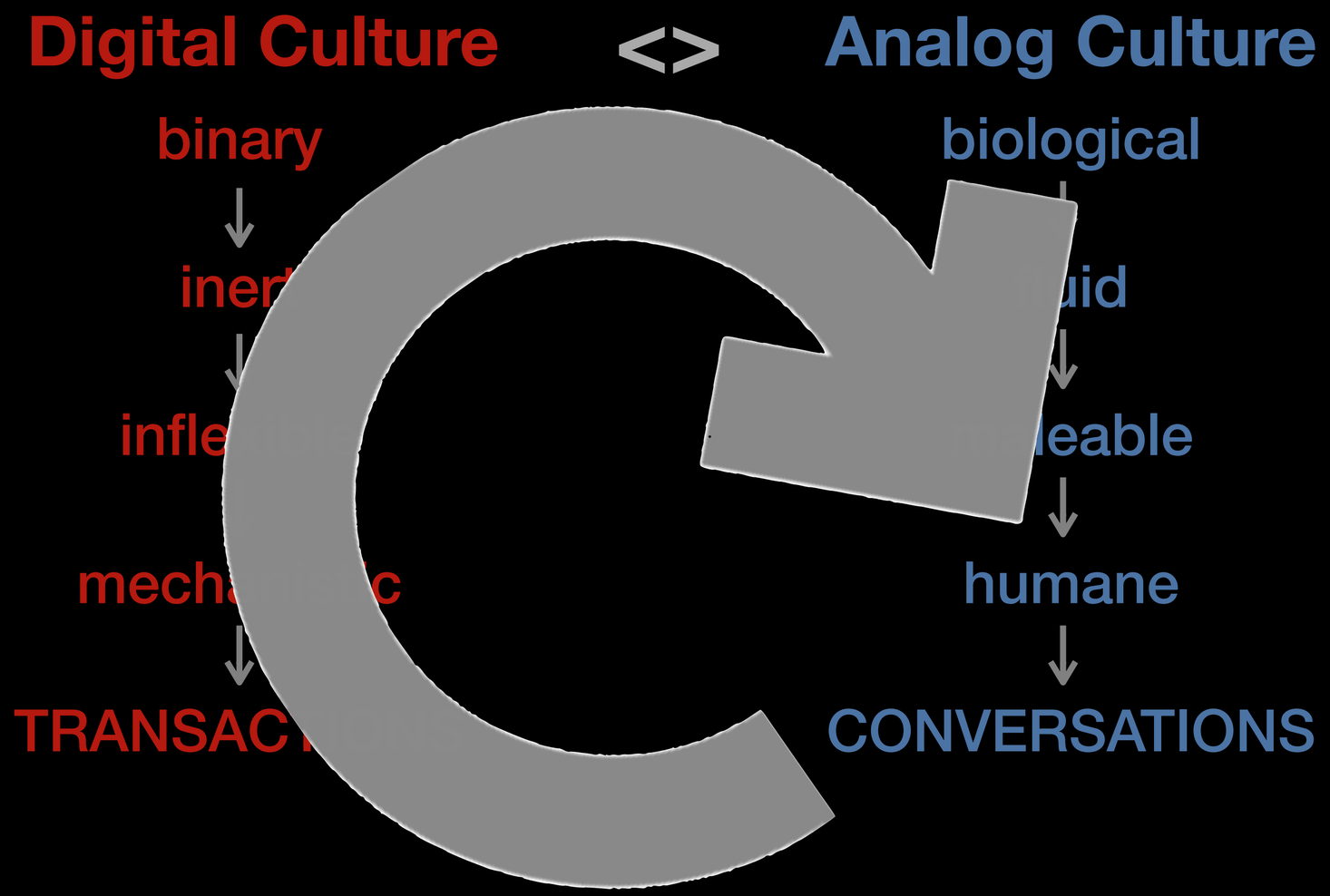

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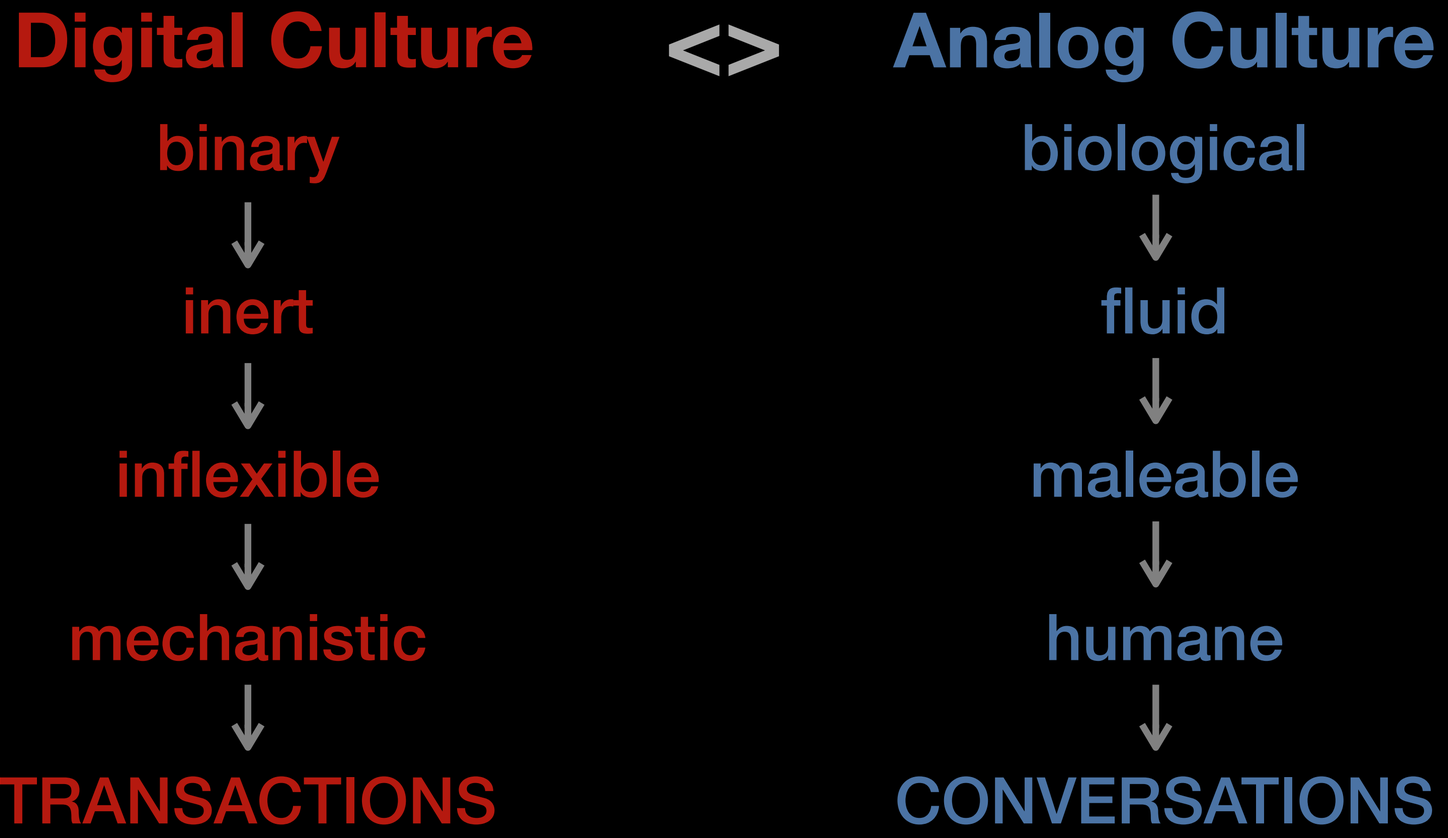
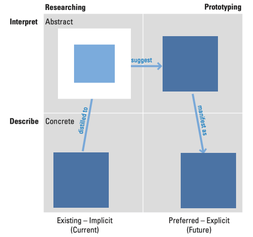


How? Starting where?

Premise—It's not Technology



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Novelty and choice, transparency and conversation can become the new core principles of Today's AI.

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Digital technology creates a culture focused on whatever computers can easily do.

