



Faculty of Design

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Constructivist Approaches to Sense-Making About Design Theory

Mages, Michael Arnold

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Concept Map Book

ARTG6110
Yixuan Ding
April. 24. 2022

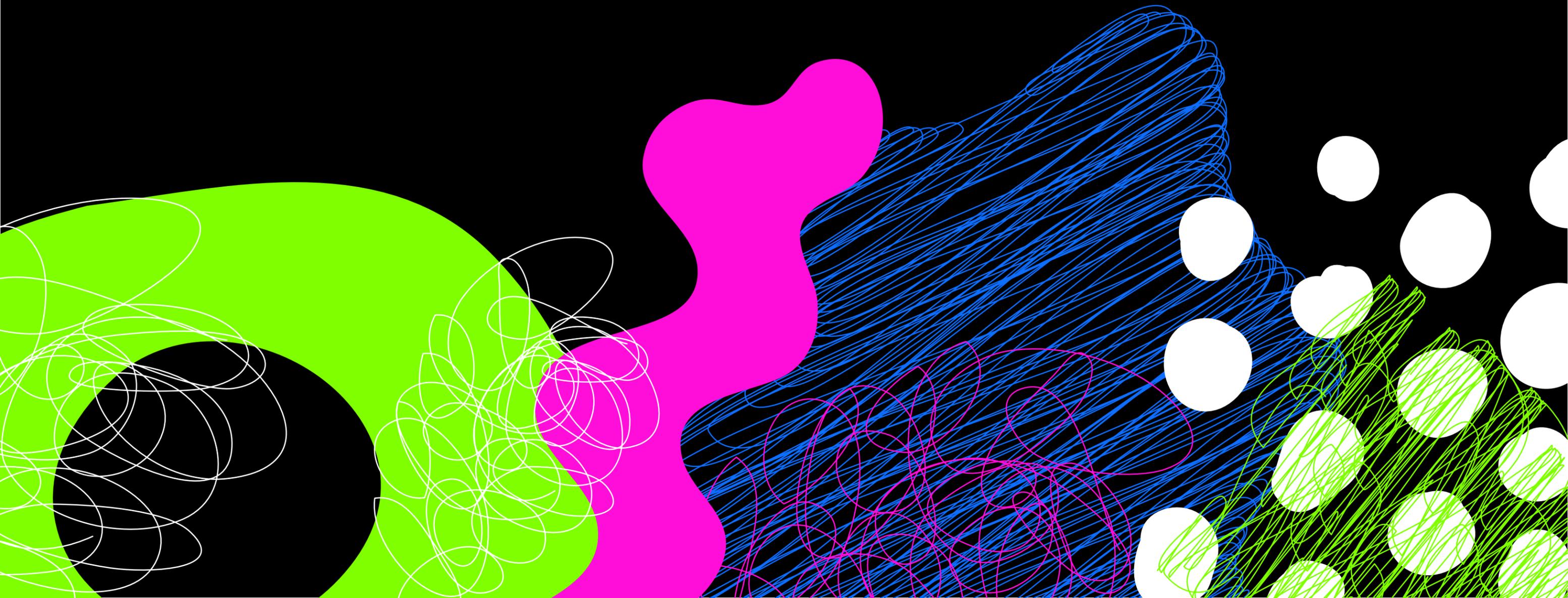
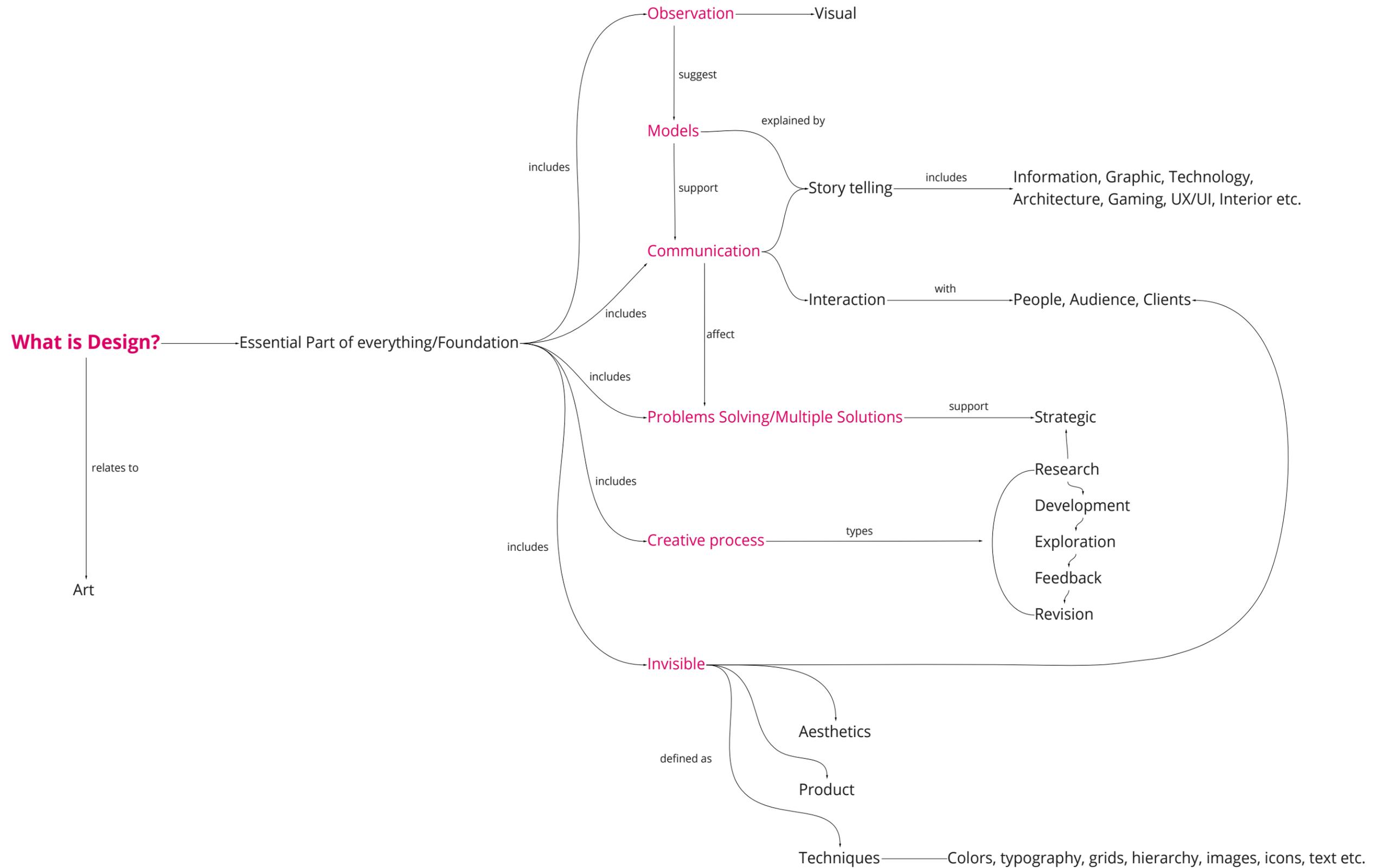
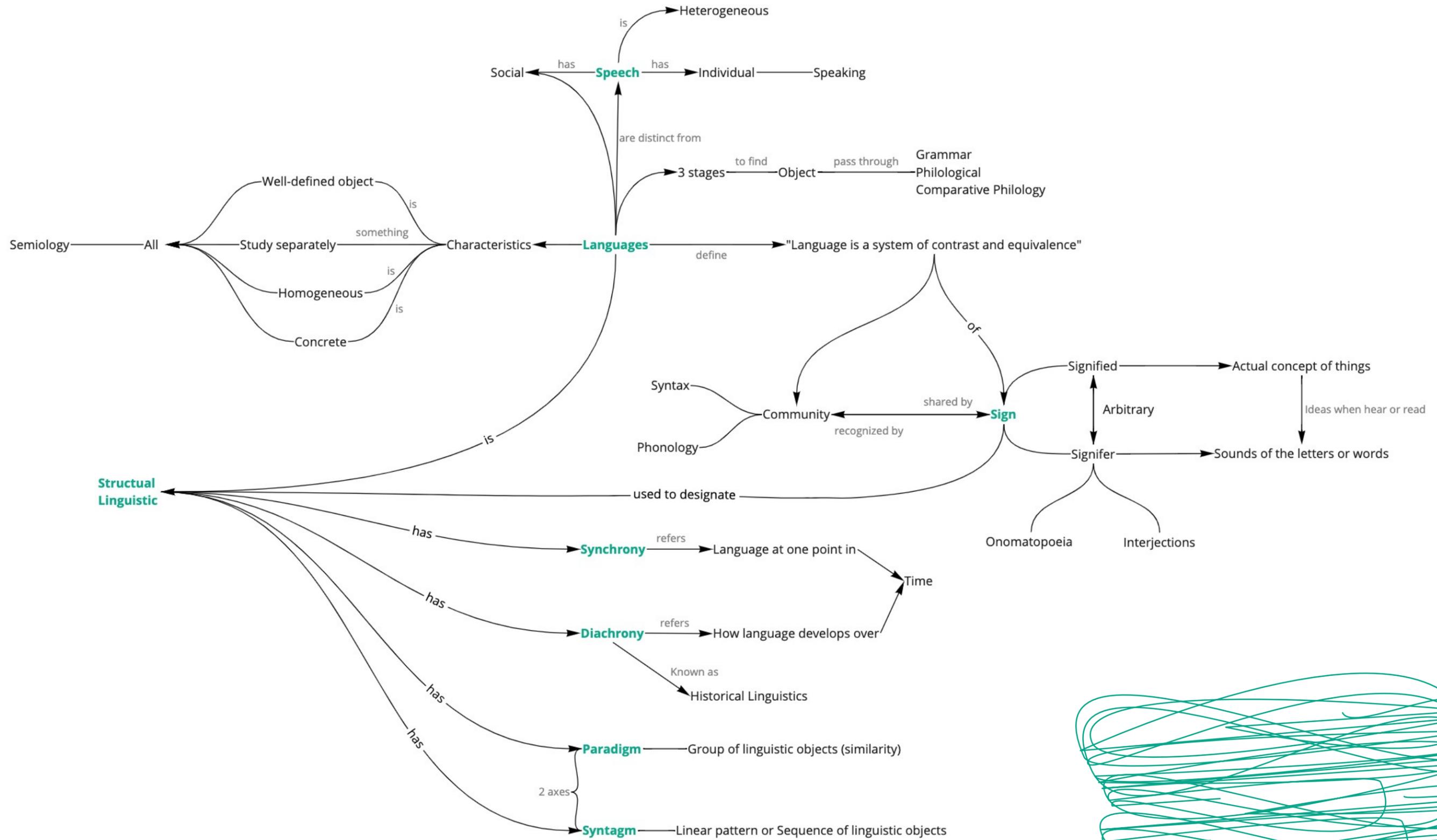


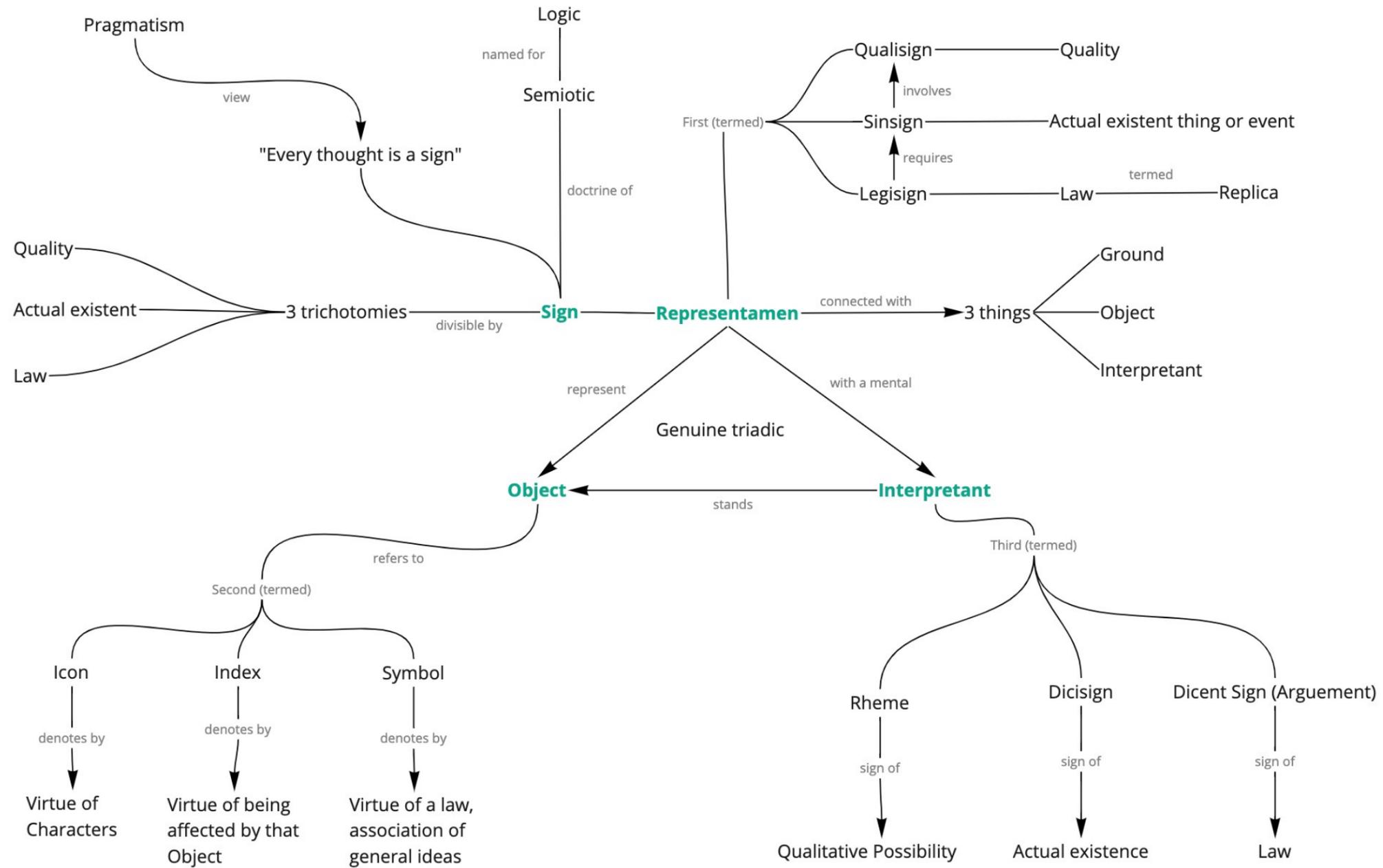
Table of Contents

Novak/Gowin + Dubberly	03	<i>What is design?</i>
Saussure Peirce	04	<i>Course in General Linguistics</i> , de Saussure, F., McGraw-Hill, 1959, pages 1-17, 65-122. <i>Philosophical Writings of Peirce</i> , edited by Buchler, J., Dover, 1955. pages 98-119, 269-289.
Shannon Buchanan	06	<i>"The Mathematical Theory of Communication"</i> , Shannon, C. and Weaver, W., University of Illinois, 1964, pages 379–382. <i>"Design Ethics"</i> , Buchanan, R., Encyclopedia of Science, Technology, and Ethics, 2005, pages 504-509.
Star Gibson	08	<i>"Institutional Ecology and 'Translation' of Boundary Objects: Amateurs and Professionals In Berkeley's Museum of Vertebrate Zoology, 1907-39,"</i> Star, S. and Griesemer, J., Social Studies of Science, 1989, pages 387-414 <i>"The Theory of Affordances,"</i> Gibson, James J., The Ecological Approach to Visual Perception, Chapter 8, pages 127-144.
Alexander Dubberly	10	<i>Notes on the Synthesis of Form</i> , Alexander, C., Harvard, 1964, Chapter 6, pages 73-83. <i>"The Analysis-Synthesis Bridge Model,"</i> Dubberly, et al., 2008. <i>"Designing as learning—or 'knowledge creation'—the SECI model,"</i> Dubberly and Evenson, 2013.
Simon Pask	12	<i>The Sciences of the Artificial</i> , Simon, H., MIT Press, 2001, Chapter 5, "The Science of Design," pages 111-138. <i>"The Architectural Relevance of Cybernetics"</i> , Pask, G., Architectural Design, Sept. 1969, pages 494-496.
Goldschmidt Suchman	14	<i>Linkography: unfolding the design process</i> , Goldschmidt, G. 2014. Chapter 3: Design Synthesis <i>Human-Machine Reconfigurations</i> , Suchman, L. 2006. Chapter 5 & 6
Akama	16	<i>Being Awake to Ma</i> , Akama, Y.
Escobar, Diawara & Ansari	17	Escobar, A. (n.d.). Introduction — <i>Designs for the Pluriverse. In Designs for the Pluriverse.</i> Diawara, M. (1997). <i>The Song of the Griot</i> . Transition, 74, 16–30. https://www.jstor.org/stable/2935371 Ansari, A. (2021). <i>The History of Design and the Design of History</i> . Psicon, II, 2–3(September), 130–146.
Kite et al.	18	Kite, S., Stover, C., Janis, M. S., & Benesiinaabandan, S. (n.d.). <i>How to Build Anything Ethically.</i>

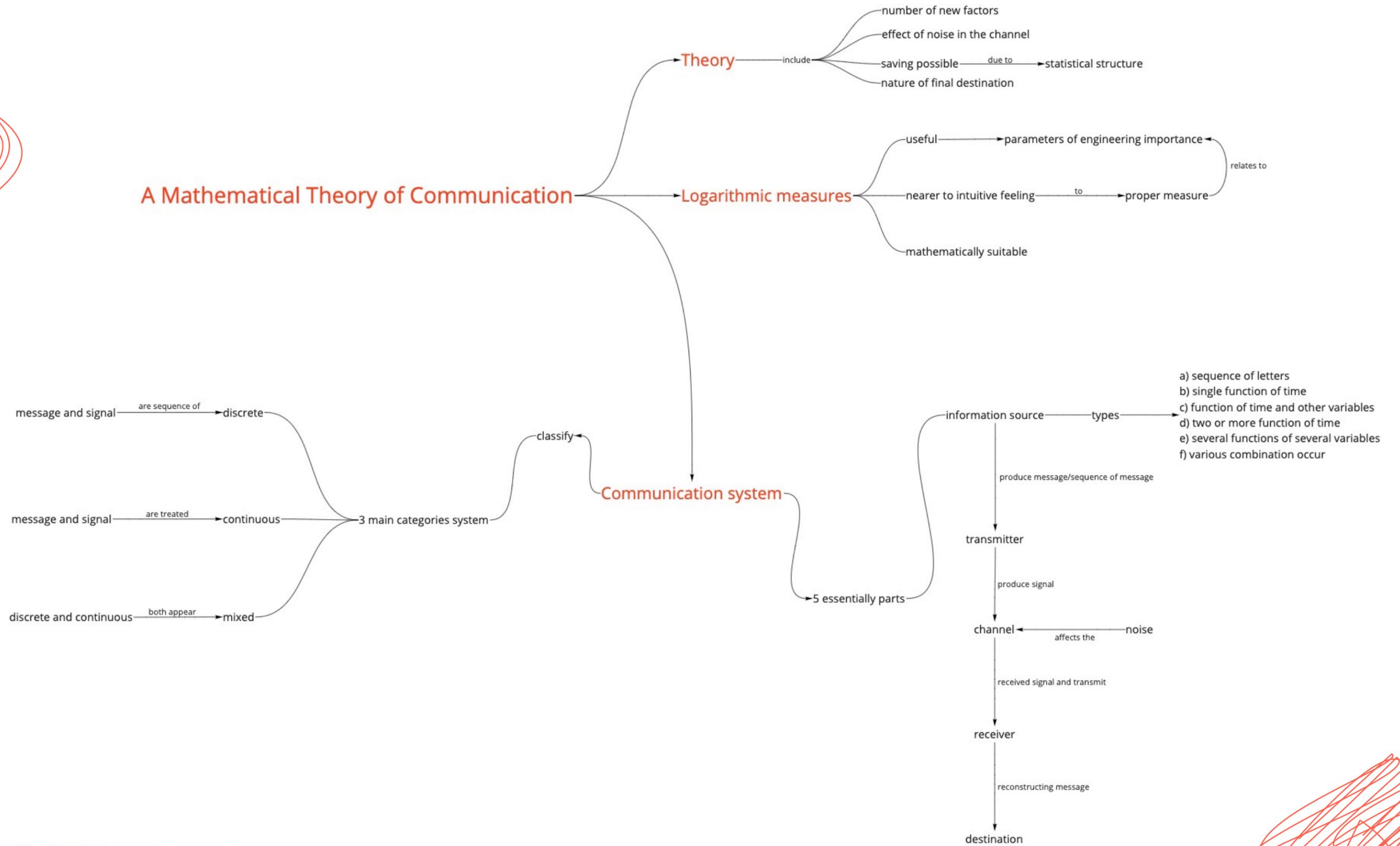


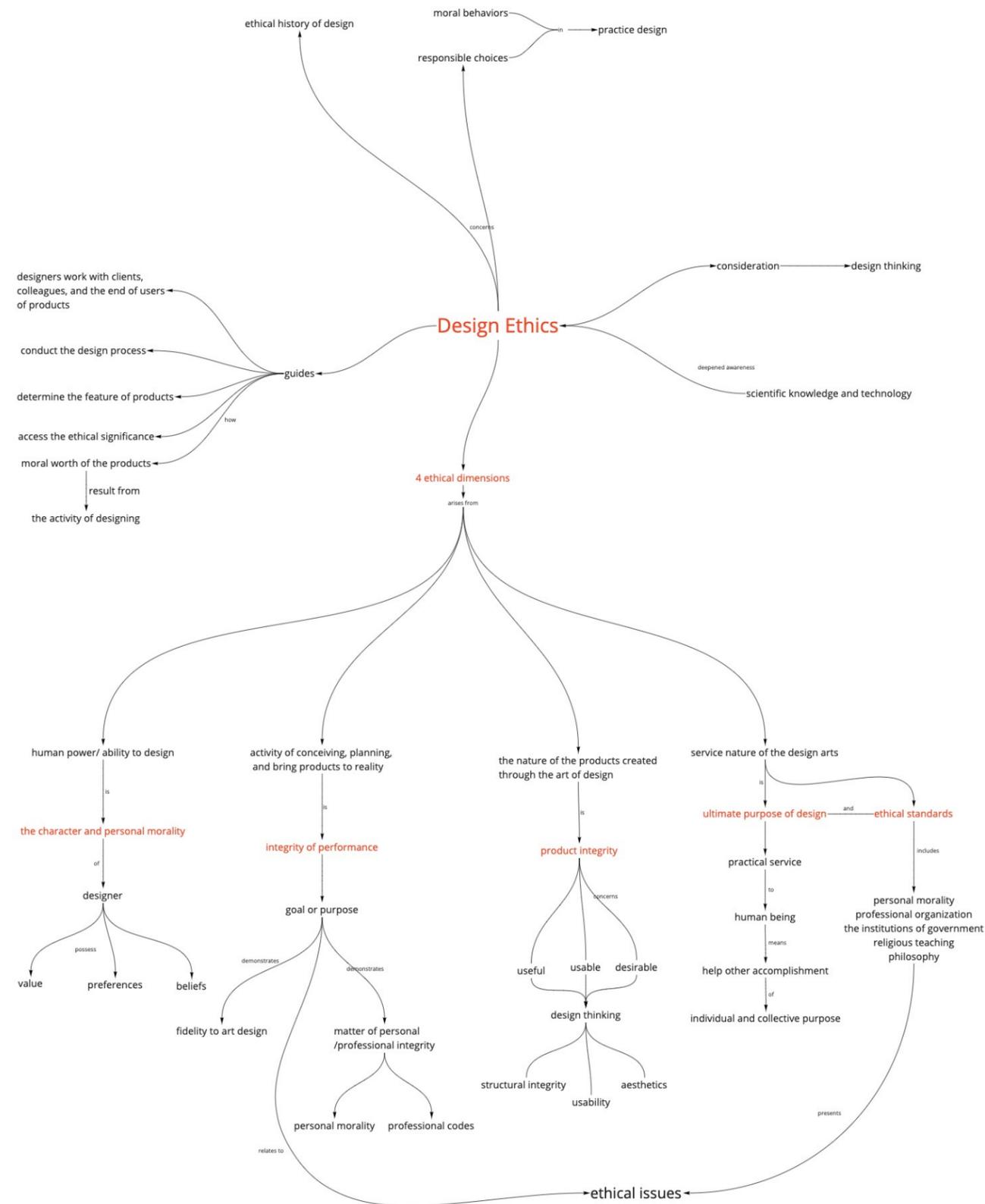


The theory of Signs



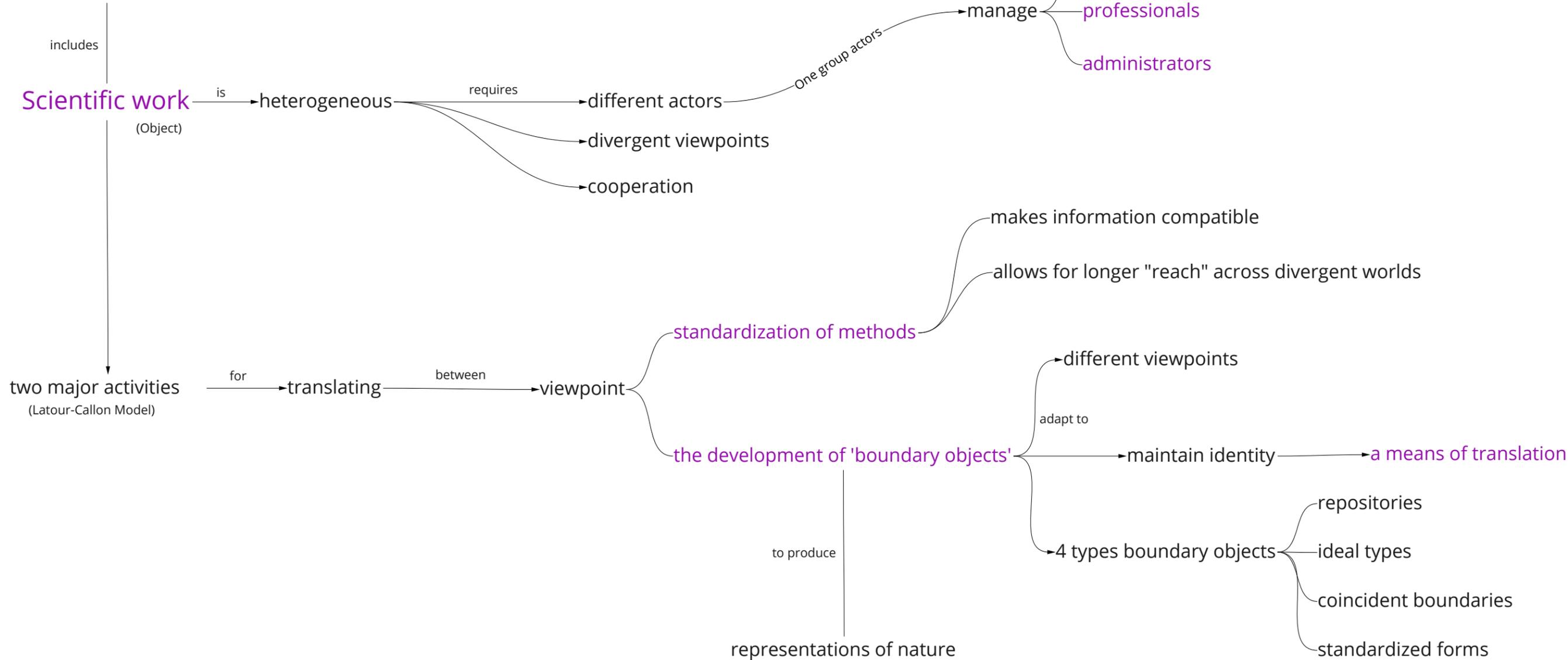
A Mathematical Theory of Communication

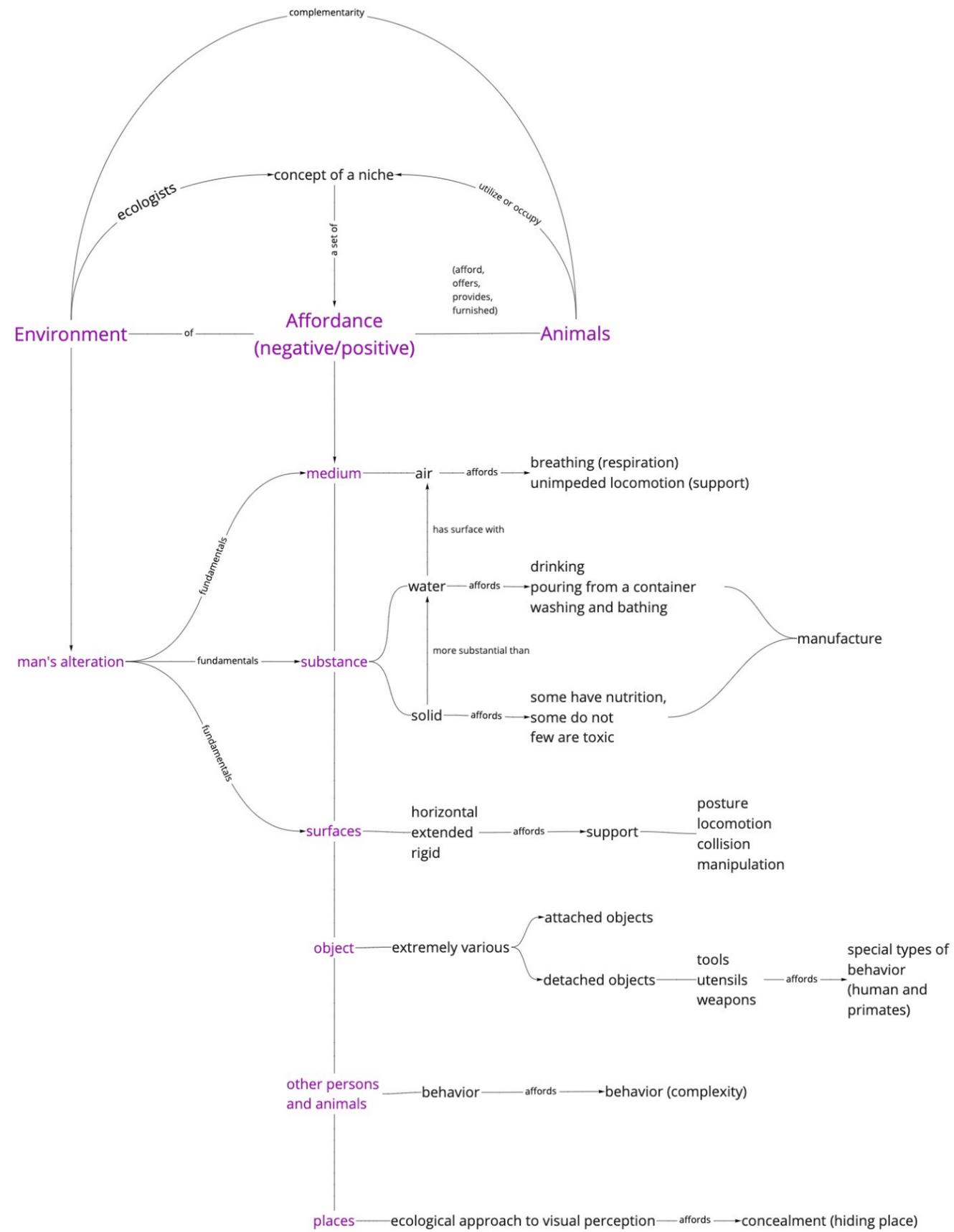


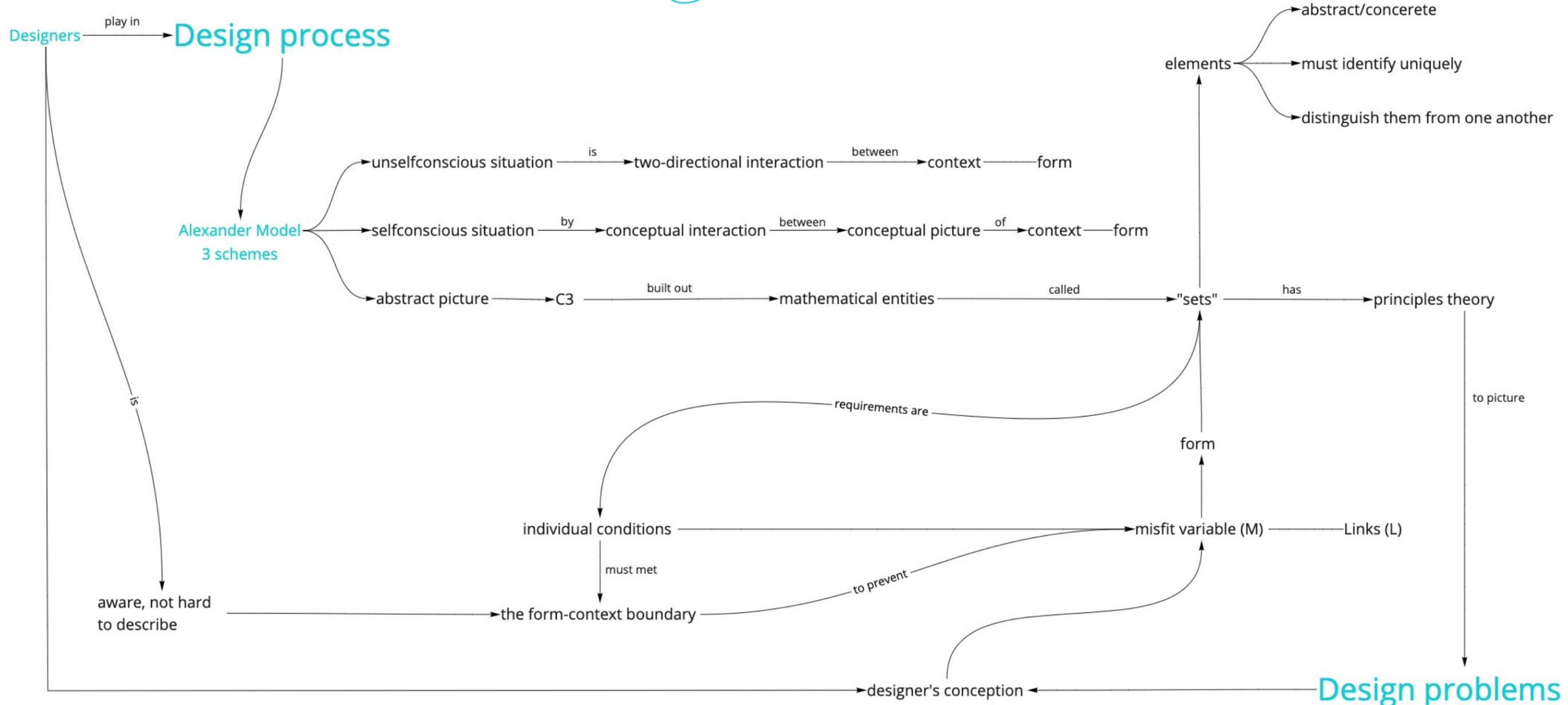




n-way translation

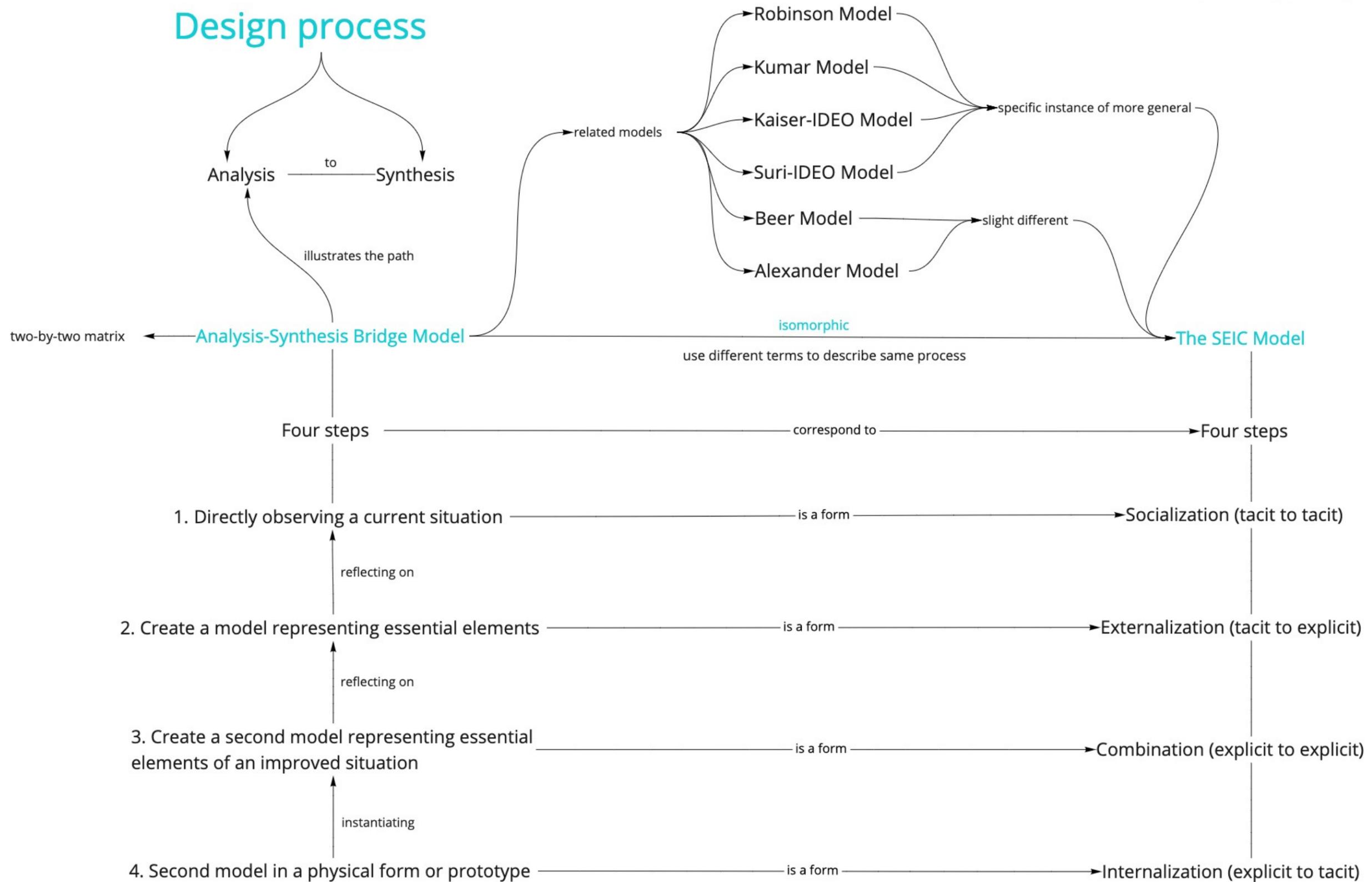


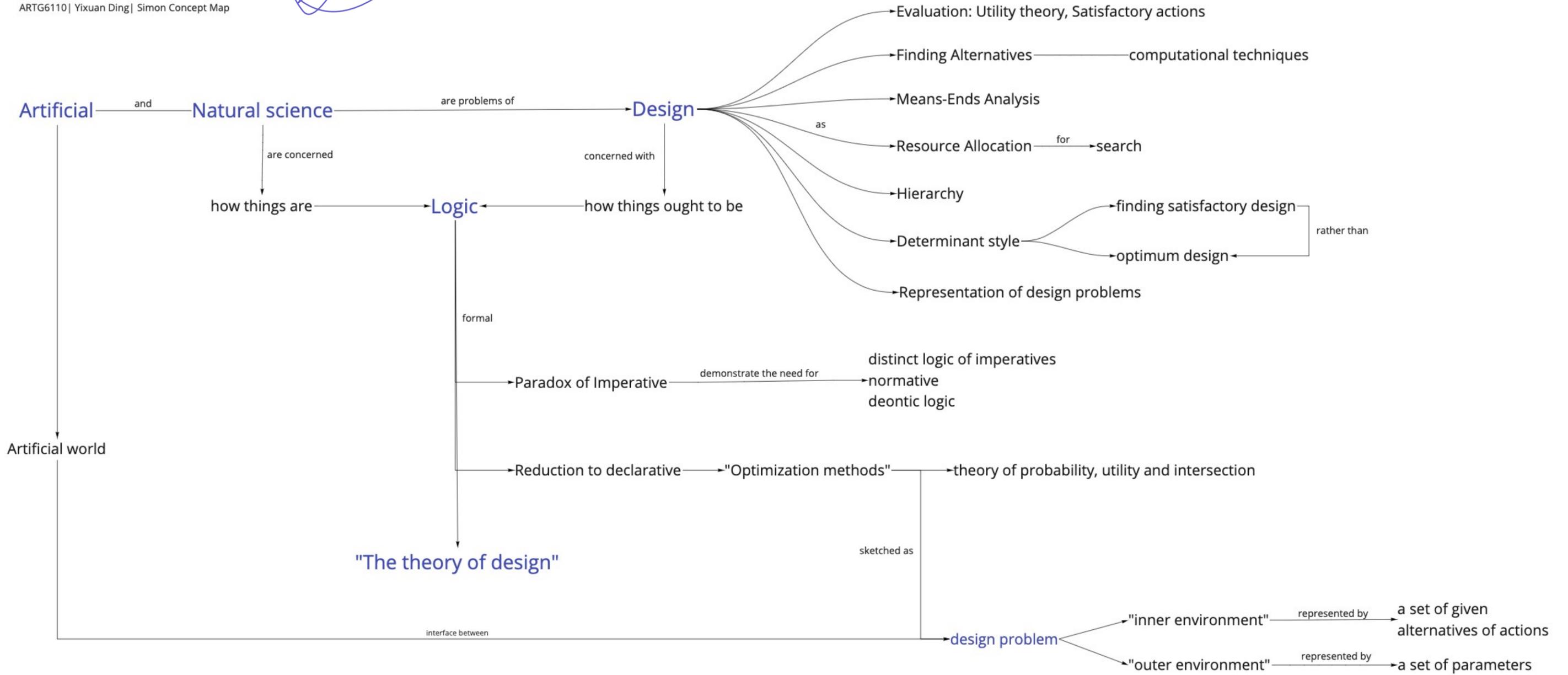


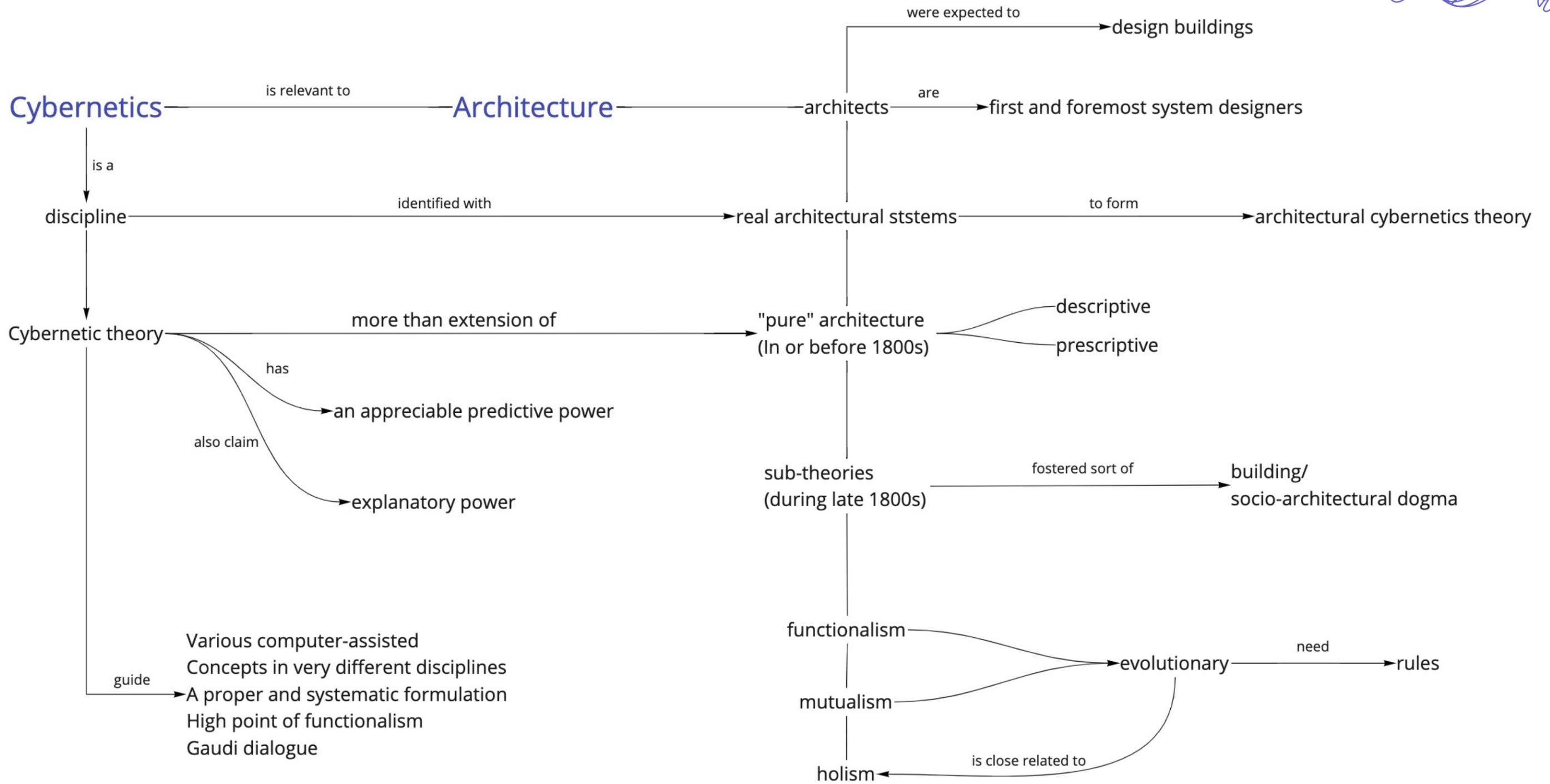


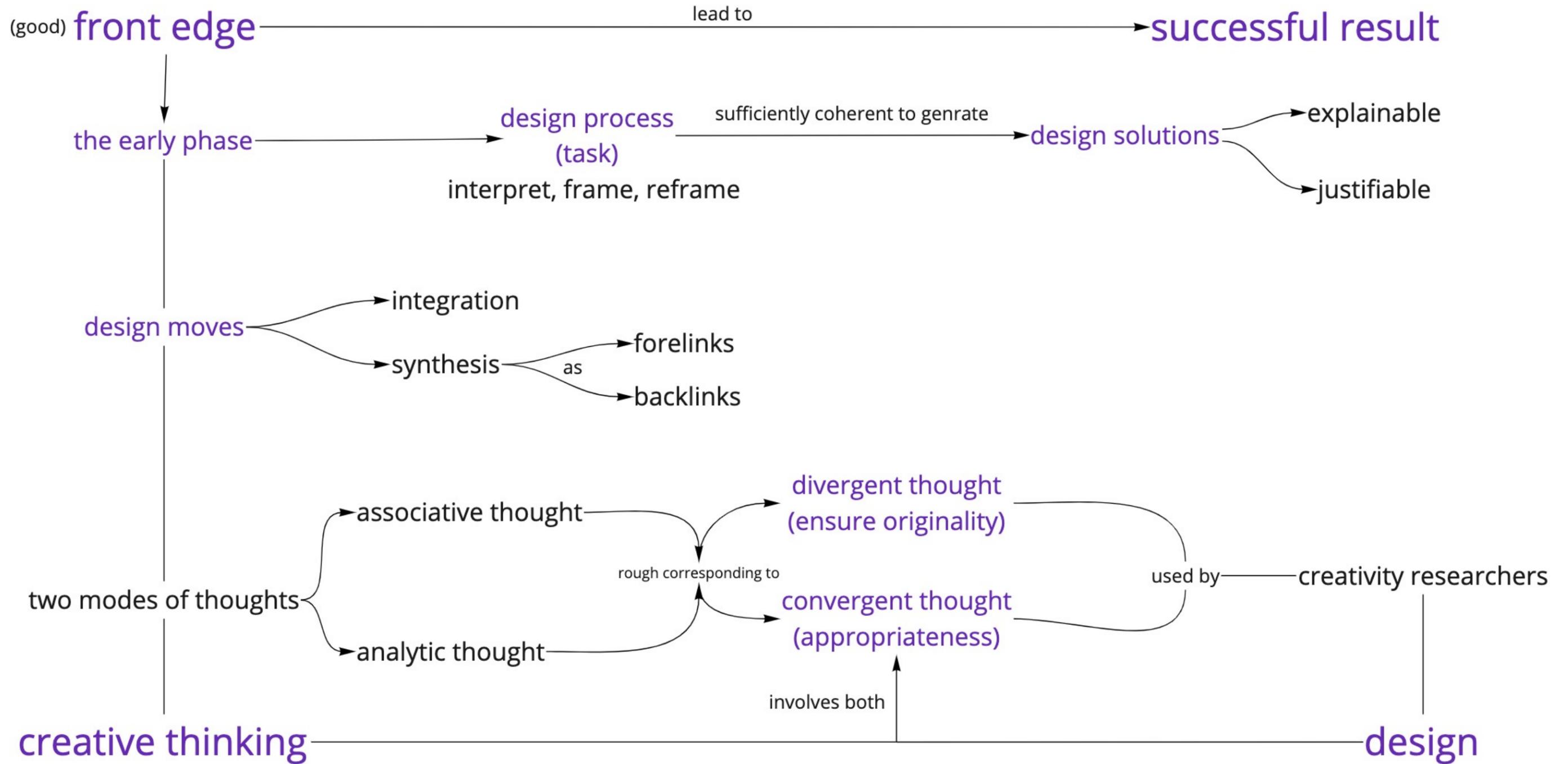
ARTG6110 | Yixuan Ding | Alexander Concept Map