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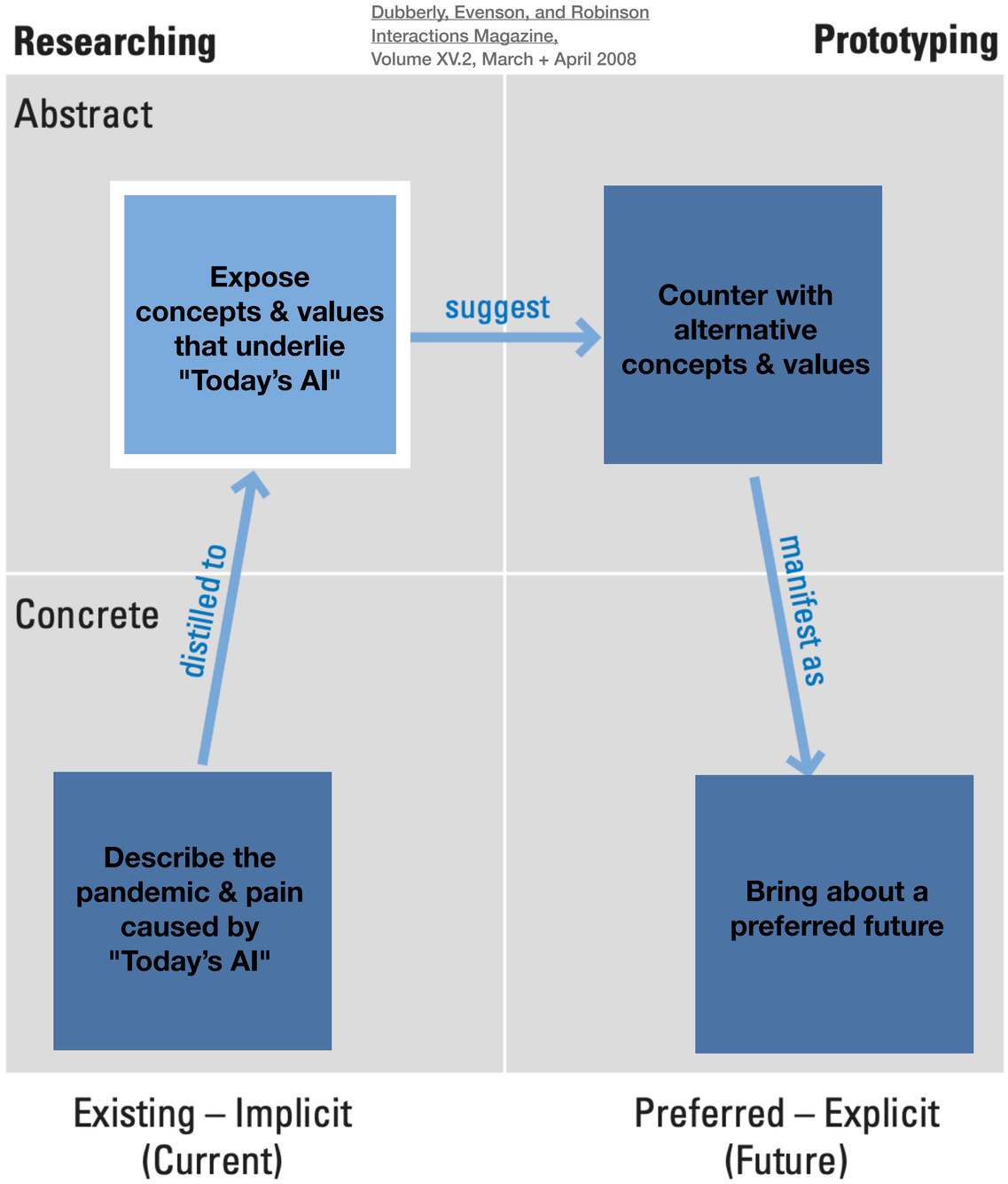
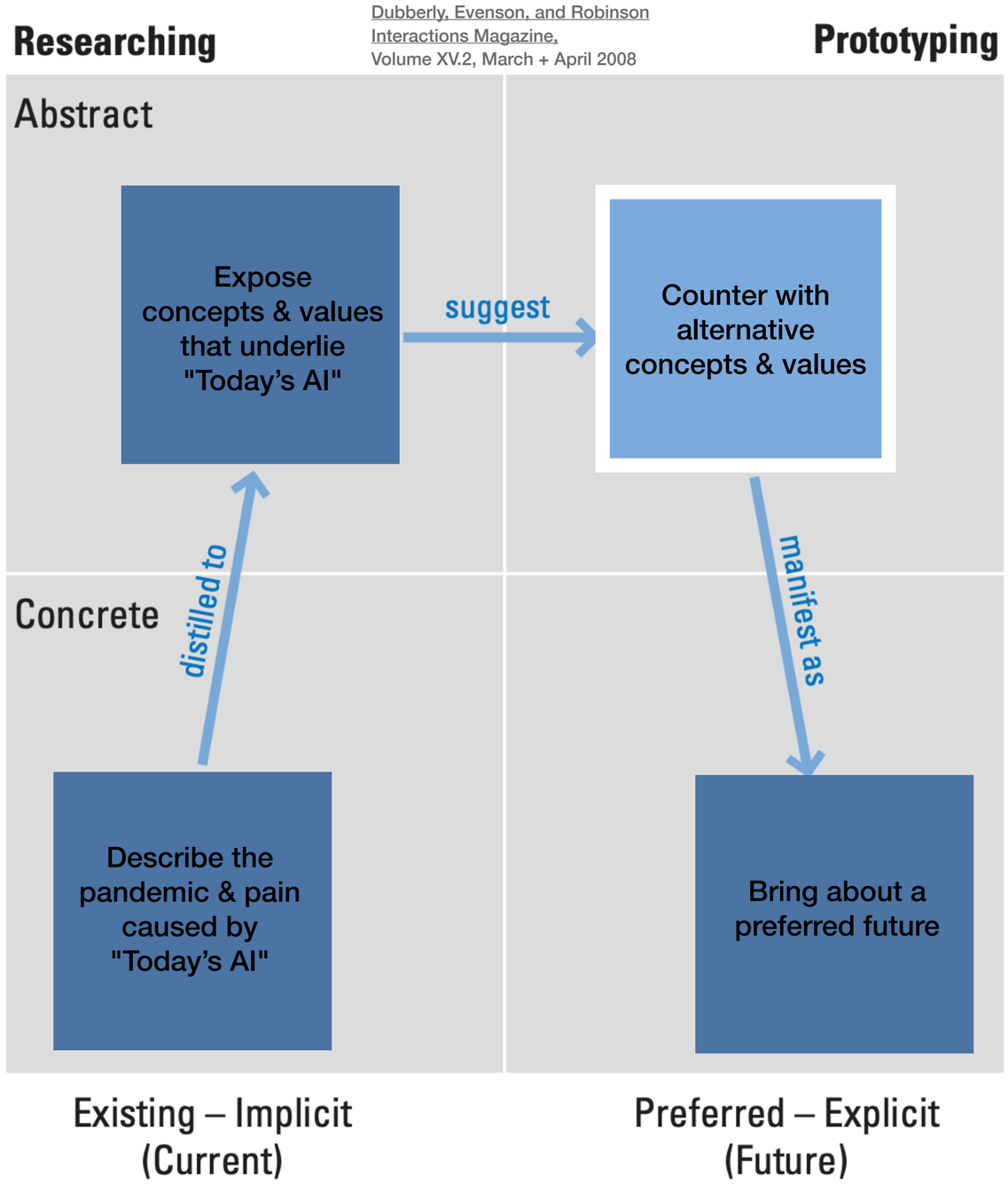


Dubberly, Evenson, and Robinson
Interactions Magazine,
Volume XV.2, March + April 2008

Counter

To upset the dominance of the pernicious algorithms of AI, we must design and propagate a set of humane, organic, and analog interactional frameworks.

We can start from Cybernetics.



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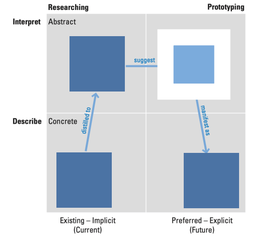
Countering with new frameworks



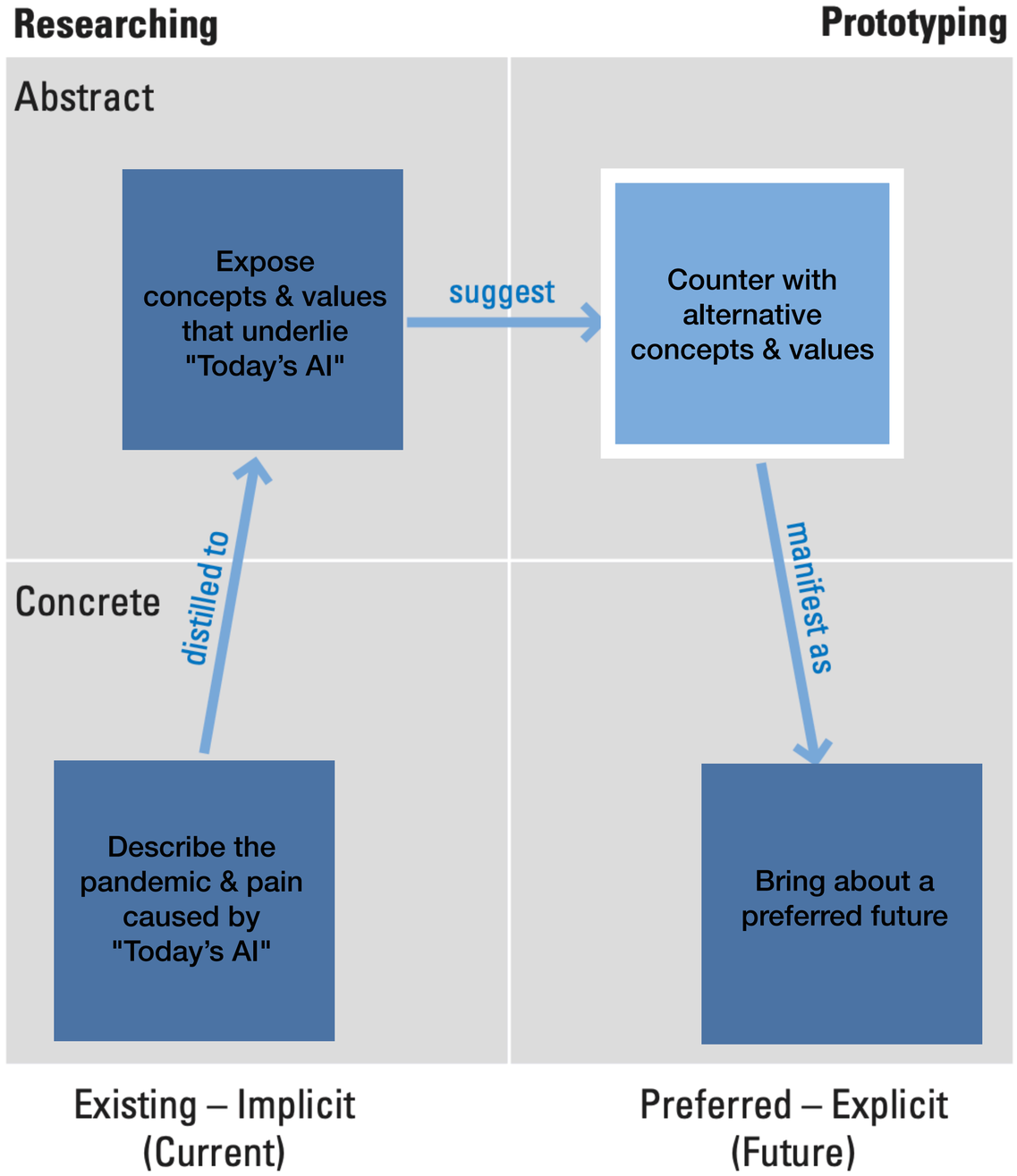
Digital Culture assumes:

- interaction is mechanistic
- information is objective
- intelligence is a process that sits inside a person or computer

Cybernetics offers:

- interaction can be conversational—inviting interpretation & responses from other contexts & understandings
- information can mean the triggering of ideas and reactions—the opening of new possibilities, ideas, & actions
- intelligence can be relational—an attribute of an interaction and not something inside a person or a box.

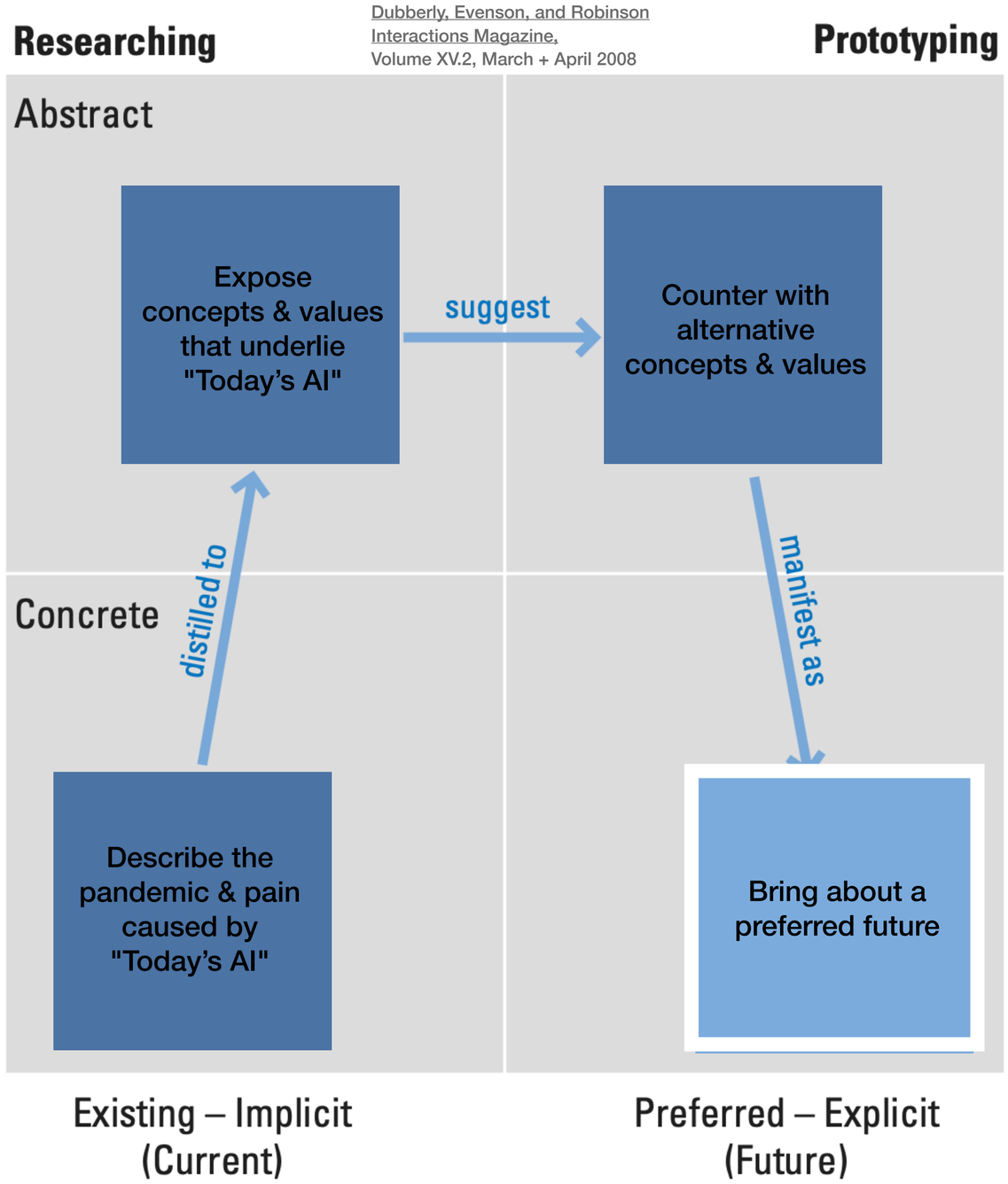
Countering for…



… a preferred future

We can deliberately decide on what we wish to conserve to remain human—with technologies that serve our principles.

By bringing forth replacements for the algorithms of "Today's AI", we begin to have a positive effect and better serve the social fabric of our shared lives.



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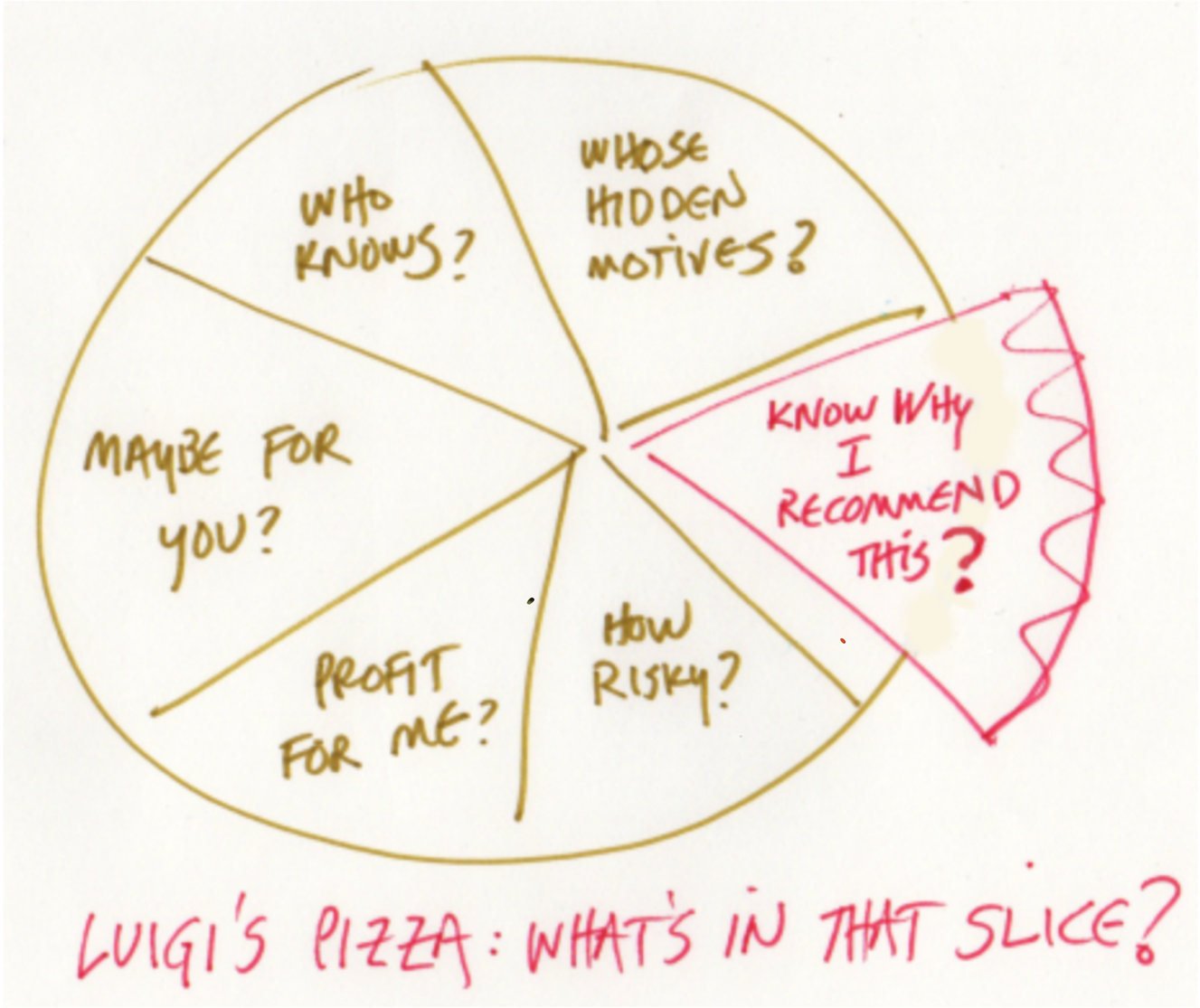
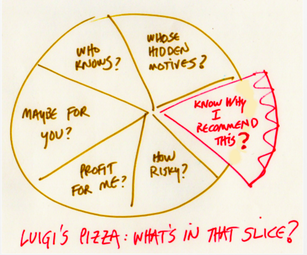
The Parable of Luigi's Pizza