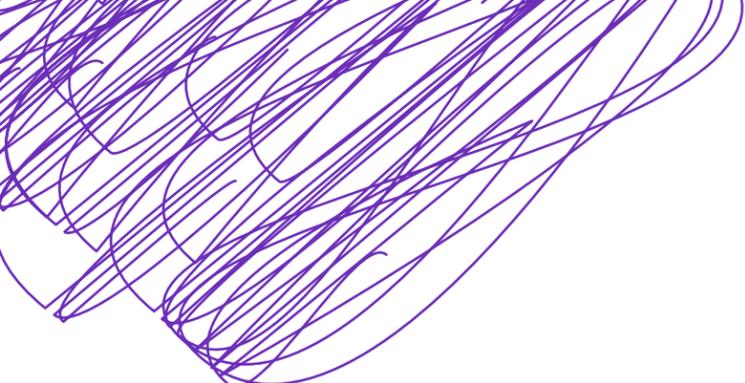
Design process



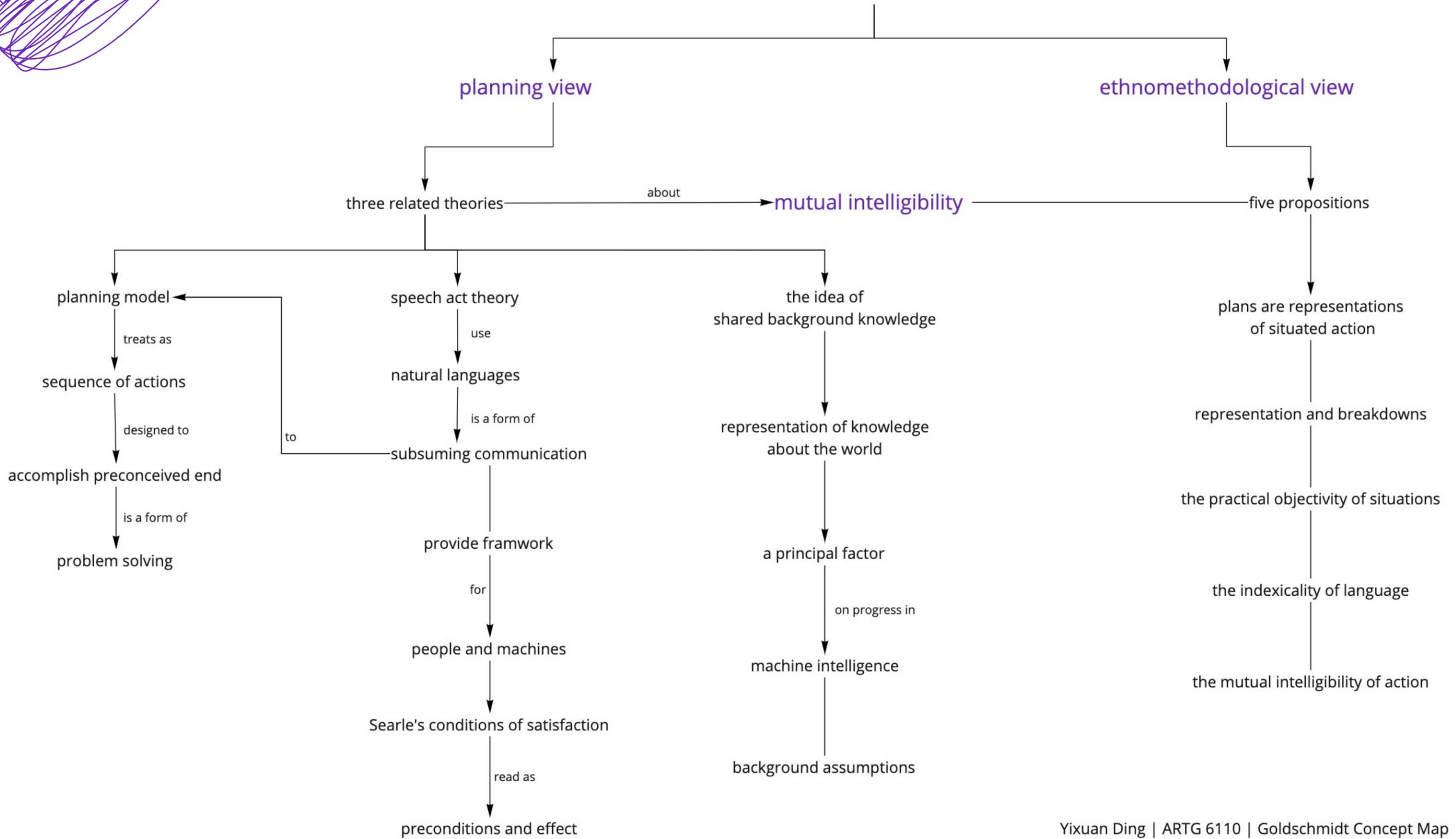


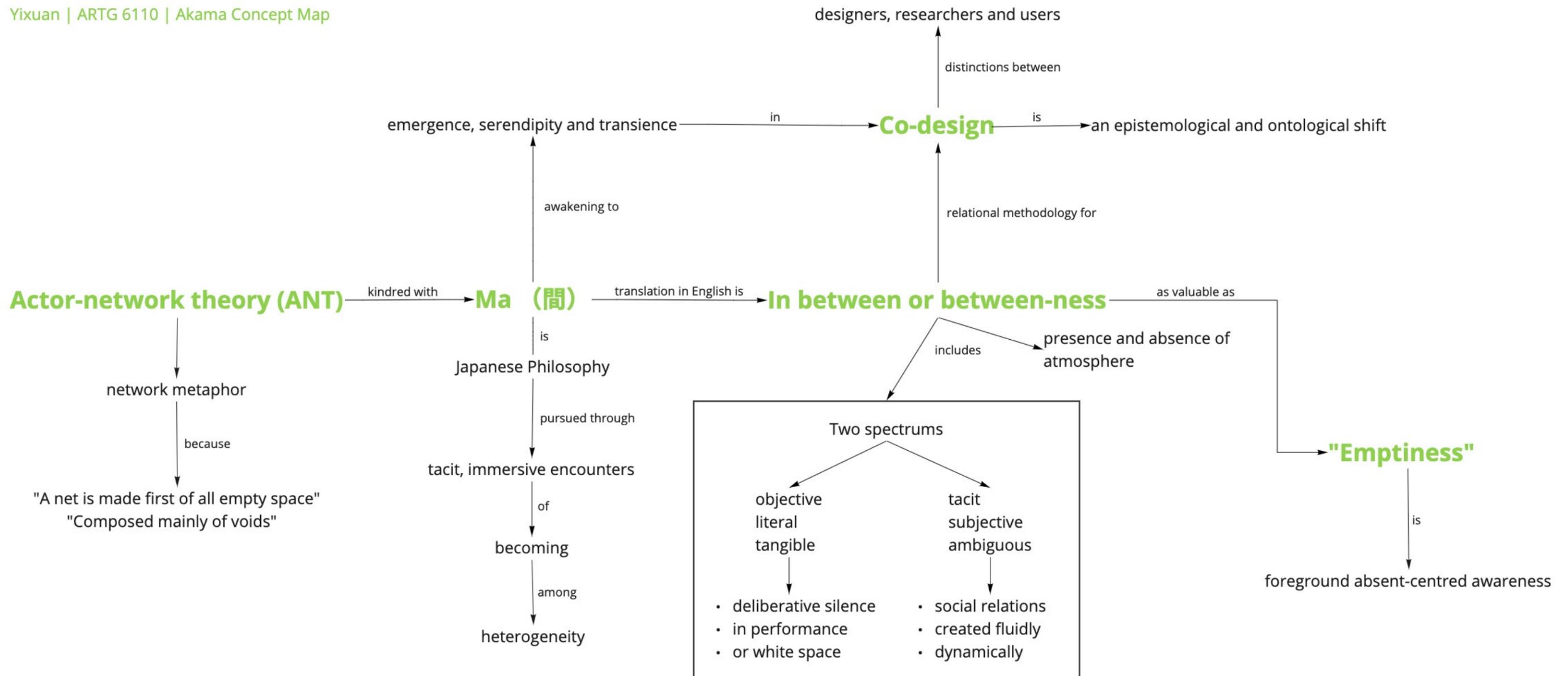


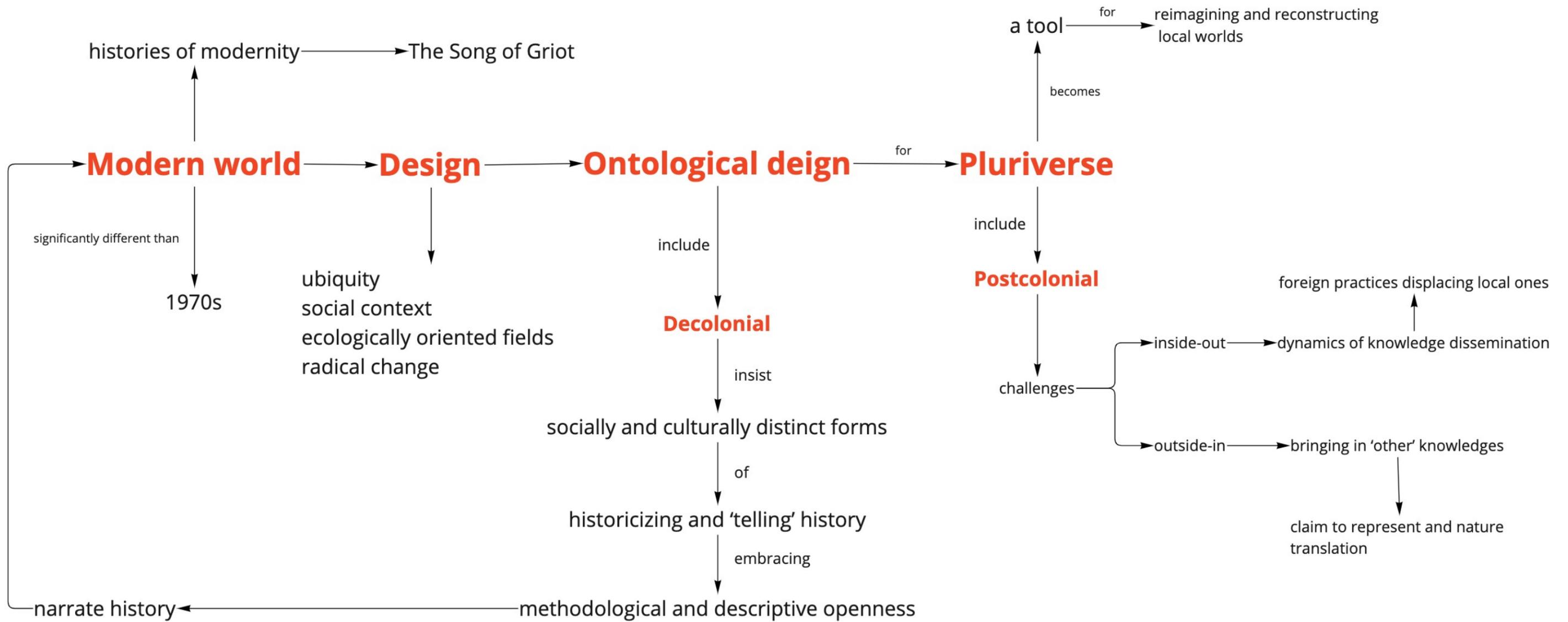




two alternatives views of action

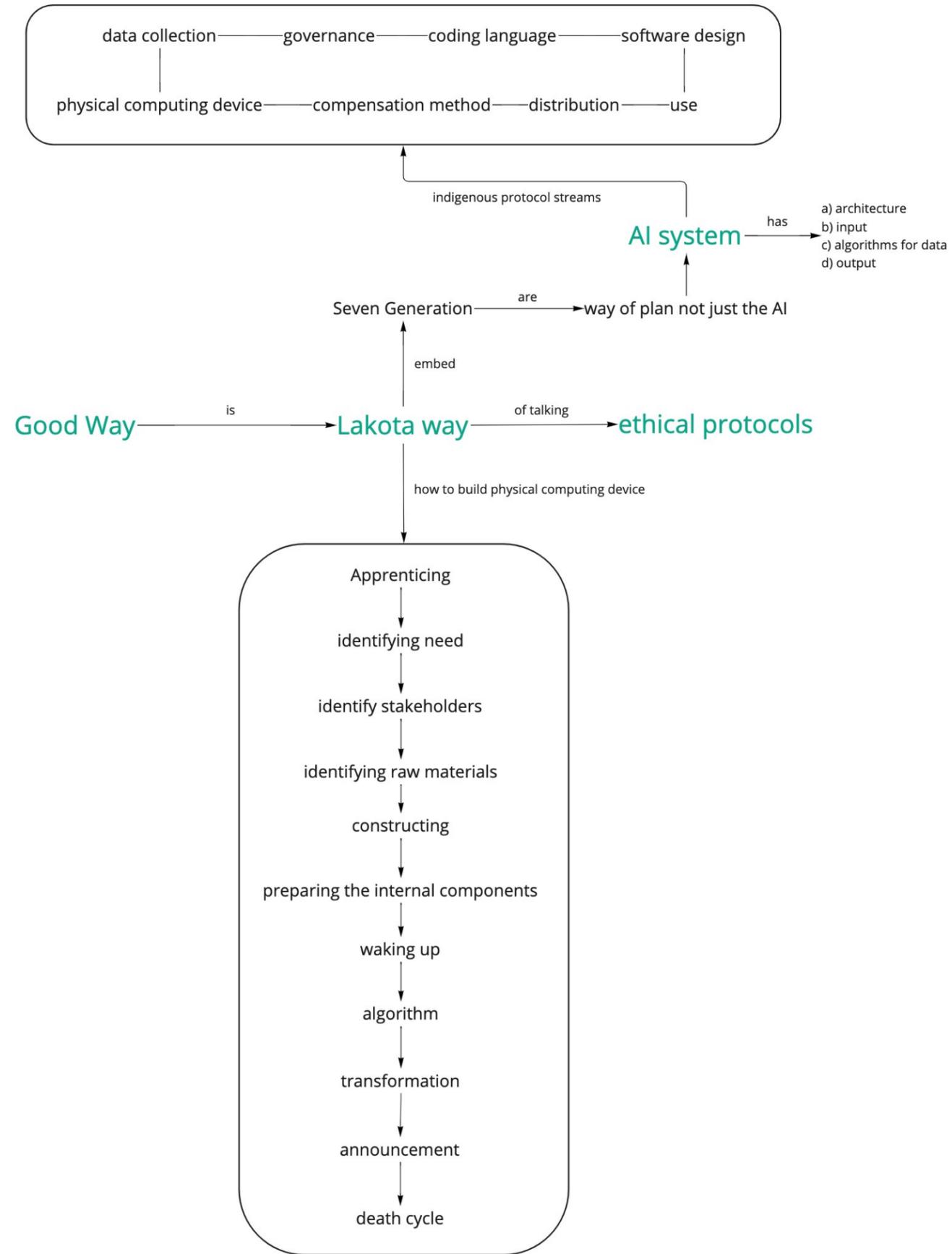






ARTG 6110 | Yixuan Ding | Escobar, Diawara & Ansari



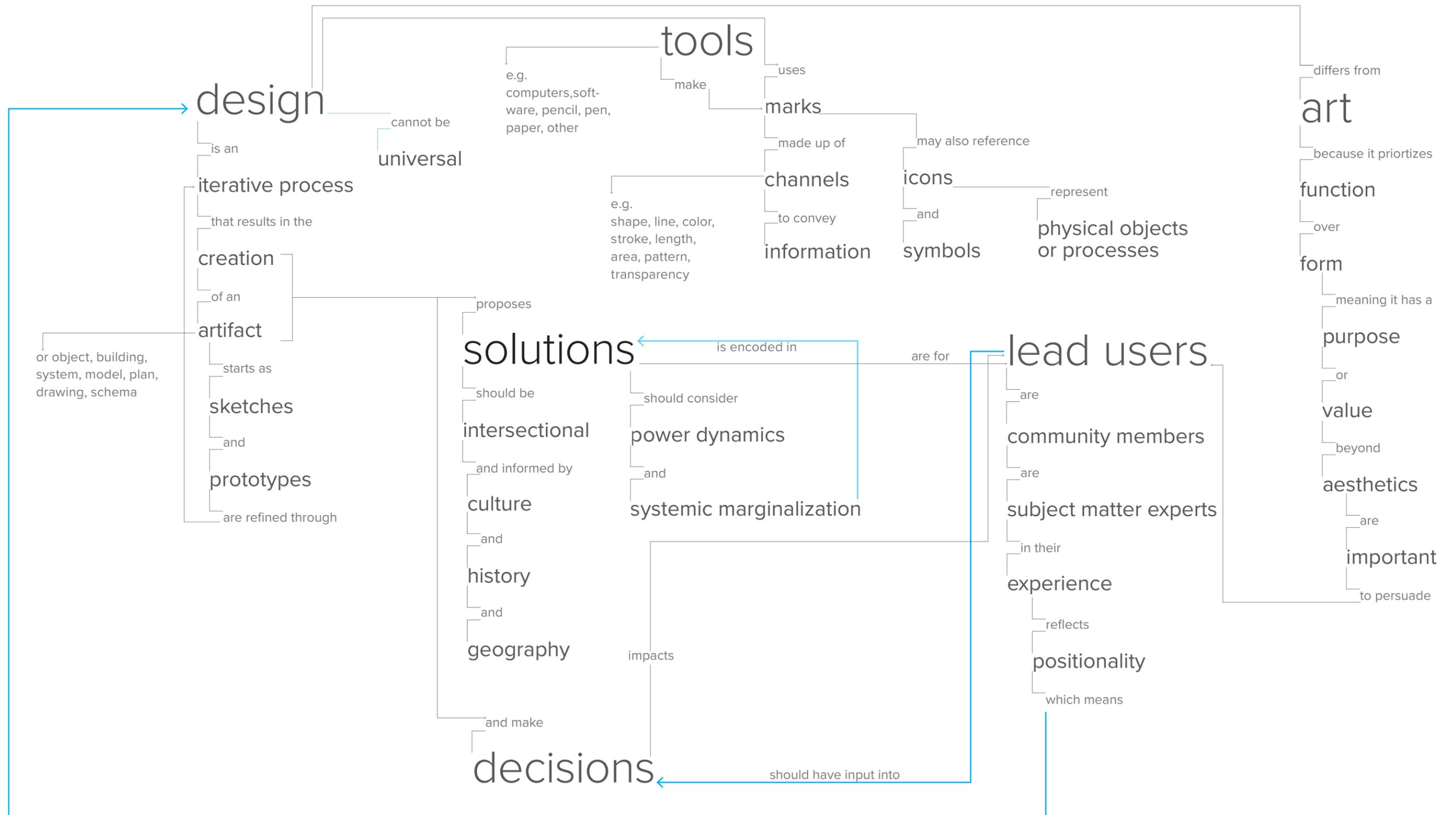


Concept Map Book

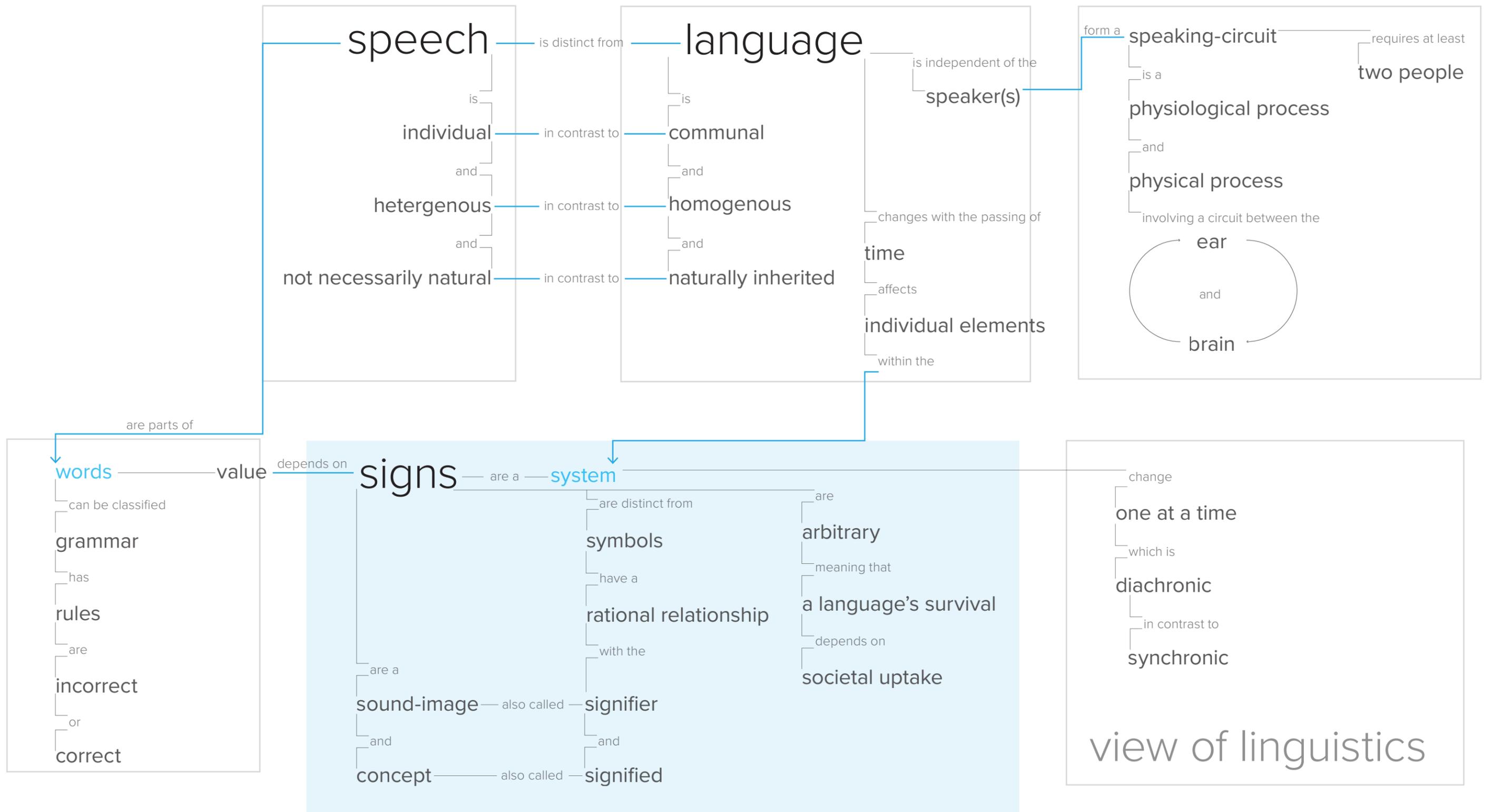
Summarizing Critical Thinking for Information Design

Table of Contents

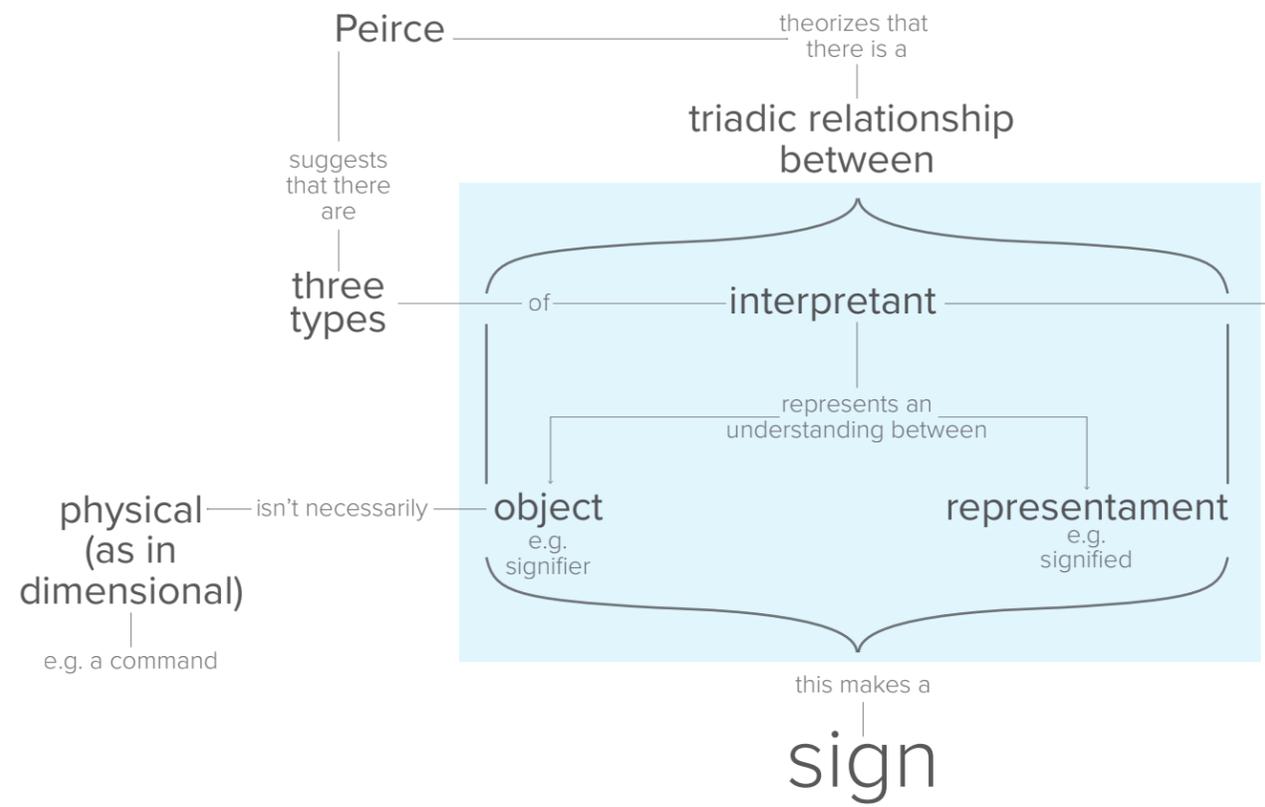
1. What is Design by J. Holmes
2. Course in General Linguistics by F. Saussure
3. Philosophical Writings of Peirce by C.S. Peirce
4. Mathematical Theory of Communication by C. Shannon
5. Design Ethics by R. Buchanan
6. Institutional Ecology and Translation of Boundary Objects by S. Star
7. The Theory of Affordances by J.J. Gibson
8. Notes on a Synthesis of Form by C. Alexander
9. The Analysis-Bridge Model by H. Dubberly
10. The Sciences of the Artificial by H. Simon
11. The Architectural Relevance of Cybernetics by G. Pask
12. Human-Machine Reconfigurations by L. Suchman
13. Linkography by G. Goldschmidt
14. Being Awake to Ma by Y. Akama
15. Decolonial Design Practices by A. Escobar, M. Diawara, and A. Ansari
16. How to Build Anything Ethically by S. Kite



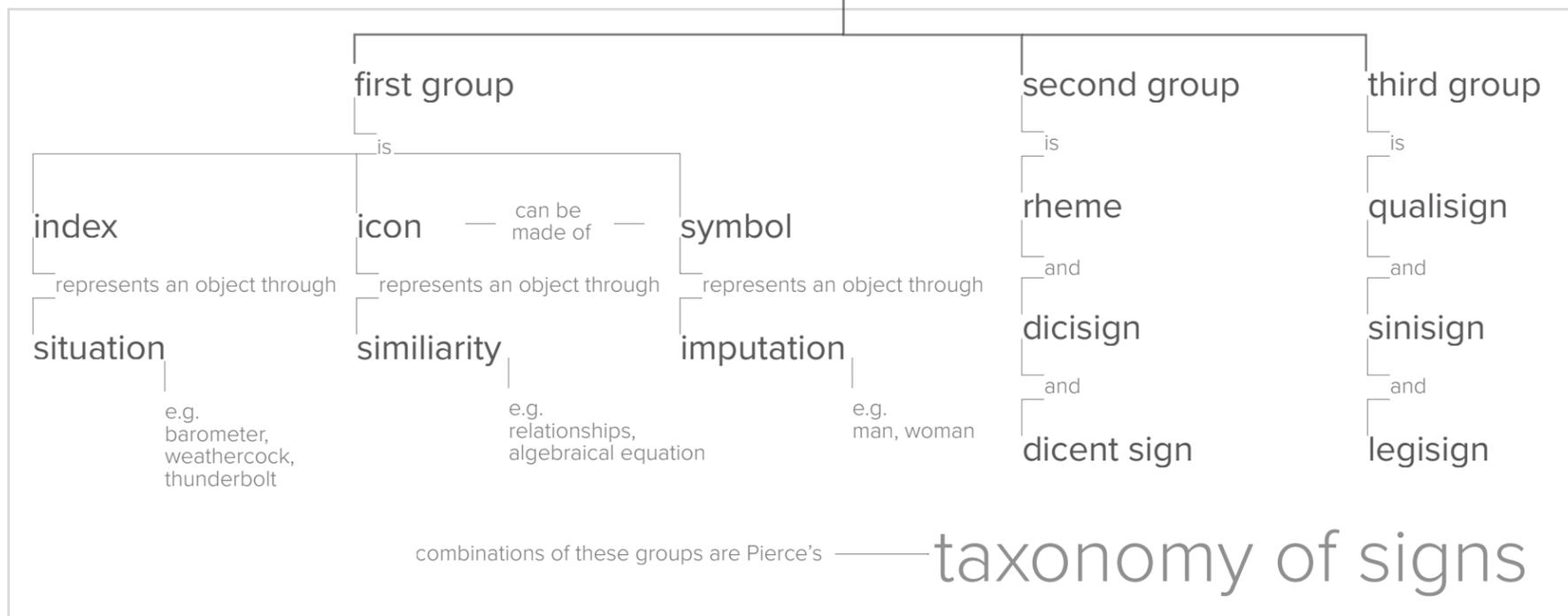
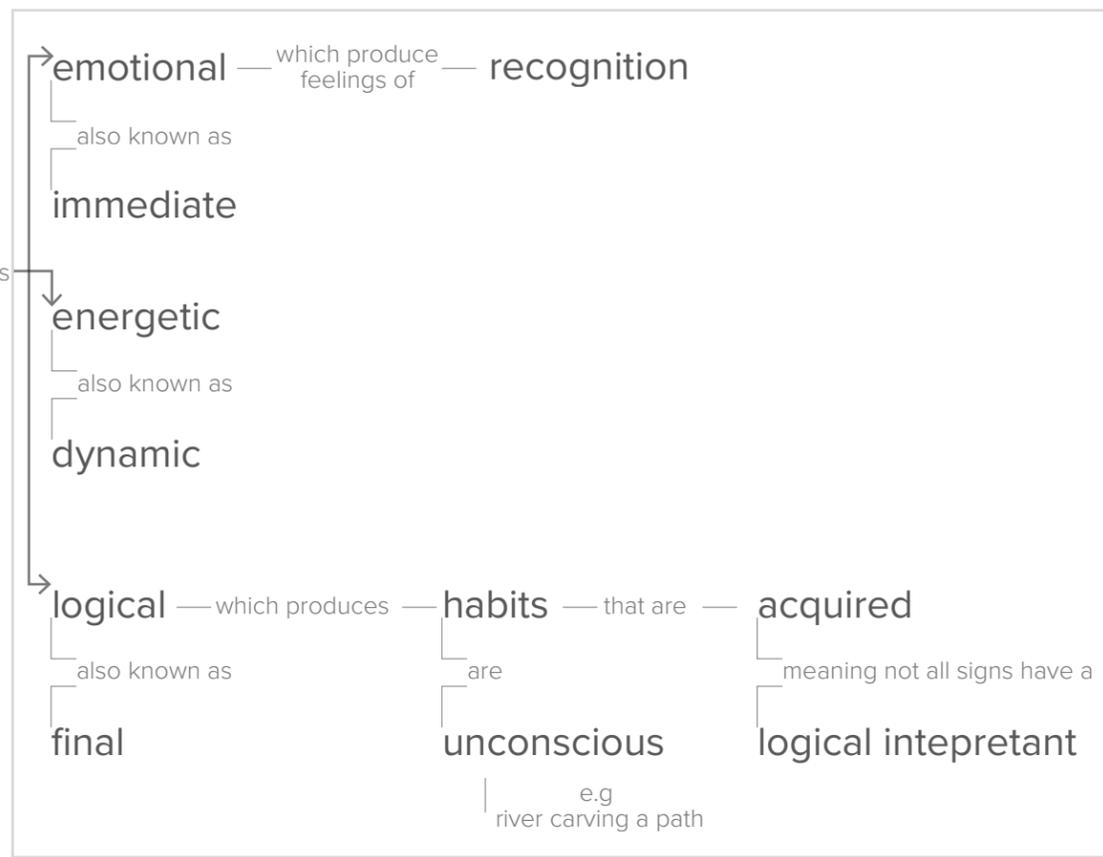
Concept Map of Design



Concept Map of Course in General Linguistics: Theory of Signs | Ferdinand de Saussure



this makes a sign



communication system

consists of five parts

source

sends a

message

e.g. a sequence of letters
a function of time $f(t)$

to the

transmitter

system creates a signal

encodes information to be interpreted by the

receiver

decodes information from

delivers the signal to

destination

e.g. a person
a thing

differs

semantically

from

engineering parameters

tend to be best represented

logarithmically

in that the

message

is

base 2 number system

e.g.