More about Luigi's Pizza

CODE = CODIFICATION = DIGITAL

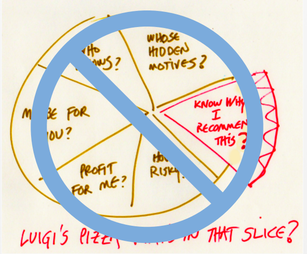
- Lack of Transparency of Intent
  You cannot learn why choices were offered
- Asymmetry of Control of Focus
  You cannot question or redirect choices offered
- Lack of Control of Choice
  You can decline options but not define them



CODE = CODIFICATION = ANALOG

- ~~Lack of~~ Transparency of Intent

  "Why is Luigi's Pizza the best pizza?"



- Asymmetry of Control of Focus

  You cannot question or redirect choices offered

- Lack of Control of Choice

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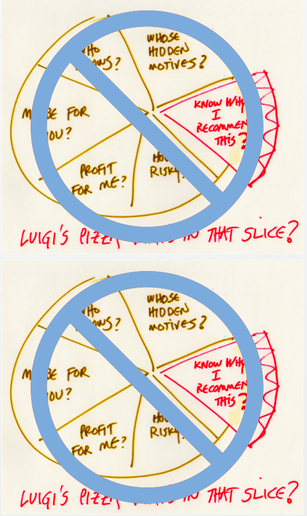
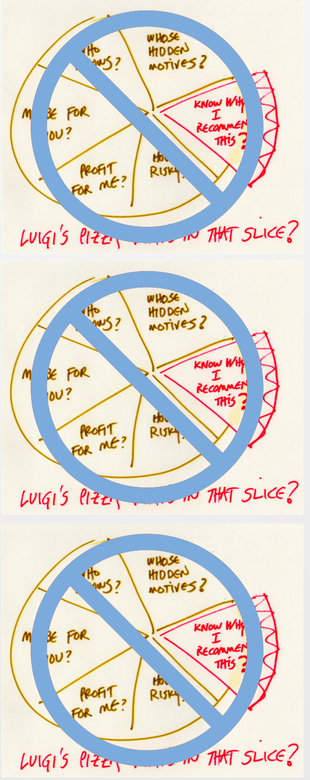
CODE = CODIFICATION = ANALOG

- ~~Lack of~~ Transparency of Intent
  "Why is Luigi's Pizza the best pizza?"
- ~~Asymmetry of~~ Collaborative Focus
  "Does Luigi's serve gluten-free pizza?"
- Lack of Control of Choice
  You can decline options but not define them



CODE = CODIFICATION = ANALOG

- ~~Lack of~~ Transparency of Intent
  "Why is Luigi's Pizza the best pizza?"
- ~~Asymmetry of~~ Collaborative Focus
  "Does Luigi's serve gluten-free pizza?"
- ~~Lack of~~ Coordinated Choice
  "Why might I like this new dish?"



CODE = CODIFICATION = ANALOG

- Transparency of Intent

  "Why is Luigi's Pizza the best pizza?"

- Collaborative Focus

  "Does Luigi's serve gluten-free pizza?"

- Coordinated Choice

  "Why might I like this new dish?"

CODE = CODIFICATION = ANALOG

- Transparency of Intent

  "Why is Luigi's Pizza the best pizza?"

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  "Does Luigi's serve gluten-free pizza?"

- Coordinated Choice

  "Why might I like this new dish?"

= CONVERSATION = ANALOG

CODE = CONVERSATION = ANALOG

- Transparency of Intent
  "Why is Luigi's Pizza the best pizza?"
- Collaborative Focus
  "Does Luigi's serve gluten-free pizza?"
- Coordinated Choice
  "Why might I like this new dish?"

Novelty and choice, transparency and conversation would become the new core principles of interaction.

How does it all go together?

Today's AI

-binary
-machinic
-representational
-predictive
-data-animated

Conversation

biological-
organic-
resonant-
emergent-
socially-animated-

How does it all go together?

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-binary
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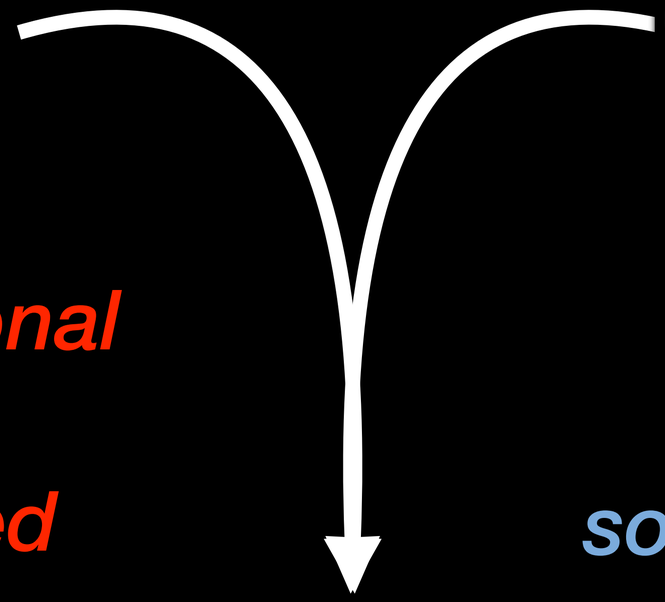


Conversation

biological-
organic-
resonant-
emergent-
socially-animated-

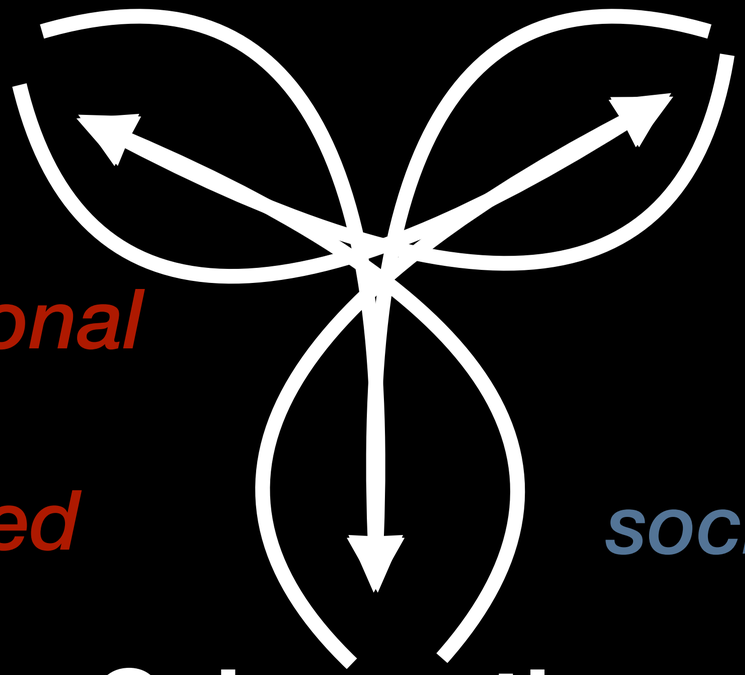
Cybernetics

bilingual sensibility

Cybernetics bridges DIGITAL & ANALOG

DIGITAL

-binary
-machinic
-representational
-predictive
-data-animated



ANALOG

biological-
organic-
resonant-
emergent-
socially-animated-

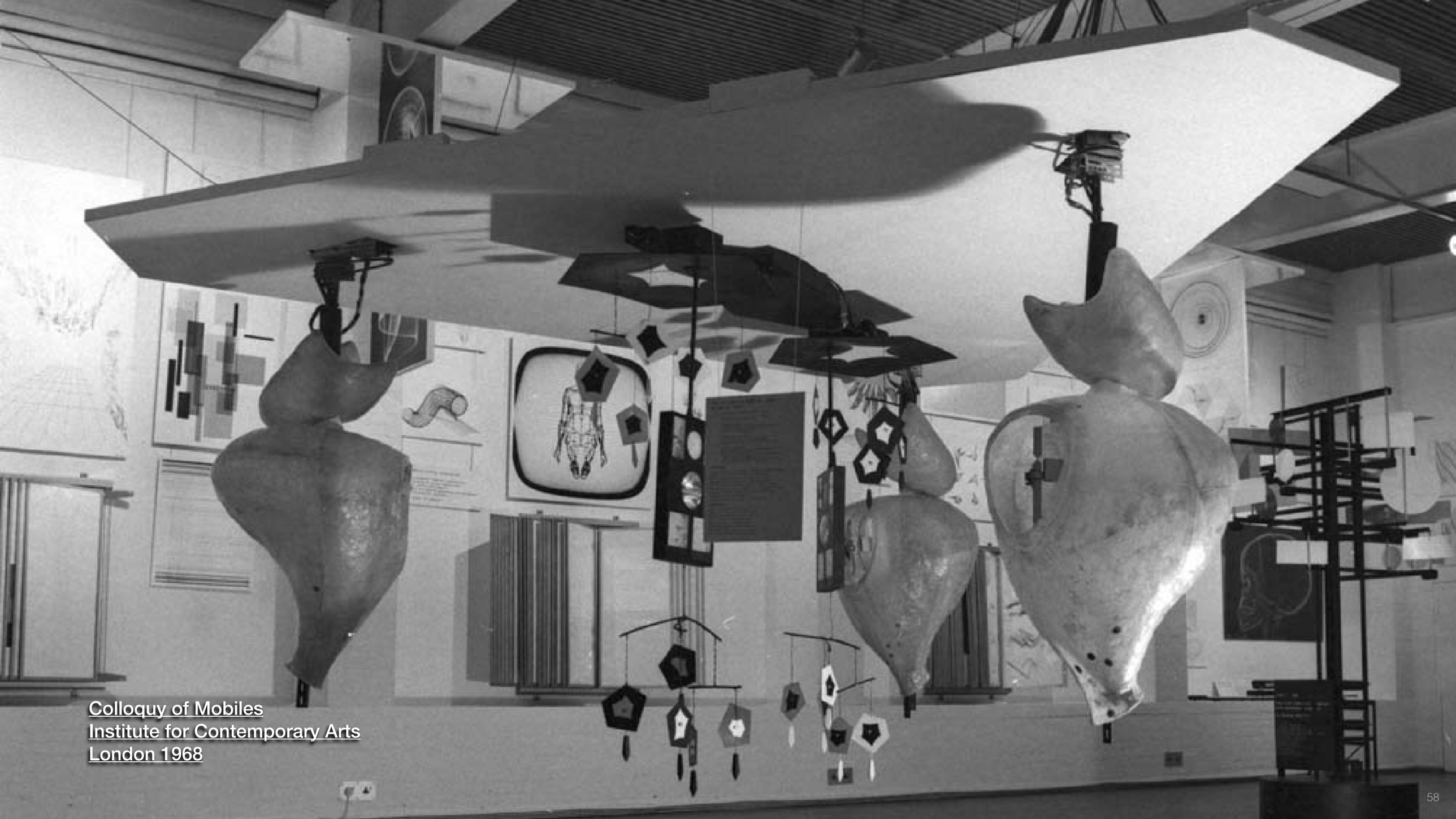
Cybernetics

bilingual sensibility

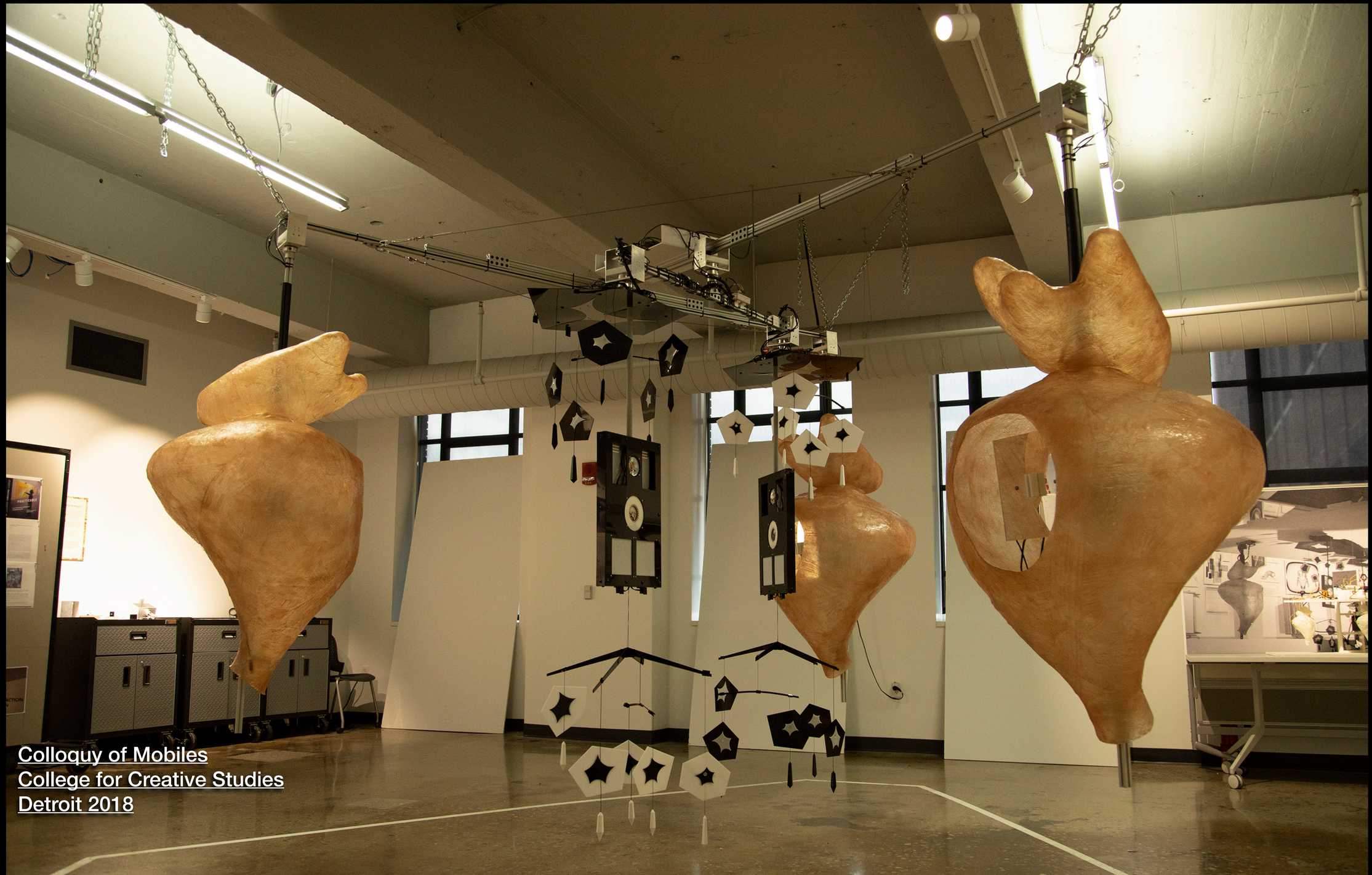
Conversation | Cybernetics | Today's AI

Our goal is to design and integrate new classes of interactive systems with today's AI and digital technologies to create and promote a new category of analog interactional frameworks.

What examples can we start from?



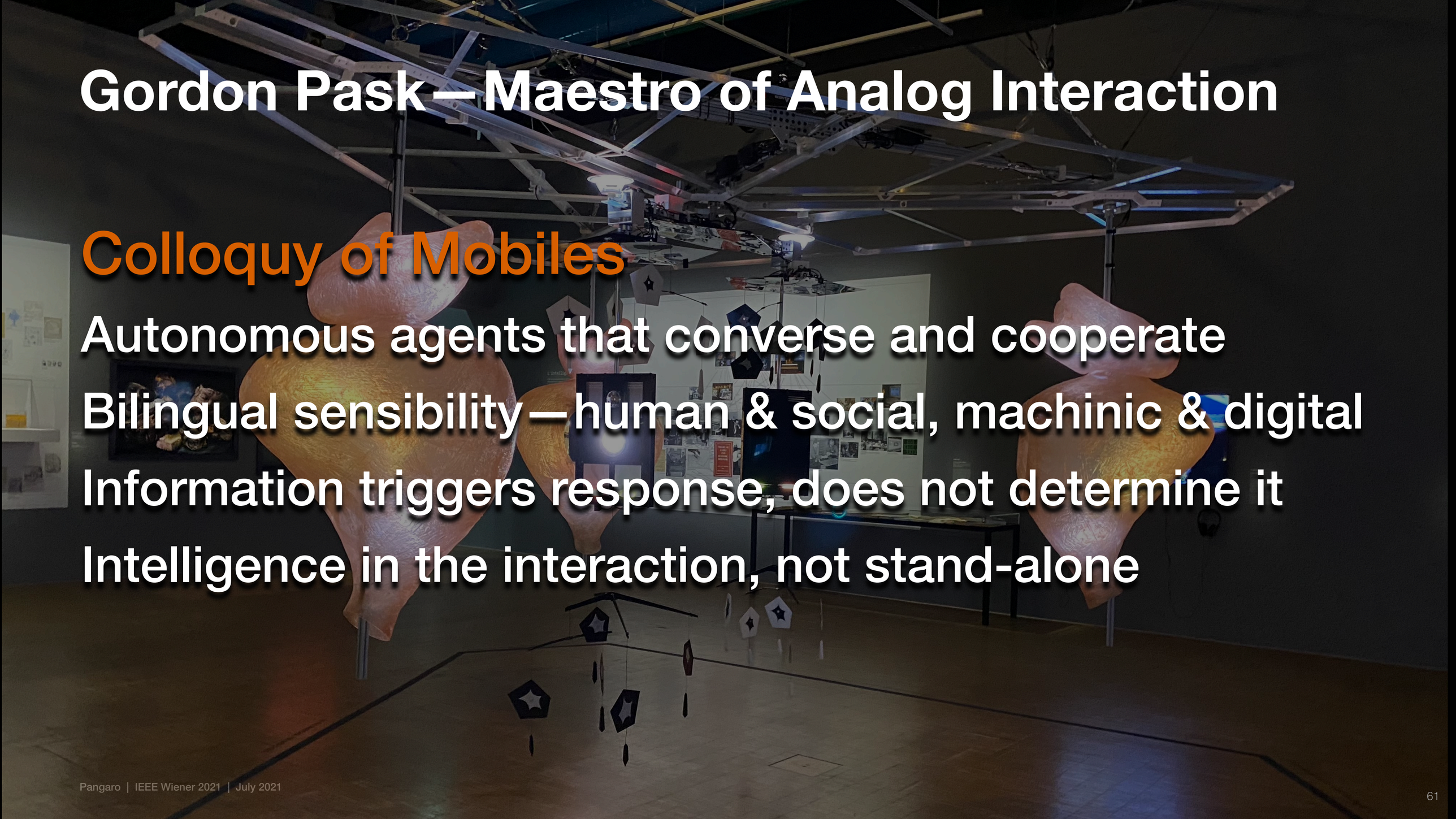
Colloquy of Mobiles
Institute for Contemporary Arts
London 1968