binary units or bits

finite

and part of a

set

of

possibilities

meaning it is

can be

classified

in three ways

continuous

e.g. radio
television

or

mixed

e.g. PCM transmission
of speech

or

discrete

e.g. telegraphy

is defined by

constraints

e.g. no spaces follow
each other

variable type

is the difference
between these
cases is the

noise

interferes in the

channel

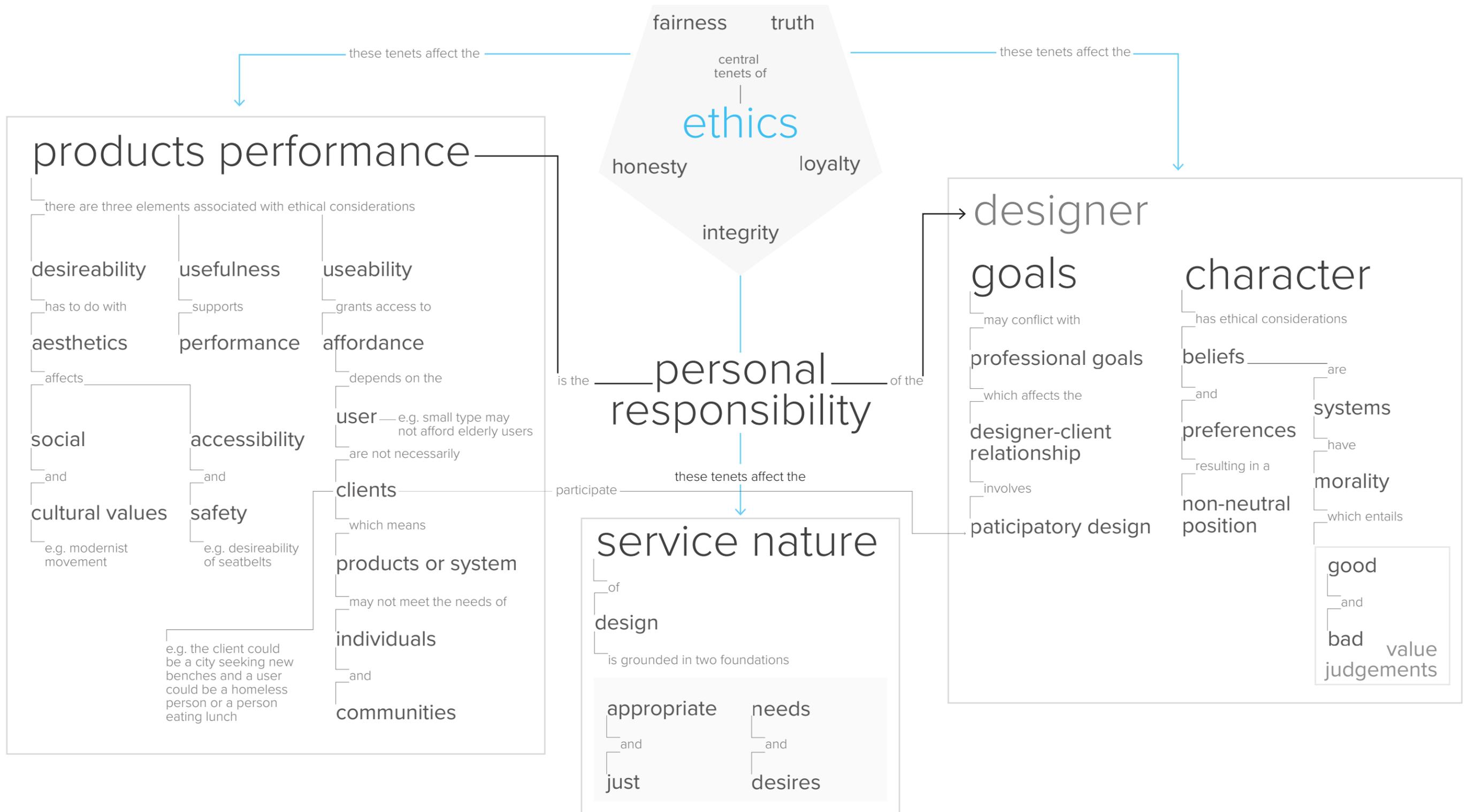
is the

medium

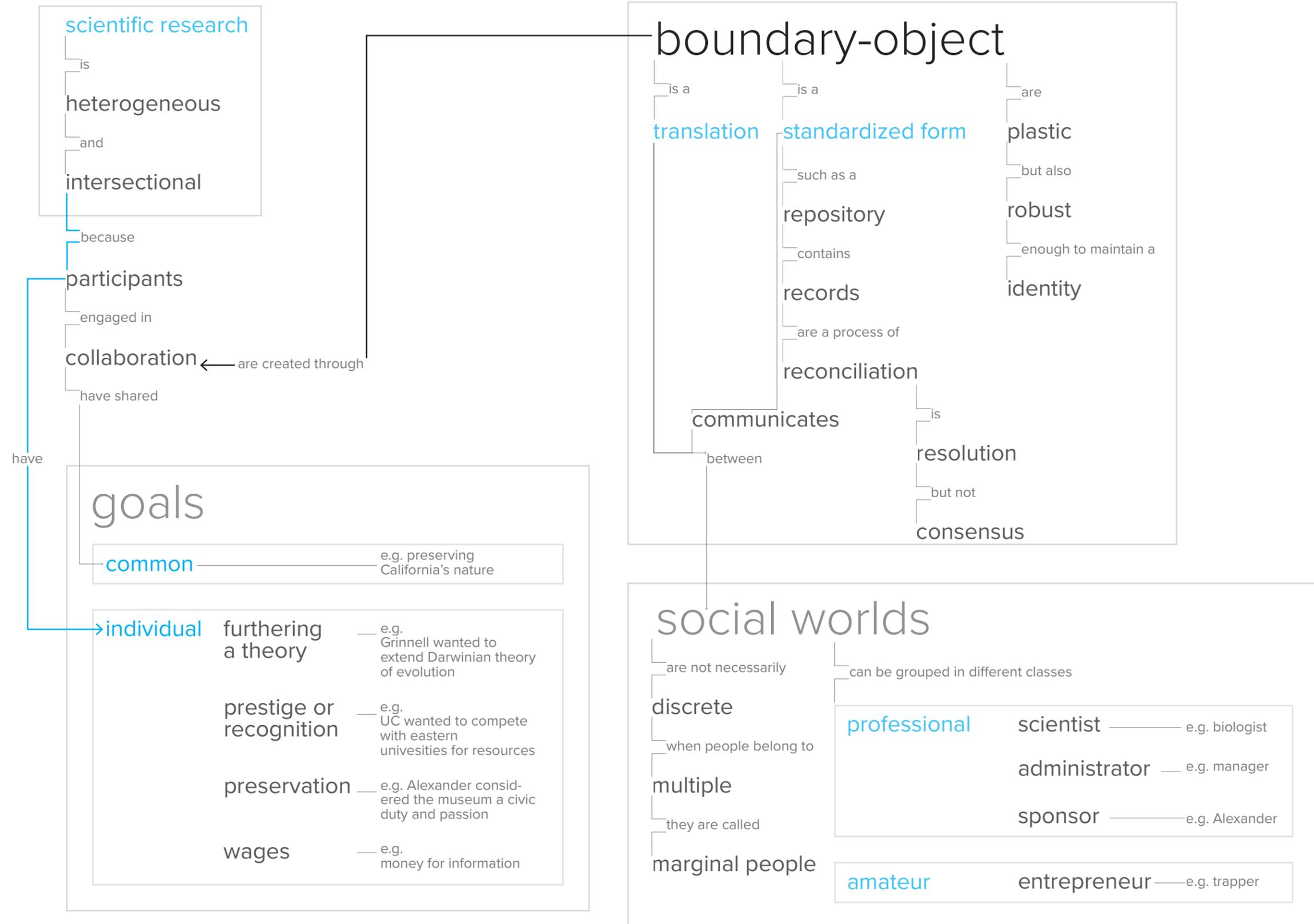
e.g. a wire a coax
cable a radio
frequency a
beam of light

through which a

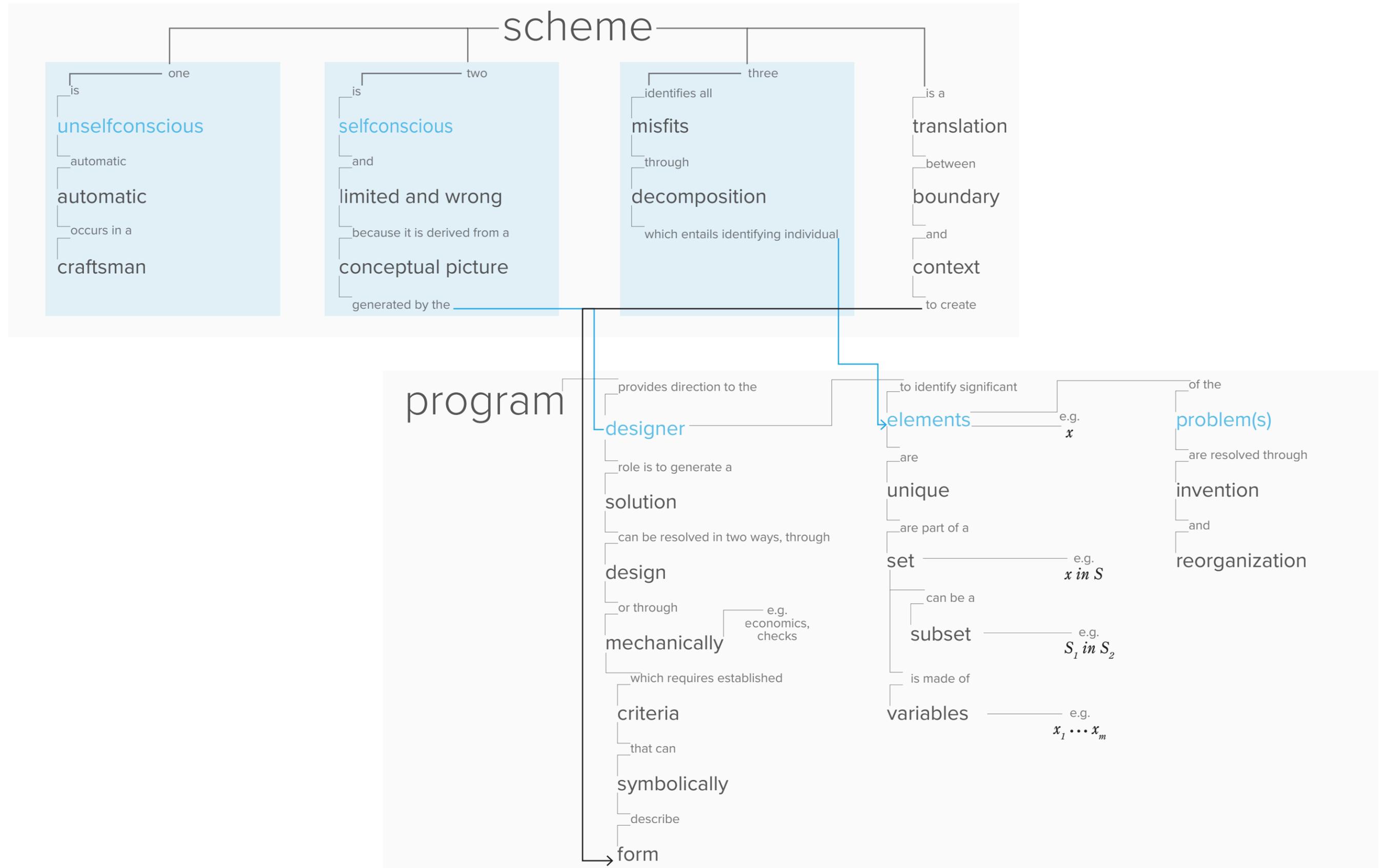
system operates

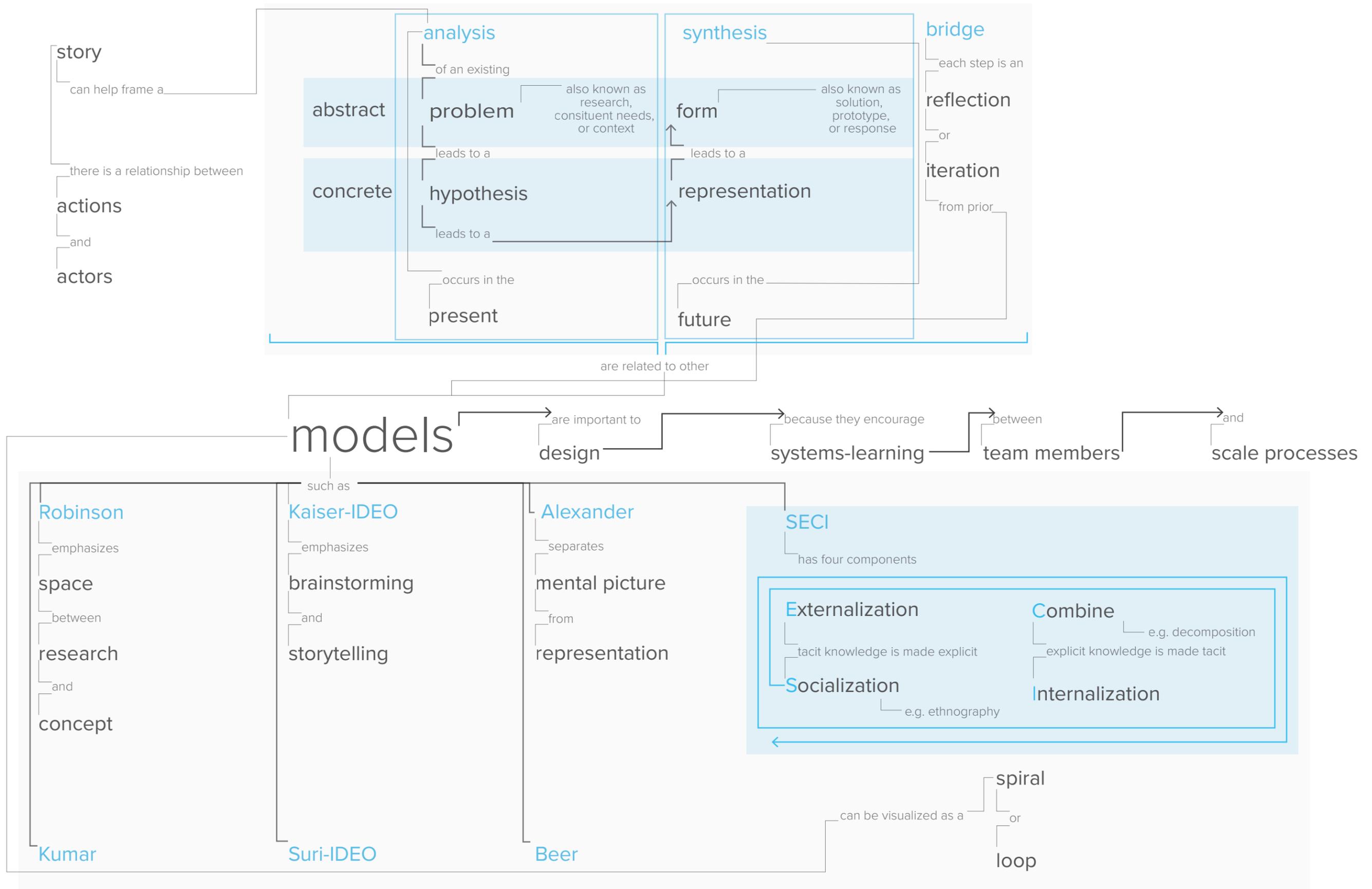


Concept Map of *Design Ethics* | Richard Buchanan

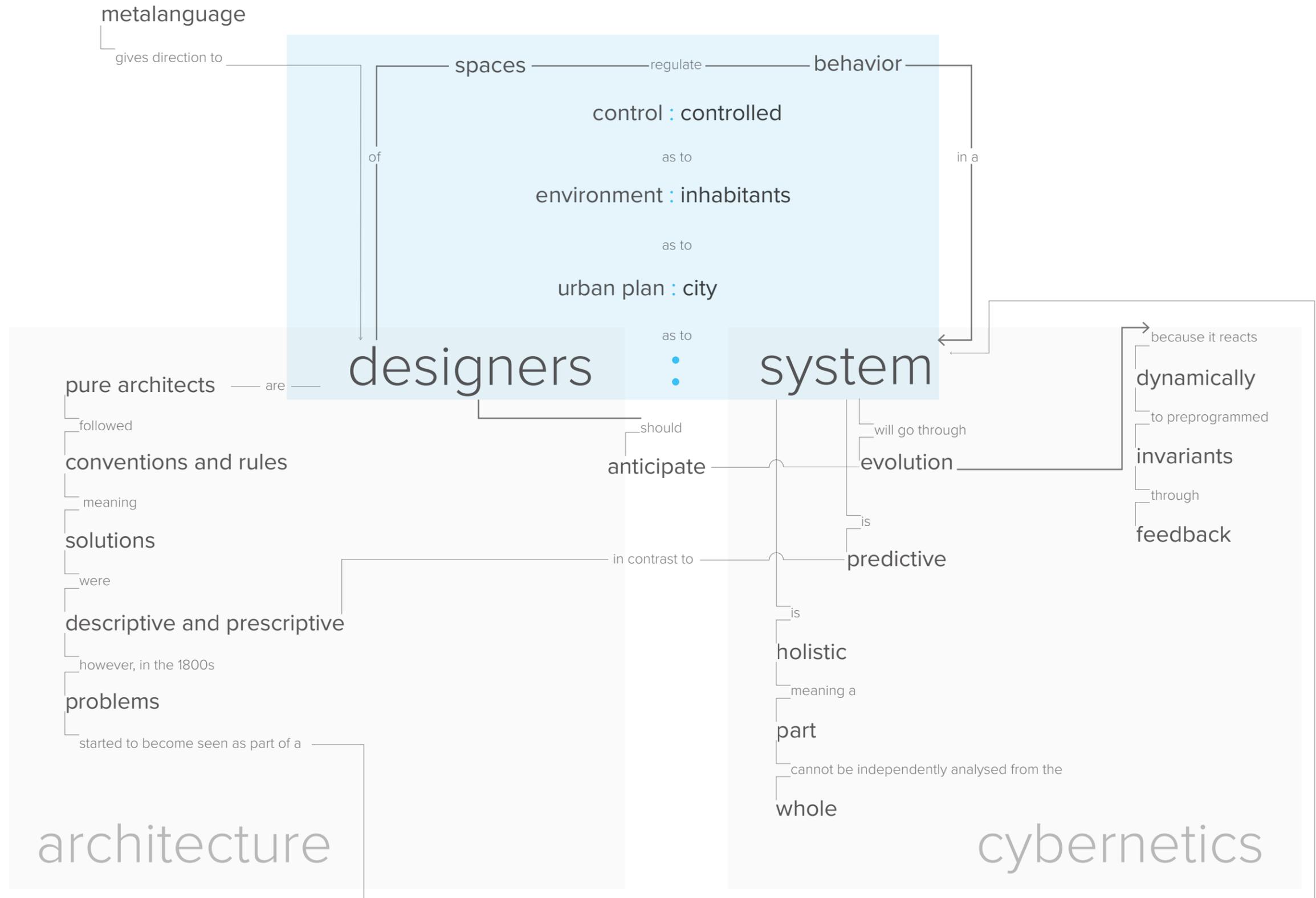


Concept Map Boundary Objects | Susan Star & James Griesemer

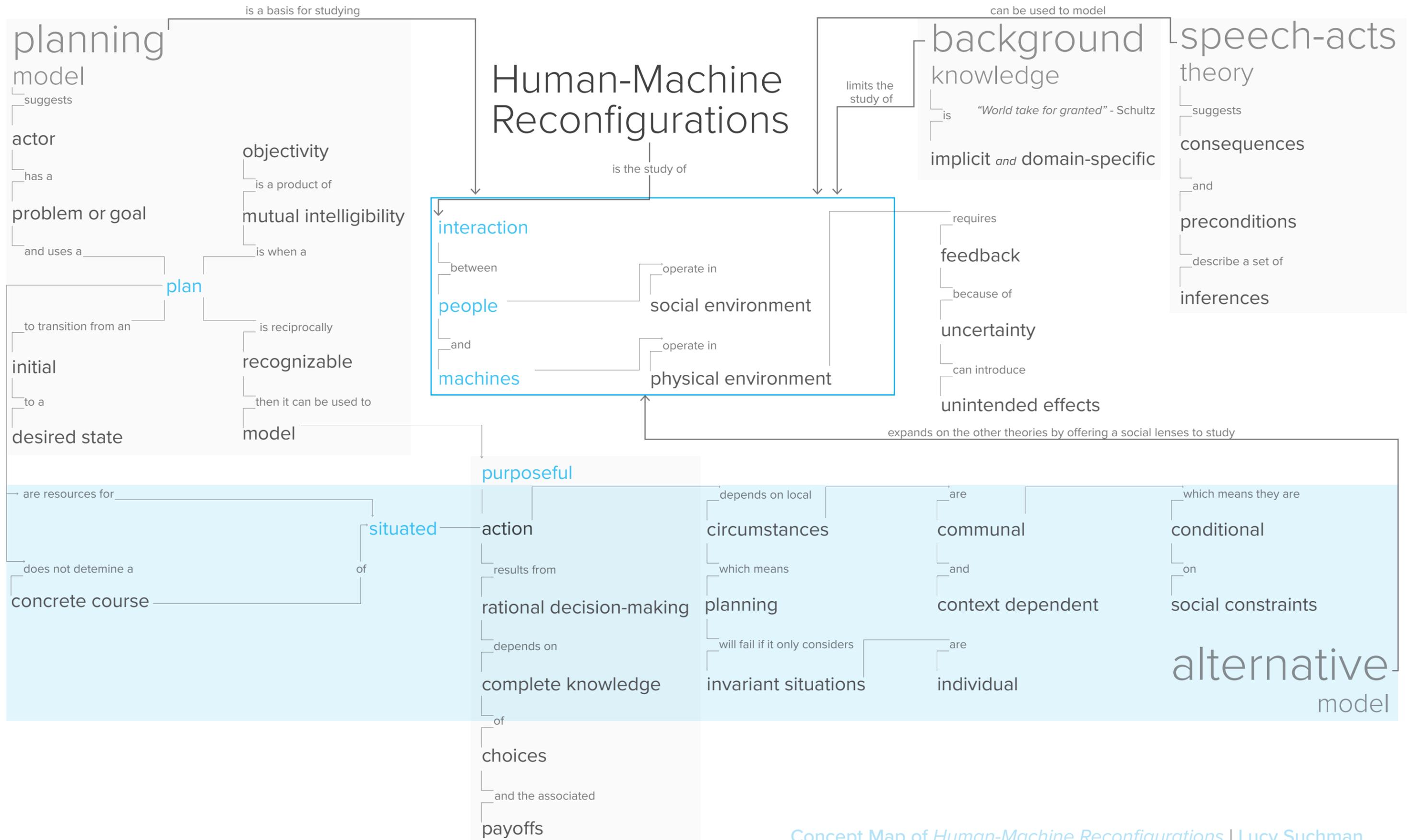




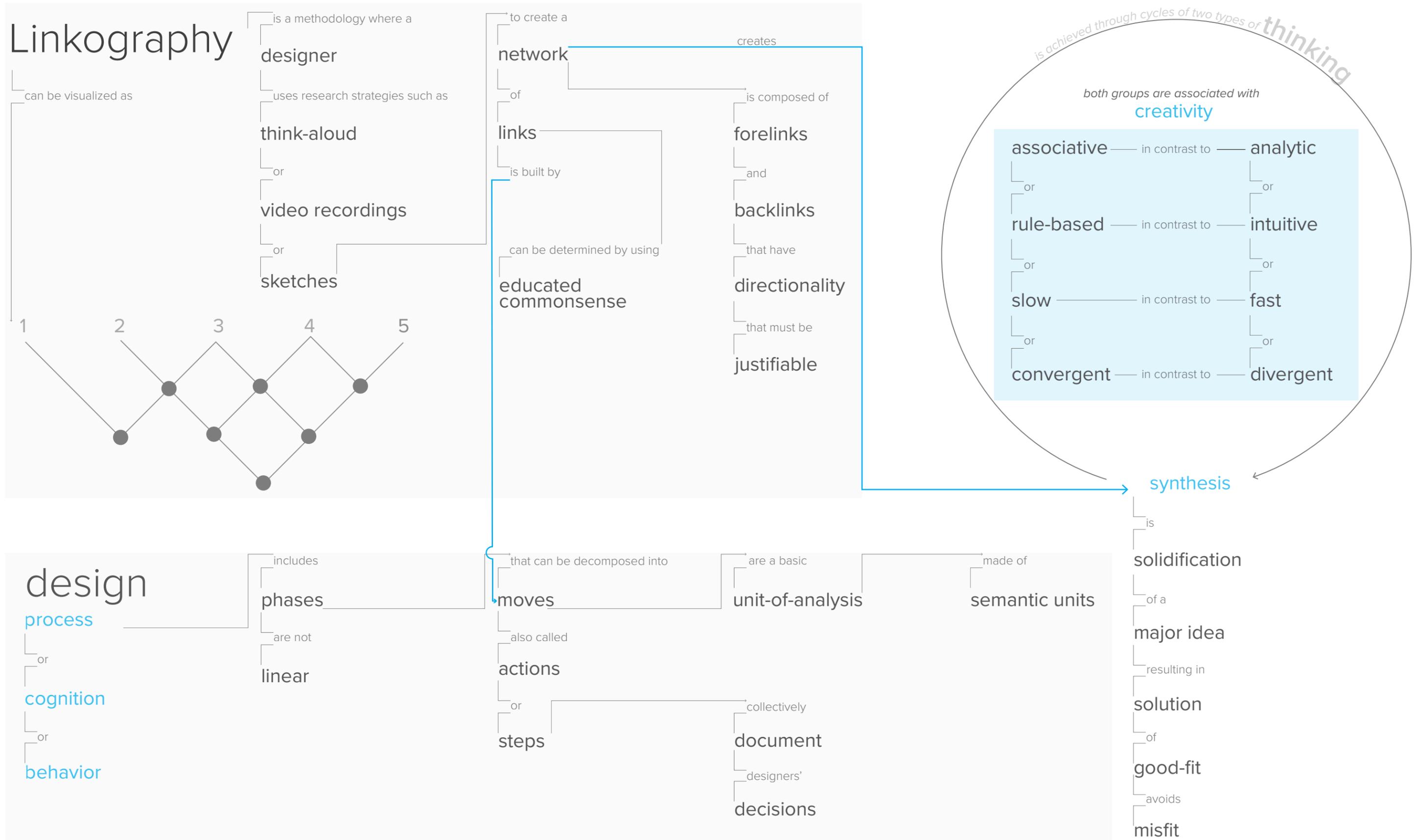
Concept Map of *The Analysis-Bridge Synthesis Model* | Hugh Dubberly

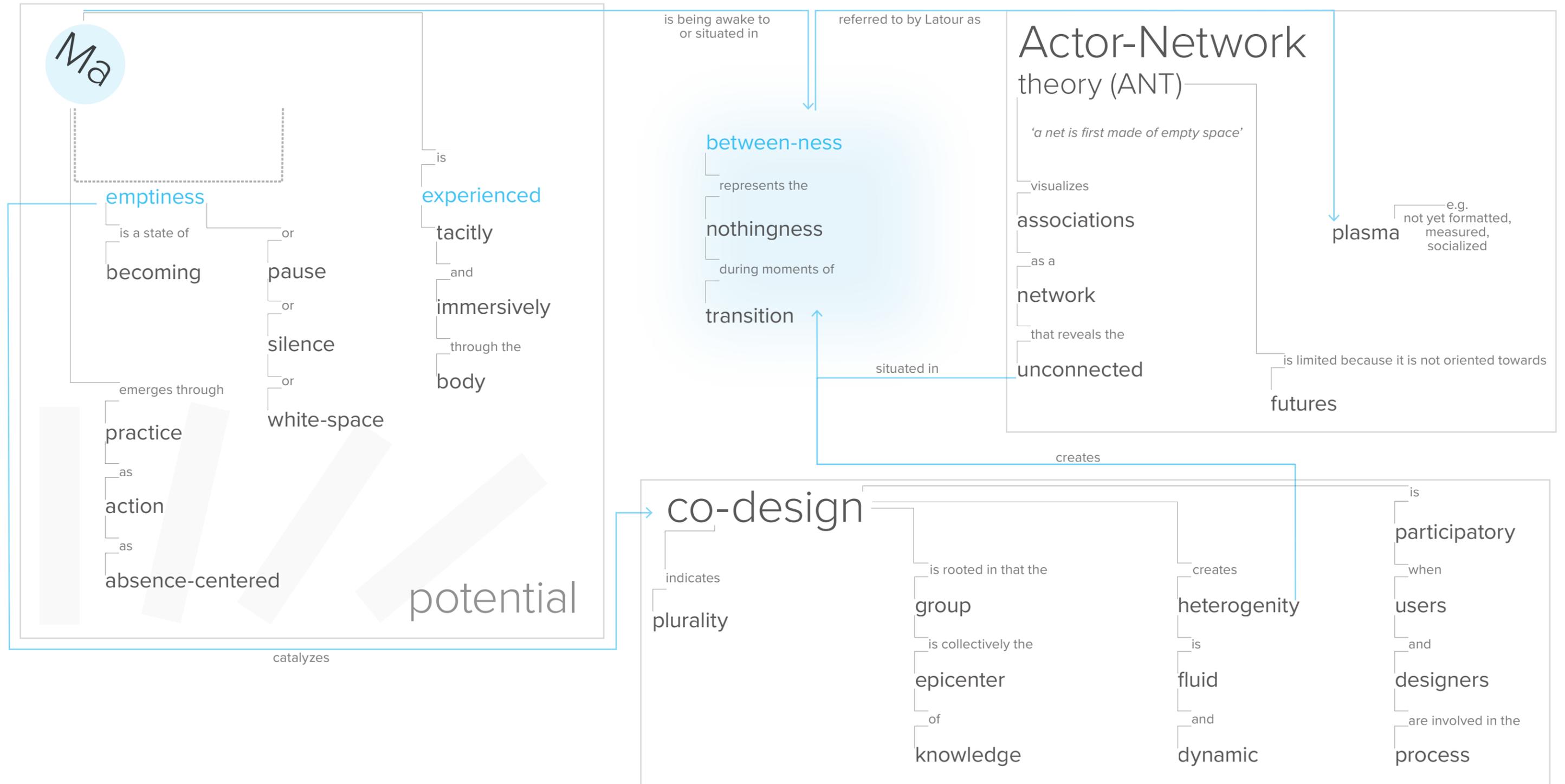


Concept Map of *The Architectural Relevance of Cybernetics* | Gordon Pask

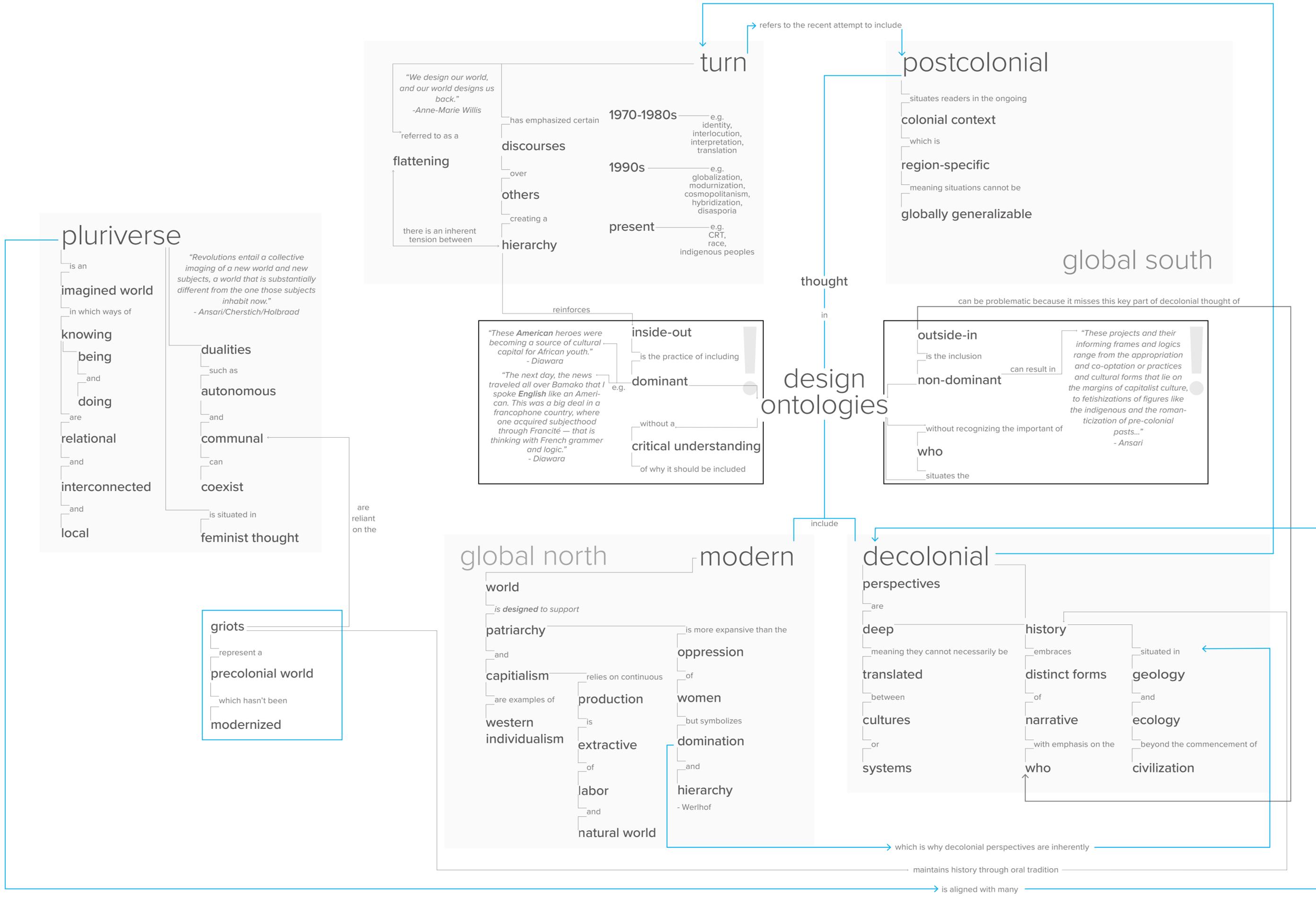


Concept Map of Human-Machine Reconfigurations | Lucy Suchman

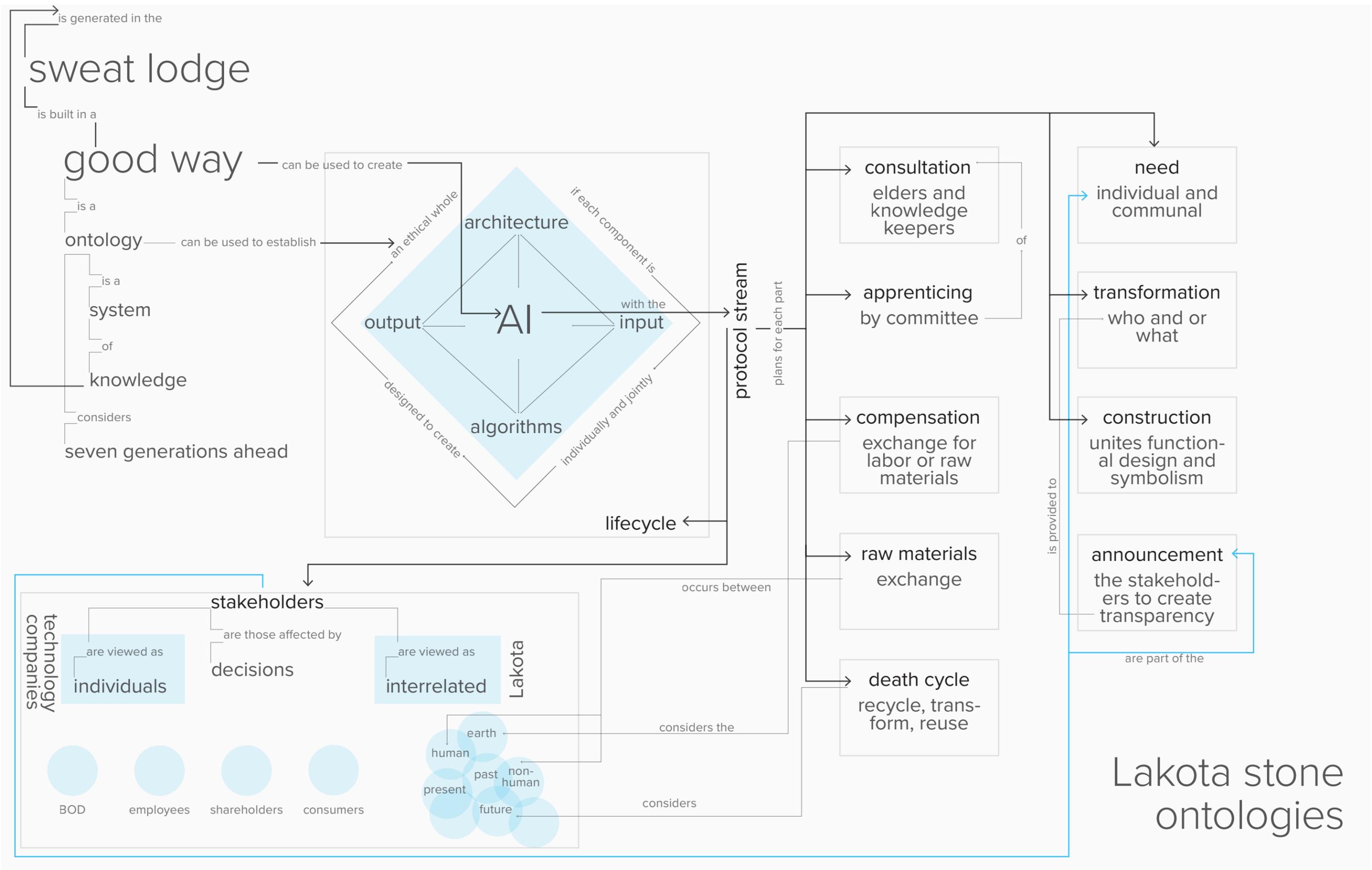




Concept Map of *Being Awake to Ma* | Yoko Akama



Concept Map of Decolonial Design Practices by Ansari, Escobar, and Diawara



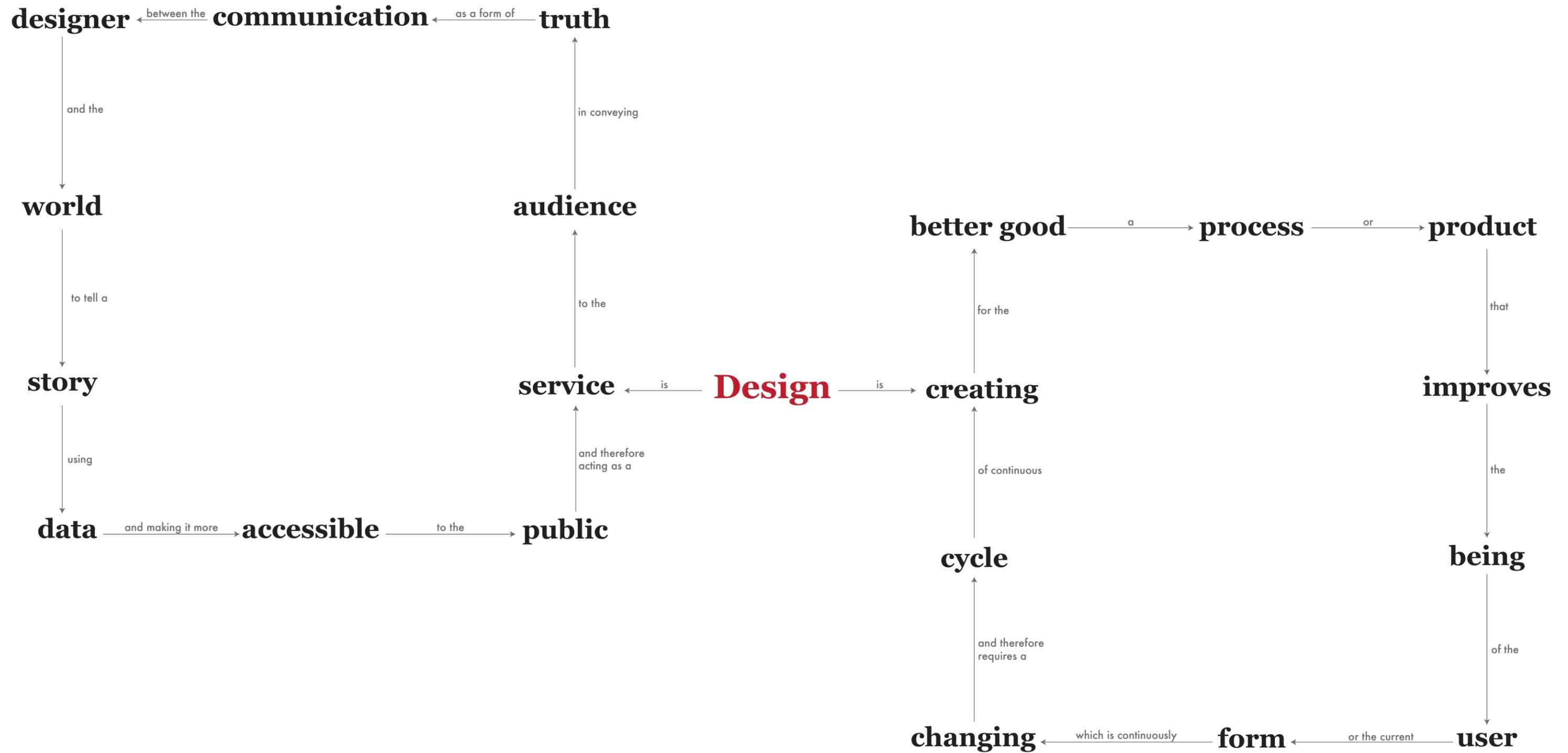
Concept Map Book

a culmination of learnings from

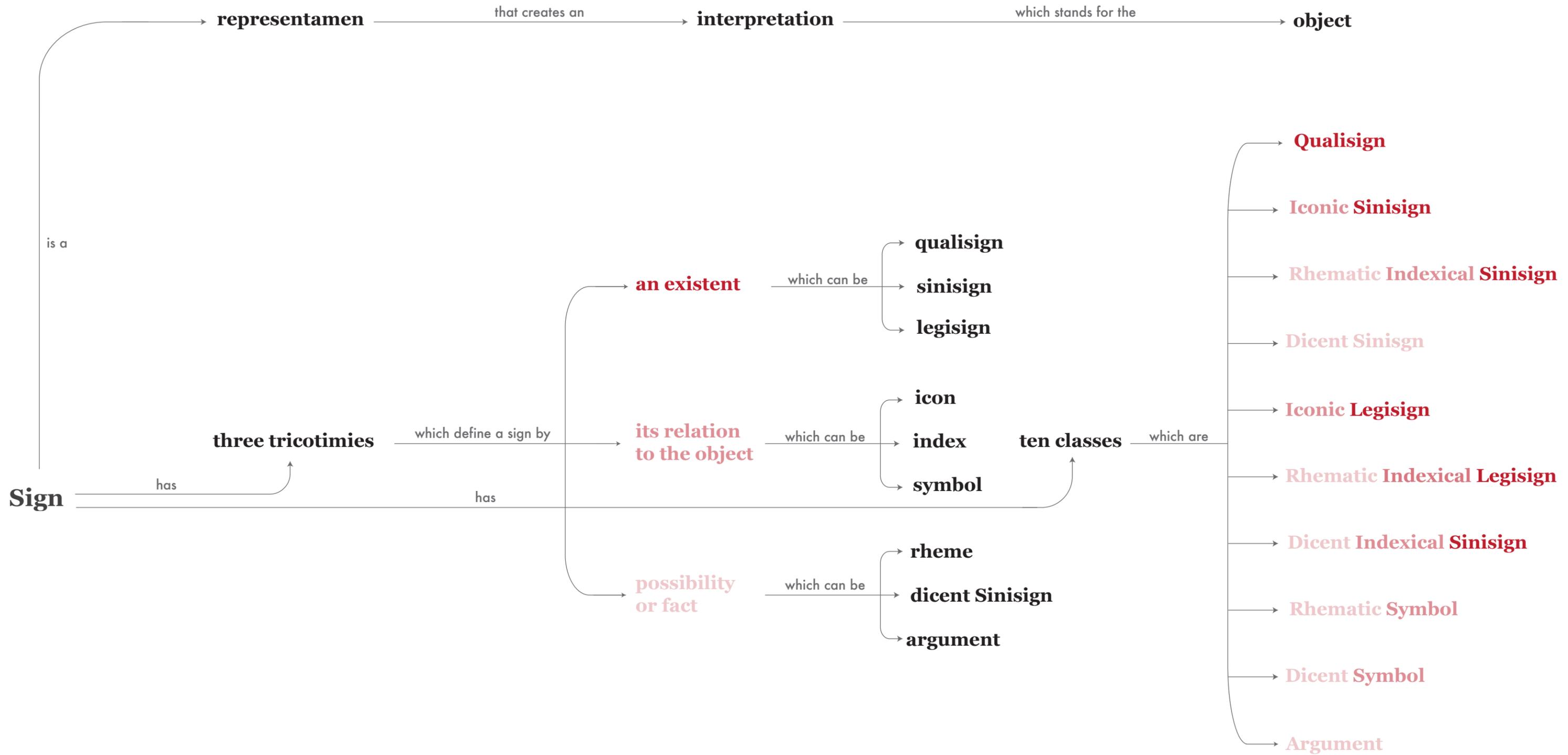
**Information Design Theory
& Critical Thinking**

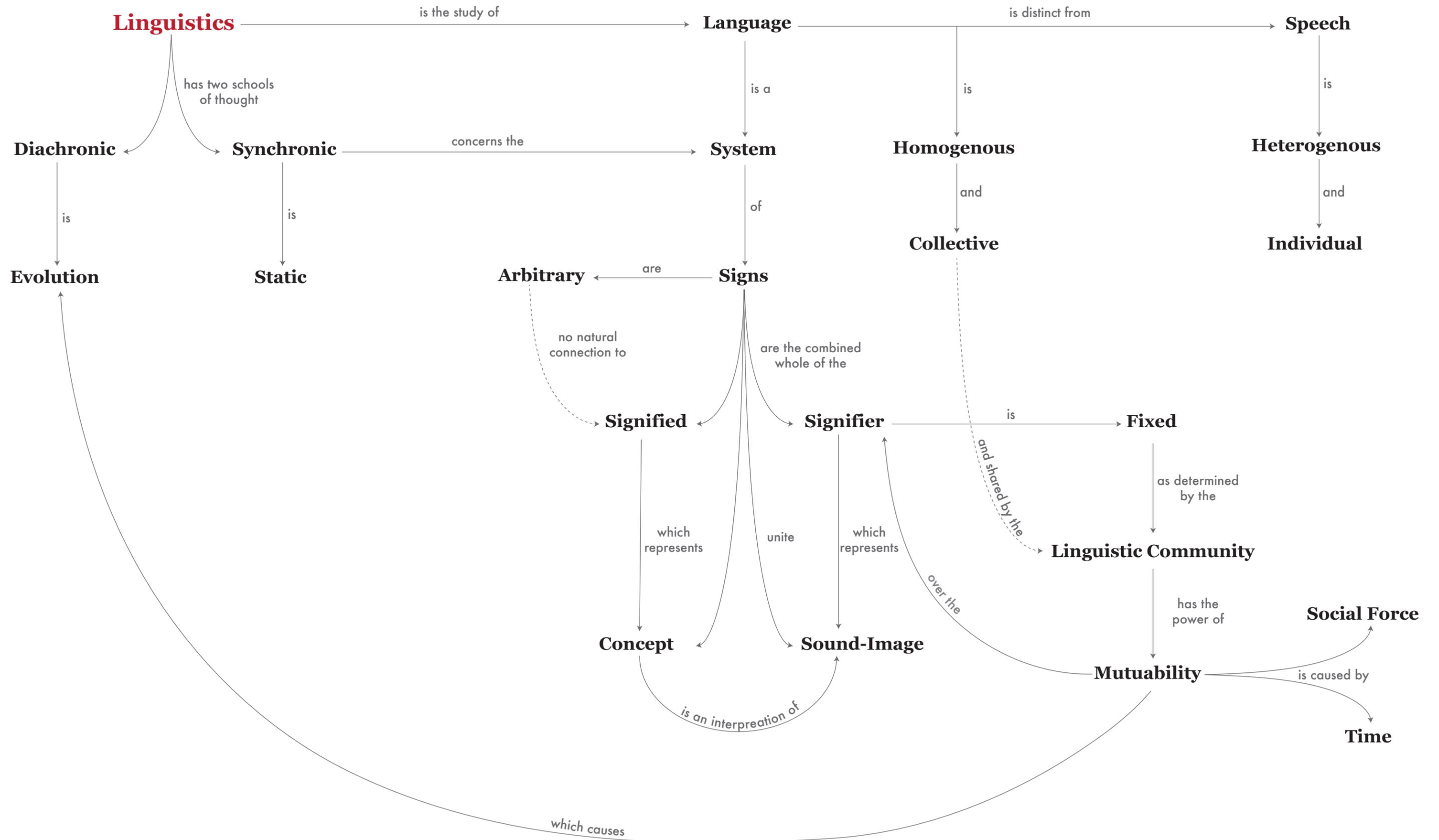
designed by

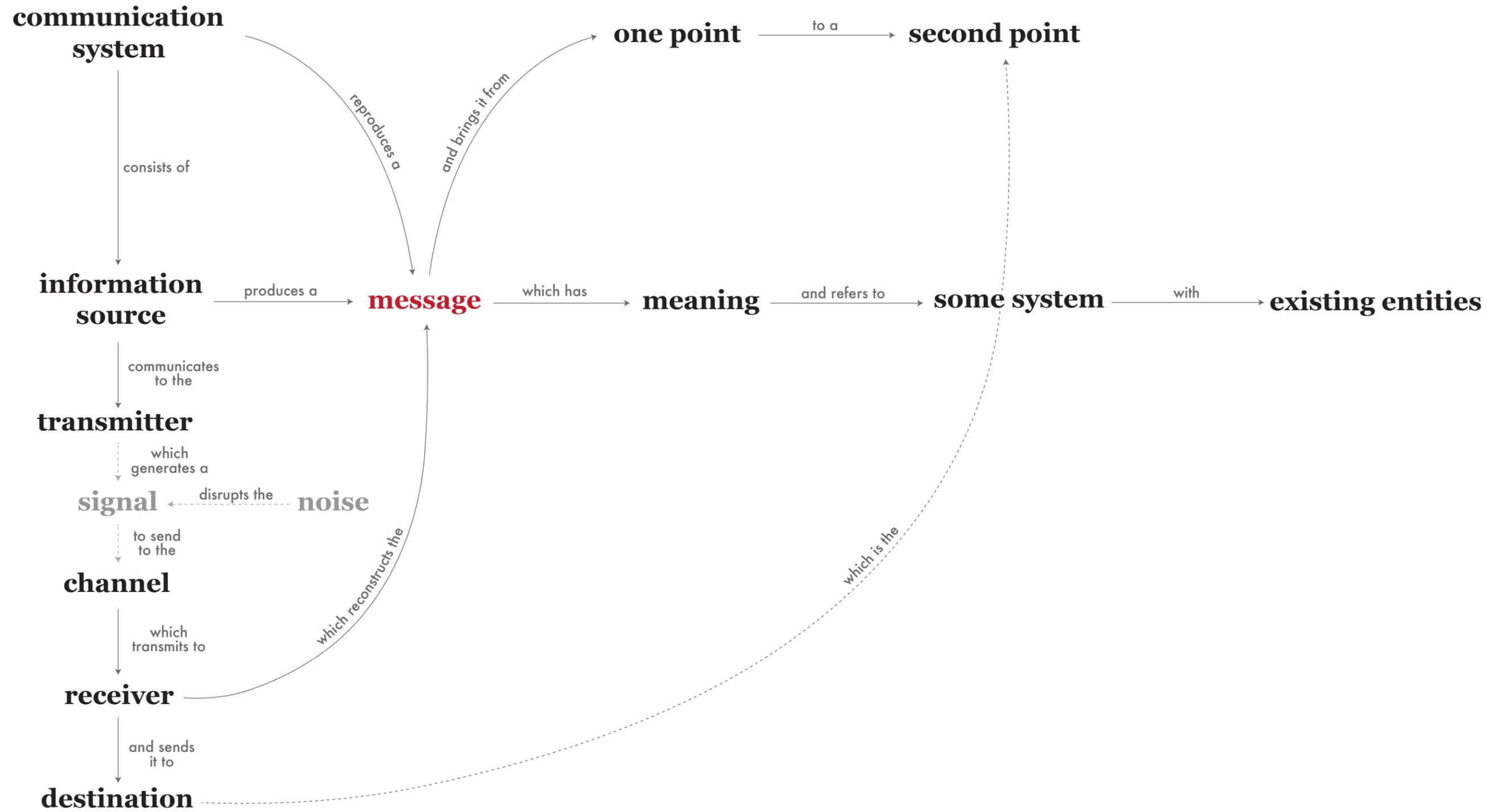
Kathleen Foley

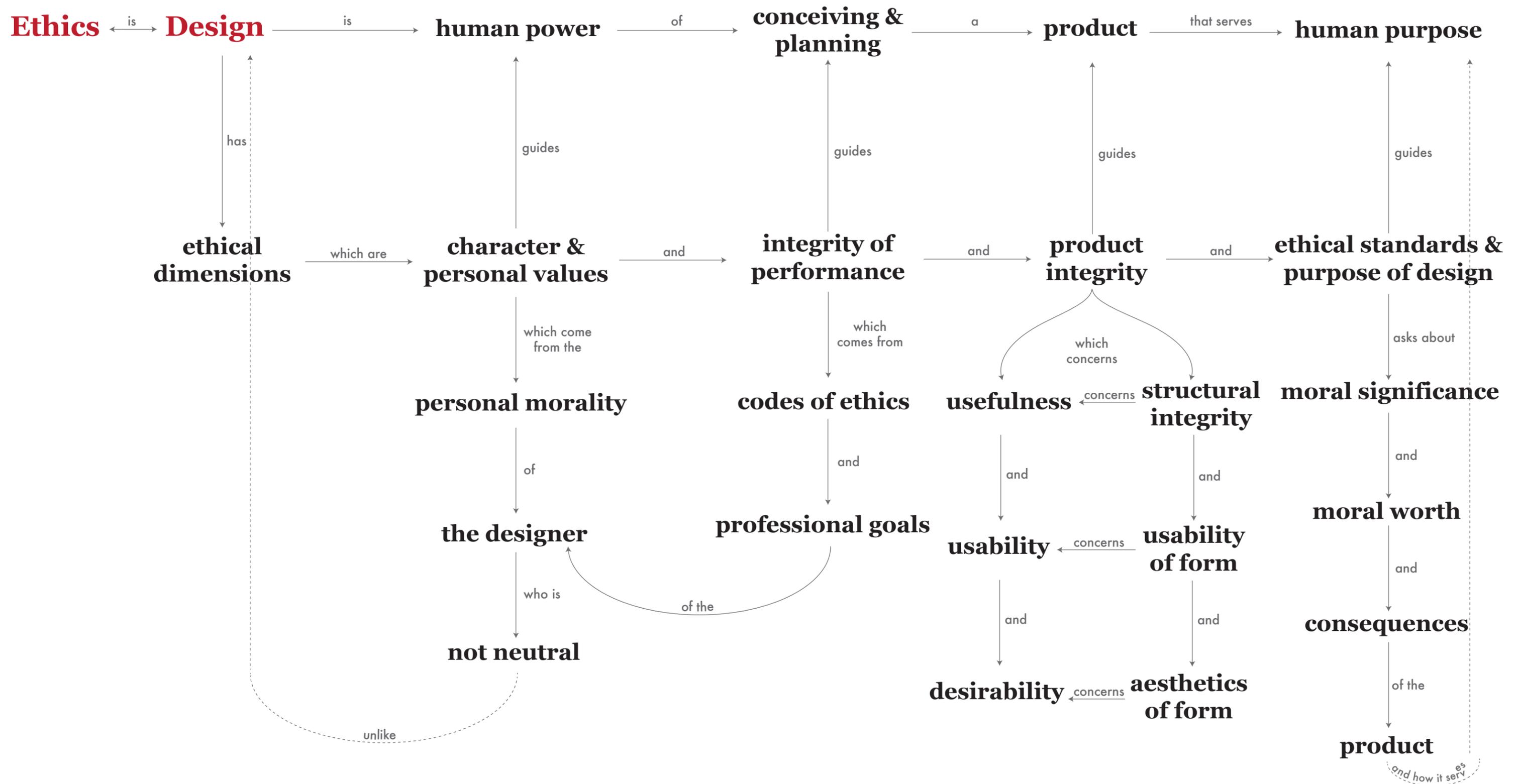


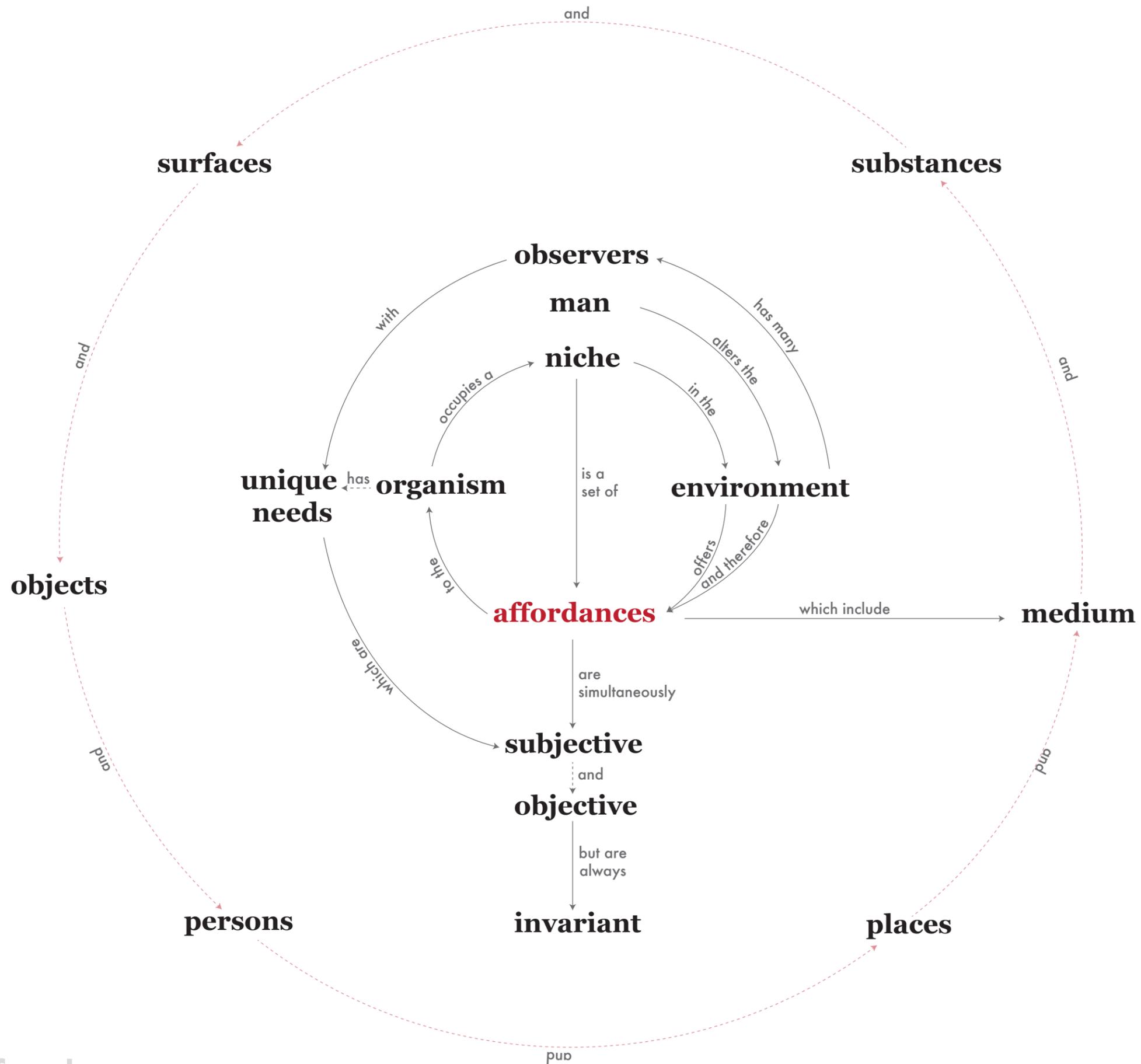
What is Design?



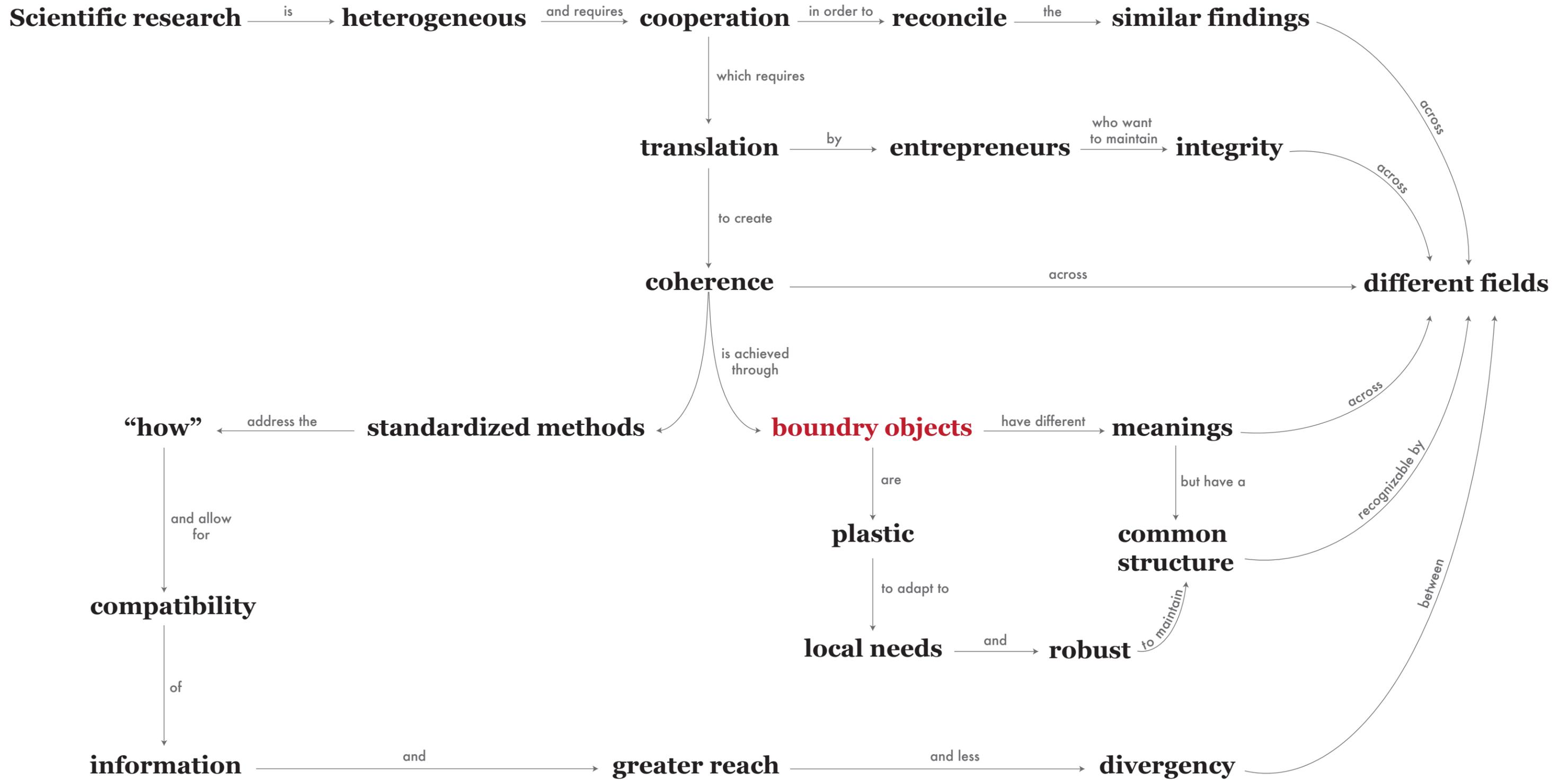




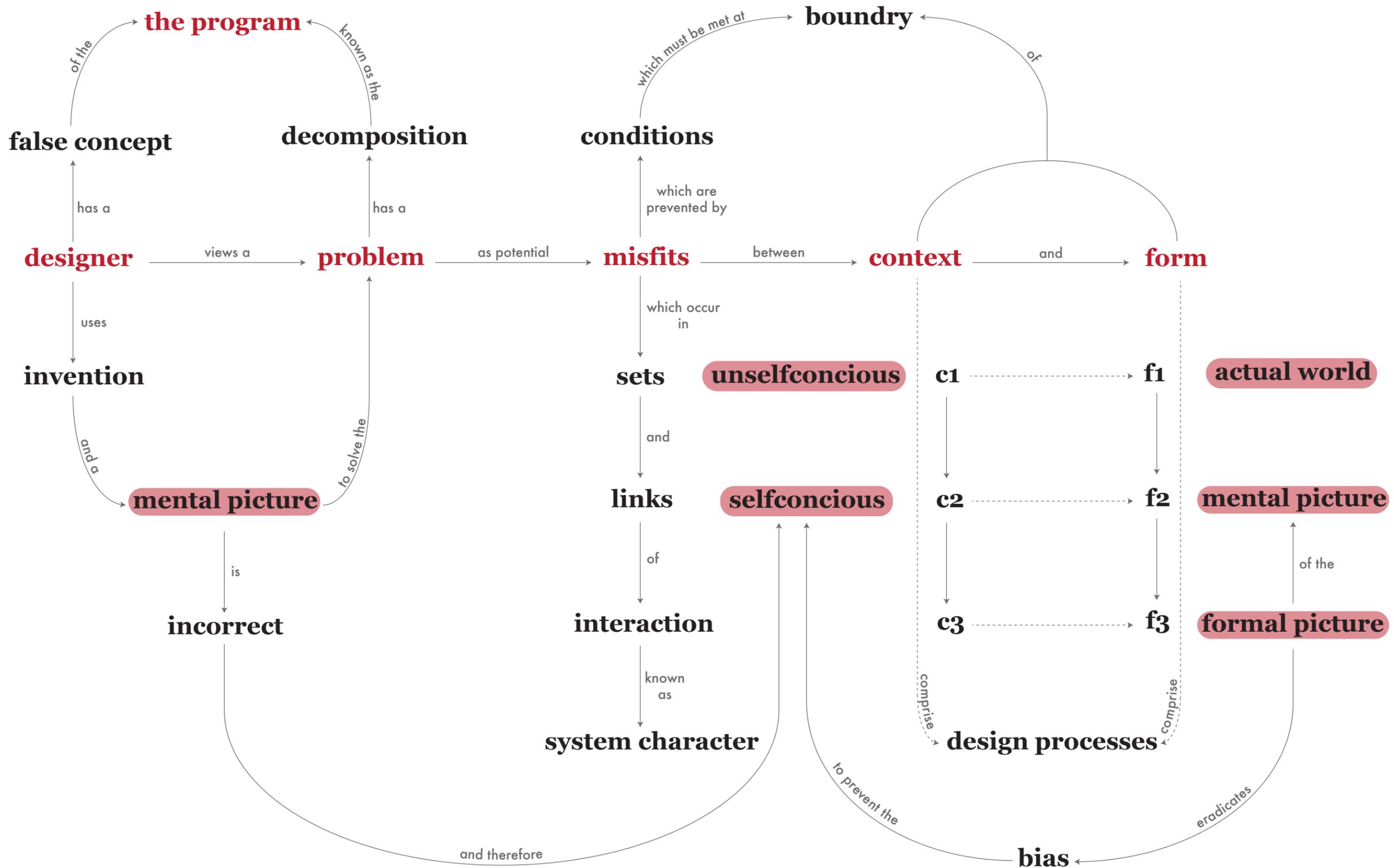




Theory of Affordances



Institutional Ecology and Translation of Boundry Objects

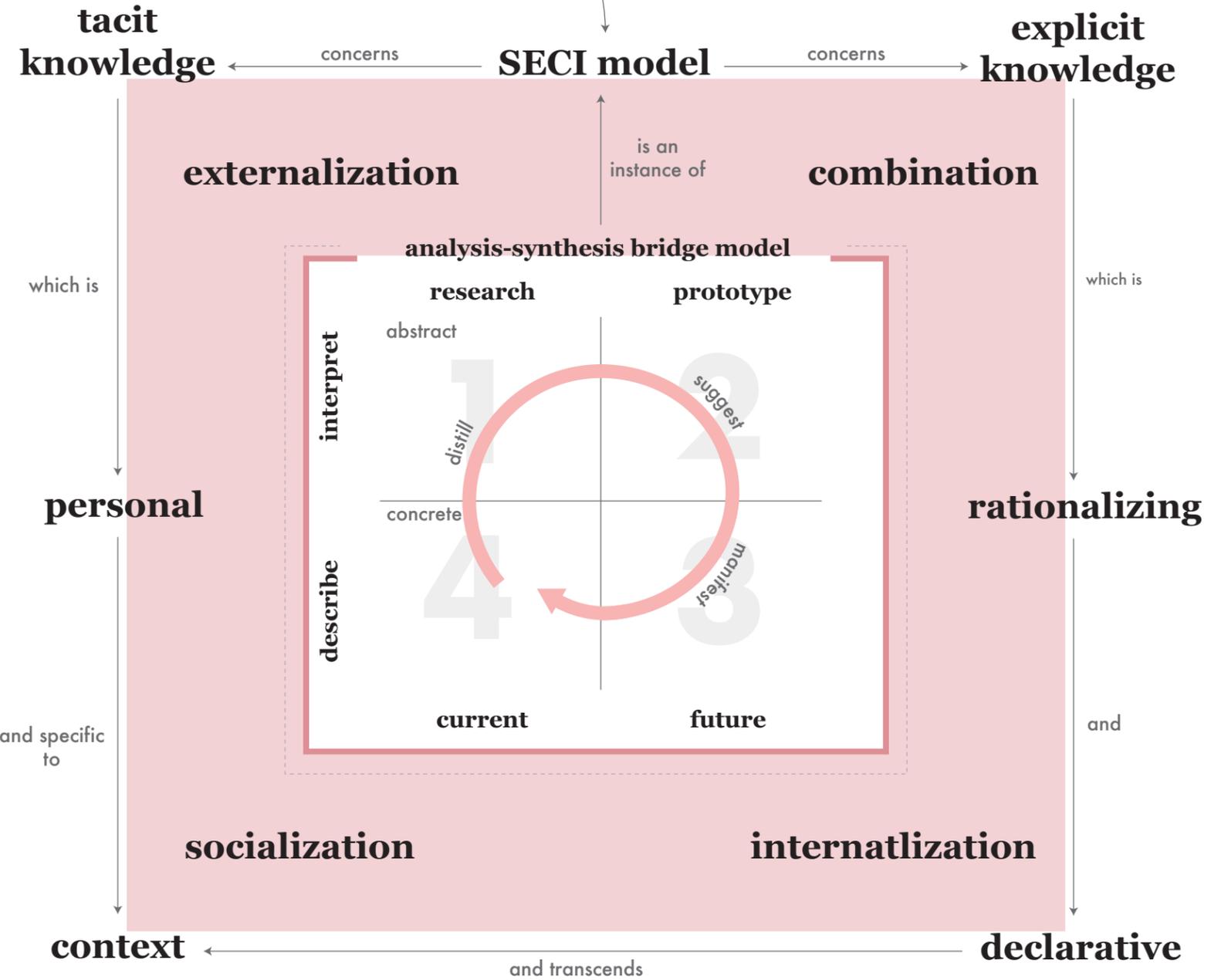


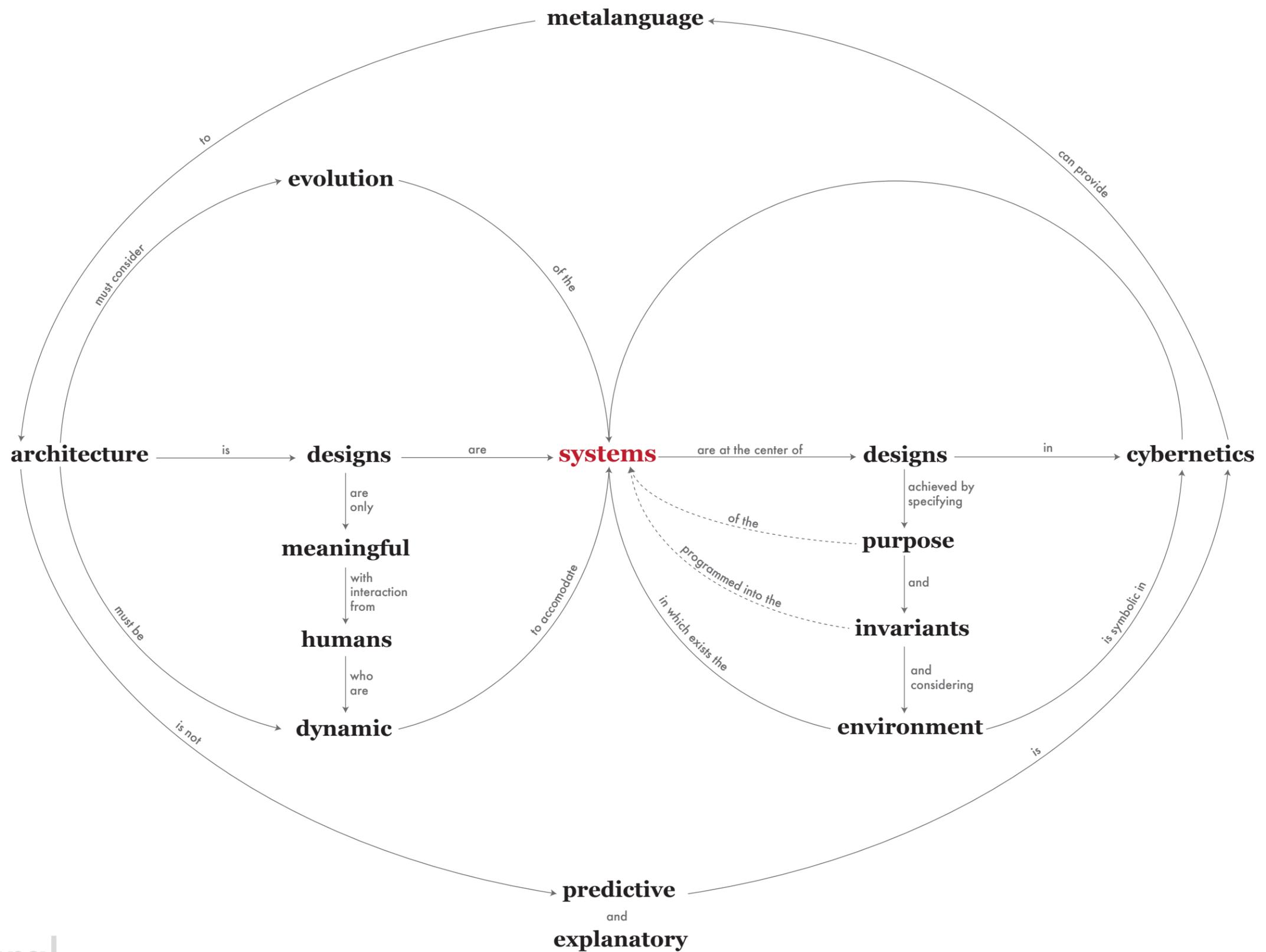
designing

is

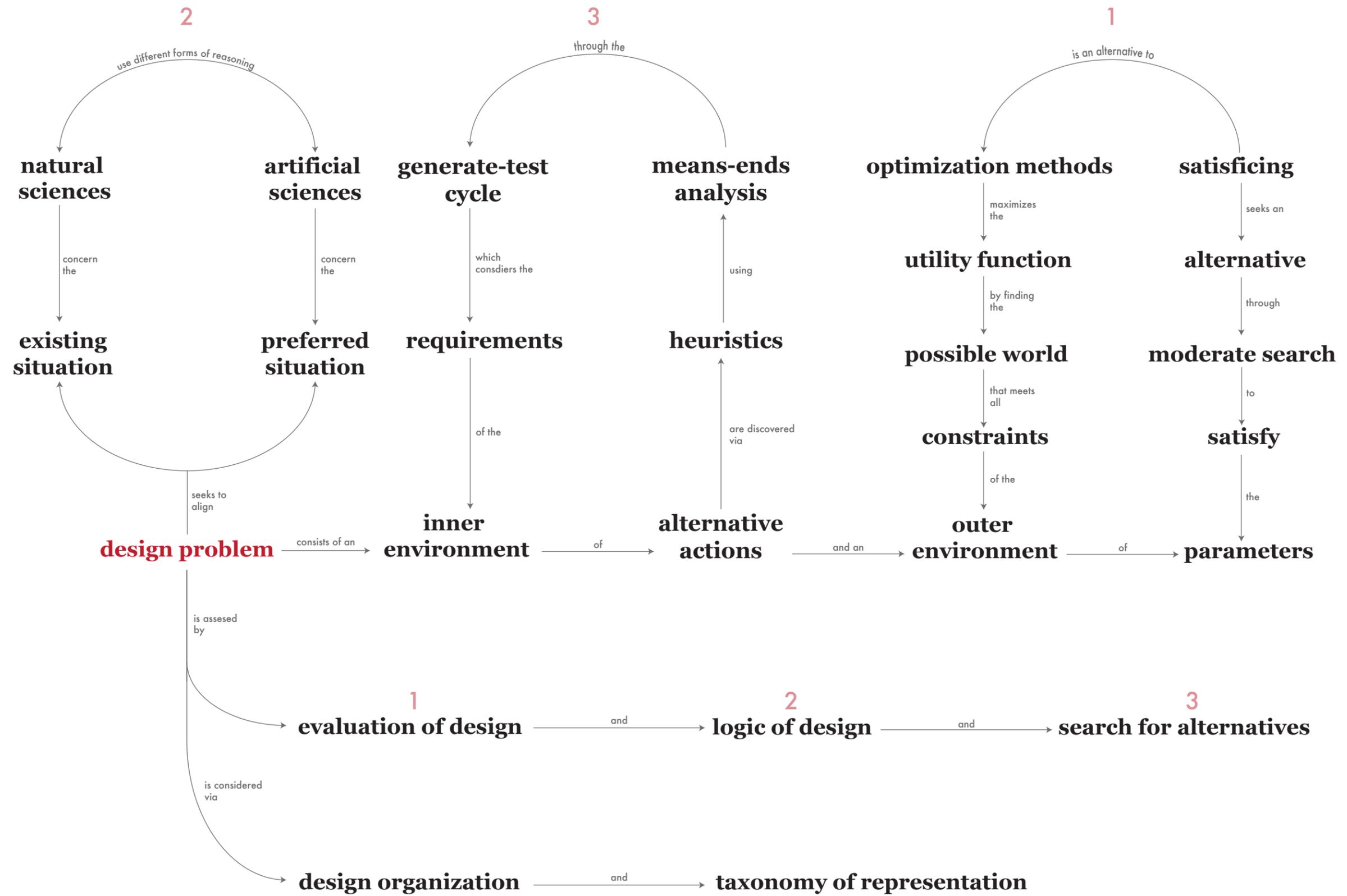
learning

according to



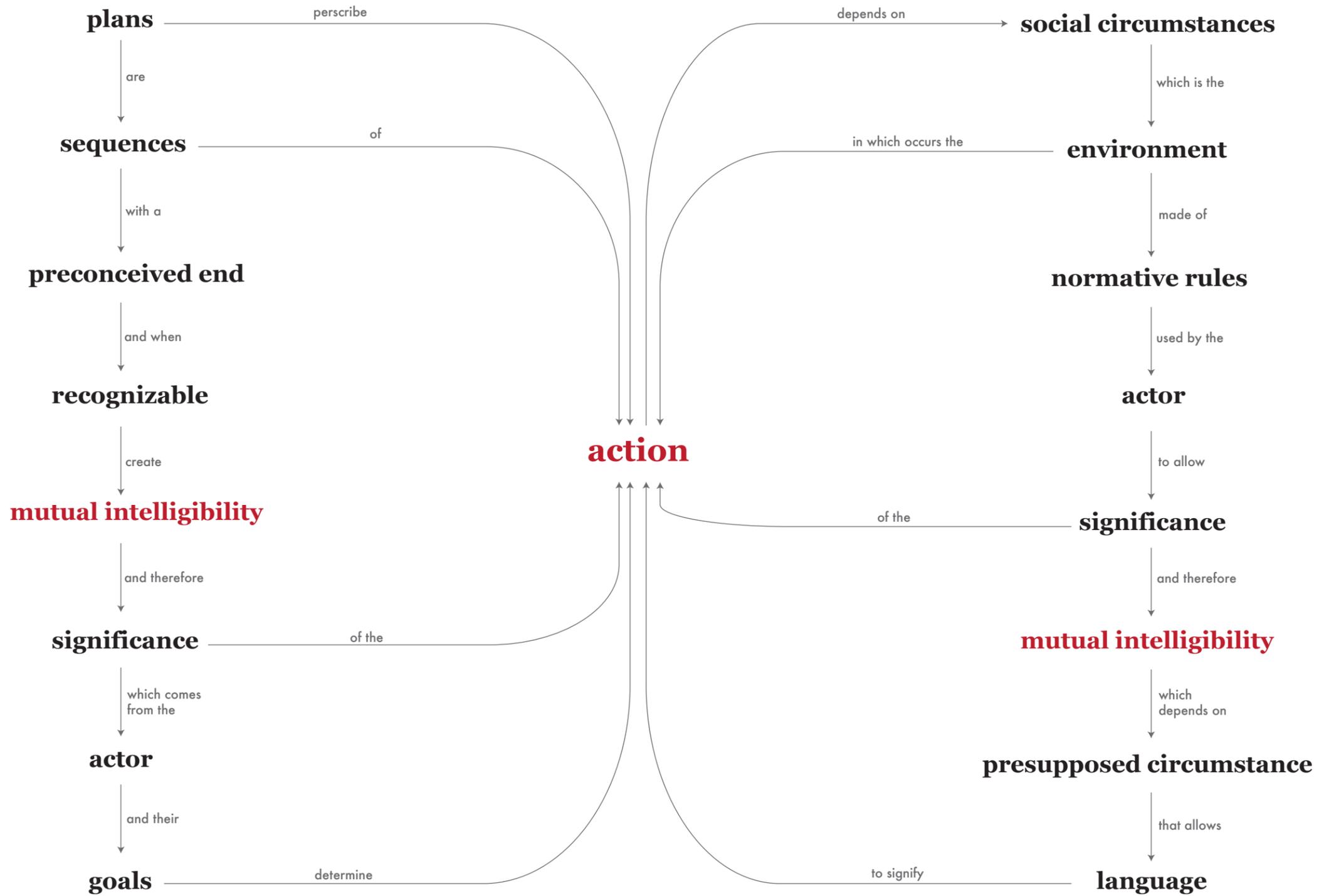


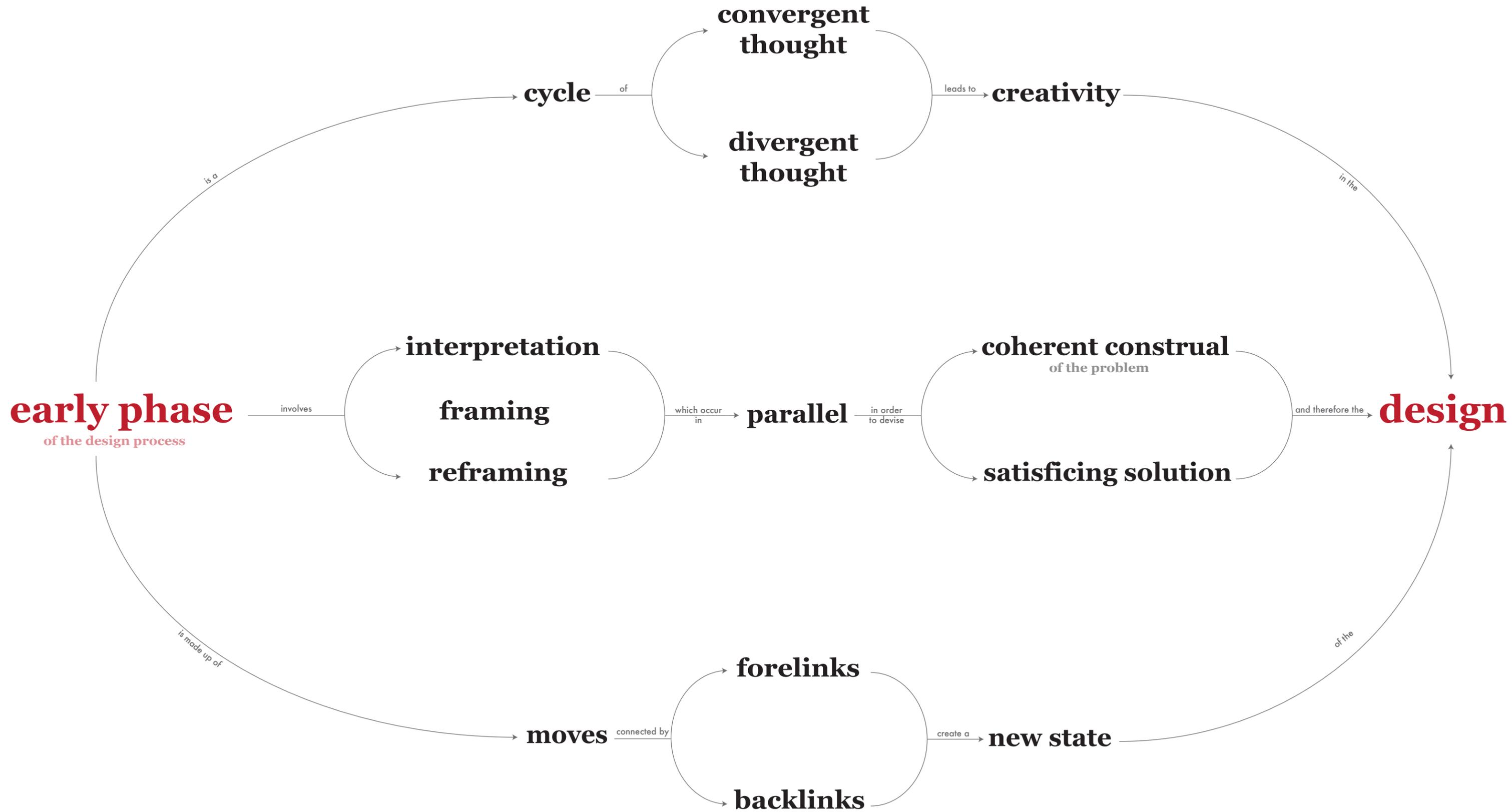
The Architectural Relevance of Cybernetics



Planning Model

Ethnomethodology

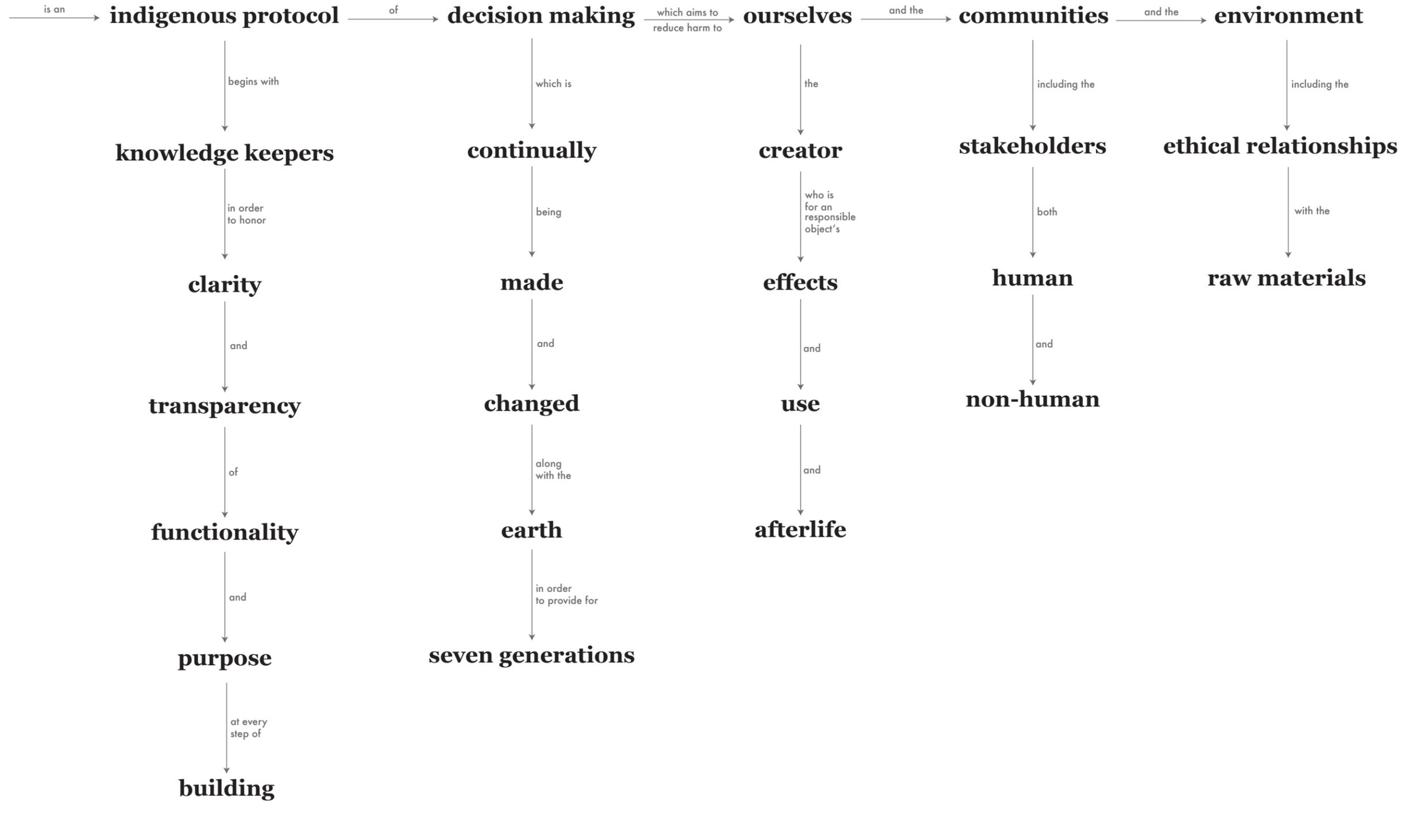






The History of Design
& The Design of History

the good way of building AI systems



How to Build Anything Ethically

CONCEPT MAP BOOK

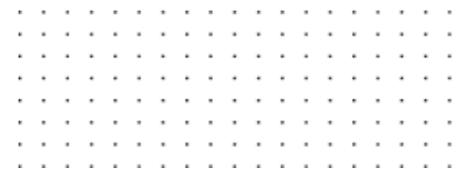
LEILA DO

Information Design Theory And Critical Thinking | Fall 2022
Northeastern University



TABLE OF CONTENT

Introduction	3
1. What is design?	4
2. Peirce's Theory of Signs	6
3. Saussure's Course in General Linguistics	8
4. Buchanan's Design Ethics	10
5. Shannon's Theory of Communications	12
6. Gibson's Theory of Affordances	14
7. Star and Griesemer's Boundary Objects	16
8. Alexander's Synthesis of Form	18
9. Dubberly's Analysis-Synthesis Bridge Model	20
10. Simon's The Science of Design	22
11. Pask's The Architectural Relevance of Cybernetics	24
12. Suchman's Human-Machine Reconfigurations	26
13. Goldschmidt's Linkography: unfolding the design process	28
14. Akama's Being Awake to Ma	30
15. Rittle's Planning Crisis	32
16. Escobar, Diawara & Ansari	34
17. Kite et al.'s How to Build Anything Ethically	36



Introduction

Information Design Theory and Critical Thinking is a Northeastern University graduate course for students in the College of Arts, Media, and Design. In the course, we explored various topics within design theory (in semiotics, linguistics, sociology, etc.) while learning how to represent models and information through conceptual models.