Colloquy of Mobiles
College for Creative Studies
Detroit 2018

Colloquy of Mobiles
Centre Pompidou
Paris 2020

Gordon Pask—Maestro of Analog Interaction



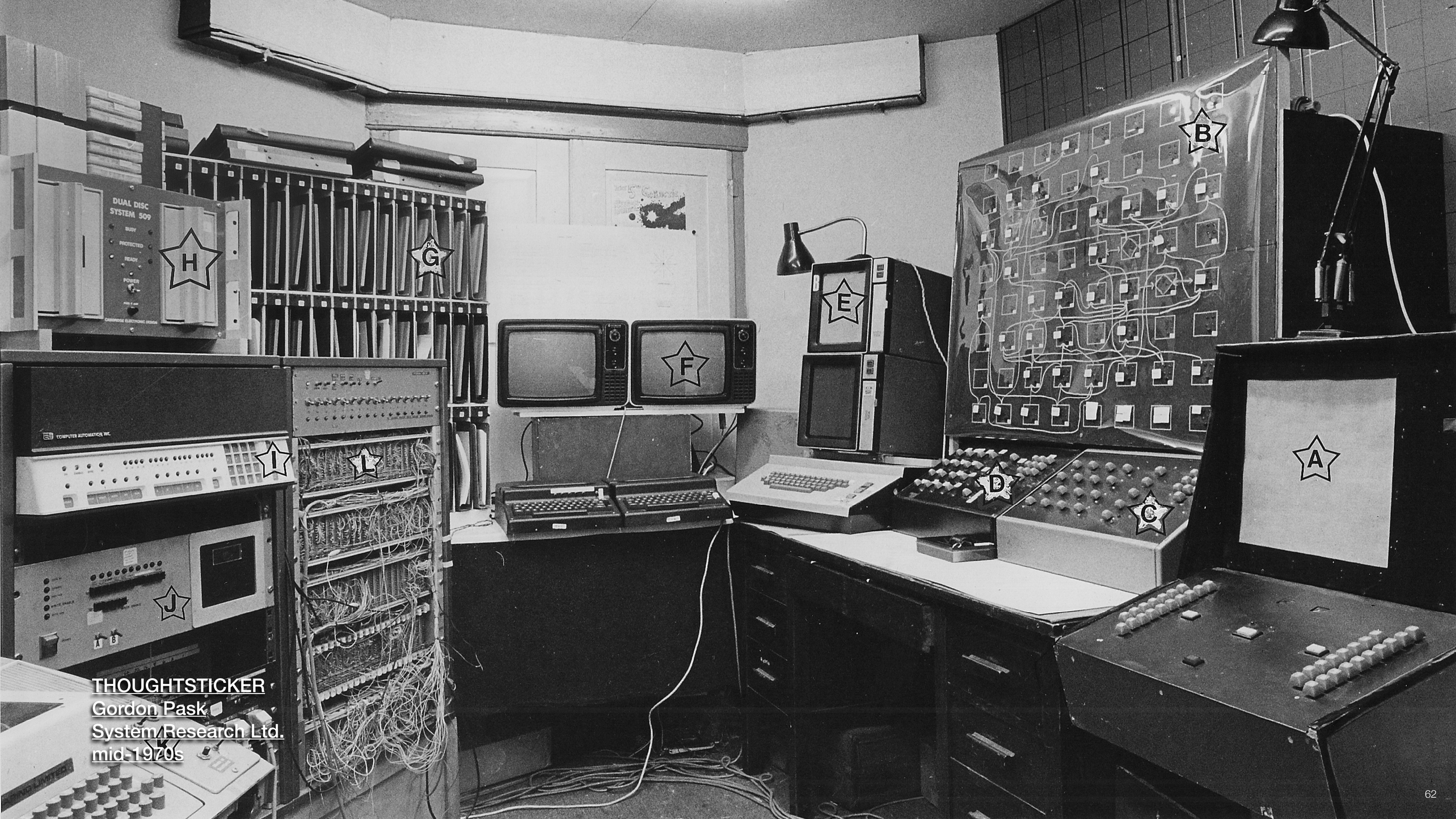
Colloquy of Mobiles

Autonomous agents that converse and cooperate

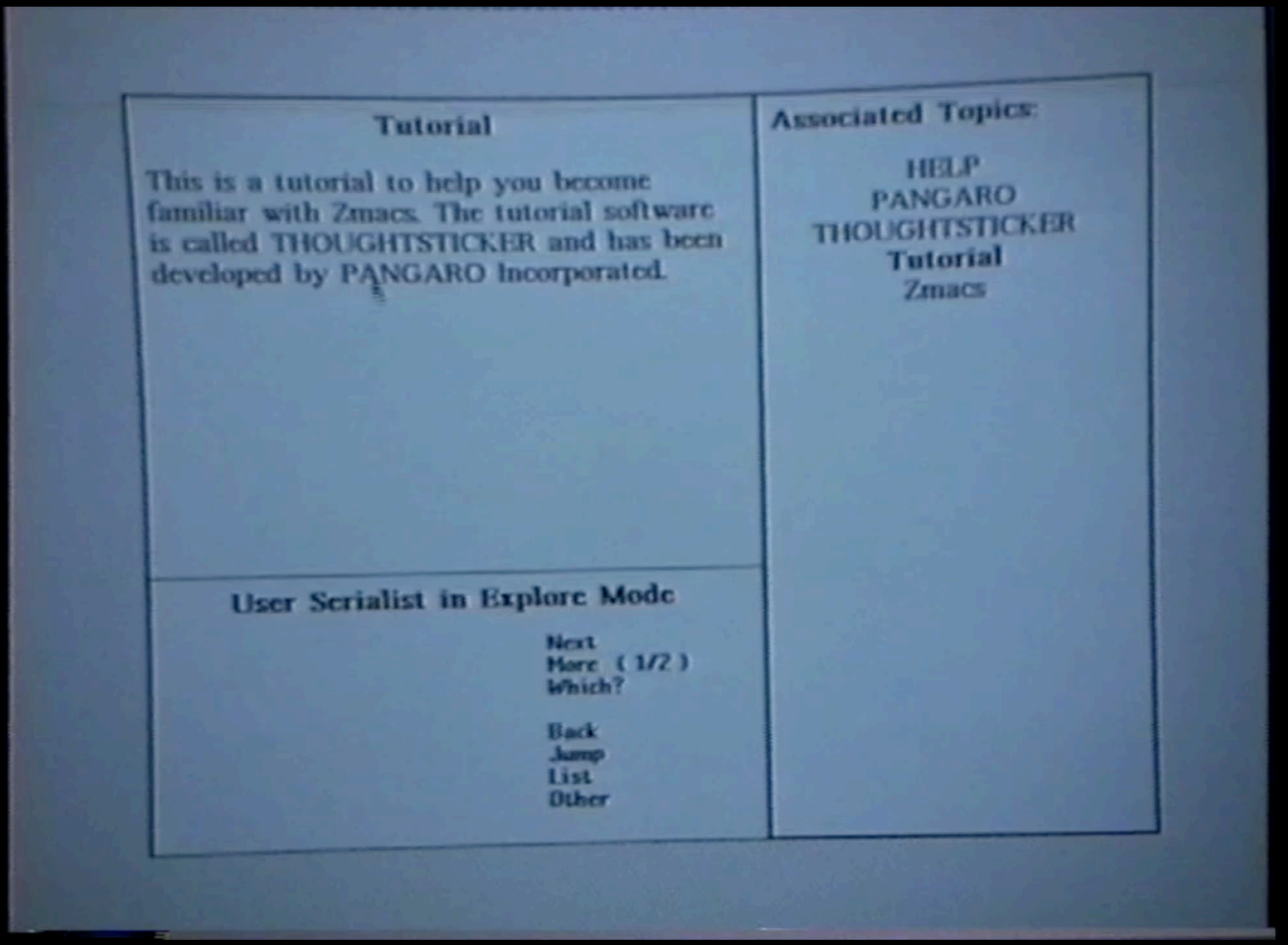
Bilingual sensibility—human & social, machinic & digital

Information triggers response, does not determine it

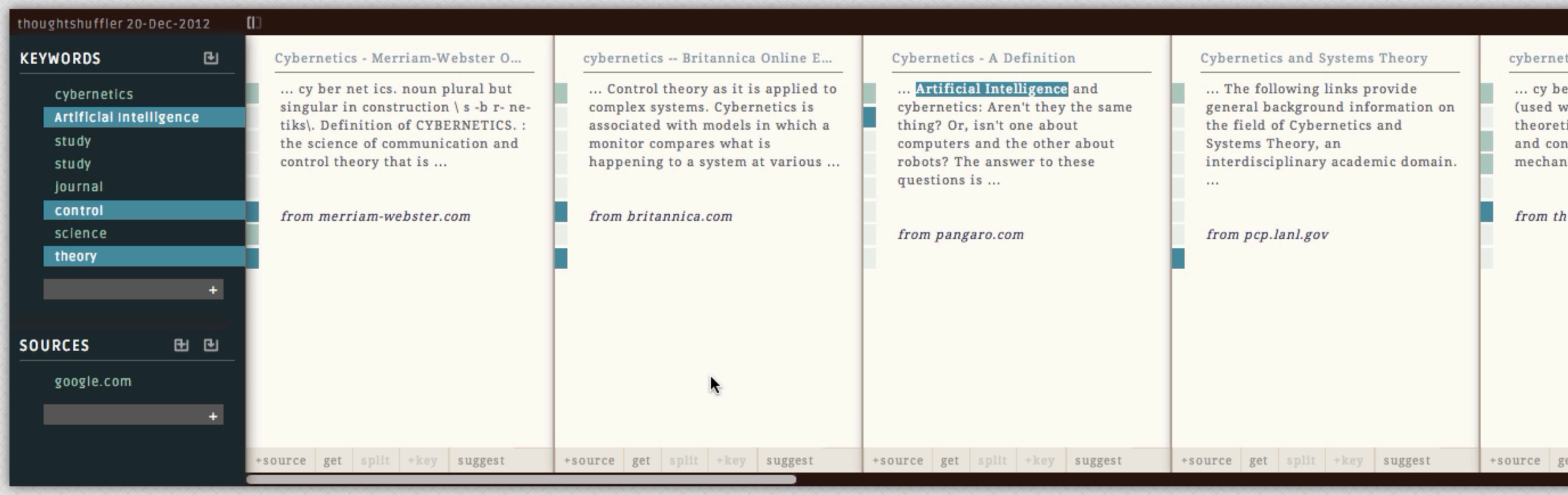
Intelligence in the interaction, not stand-alone



THOUGHTSTICKER
Gordon Pask
System Research Ltd.
mid-1970s



THOUGHTSTICKER
Ph.D. Dissertation
Paul Pangaro
1987



THOUGHTSHUFFLER
UI design and coding by Jeremy Scott Diamond
UI & heuristics by Paul Pangaro
2013

Conversation | Cybernetics | Today's AI

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How do we organize ourselves to do this?

CYBERNETICS

CIRCULAR CAUSAL AND FEEDBACK MECHANISMS IN BIOLOGICAL AND SOCIAL SYSTEMS

Transactions of the Tenth Conference
April 22, 23, and 24, 1953, Princeton, N. J.

Edited by
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CHAMPAIGN, ILL.

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NEW YORK, N. Y.

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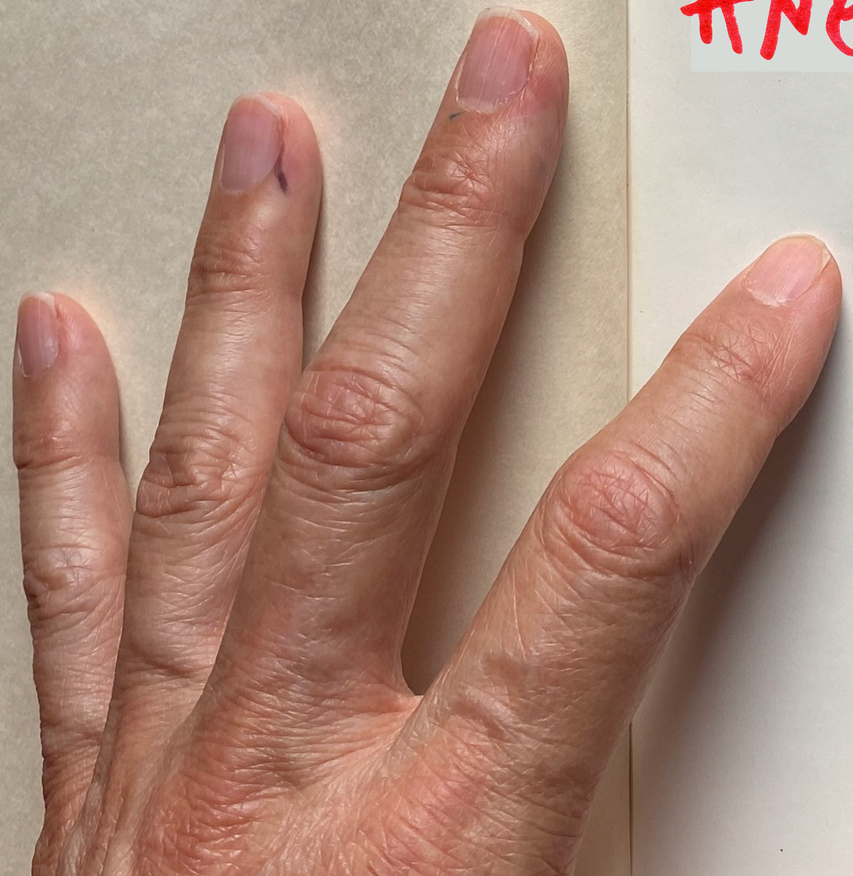

CYBERNETICS

CIRCULAR CAUSAL AND FEEDBACK MECHANISMS IN BIOLOGICAL AND SOCIAL SYSTEMS

#NEW MACY MEETINGS

Edited by

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Wiener + Macy Meetings + AI =
Piloting a New Course = #NewMacy

Our goal is to design and integrate
new classes of interactive systems
with today's AI and digital technologies
to create and promote a new category
of analog interactional frameworks.

Wiener + Macy Meetings + AI = Piloting a New Course = #NewMacy

Today I have argued:

- Digital culture contributes to the Pandemic of "Today's AI."
- Human experiences of interaction, information, and intelligence are compromised.
- Analog interactional frameworks are more organic, conversational, and humane.
- Cybernetics offers bilingual sensibility to bridge the analog & the digital.
- Promoting new design patterns & working prototypes can bring positive change.
- Urgency of the need and scale of the challenge requires that we convene #NewMacy Conversations in a Network of #NewMacy Meetings.

If we don't, who will?

#NewMacy Network + #NewMacy Meetings
Piloting a New Course = #NewMacy

Let us bring about a rich mesh of collaborations
among individuals and organizations—
across disciplines, geographies, and generations.

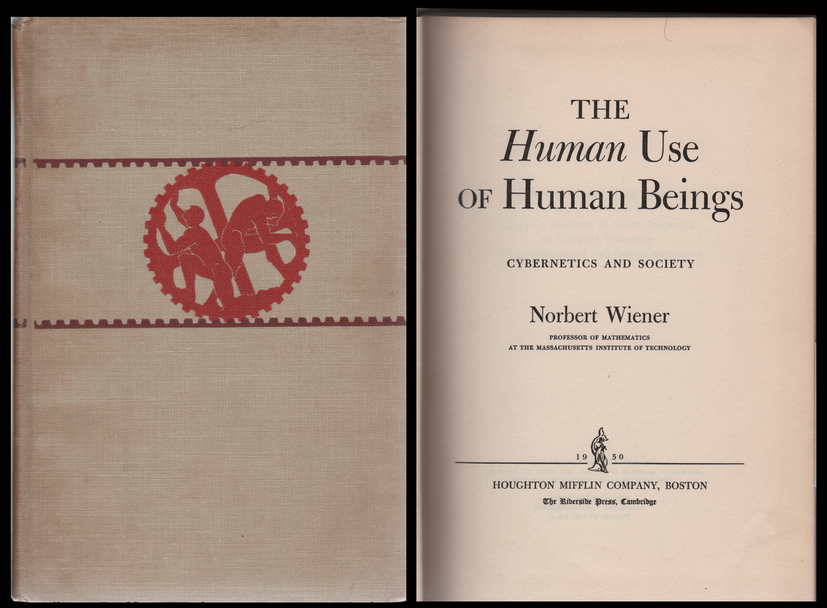
We will be deliberate about what we wish to conserve
as analog, biological, social beings—
and then use technology to serve our principles.