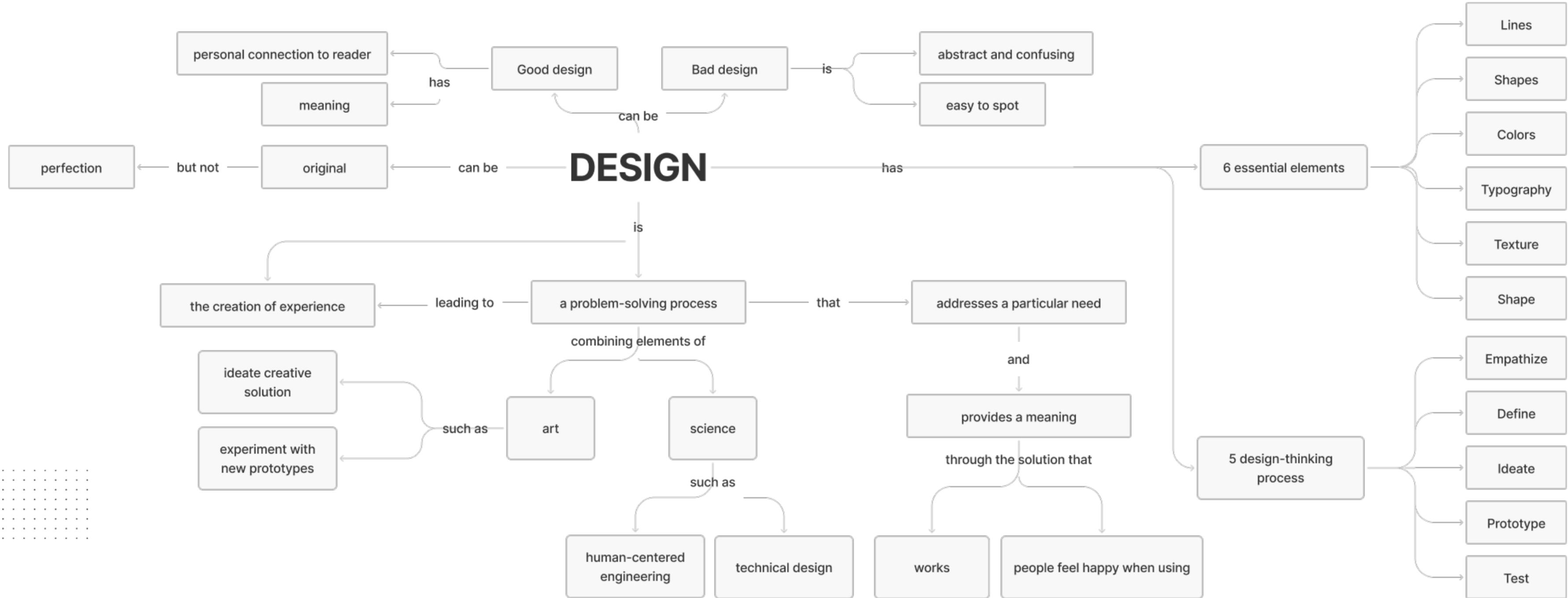
Every week, I created 2 concept maps to illustrate my understanding of the readings. This book is a compilation of the work I have done this semester, along with the description of the project and some feedback I received from classmates.



1. What is design?

We all talk about design, but what does design mean?

Design is a tool for problem-solving, combining the best of both worlds – the beauty of art and the logic of science. There are good and bad designs, which can significantly impact how viewers evaluate the design.



2, Peirce's Theory of Signs

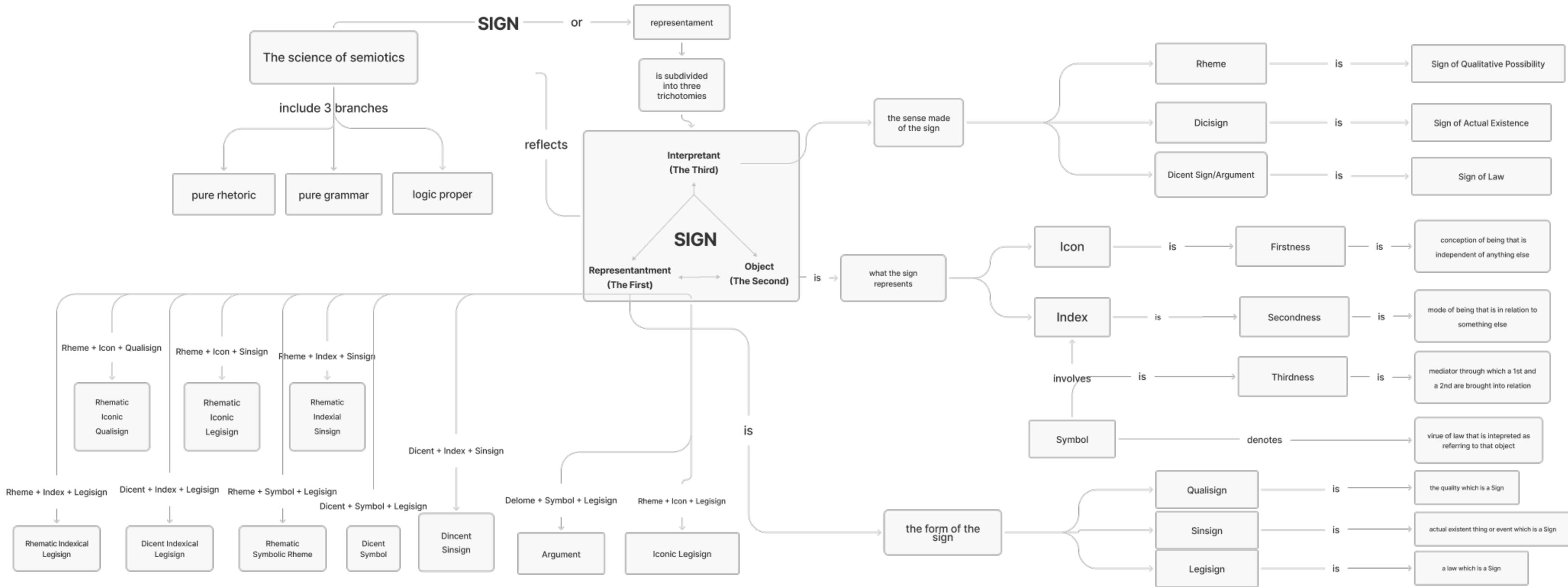
"A Sign, or Representamen, is a First which stands in such a genuine triadic relation to a Second, called its Object, as to be capable of determining a Third, called its Interpretant, to assume the same triadic relation to its Object in which it stands itself to the same Object."
 – Page 99-100

According to Peirce, a sign stands in relation to two other things, its object and its interpretant sign. He highlighted the progression of signs from indexes, to icons, to human-created symbols.
 – Self-reflection

"I really appreciate how thorough you are with these."

"I appreciate that you include all the explanations of interpretant, representantment and object"
 – Comments from professor & classmates

Philosophical Writings of Peirce, edited by Buchler, J., Dover, 1955. pages 98-119, 269-289



3. Saussure's Course in General Linguistics

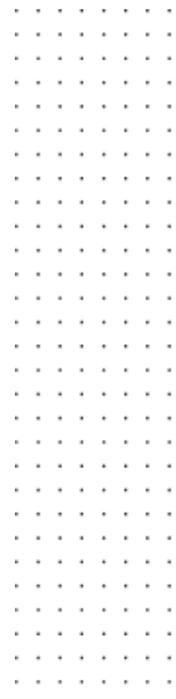
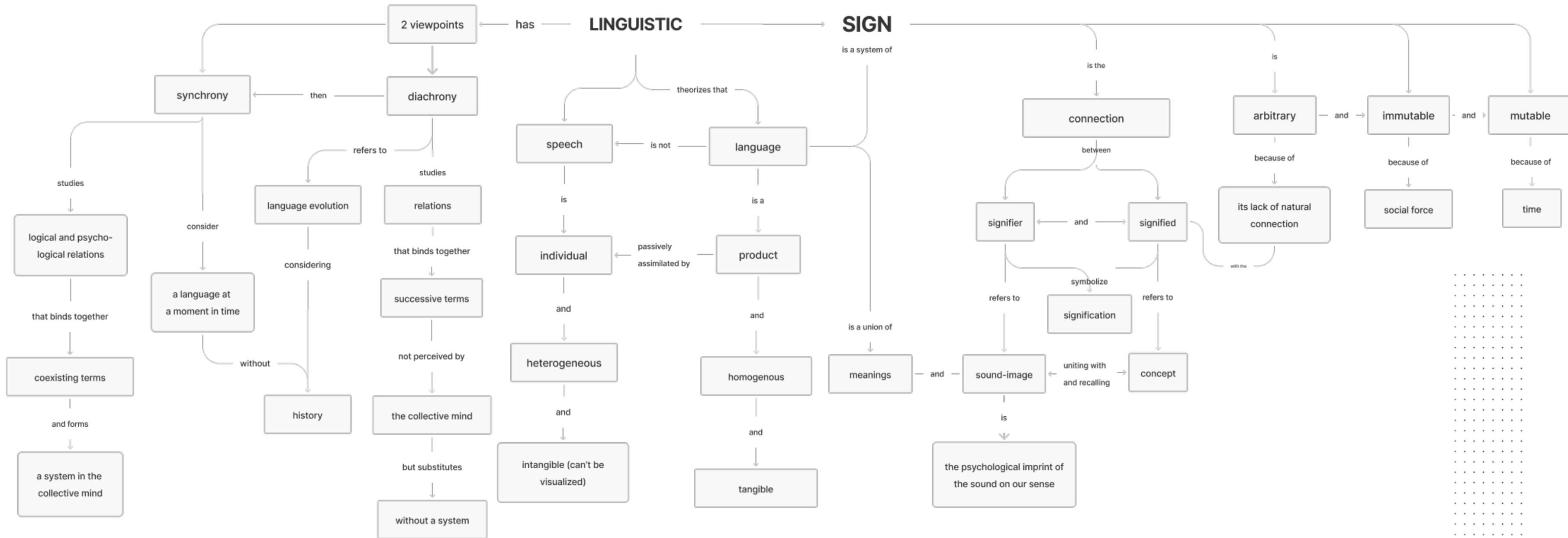
"The linguistic sign unites, not a thing and a name, but a concept and a sound-image."
 - Page 66

Saussure's investigation and development of linguistics concerns with the history of languages and the culture and social influences throughout time.
 -Self-reflection

"The separation of different concepts within sign is clear in the concept map"

"Good explanation and connections of concepts"
 - Comments

Course in General Linguistics, de Saussure, F., McGraw-Hill, 1959, pages 1-17, 65-122



4. Buchanan's Design Ethics

"Design is the human power of conceiving, planning, and bringing to reality all of the products that serve human beings in the accomplishment of their individual and collective purposes."

– Page 504

Ethics in design, for Buchanan, concern with the moral behavior and responsible choices in the practice of design. Designers need to seek out where they stand ethically.

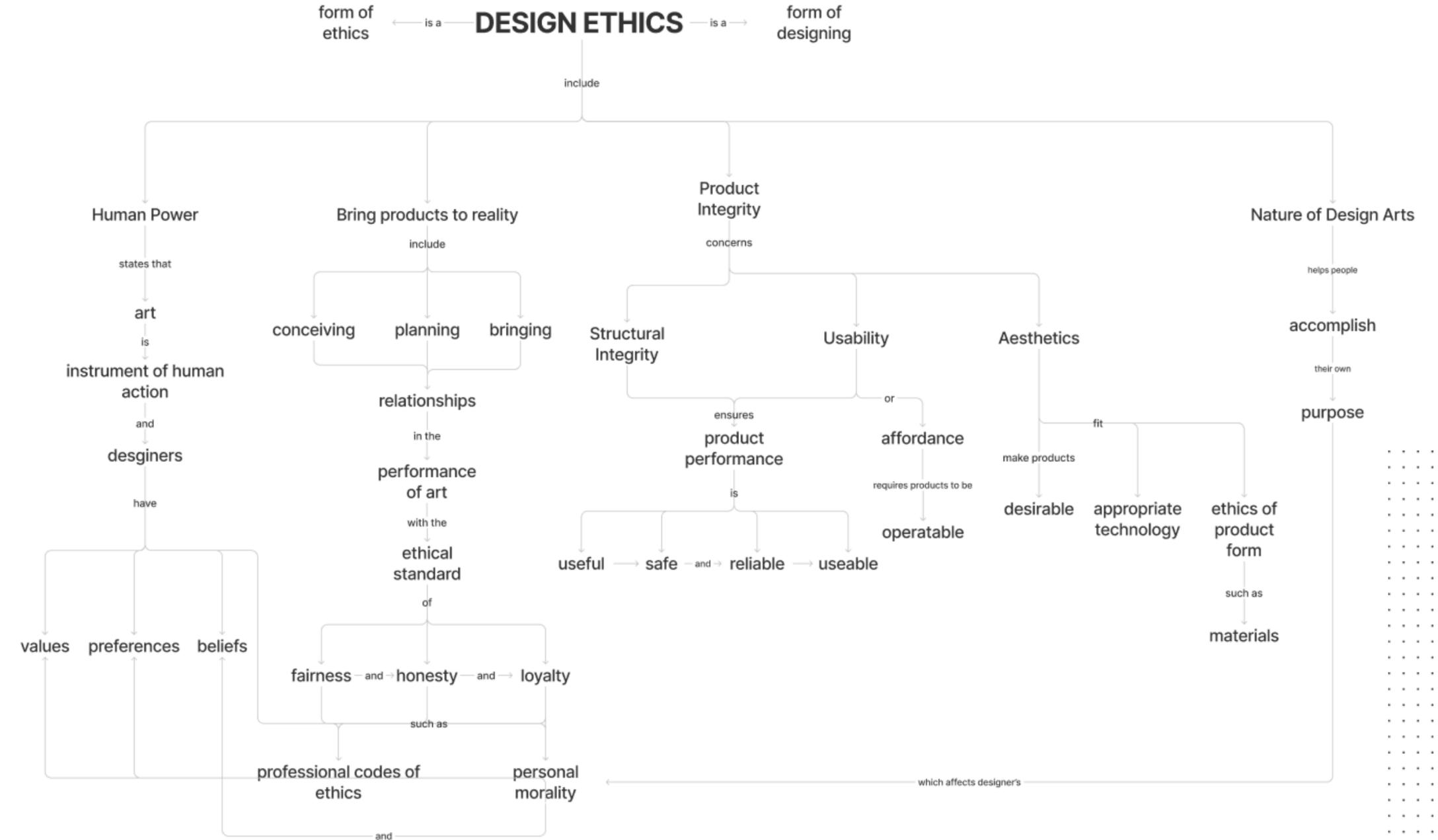
–Self-reflection

"The concept map is clear and clean in terms of describing concepts"

"I like the hierachy you put among concepts in terms of font sizes and spaces"
– Comments from classmates

"Design Ethics," Buchanan, R., *Encyclopedia of Science, Technology, and Ethics*, 2005, pages 504-509

Page 10



5. Shannon's Theory of Communications

"An information source which produces a message or sequence of messages to be communicated to the receiving terminal. The message may be various type.... A transmitter... produce a signal suitable for transmission over the channel... The channel... transmits the signal from transmitter to receiver. The receiver...reconstructs the message from the signal. The destination is the person for whom the message is intended."

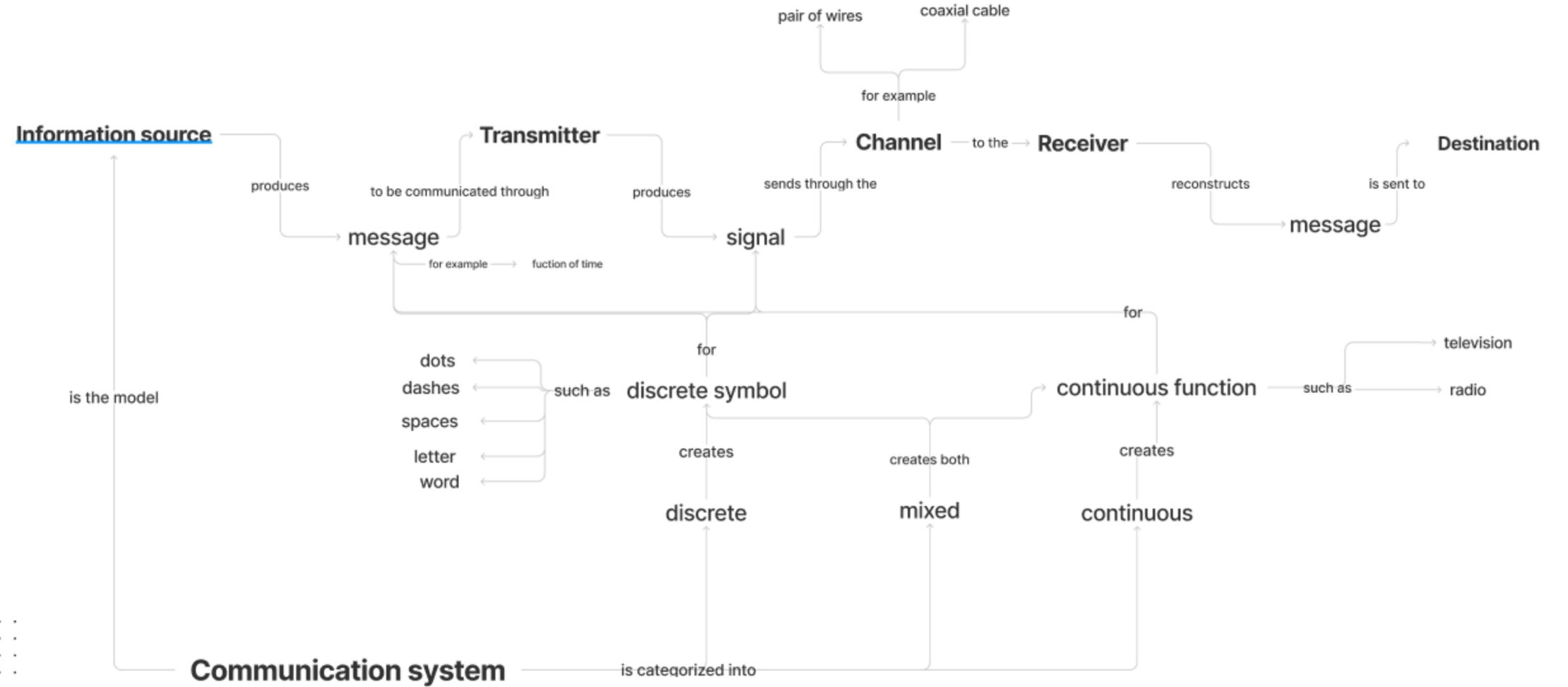
– Page 380-381

The paper laid out basic elements of communication and how people send messages, with the findings of noises that affect the message transmission across channels.

"The concept map is clean and easy to comprehend"

– Comments

"The Mathematical Theory of Communication," Shannon, C. and Weaver, W., University of Illinois, 1964, pages 379-382.



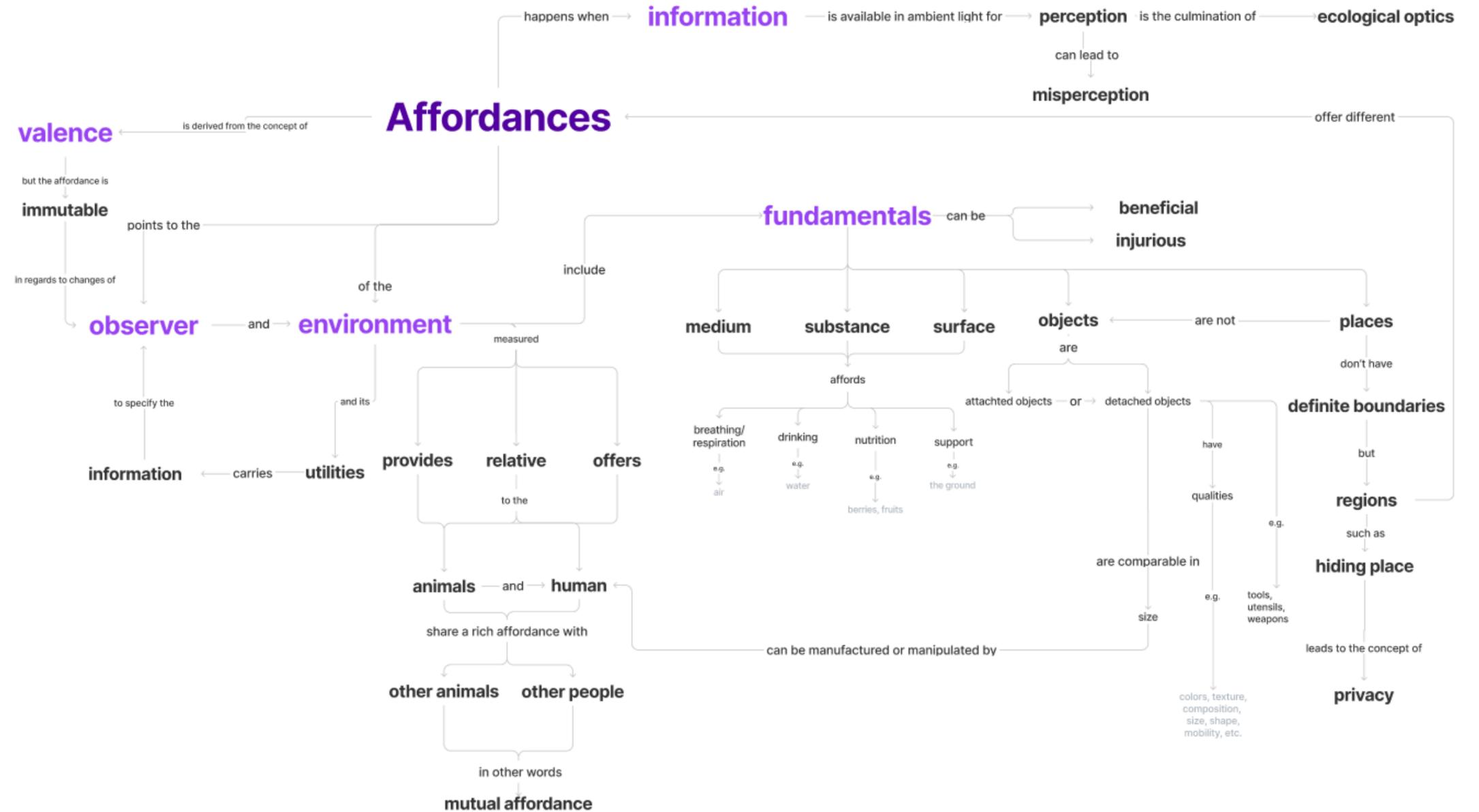
6. Gibson's Theory of Affordances

"The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill."
 – Chapter 8

Gibson's theory started from ecological psychology to discuss action possibilities, and is being applied to design, especially in interaction and Human-Computer Interaction field. The theory does give suggestion for more intuitive everyday design in physical products and digital experience.
 – Self-reflection

"The choice of colors really highlights the most important to less important concepts"
 – Comments

"The Theory of Affordances," Gibson, James J., *The Ecological Approach to Visual Perception*, Chapter 8, pages 127-144



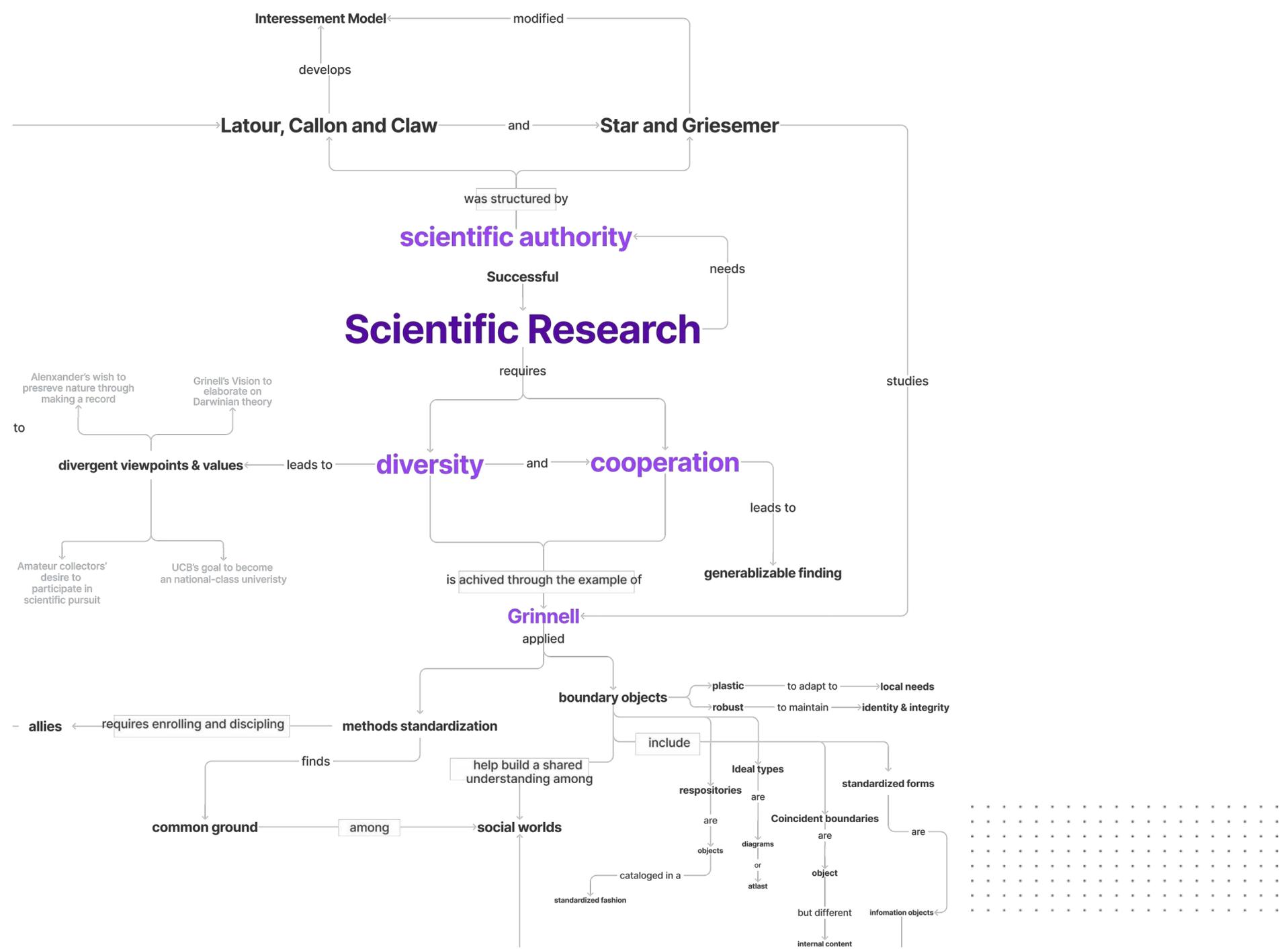
7. Star and Griesemer's Boundary Objects

"Scientific work is heterogeneous, requiring many different actors and viewpoints, ... and cooperation. The two create tension between divergent viewpoints and the need for generalizable findings."
 – Page 379

The article introduced the notion of boundary object on the basis of an ethnographical study of the coordination mechanisms of scientific work.
 – Self-reflection

"Interesting way to set up hierarchy through colors and font sizes"
 – Comments

Institutional Ecology and 'Translation' of Boundary Objects: Amateurs and Professionals In Berkeley's Museum of Vertebrate Zoology, 1907-39," Star, S. and Griesemer, J., Social Studies of Science, 1989, pages 387-414.



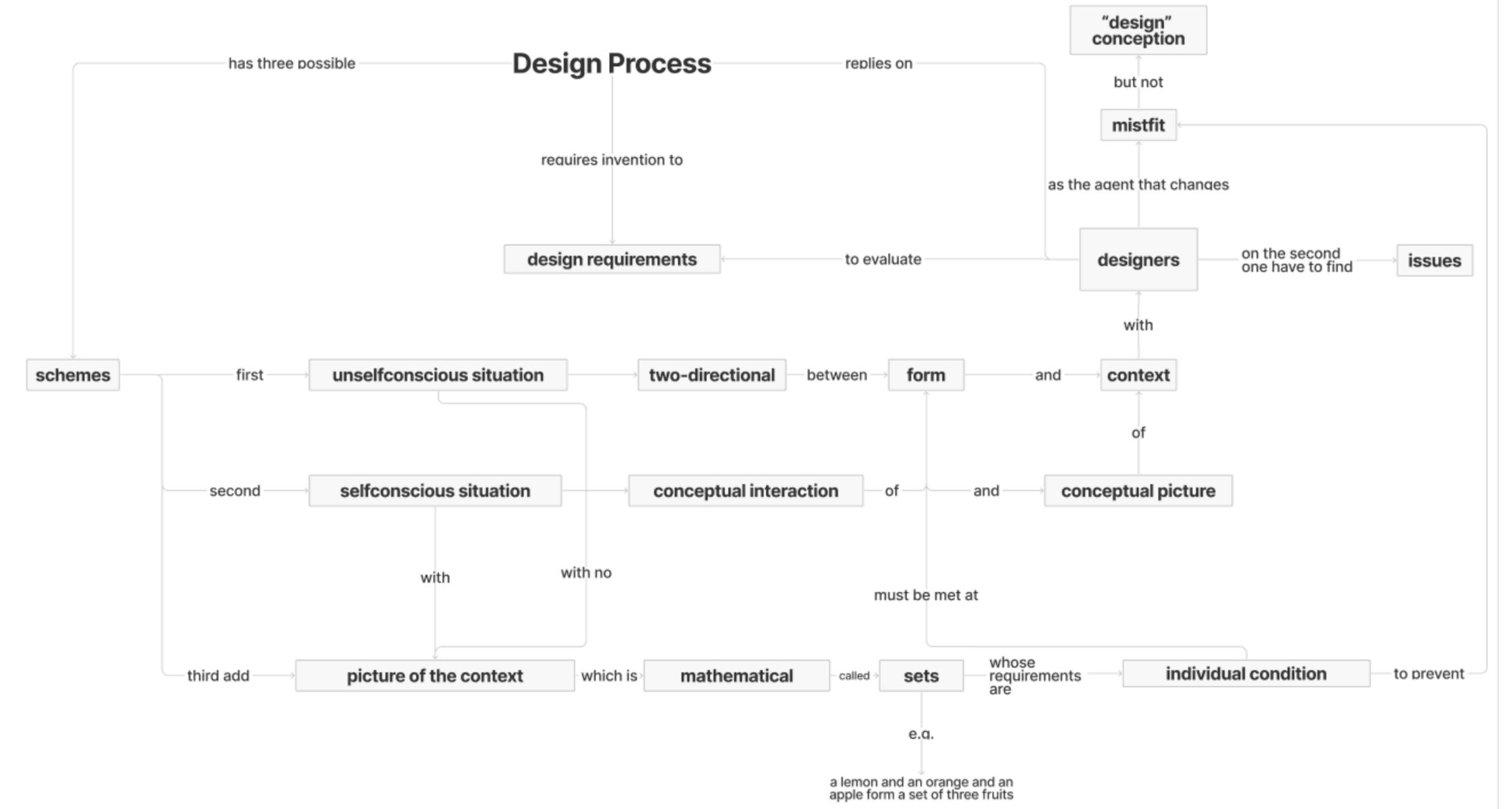
8. Alexander's Synthesis of Form

"The dilemma is simple. As time goes on the designer gets more and more control over the process of design. But as he does so, his efforts to deal with the increasing cognitive burden actually make it harder and harder for the real casual structure of the problem to express itself in this process."
 – Page 73

 Alexander connected well the concept between form, problem and context. Form is the solution to the problem, and the context defines the problem. So context can't be changed, but form can.
 – Self-reflection

 "Always appreciate the clean layout + use of space. The map was easy to read and follow"
 – Comments

Notes on the Synthesis of Form, Alexander, C., Harvard, 1964, Chapter 6, pages 73-83



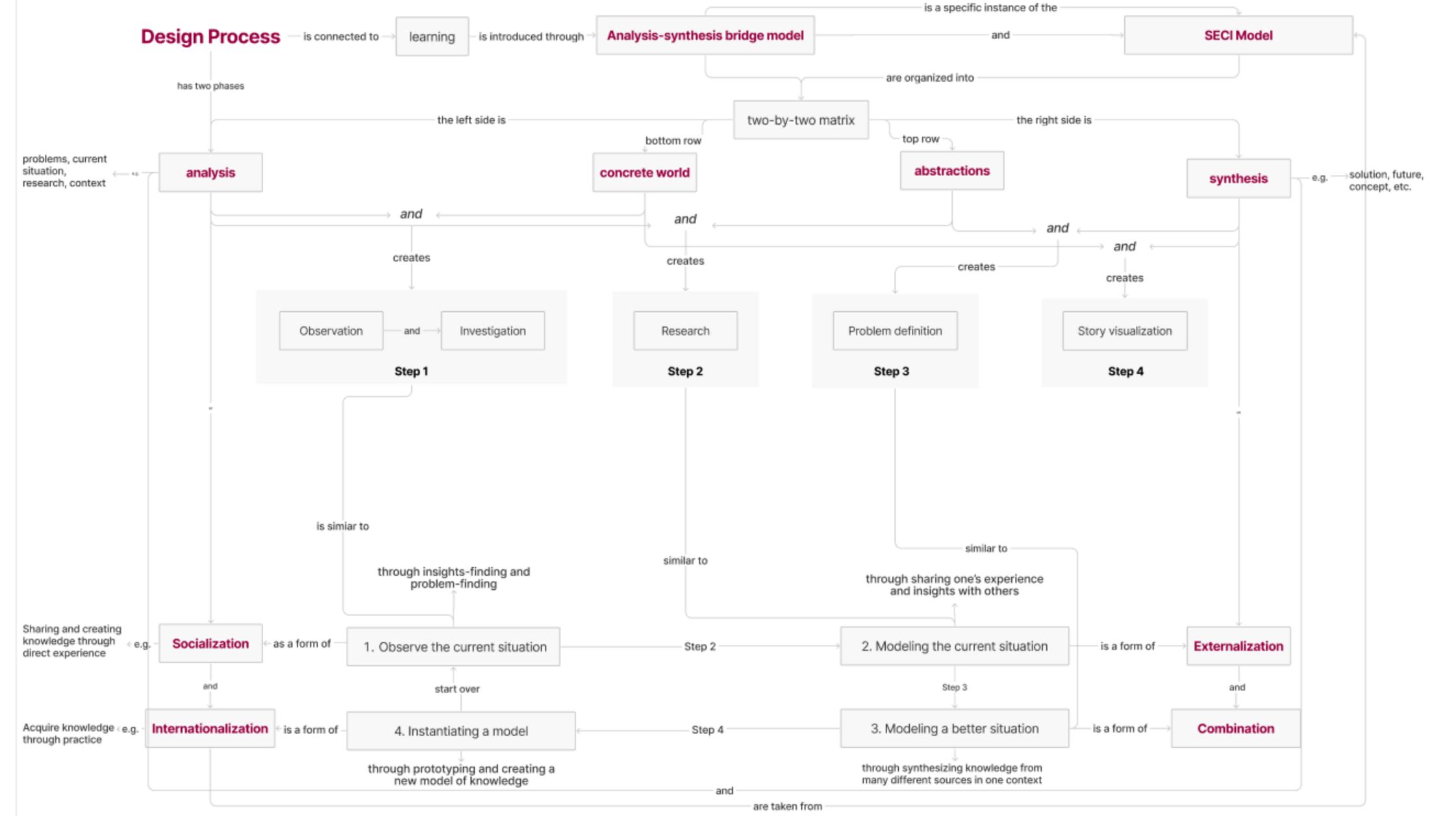
9. Dubberly's Analysis-Synthesis Bridge Model

"The SECI model comes out of research in knowledge management, which is related to organizational learning, business administration, and information system. SECI stands for socialization, externalization, combination, internalization - a model of knowledge creation proposed by Ikujiro Nonaka"
 - Page 75

The model presented by Dubberly is helpful to apply for both business and design practice. For me personally, I enjoy learning about learning as an important part of the design process, in addition to practicing design.
 - Self-reflection

"very detailed and well-structured, nicely done."
 - Comments

"The Analysis-Synthesis Bridge Model," Dubberly, et al., 2008



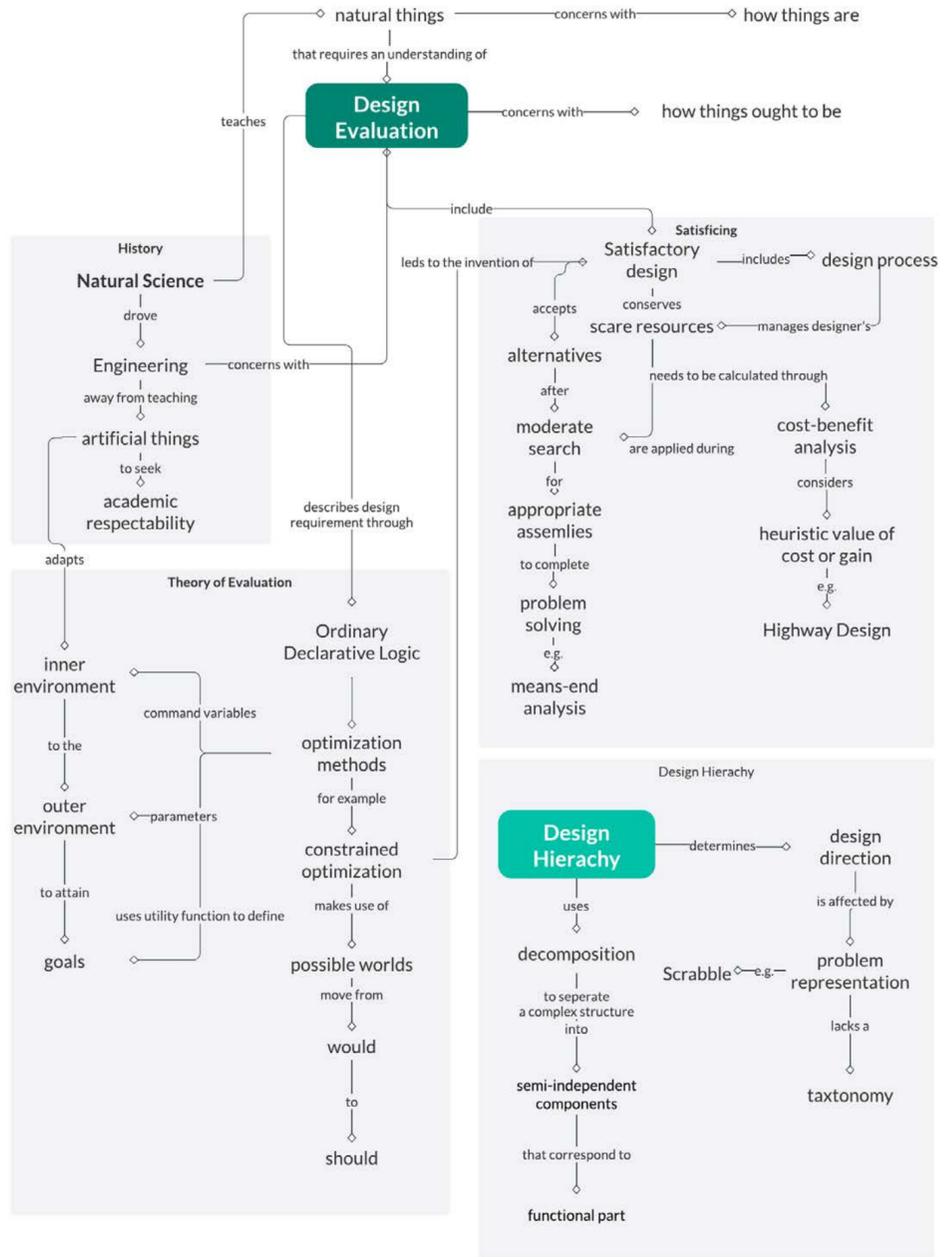


10. Simon's The Science of Design

"Everyone designs who devises courses of action aimed at changing existing situation into preferred one. The intellectual activity that produces material artifacts is no different fundamentally from the one that prescribes remedies for a sick patient or the one that devies a new sales plan for a company or a social welfare policy for a state"
- Page 111

The article was successful at establishing a scientific status for design compared with other scientific fields, as both focus on problem-solving as a glue.
- Self-reflection

The Sciences of the Artificial, Simon, H., MIT Press, 2001, Chapter 5, "The Science of Design," pages 111-138





11. Pask's The Architectural Relevance of Cybernetics

"It is easy to argue that cybernetics is relevant to architecture in the same way that it is relevant to a host of other professions; medicine, engineering or law."

- Page 1

Pask points out an interesting point about communication problems because architects and designers have to adapt to the system design in addition to practicing "pure architecture."