We are excited to see what can emerge.

Please join us.

#NewMacy Network + #NewMacy Meetings

Thank you.



THE
Human Use
OF Human Beings

CYBERNETICS AND SOCIETY

Norbert Wiener

PROFESSOR OF MATHEMATICS
AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

1950

HOUGHTON MIFFLIN COMPANY, BOSTON
The Riverside Press, Cambridge

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"The hour is very late,
and the choice of good or evil
knocks at our door."

—Norbert Wiener 1948

#NewMacy Network + #NewMacy Meetings

Thank you.

Special thanks to:
Dr T V Gopal
Karen Kornblum
Peter Cariani
Deborah Forster
Walter Lee
Andrew Pickering
Larry Richards
Andrew Schmookler
Bernard C.E. Scott
Mark Sullivan
Ben Sweeting

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"We are not fighting for a definitive victory in the indefinite future. It is the greatest possible victory to be, to continue to be, and to have been. No defeat can deprive us of the success of having existed for some movement of time in the universe that seems indifferent to us."

—Norbert Wiener 1956

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Thank you.

Links

Appendices

Keynote Materials

#NewMacyMeeting #1

Cybernetics, AI, and Ethical Conversations

Pickering, "The Next Macy Conference"

Pickering, "Ontology and Antidisciplinarity"

Wiener 1949, NYTimes article by John Markoff

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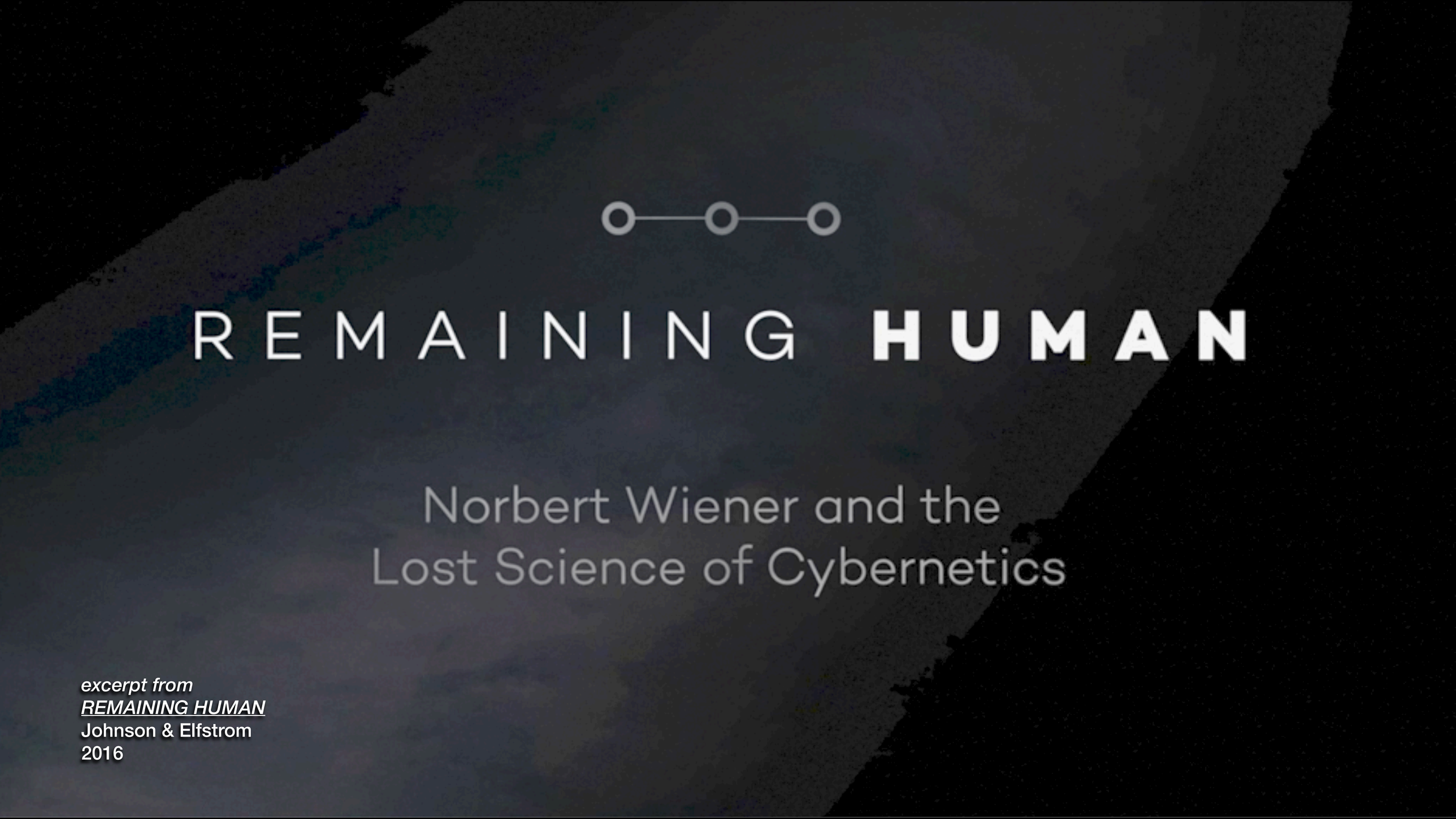

excerpt from
REMAINING HUMAN
Johnson & Elfstrom
2016

excerpt from
REMAINING HUMAN
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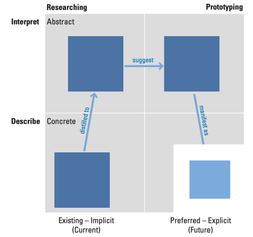
Overall Plan



I. Create and promote resources for analog interactional frameworks

a. Identify participants & examples of existing analog thinking and making
b. Characterize contexts where AI is influential or prevalent
c. Establish a persuasive, parallel paradigm for analog interactional systems
d. Code new systems & disseminate to designers, entrepreneurs, teachers, students

II. Continue to evolve the path begun in March 2020

a. Design and expand the #NewMacy Network based on requisite variety
b. Develop and deepen the rationale and continue the documentation
c. Build out the Advisory Council with diversity of disciplines, geography, age cohorts
d. Design for variety in #NewMacy Conversations

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#NewMacy Conversations

Summary to date

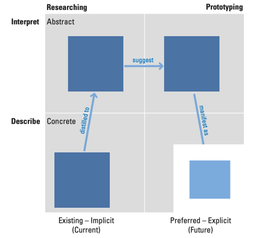
- Launched at Seminar at Carnegie Mellon, March 2020
- On-going conversations in association with the American Society for Cybernetics, from April 2020
- Cybernetics and Designing for Action, September 2020
- #NewMacy Meeting Experiment #1, September 2020
- Presentation at AIAgora at TU Delft, December 2020
- Manifesto document, March 2021
- Responding to the Pandemic of "Today's AI" draft

Click on link for each document

Where we are now

- Advancing the plan to respond to Today's AI
- Designing for variety in #NewMacy Conversations
- Formulating #NewMacy Meetings for Fall 2021
- Reaching GenZers (18 to 25 year-olds) to represent their worldview and values
- Seeking #NewMacy Network organizations
- Seeking #NewMacy Network individual participants
- Continuing to build #NewMacy Advisory Council

#NewMacy Conversations Implementation Tasks



Create and promote analog interactional frameworks

a. Identify participants & examples

- find current examples
- characterize their qualities
- fan out to find related efforts
- develop database
- share openly and seek critique

b. Characterize contexts where AI is now influential or prevalent

- gather types of AI algorithms
- deconstruct search, recommenders, social…
- build models of today's AI algorithmic types
- share openly and seek critique

c. Establish a new paradigm of analog interactional systems

- match AI contexts to new frameworks
- prioritize for impact & importance
- gather experts to evolve the frameworks
- share openly and seek critique
- produce and distribute outcomes as design patterns, toolkits, and workshops

d. Code new systems & disseminate

- prototype these alternatives as open source
- critique with sociologists, economists, MBAs…
- add to curricula for designers, coders…

#NewMacy Advisory Council

Confirmed Members

- Philip Beesley / U of Waterloo – Toronto
- Hugh Dubberly / San Francisco
- Omar Kahn / Carnegie Mellon – USA
- Guilherme Kujawski / São Paolo
- Innocent Ndubuisi-Obi, Jr / USA
- Nga Nguyen / New York
- Despina Papadopoulos / New York
- Andy Pickering / UK
- Bernard Scott / UK
- Delia Pembrey MacNamara / Australia
- Renee V. Wallace / Detroit

More to follow

Contrasting Macy Meetings

Original Macy Meetings
1943 – 1955

- post-WWII "world order"
- digital rising
- circular causal & feedback mechanisms
- closed selection of participants
- transdisciplinary

#NewMacy Meetings
2020 →

- post-COVID "wicked problems"
- digital supreme
- … + socio-technical entanglements
- open network of collaborators
- transdisciplinary
  transglobal
  transgenerational

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