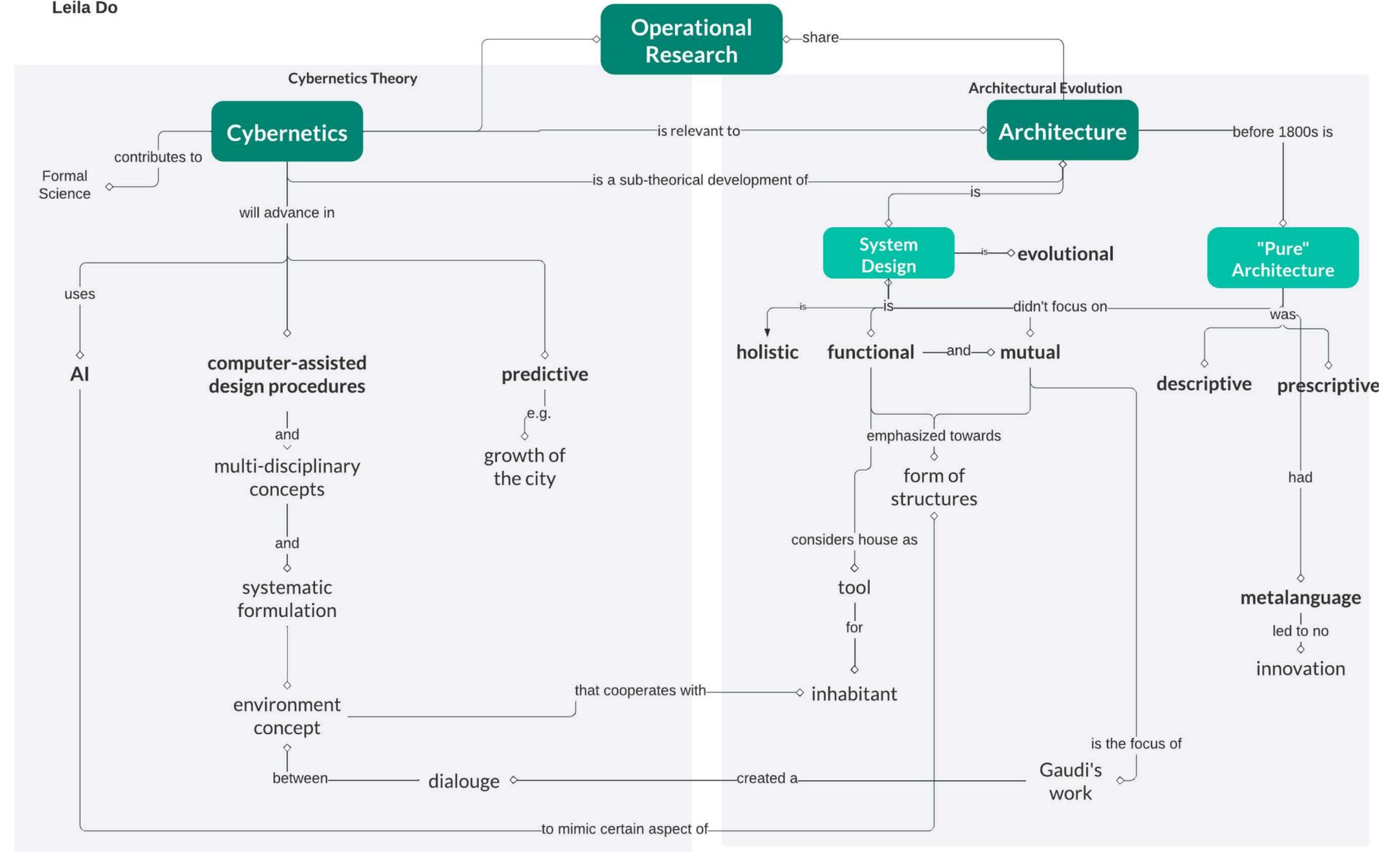
-Self-reflection

"I like how you are using diamonds and points for connect concepts. It reminds me of Harry Beck."

- Comments

"The Architectural Relevance of Cybernetics", Pask, G., Architectural Design, Sept. 1969, pages 494-496.

Leila Do





12. Suchman's Human-Machine Reconfigurations

"The first... locates the organization and significance of human action in underlying plans... The alternative view, is that although the course of action can always be projected or reconstructed in terms of prior intentions and typical situation."

– Page 51

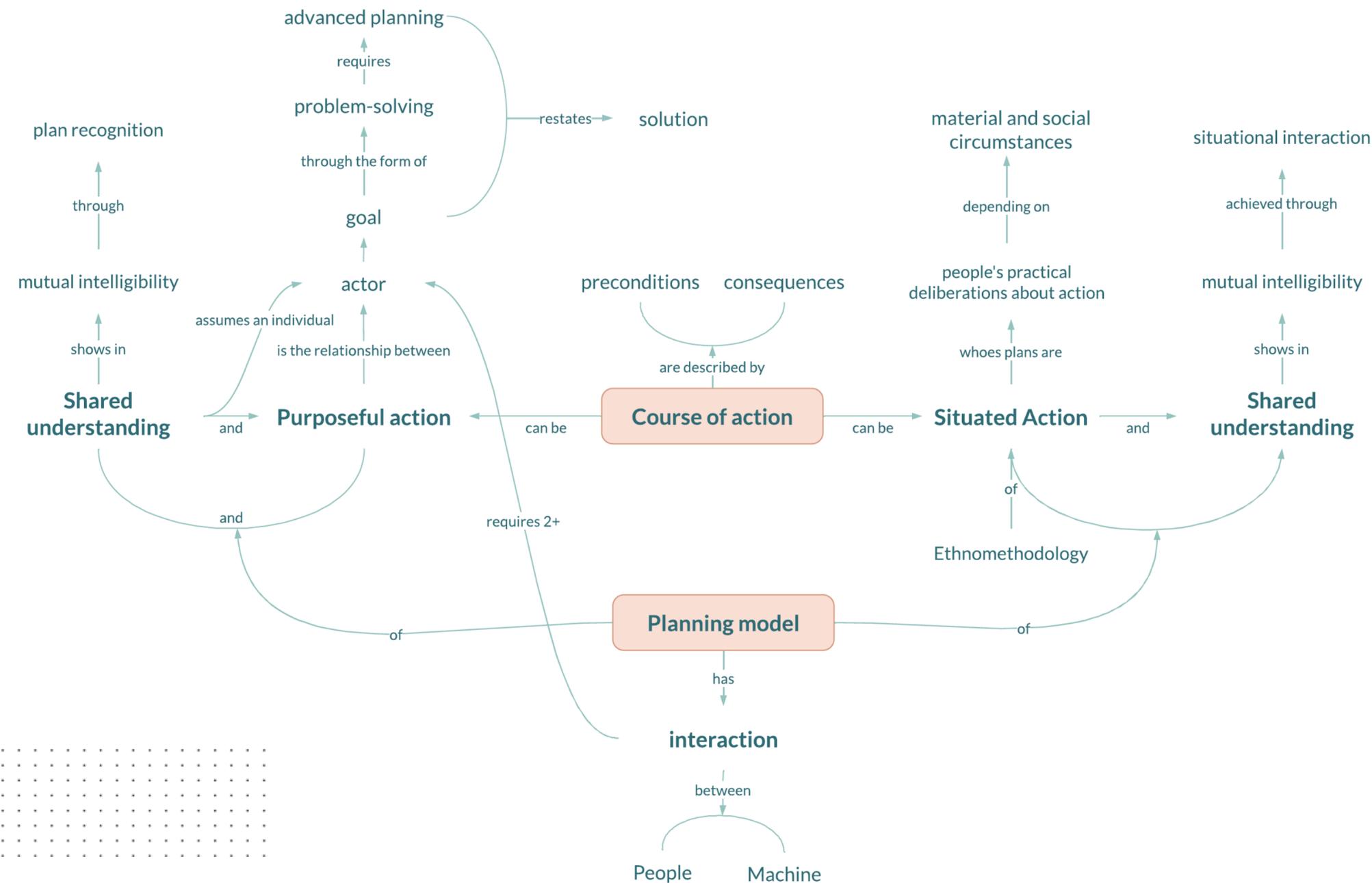
"Leila, this feels much less complex than some of the previous weeks, but it still holds so much complexity. That is really tough to do, so great work!"

"I like the main concept along the center. Interesting connections too. Overall the grid works great!"

– Comments

Human-Machine Reconfigurations., Suchman, L. 2006. Chapter 5 & 6

Page 26



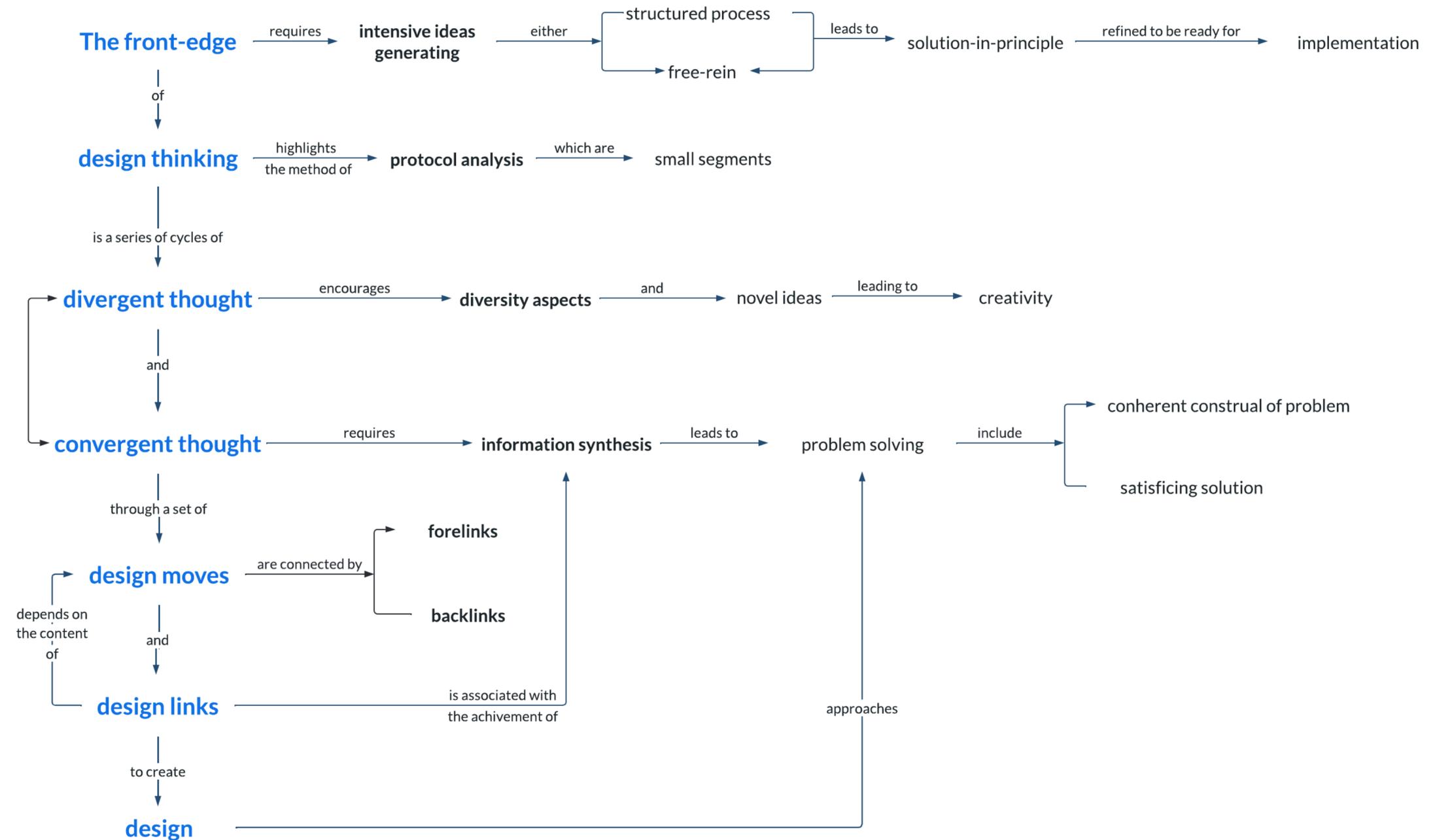


13: Goldschmidt's Linkography: unfolding the design process

"Several psychologists subscribe to the view that we use two systems of reasoning — indeed two modes of thought — in everyday life, and that the balance between them is particularly pertinent to the understanding of creative thought."
– Page 45

"Always a strong presentation. Watch out for the tiny details. Alignments, arrowhead, etc..."
– Comments

Linkography: unfolding the design process., Goldschmidt, G. 2014. Chapter 3: Design Synthesis



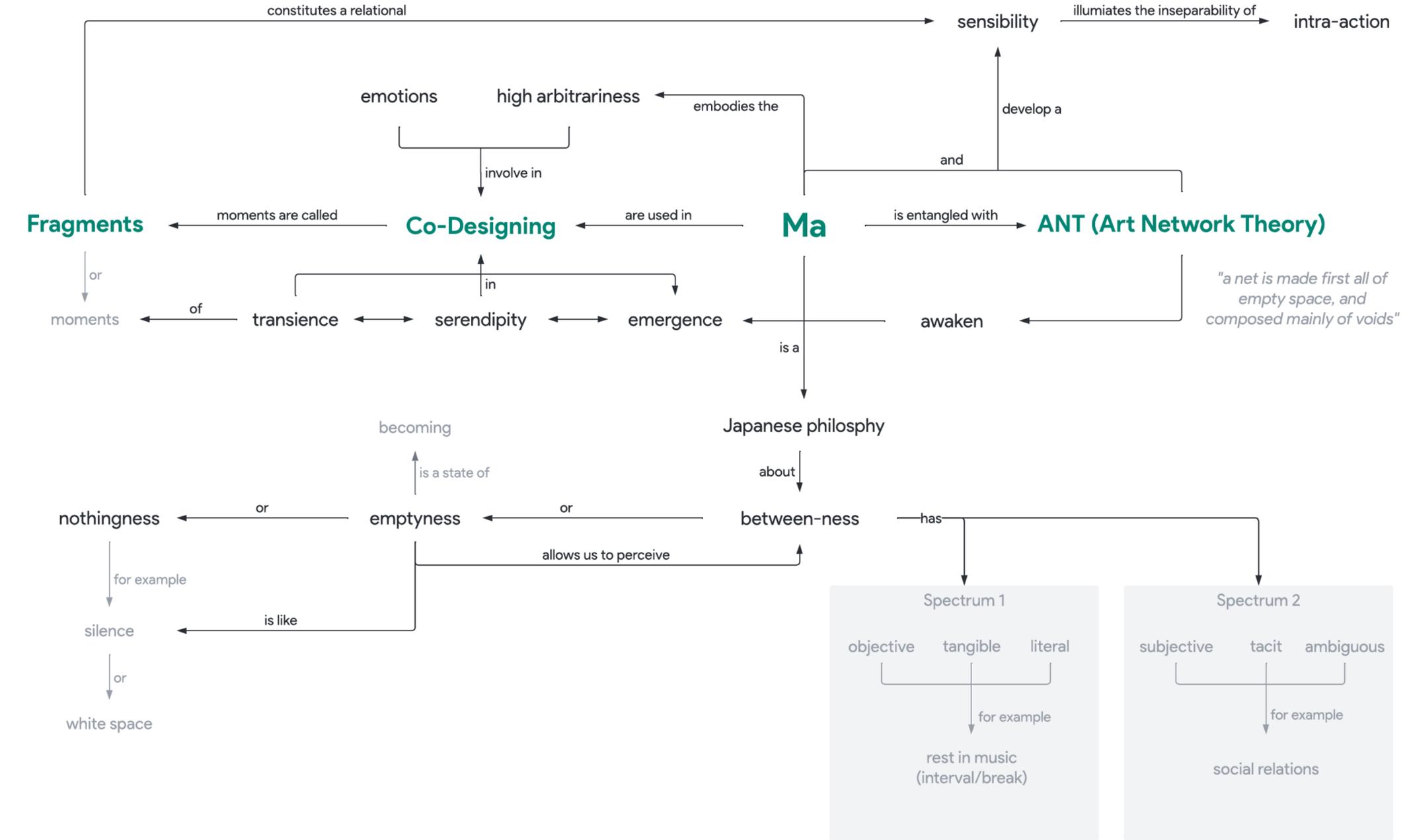


14. Akama's Being Awake to Ma

"Japanese philosophy of Ma as 'between-ness' explores how we are transforming and becoming together among this heterogeneity. As we design, we are embedded within and inscribed by conditions that we cannot quite touch or see visibly, yet manifests through its evolution. Awakening to this in-between presence is a necessary start because co-designing is performed and emerges from relational sensitivity."

- Page 1

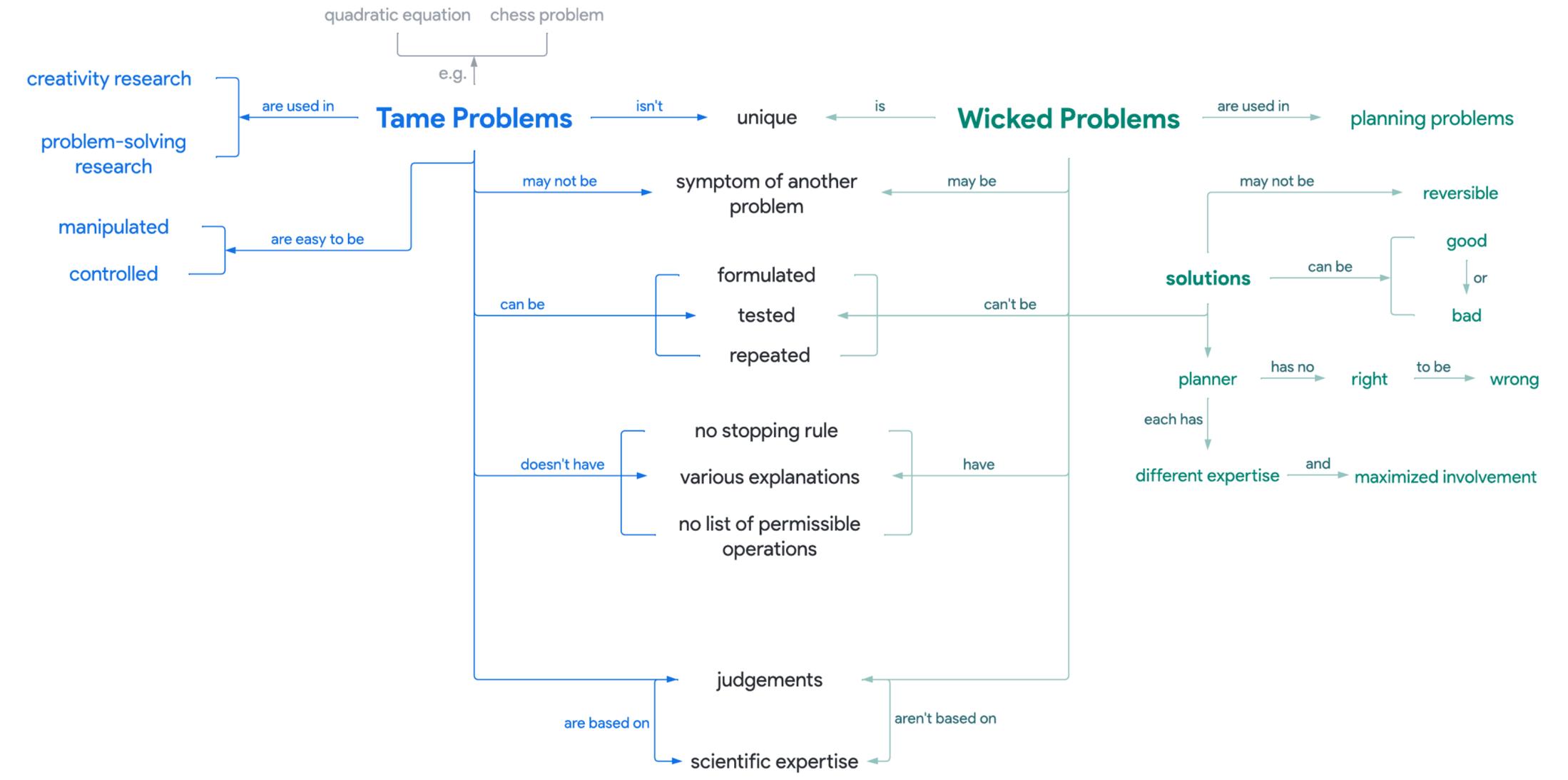
Being Awake to Ma., Akama, Y.





15. Rittle's Planning Crisis

"The search for scientific bases for confronting problems of social policy is bound to fail, because of the nature of these problems. They are "wicked" problems, whereas science has developed to deal with "tame" problems."
- Page 1



On the Planning Crisis: Systems Analysis of the 'First and Second Generations', H.Rittle



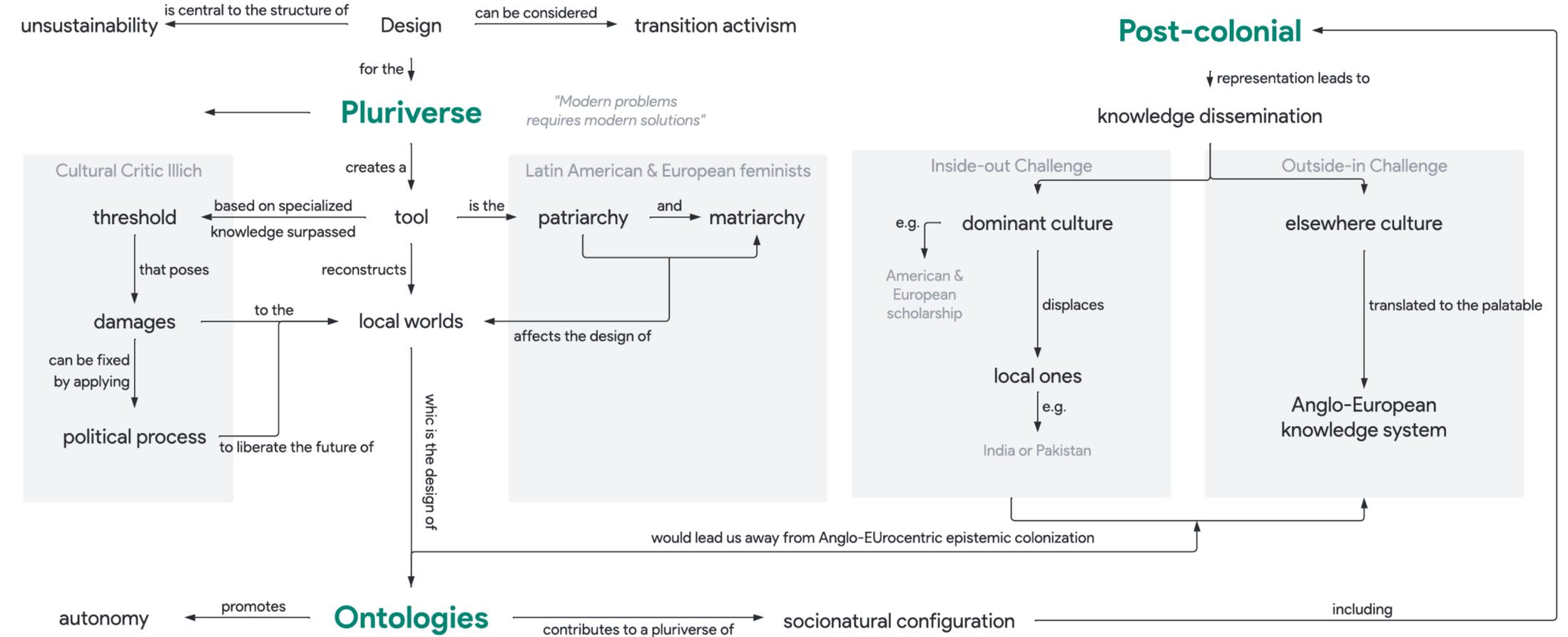
16. Escobar, Diawara & Ansari

“Design is the central to the structure of unsustainability that hold in place the contemporary, so called modern world... What the notion of design signals in this work—despite design’s multiple and variegated meanings—is diverse form of life and often, contrasting notions of socioability and the world”
– Page 1

Escobar, A. (n.d.). Introduction — Designs for the Pluriverse. In *Designs for the Pluriverse*.

Diawara, M. (1997). *The Song of the Griot*. *Transition*, 74, 16–30. <https://www.jstor.org/stable/2935371>

Ansari, A. (2021). *The History of Design and the Design of History*. *Psicon*, 11, 2–3 (September), 130–146.

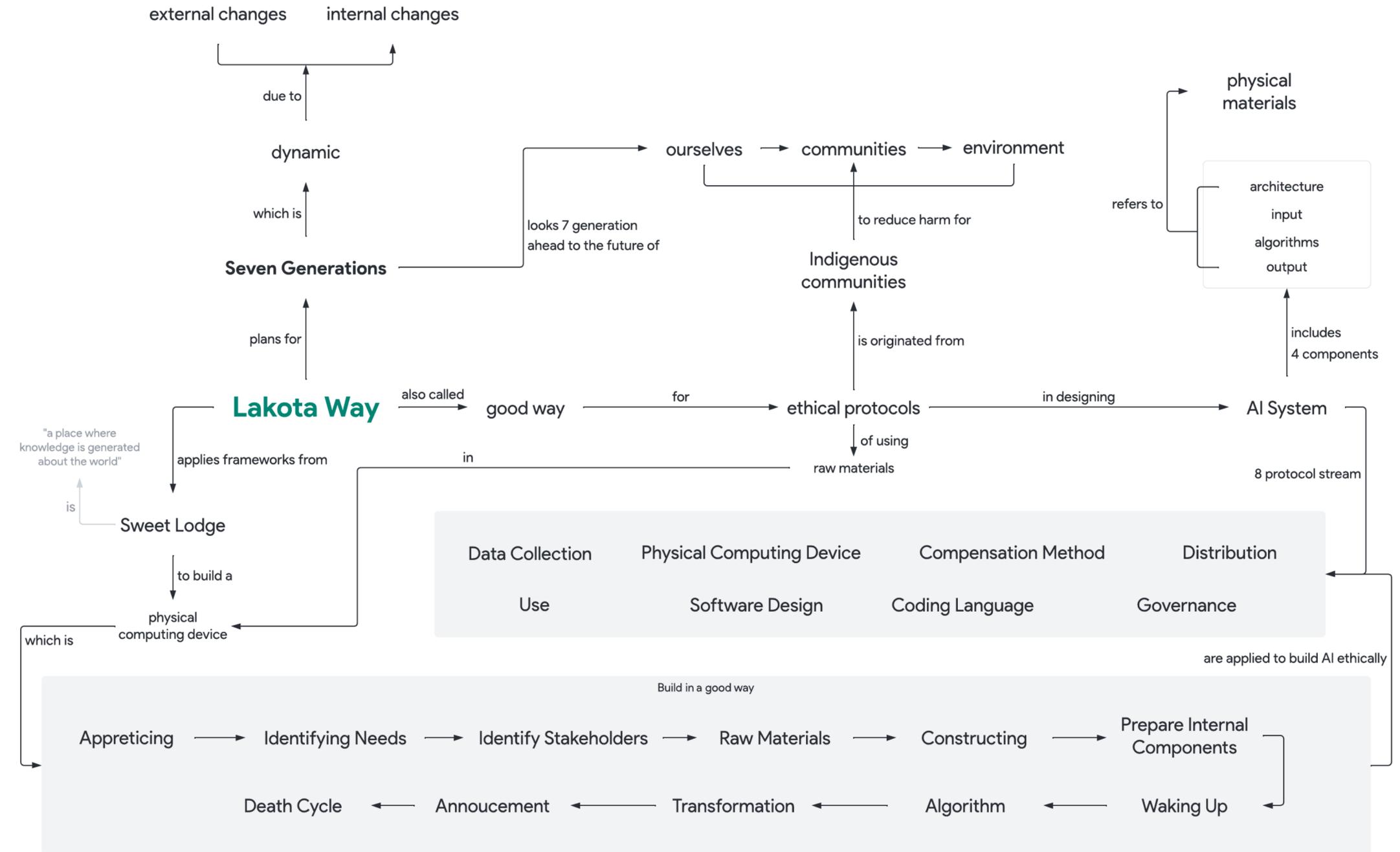


17. Kite et al.'s How to Build Anything Ethically

"I illustrate how protocol for building a Lakota sweat lodge can act as a framework for building a physical computing device. Next, I provide an example of how multiple streams of protocol are necessary to build an AI system as a confluence of ethics"

– Page 1

Kite, S., Stover, C., Janis, M. S., & Benesii-naabandan, S. (n.d.). *How to Build Anything Ethically*.



I read, I write, I retrospect:

Concept Map Book

ARTG 6100

Information Design And Critical Thinking

This book is a compilation of concept maps made as a part of the curriculum at Northeastern University for Information Design and Data Visualization.

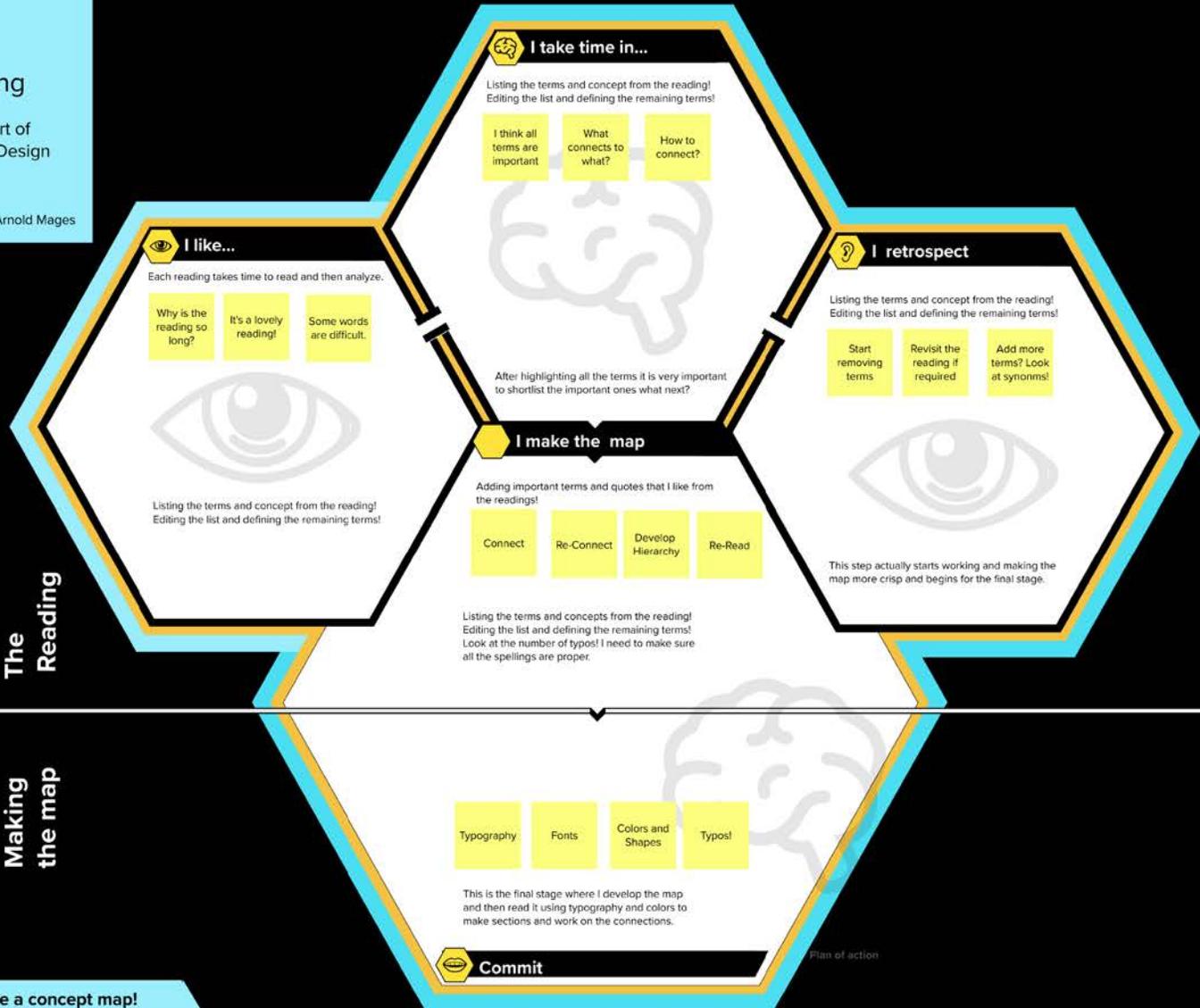
Course Taught by: Micheal Arnold Mages

The Reading

Making the map

A process of making a concept map!

A concept map of what goes in my head when I make a concept map!



Foreword:

This book contains concept maps on various design theories explaining each theory in terms of its important terms and points, connecting them to be able to understand the reading well.

The maps are comprehensive examples for understanding concepts and readings. The maps are made keeping typographic elements and using hierarchy and colors.

What I learn?

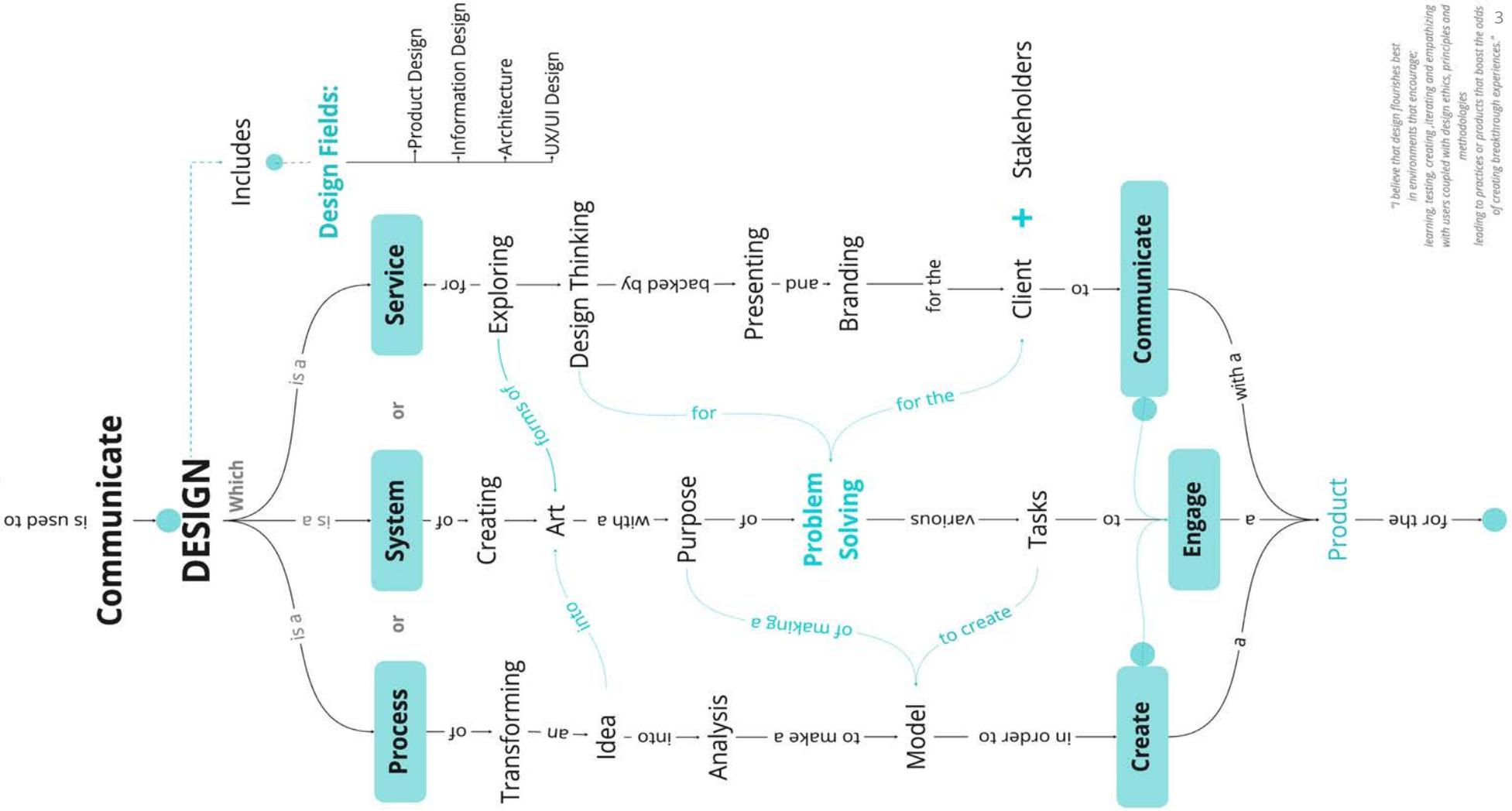
One of my major takeaways from consecutive weeks of making concept maps was to understand how complex readings can be made extremely easy to understand by making linking concept maps.

Another key takeaway was to see how each person in the course had their own unique way of shortlisting terms and then presenting them in their own style. I believe this course had helped me a lot and will definitely help me in reading large documents and further in my thesis.

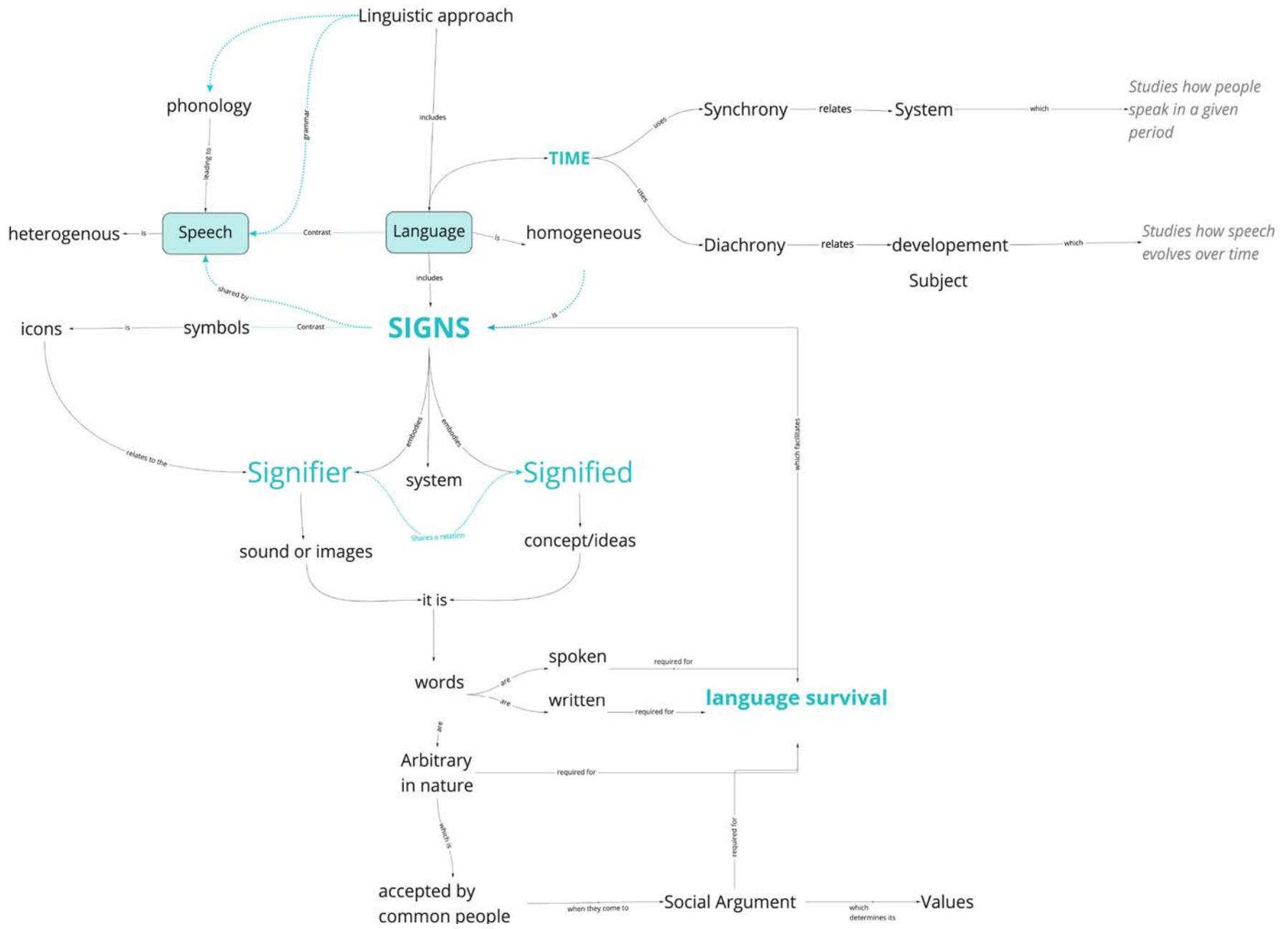
Index

01. Learning How To Learn , Novak, J., and Gowin, B "Creating Concept Maps," Dubberly, H "Models of Models," Dubberly, H	3	10. The Science of Design , Simon	12
02. Course in General Linguistics , Saussure, McGraw-Hill	4	11. Architectural relevance of cybernetics , Pask	13
03. Psychological writings of Pierce , Charles S. Pierce	5	12. Design Synthesis Linkography , Goldschmidt	14
04. Theory of Communication , Shanon	6	13. Human-Machine Reconfigurations , Suchman	15
05. Theory of Affordances , Buchanan	7	14. Being awake to Ma , Akama. Y	16
06. Theory of Affordances , James J. Gibson	8	15. Designs for the Pluriverse , Escobar The song of the Griot , Diawara Design History , Ansari	17
07. Boundary Objects , Star and Griesemer's	9	16. How to build anything ethically , Kite Et Al.	18
08. Synthesis of Form , Alexander	10		
09. Synthesis Bridge Model , H. Dubberly + Shelly Evenson	11		

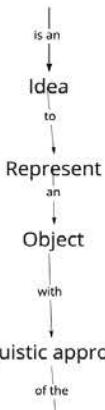
A story



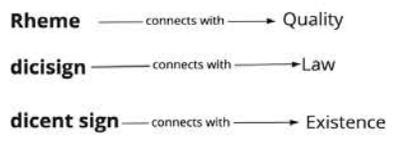
"I believe that design flourishes best in environments that encourage learning, testing, creating, iterating and empathizing with users coupled with design ethics, principles and methodologies feeding to practices or products that boost the odds of creating breakthrough experiences."



Science of Semiotics



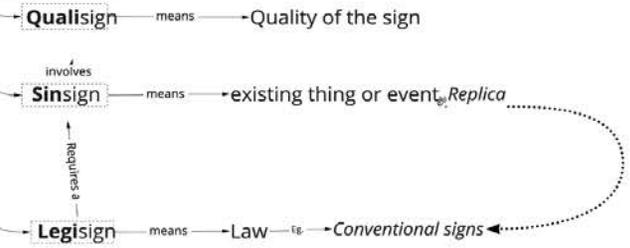
01 Fact



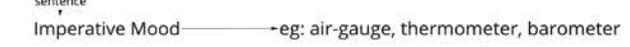
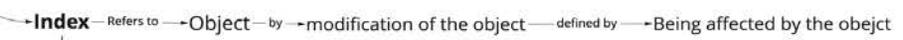
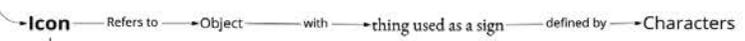
Trichotomies of signs

03 Existence

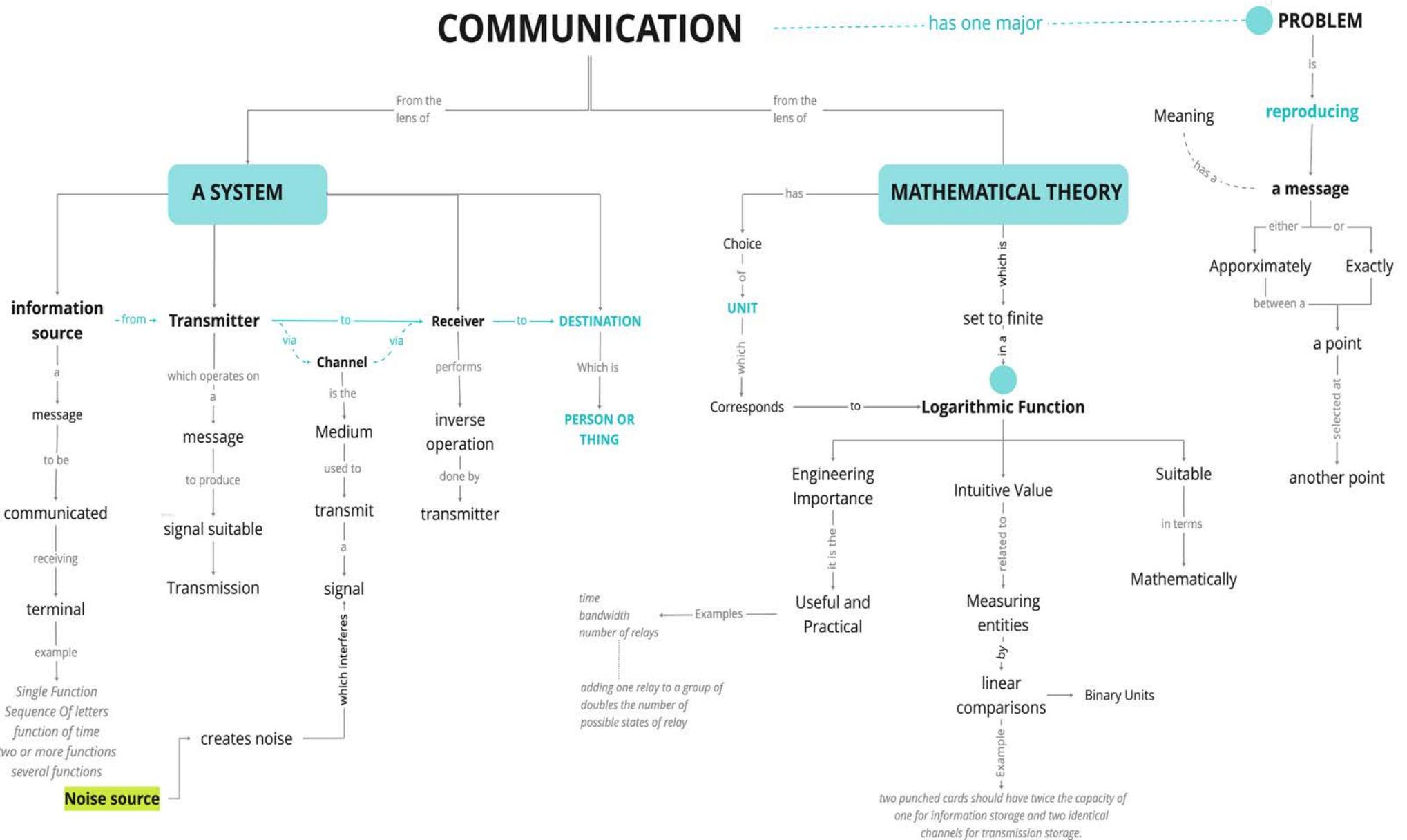
Mental Interpretant

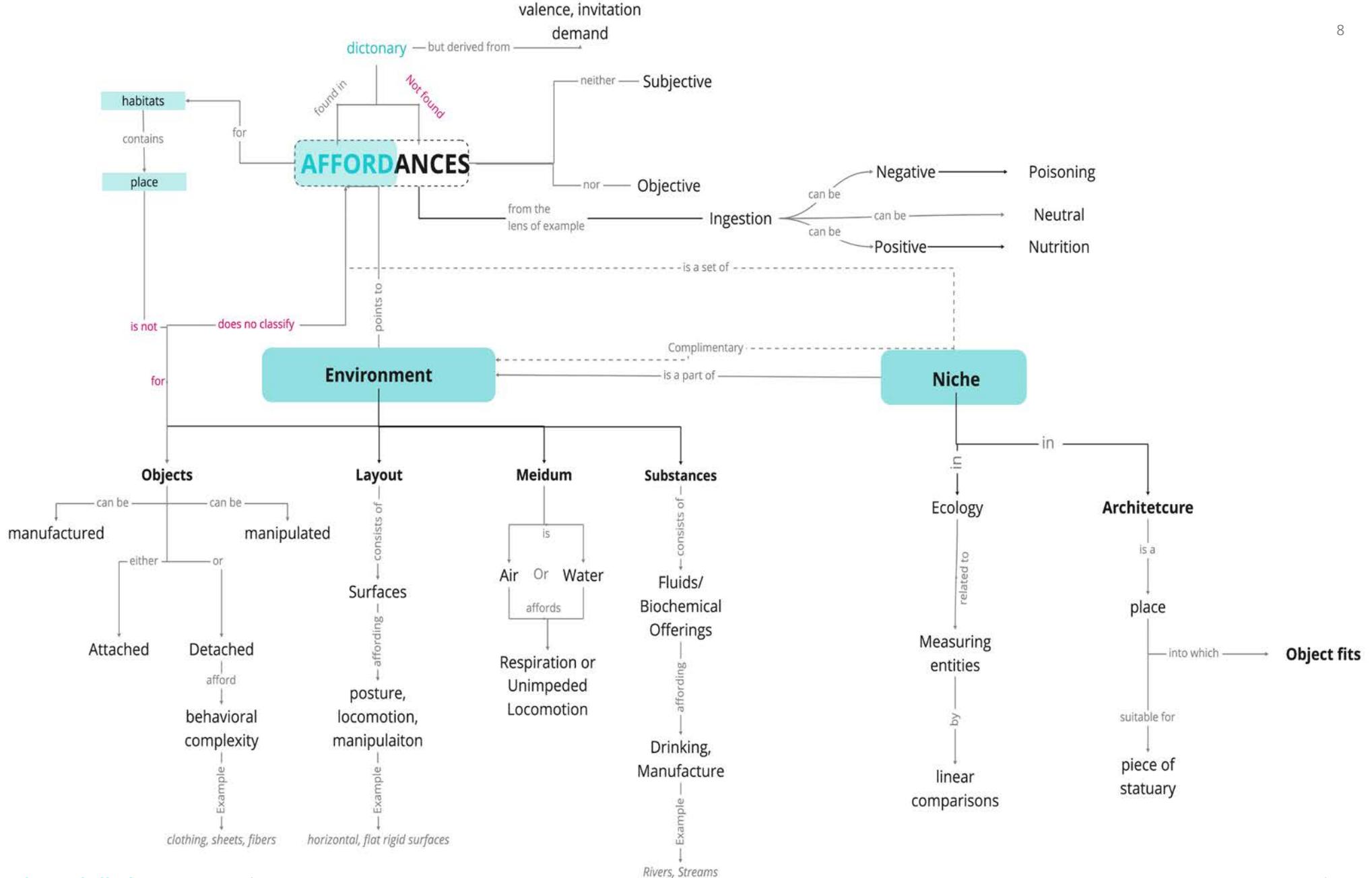


02 Object

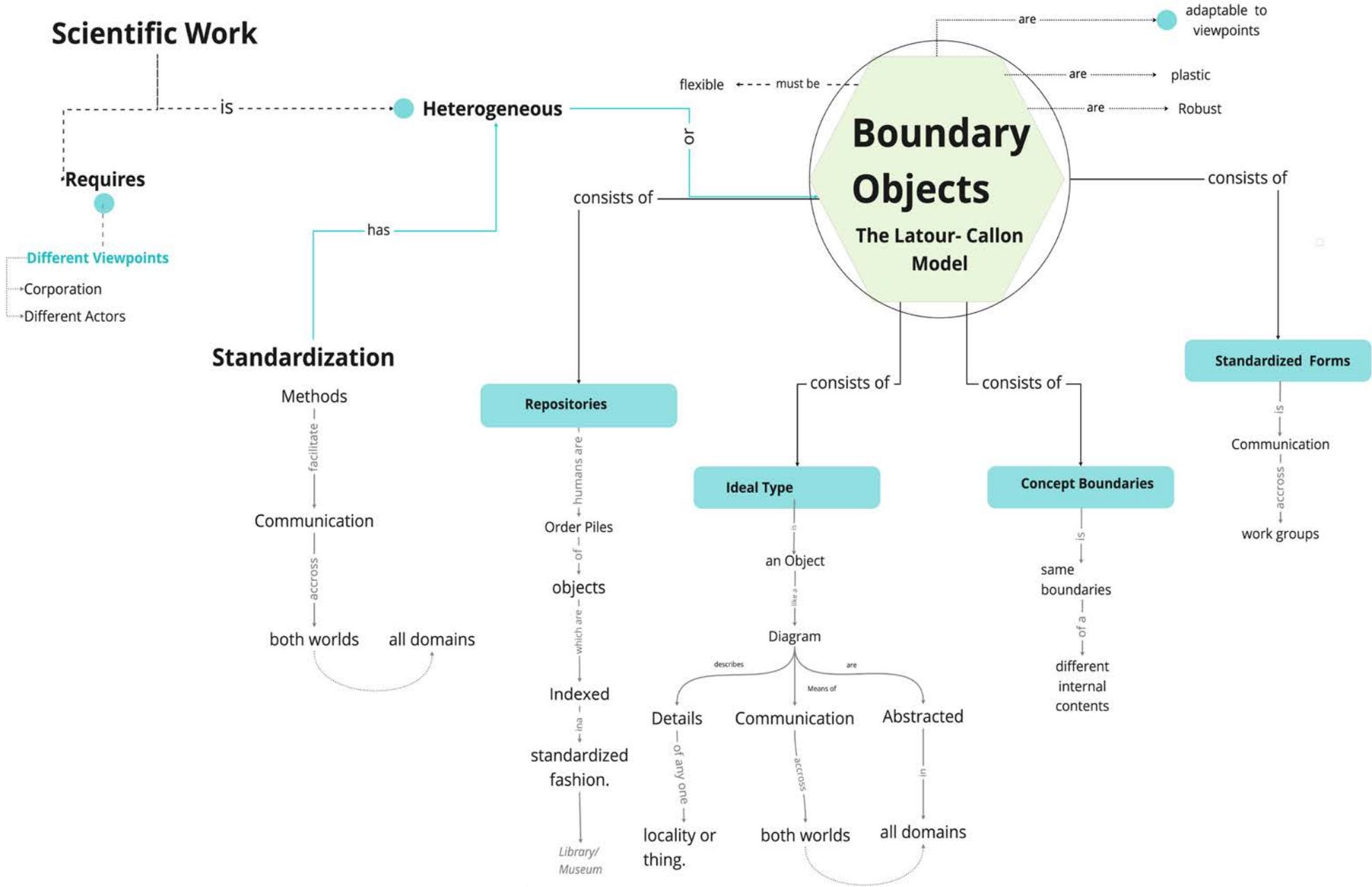


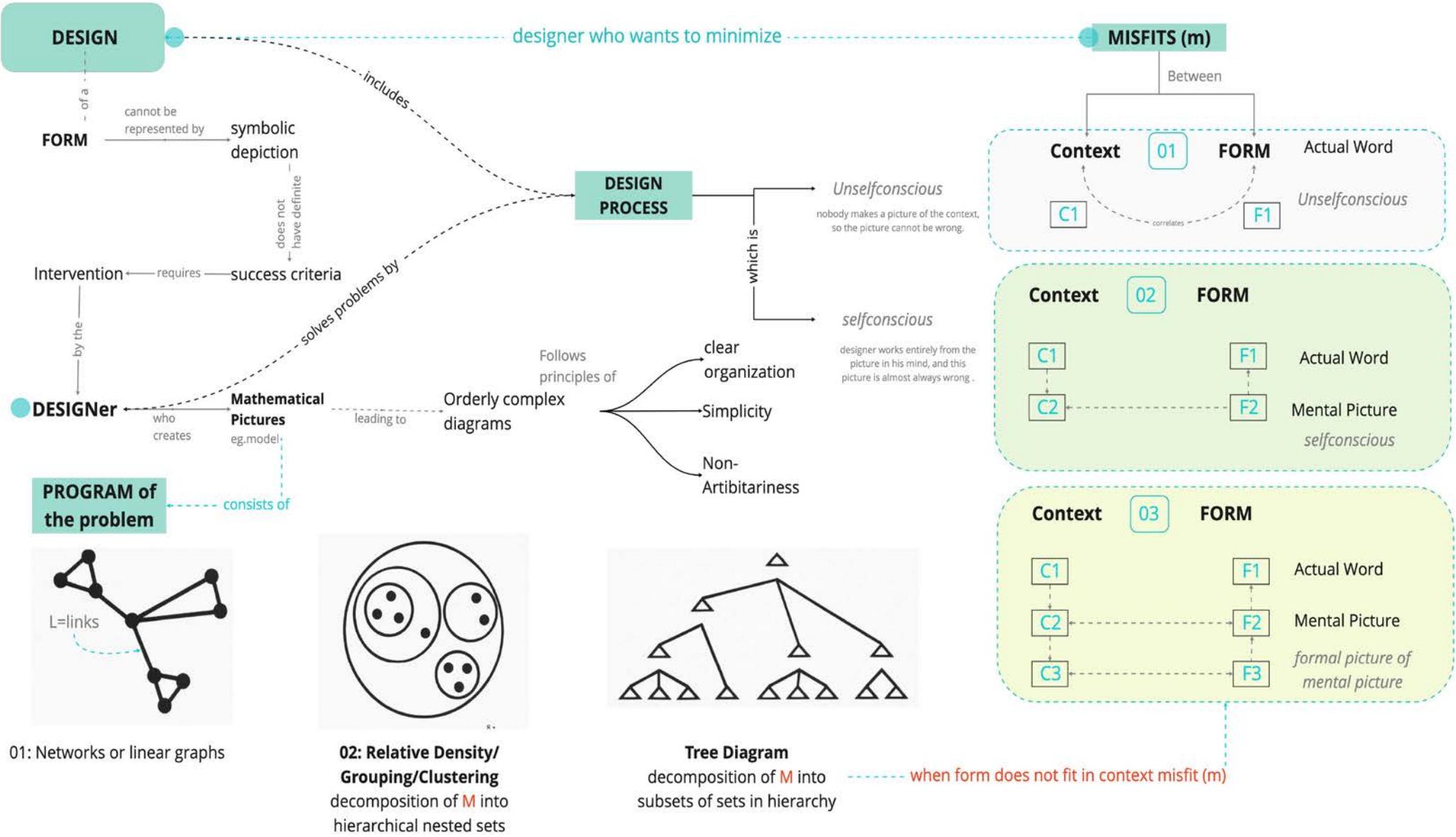
COMMUNICATION

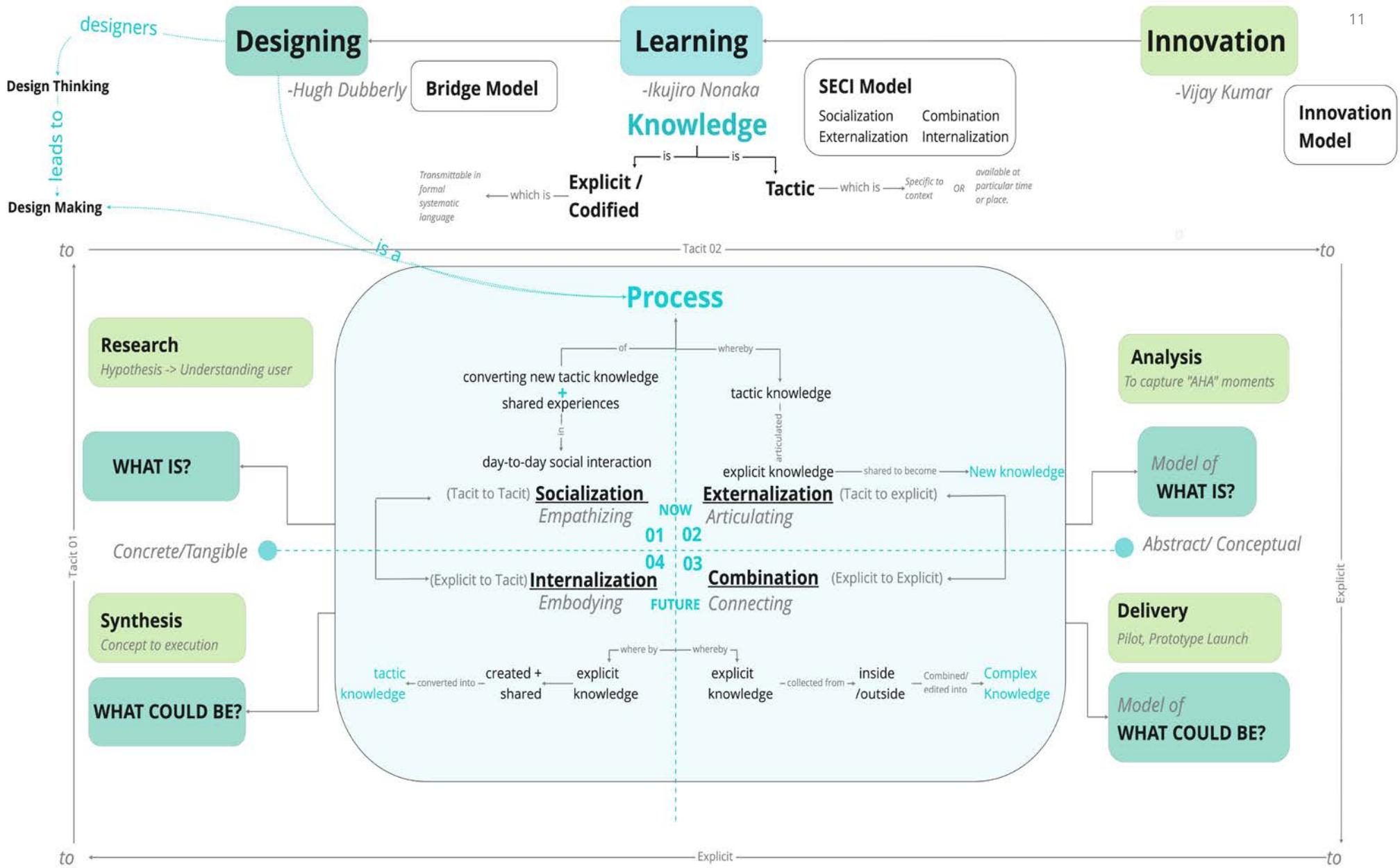




Scientific Work

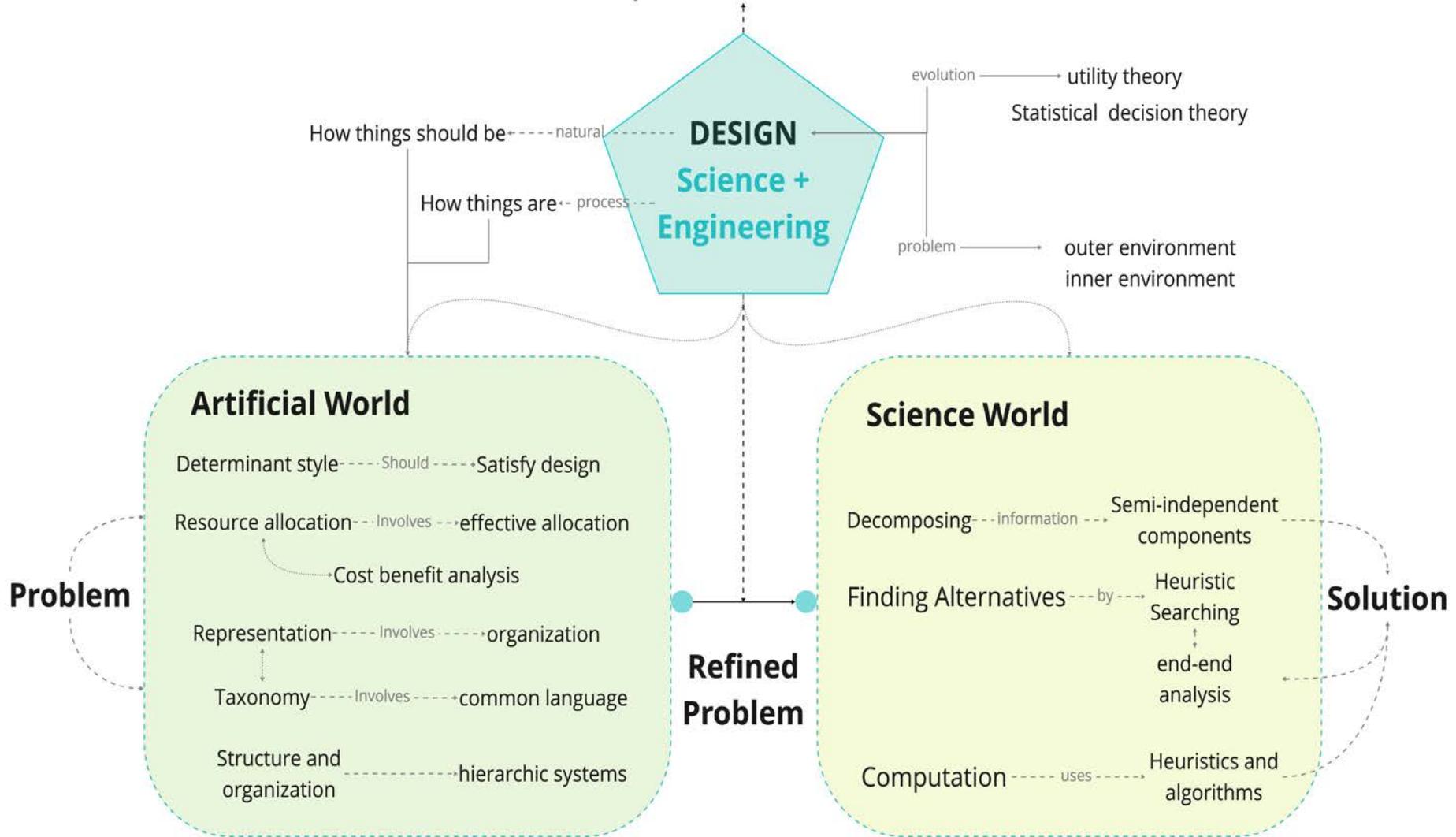






Engineering schools-- became --> School of Physics & Mathematics
 Medical schools---- became ----> School of biological science
 Business schools---- became ----> School of finite Mathematics

**Principal mark that distinguishes
all professions from sciences**



Functionalism *what they like to use/
performs certain functions*

and

Mutualism

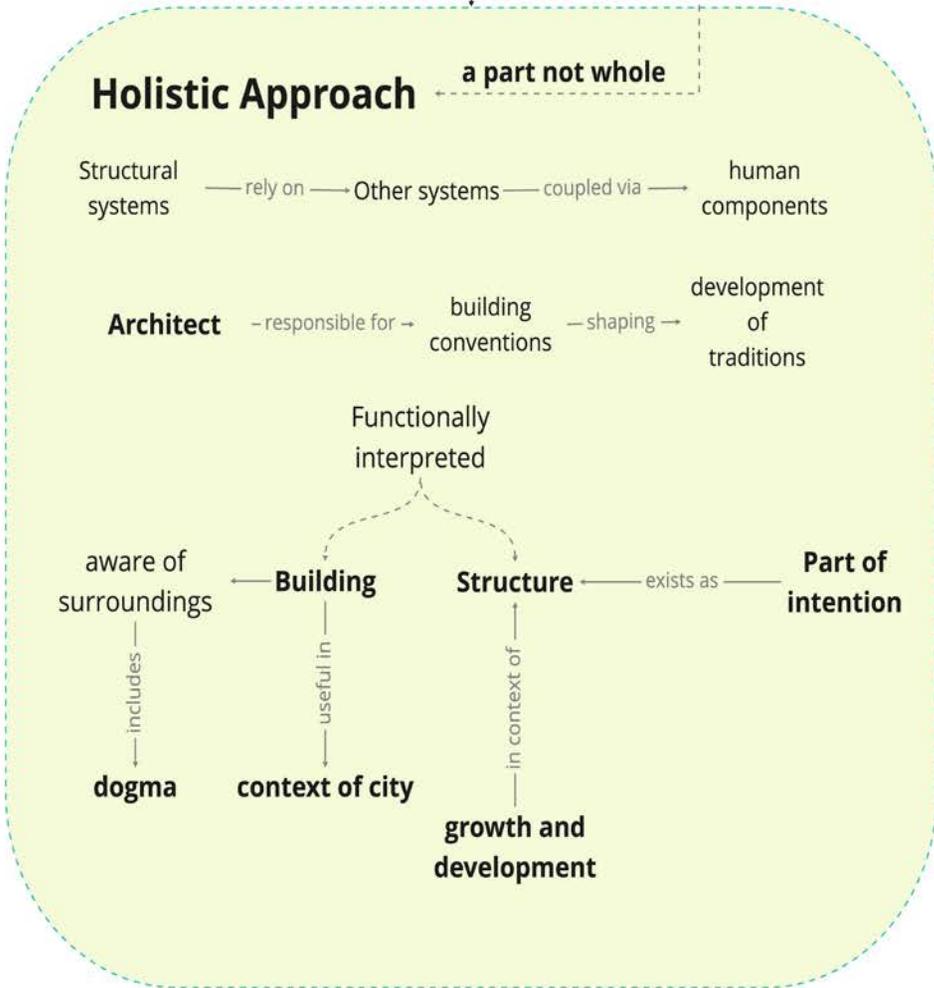
gives rise to

Dynamic Systems

are part of

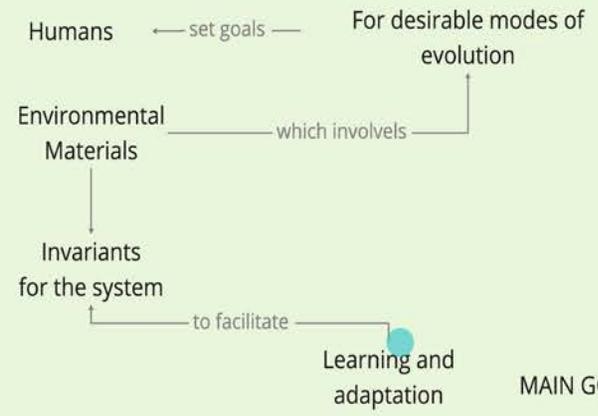
Designers

*interaction between humans
and the environment*



Cybernetics Theory

Reactive Environment



Cybernetic Theory — has — Appreciable Predictive Power

Structural systems

- Gives insights in different disciplines
- Uses computer assisted design
- Acts as a **Social Control**
- Computer controls visual and tactile proportions of the environment.

COGNITIVE PERSPECTIVE

DESIGN THINKING

FRONT END

HOW DESIGN MOVES?

Small increments of thought

Content based strategy

STEP > ACTION > MOVEMENT > MOVE

STEP > ACT > OPERATION > TRANSFORMS > DESIGN SITUATION

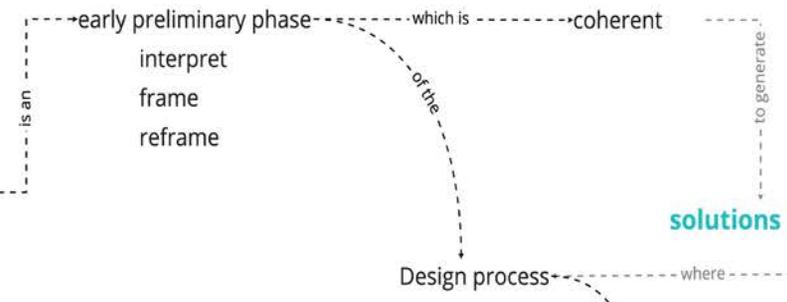
protocol analysis

- is generated in

+ Additional points:

- Puzzle Making** John Archea (1987)
- Good FIT \ MISFITS** Alexander 1964

The deep underlying premise of those models was that the design process comprises separate phases and designers progress from one phase to another, with backtracking where it is necessary. The process of clarification and framing and the process of searching for a solution are not sequential; rather, they occur in parallel (Dorst and Cross 2001).



- BackLinks < *direction is backward in terms of a linear sequence in time.*
 - Forelinks > *direction is forward-bound in terms of a linear sequence in time.*
- a step in the process that changes the situation.

NOT smallest unit can be

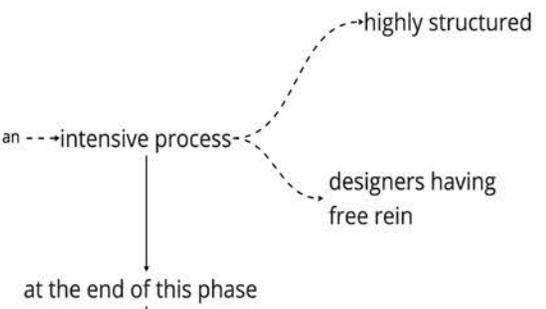
parsed in

Constituent arguments

I would try to have an important element.

I would therefore make the axis I mentioned before, this one.

idea generating



solution-in-principle

parti (in architectural design) achieved

further developed till

design entity

implementation

associative system *makes use of visual representations when they are relevant, and design is a case in point;*

Rule Based System *the rule-based system specifies a rationale.*

Co-designing

- Change glimpsed in fragments
- Activity based on emergence.
- Developed from reflective thoughts combined with reflections.

Fragment 1

MA

Reveals fields stretching beyond boundaries of time and place as distinct by collapsing.

Key Findings:

- Lacked Specificity** (as per old man)
- Specifics didn't matter** (as per woman)
- 2 Interactives** (workshop and Neighborhood)
- Recalling past** for future scenarios

Captured moment of deliberative change
 Created Ambiguity and curiosity
 Effectiveness Provoked discomfort

Fragment 2

MA

personal and collective sensing of betweenness like atmosphere.

Key Findings:

- Anticipatory Effects** (as per old man)
- Sumartojo** freighted with individual shared memory/experience contributing to **ATMOSPHERE.**

Shows incremental Change
 Encountered oddity and bemusement

ANT (Art Network Theory)

- perceived through Tacit,
- immersive actions of becoming

Absence of color
 Absence of sound or movement
 accentuating awareness of totality

MA

is mutually evolved alongside not immediate created and senses in action and practice cannot just be read, written, thought about

Japanese Culture

Ambiguous concept - colloquial in nature

Seen in Taosim, Shinto, Zen buddhism.

re-situate us in emergence and continuity

which is

which is

In Design

- Manifesting in spaces that are reconfigurable by sliding, semi-opaque screens in traditional
- Corridors/entrances inside and outside blurring such boundaries.
- is a merging of distinctions of Grayness - in between white and black (Color)
- Implies Rational Sensitivity

Lost in Translation

- Intersubjective nuances lost in descriptions of designing over tangible and defined methodology.
- It's facilitation is centrally immersed within and emerged from very complex rational dynamics.
- Small moments lost in description
- deals with felt visceral intuited and intimate)

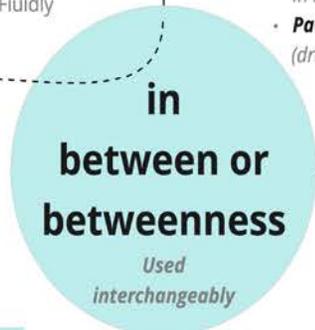
TACIT (SUBJECTIVE / AMBIGUOUS)

- Applies to **who and how we are with others** (affinity, intimacy, animosity, strangeness)
- **Social Relations** > Experienced > Fluidly

TANGIBLE (OBJECTIVE)

- Space contained by structure (room/volume)
- As interstice (gap ,slit, opening)
- In music (interval/break)
- **Pause** when delivering a speech or punchline (dramatic effect)

means



In Zen

It's nature can be ambiguous and obscure, so it makes little sense unless it emerges from practice and returns to practice, anchored in action.

Perspectives on MA

means light shifting through gap shutters (In Chinese)

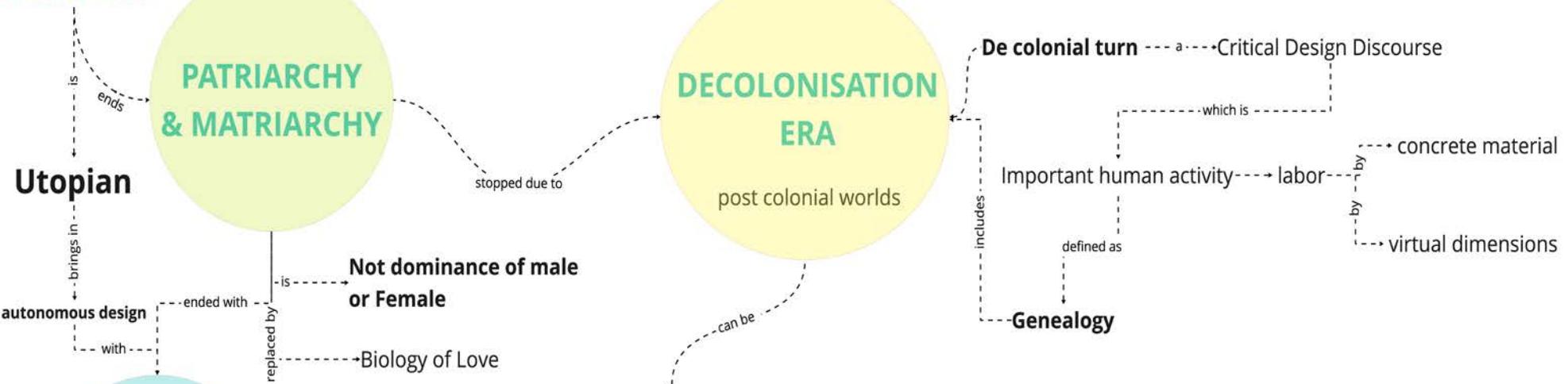
- **Isozaki** - attention given to those invisible things and denies the position of a fixed subject.
- **Pilgrim** - pregnant nothingness: includes deliberative silence in performance or white space used in visual composition.
- **Derrida** - Says Ma is untranslatable. A way of seeing deeply related to sense of balance in daily life/key idea-decoding aspect

noun

adjective

as as

Pluriverse



Postcolonial or **Beyond the colonial** a world where many worlds fit.



DESIGN ONTOLOGY is product of **Unsustainability**



Global Concept



14. Designs for the Pluriverse, Escobar
The song of the Griot, Diawara
Design History, Ansari

HOW TO BUILD ANYTHING THE GOOD WAY? THE LAKOTA WAY!

Indeginious Protocols

with
↓
relationships with world
↓
in
↓
Ethical Ways
↓
to build

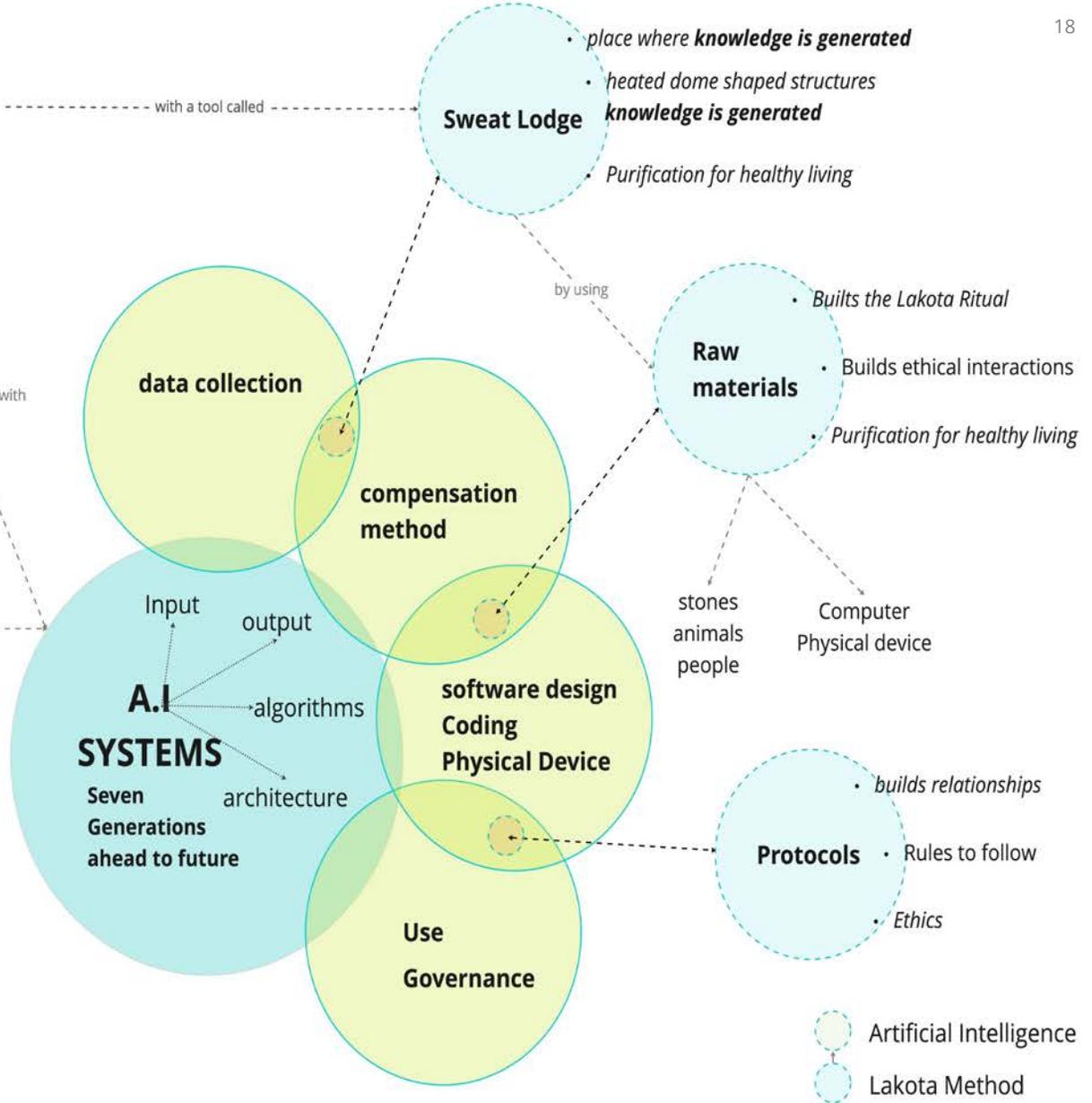
GOOD WAY

PROTOCOL

- Appreciating ----- who are the elders?
- Identifying Needs ----- members
- Identifying Stakeholders ----- Who is needed to create this process
- Identifying Raw Materials ----- what is needed
- Constructing ----- methods to contrsuct
- transformation ----- how to complete

ASK QUESTIONS?

with a tool called
can be correlated with
in ontology
For computing devices



Artificial Intelligence
Lakota Method

Thank You.

Book by Purti Hardikar.
Softwares Used:
Adobe Indesign, Illustrator, Miro

Concept Map Book

ARTG 6110 | Information Design Theory and Critical Thinking

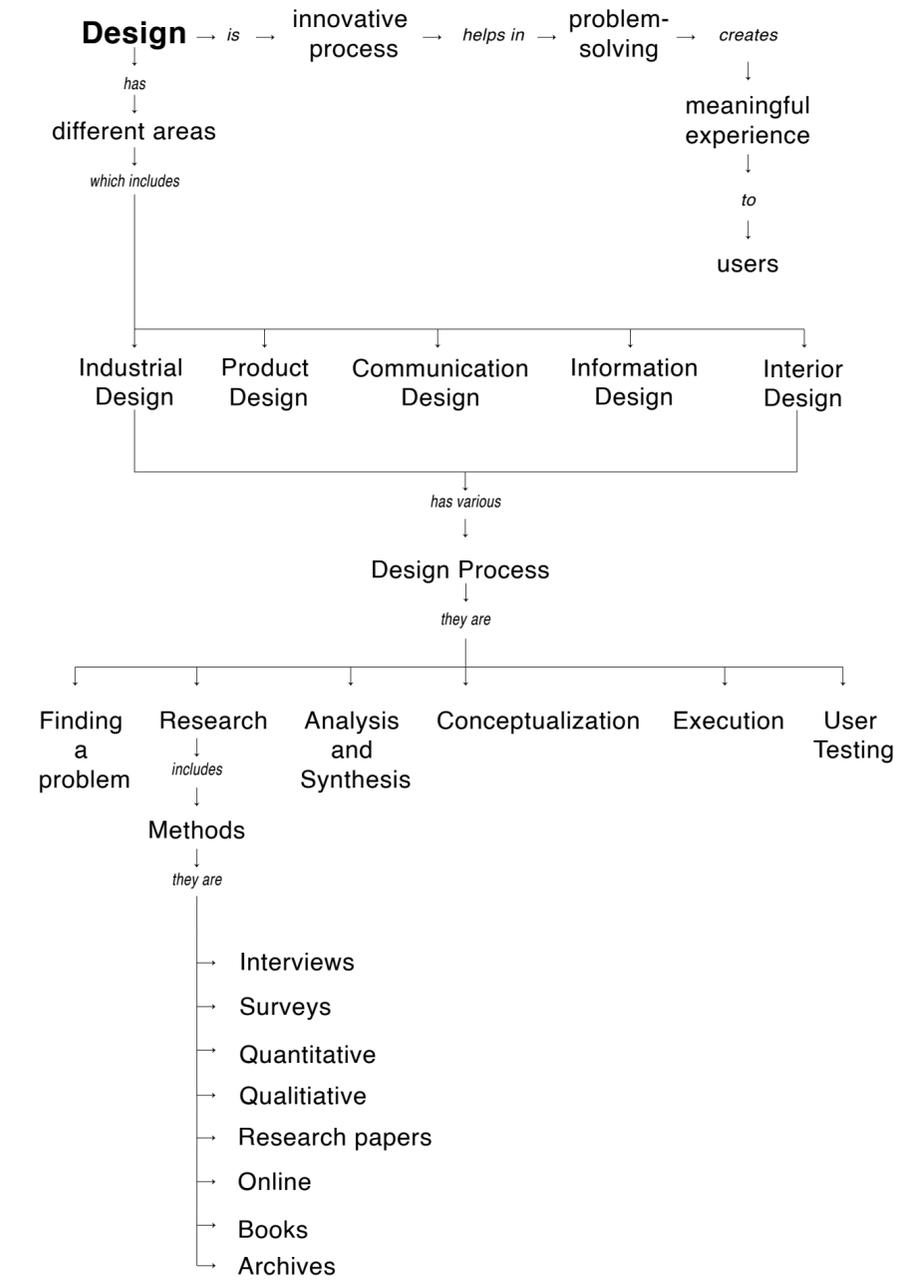
Anushka Harne

00. About the book

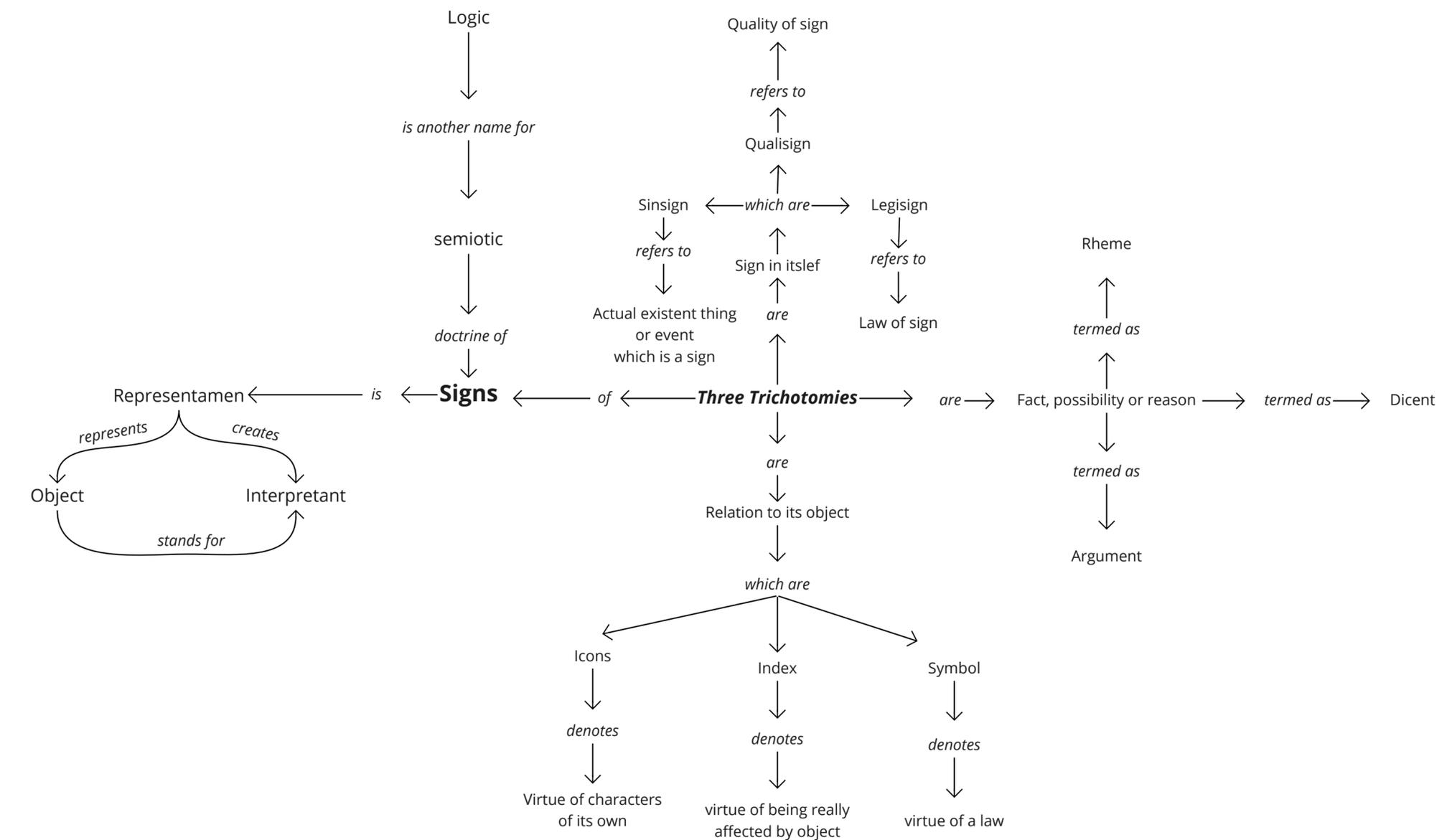
The Concept Map book for the course Information Design and Critical Thinking by Professor Michael Arnold Mages is a compilation of all the concept maps we did during the semester.

The main aim of creating the concept maps was to highlight the key points from the reading and connect those points, providing a visual summary of the reading.

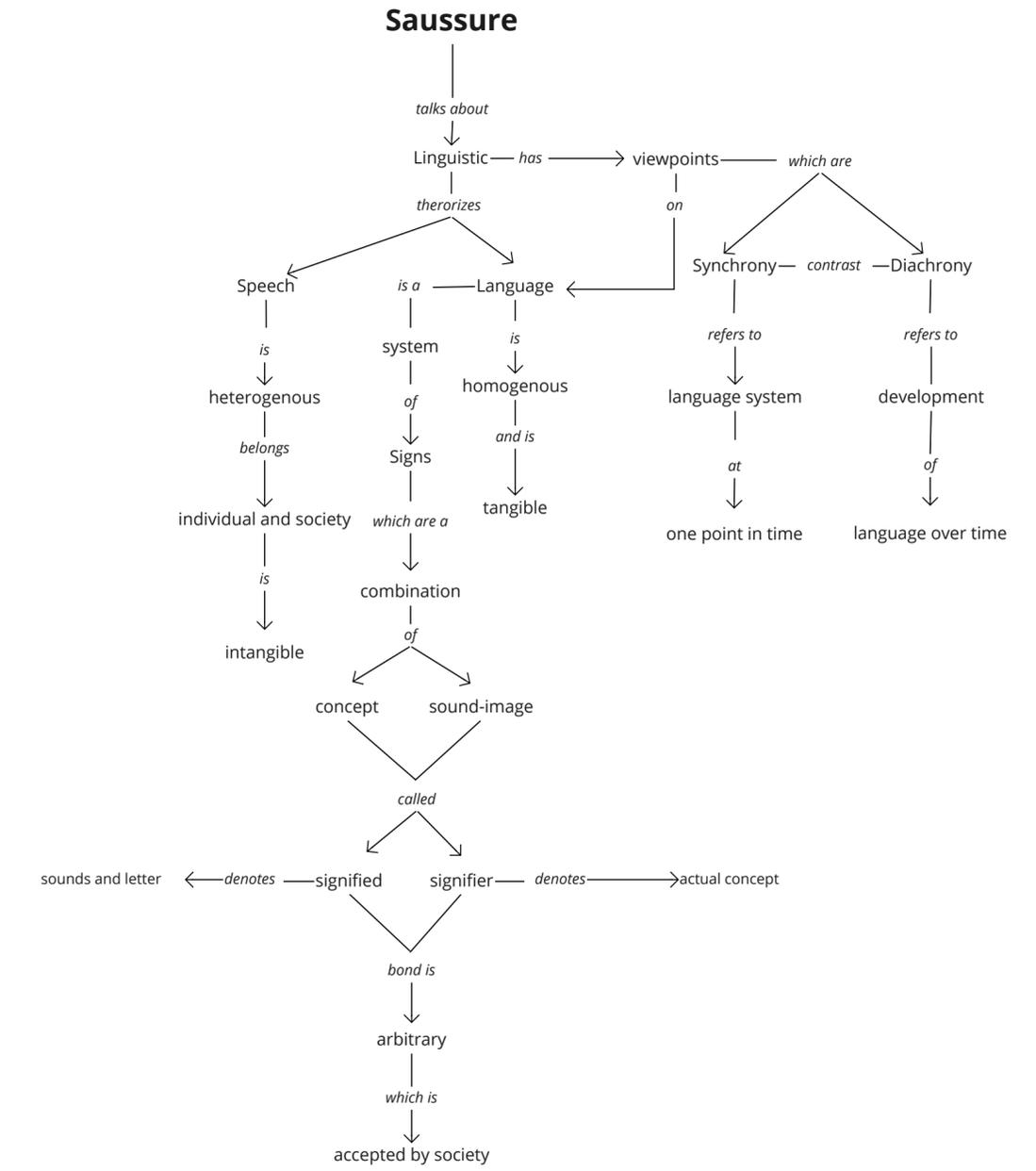
Initially, I struggled a bit with linking the terms, which terms are important, and how to visually layout the map. But, as the class proceeded further, I got a better understanding of focusing on the part that I wanted to highlight from the reading. As a result, my maps got into much better shape, and you could see the journey as you look further through my book.



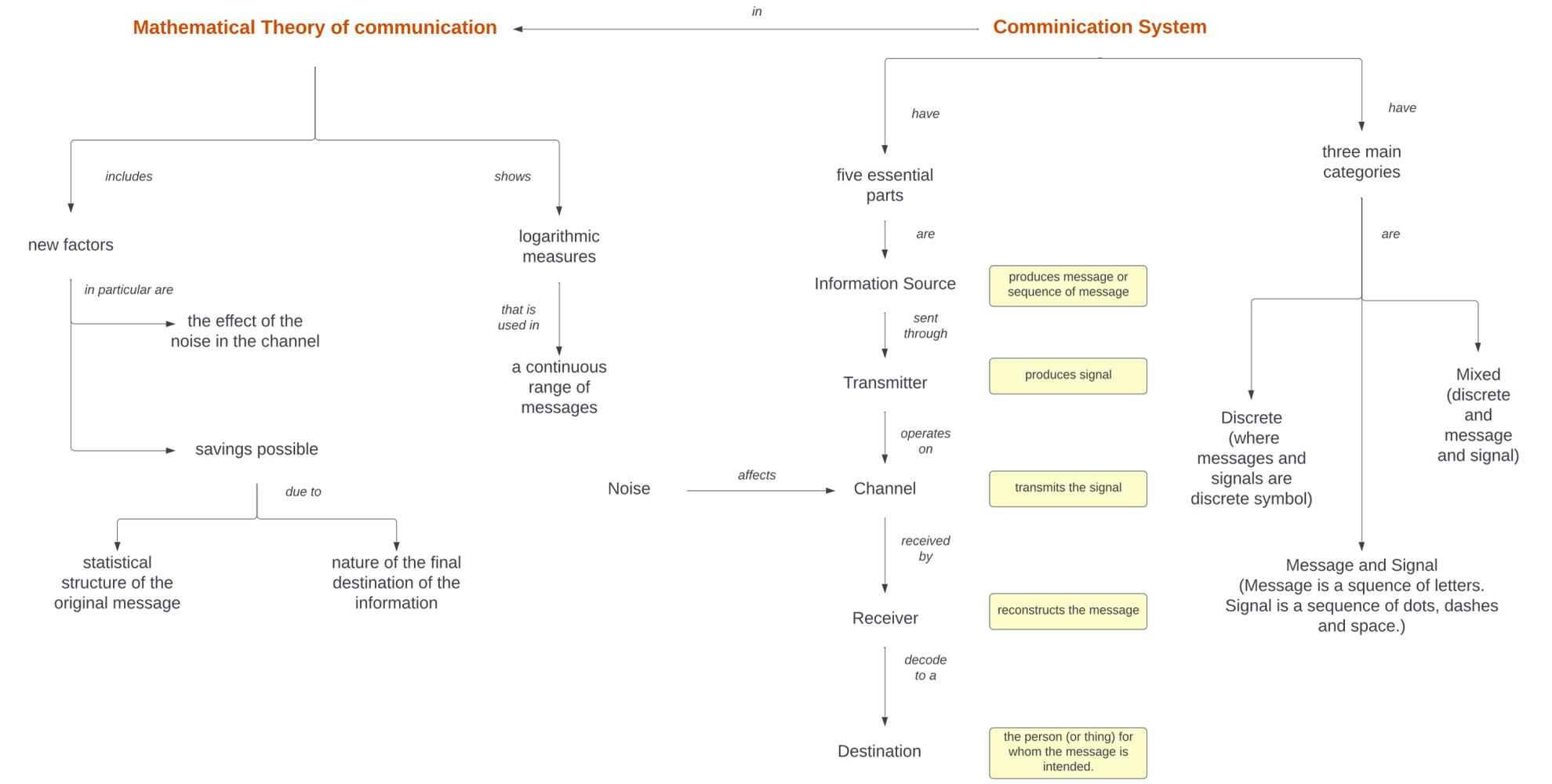
OI. What is Design



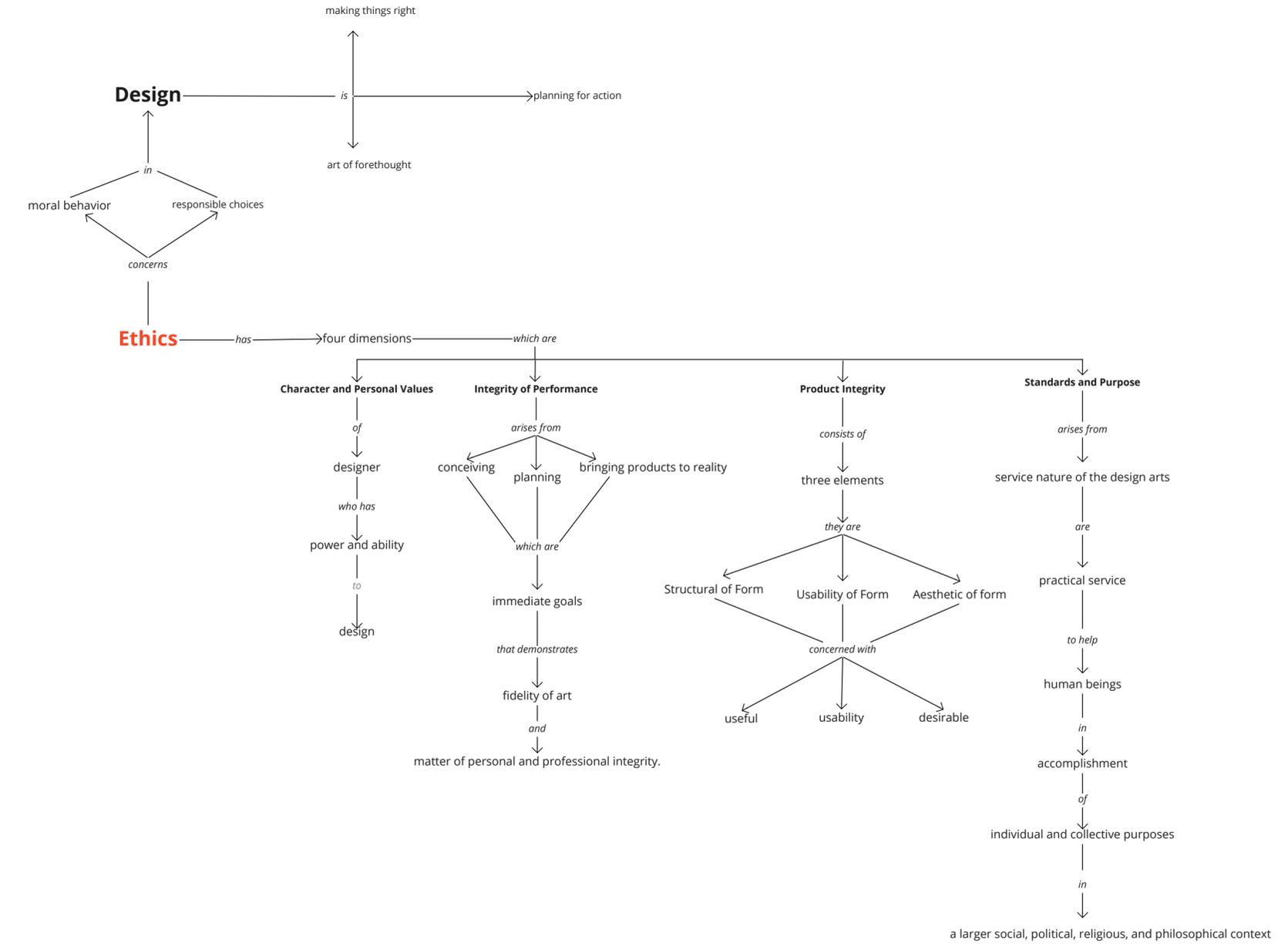
O2. Philosophical Writing of Peirce, Pierce



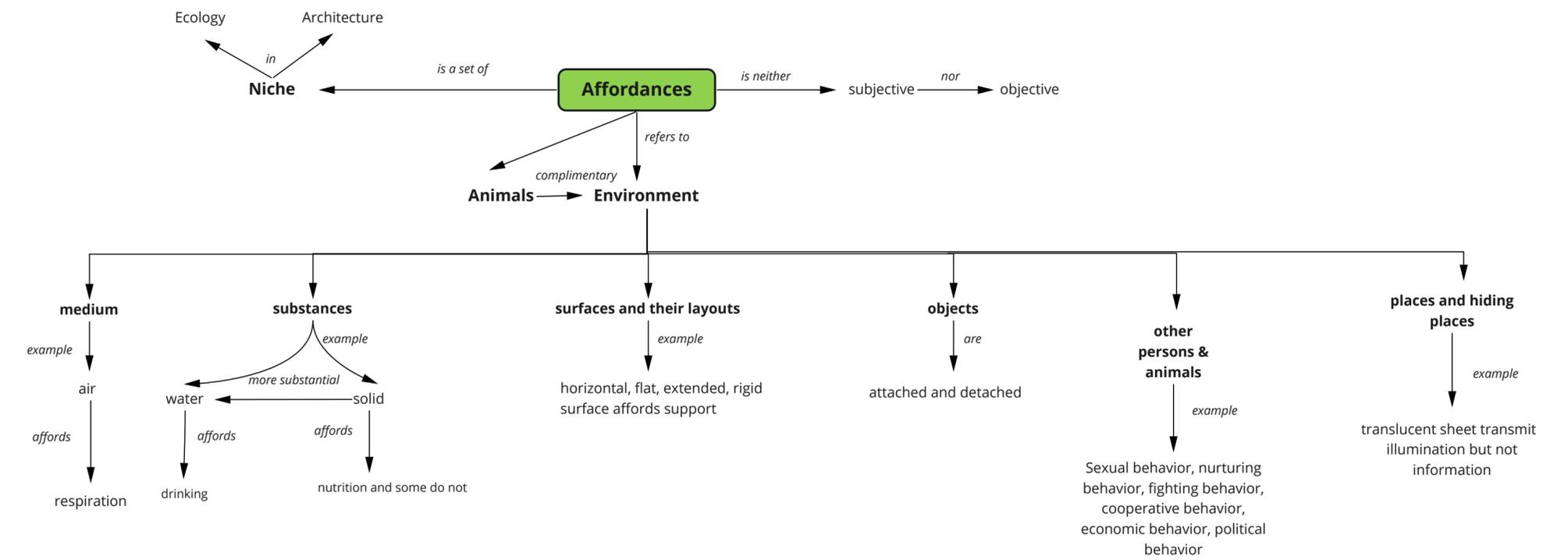
03. Course in General Linguistics, de Saussure



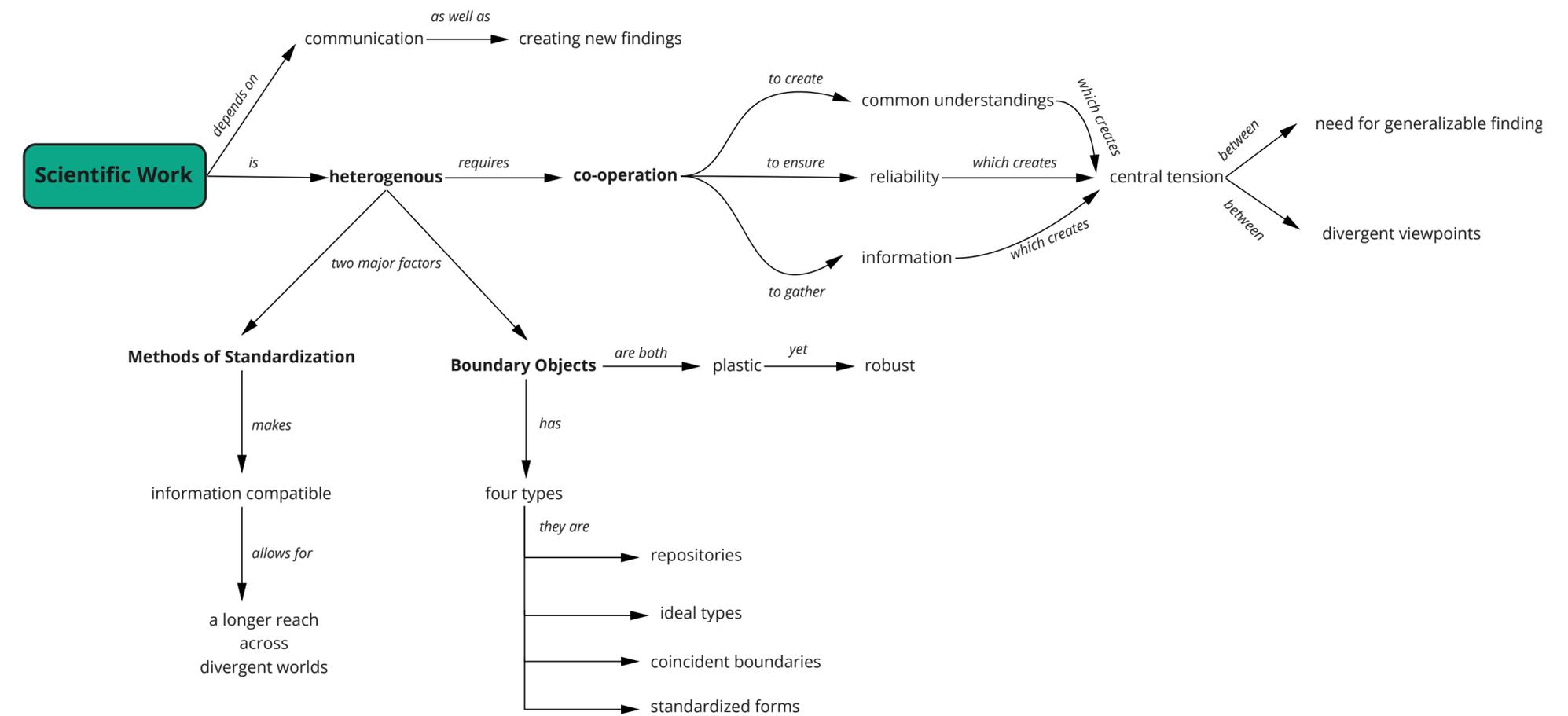
04. The Mathematical Theory of Communication, Shannon, C. and Weaver, W.



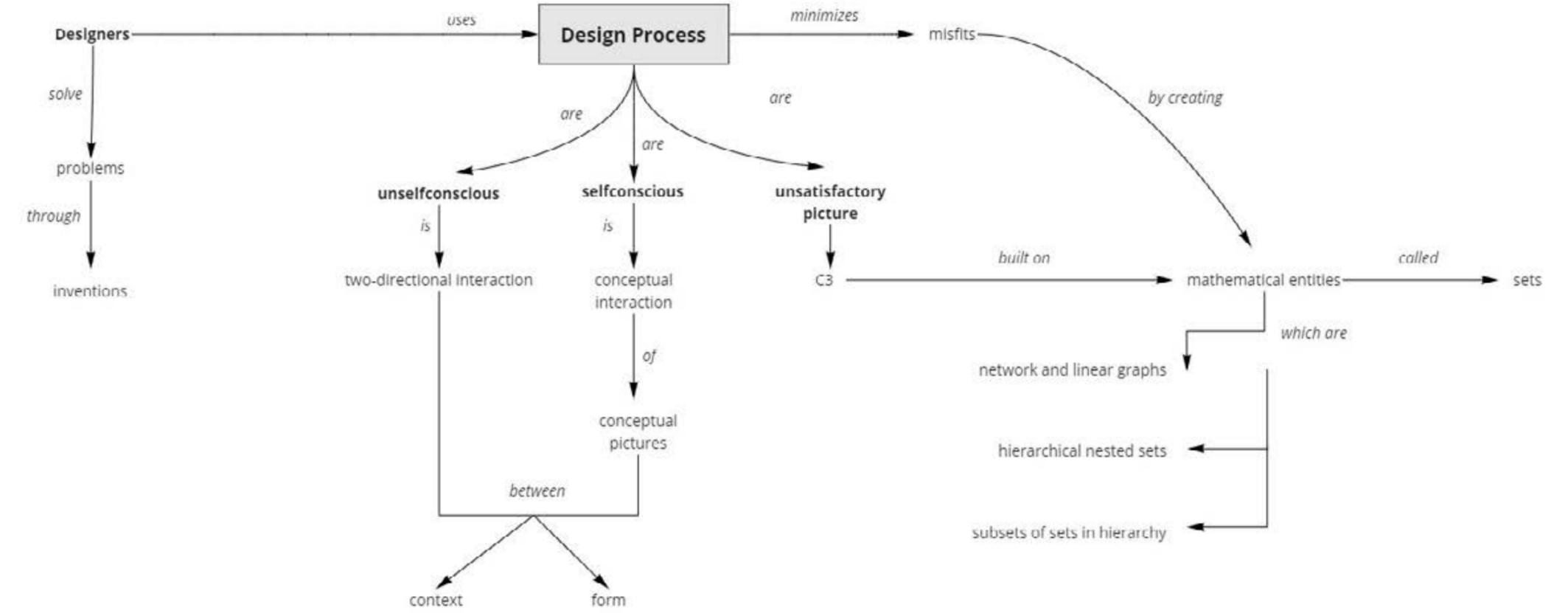
05. Design Ethics, Buchanan, R



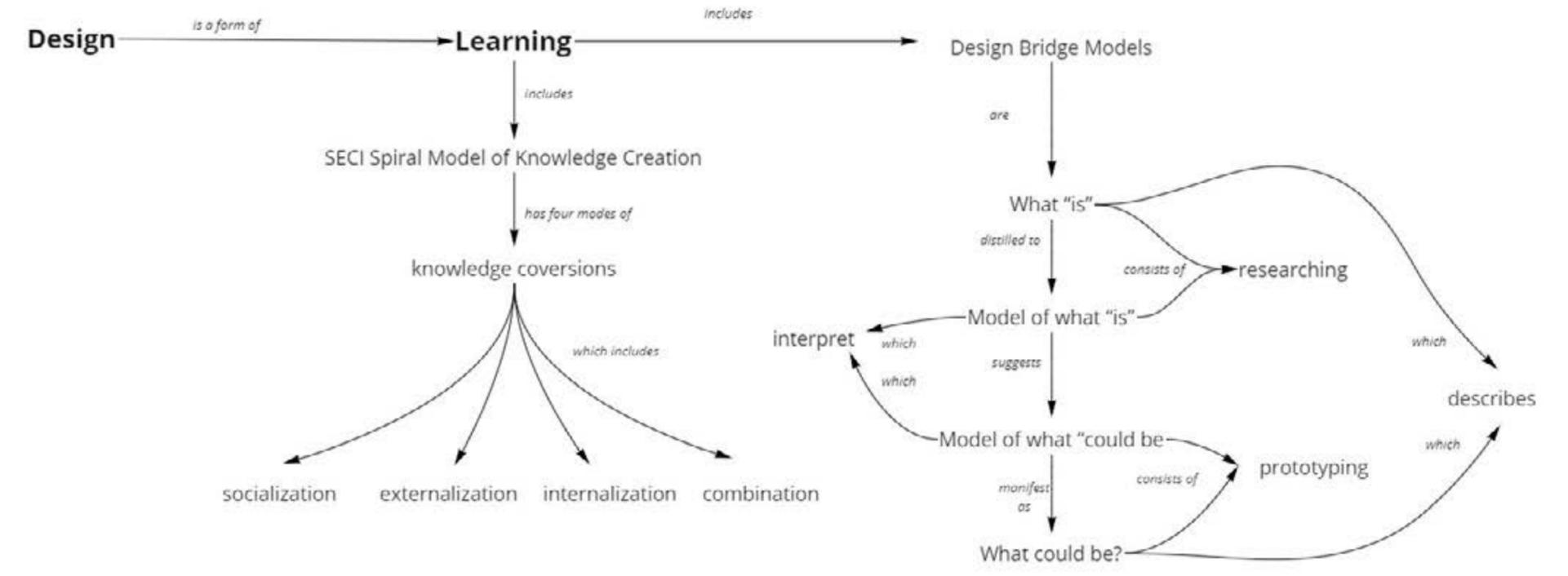
06. Theory of Affordances, Gibson, James J.



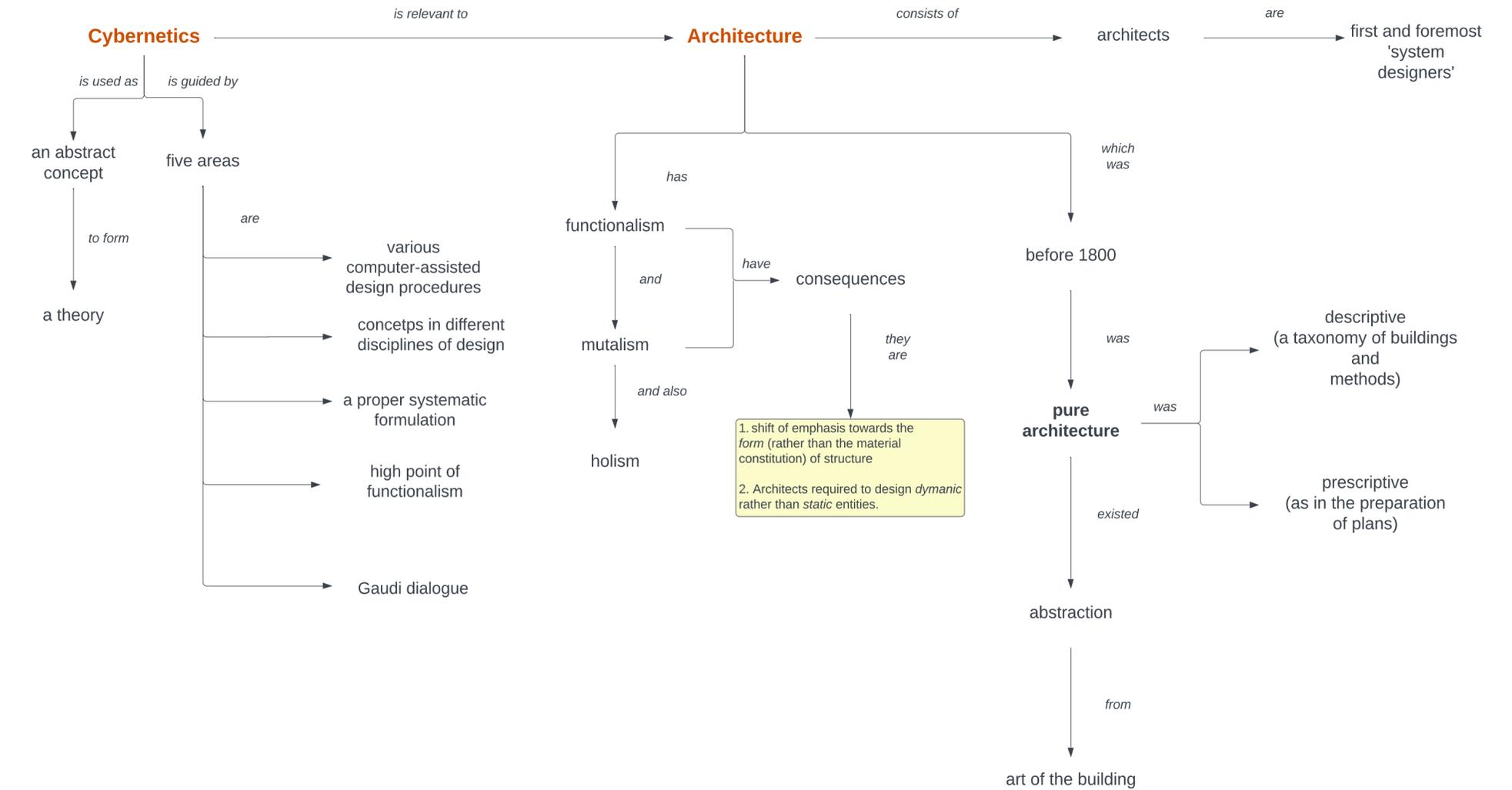
07. Institutional Ecology and Translation Boundry of Objects, Star, S. and Griesemer, J



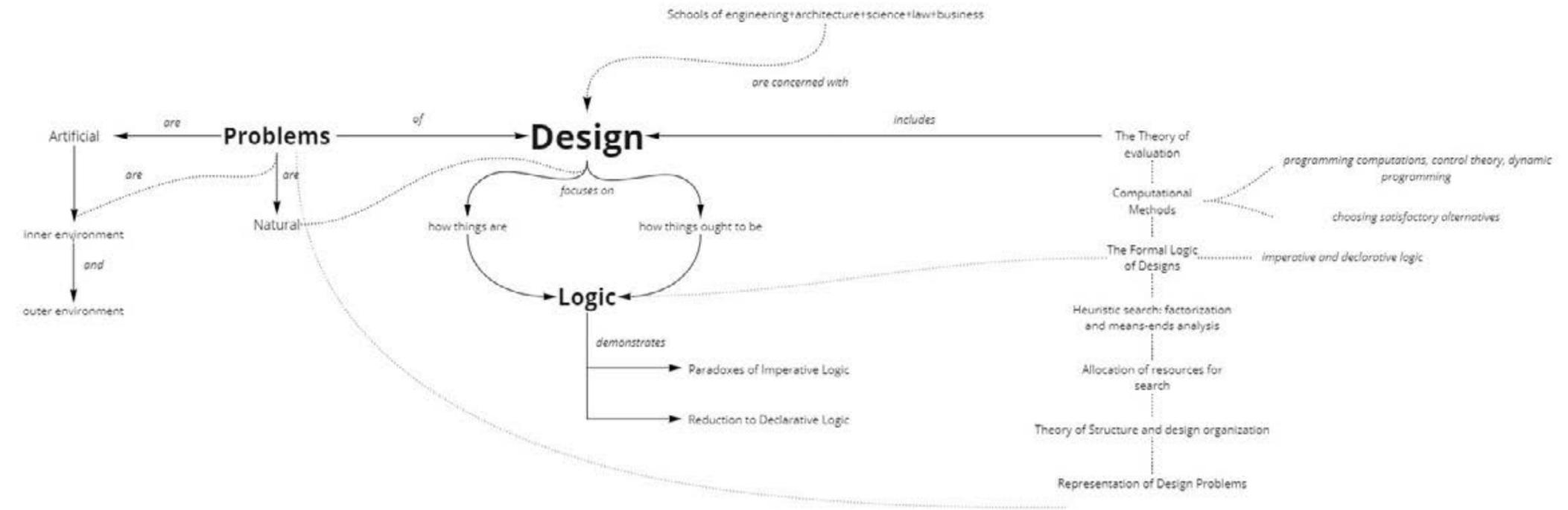
08. Synthesis of Forms, Alexander, C.



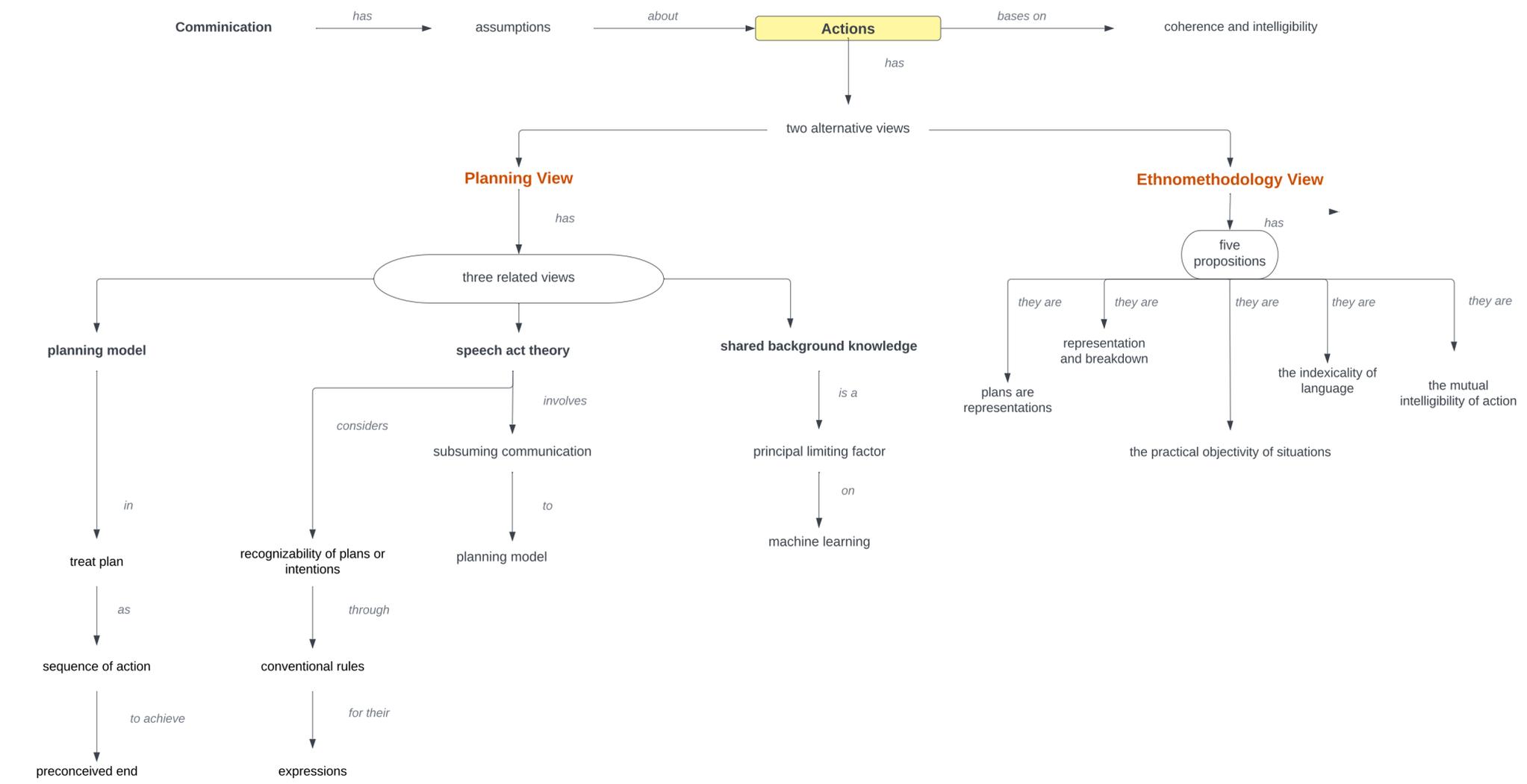
09. Designing as Learning, Dubberly & Dubberly and Evenson



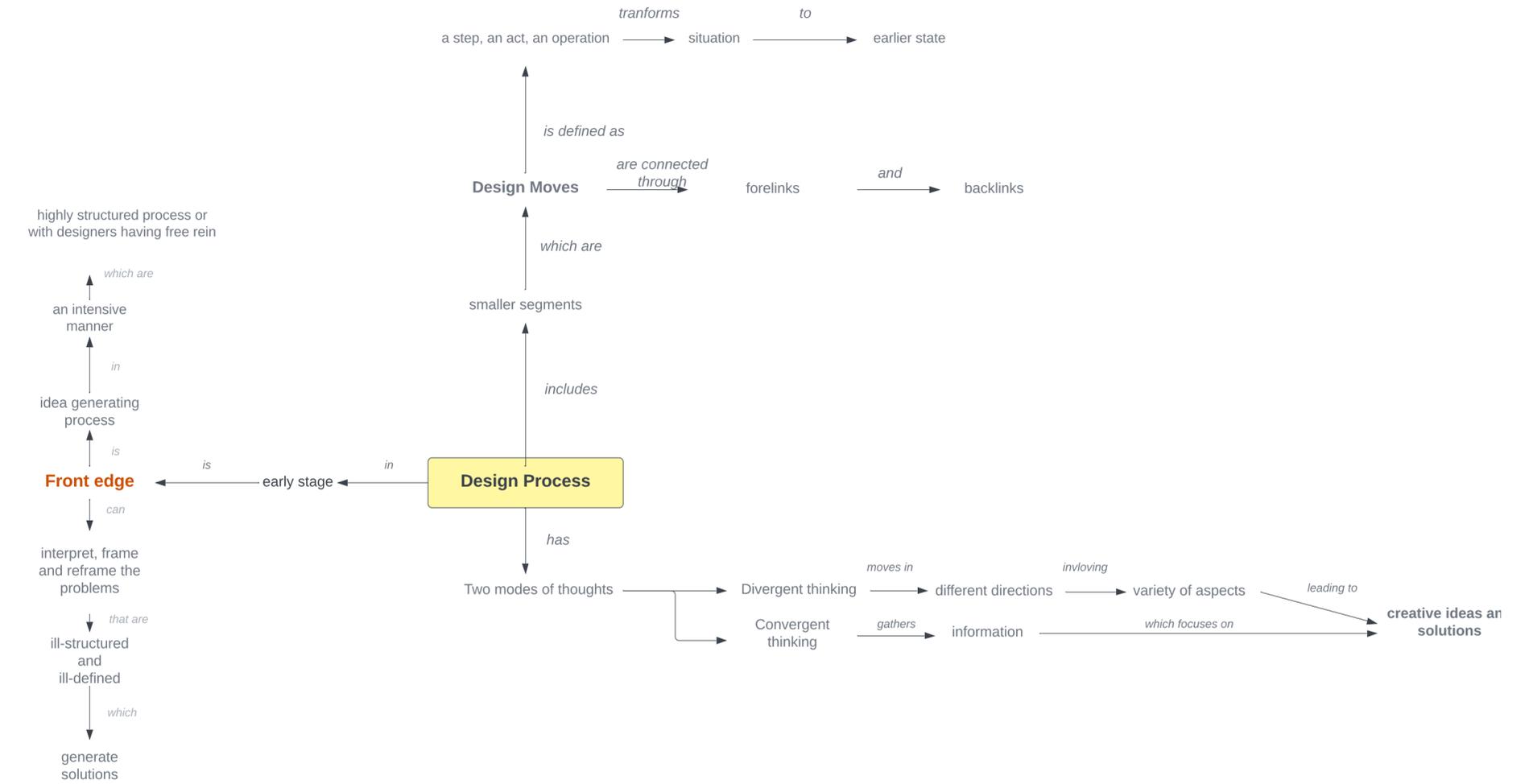
IO. The Architectural Relevance of Cybernetics, Pask, G.



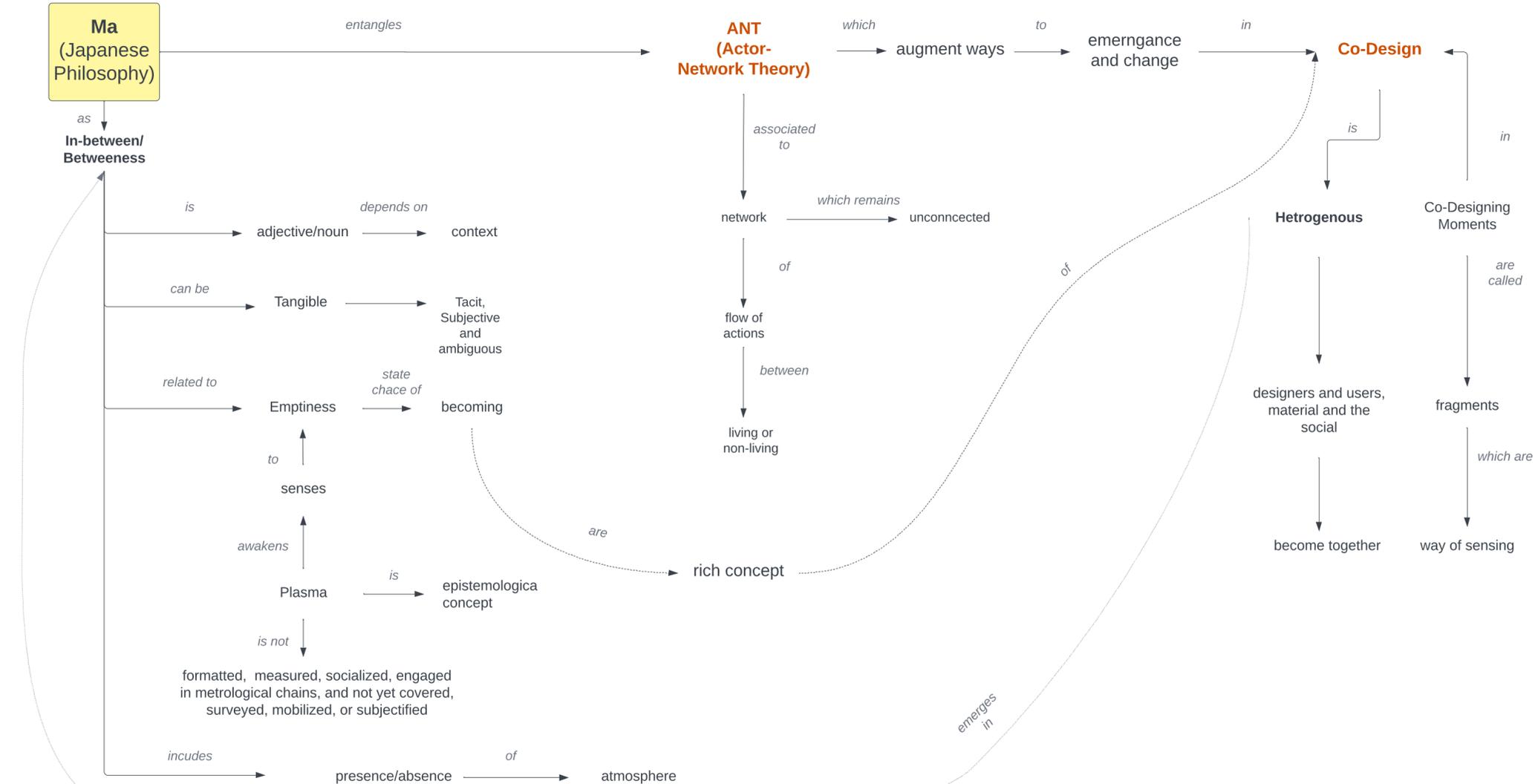
II. The Science of Design, Simon, H.



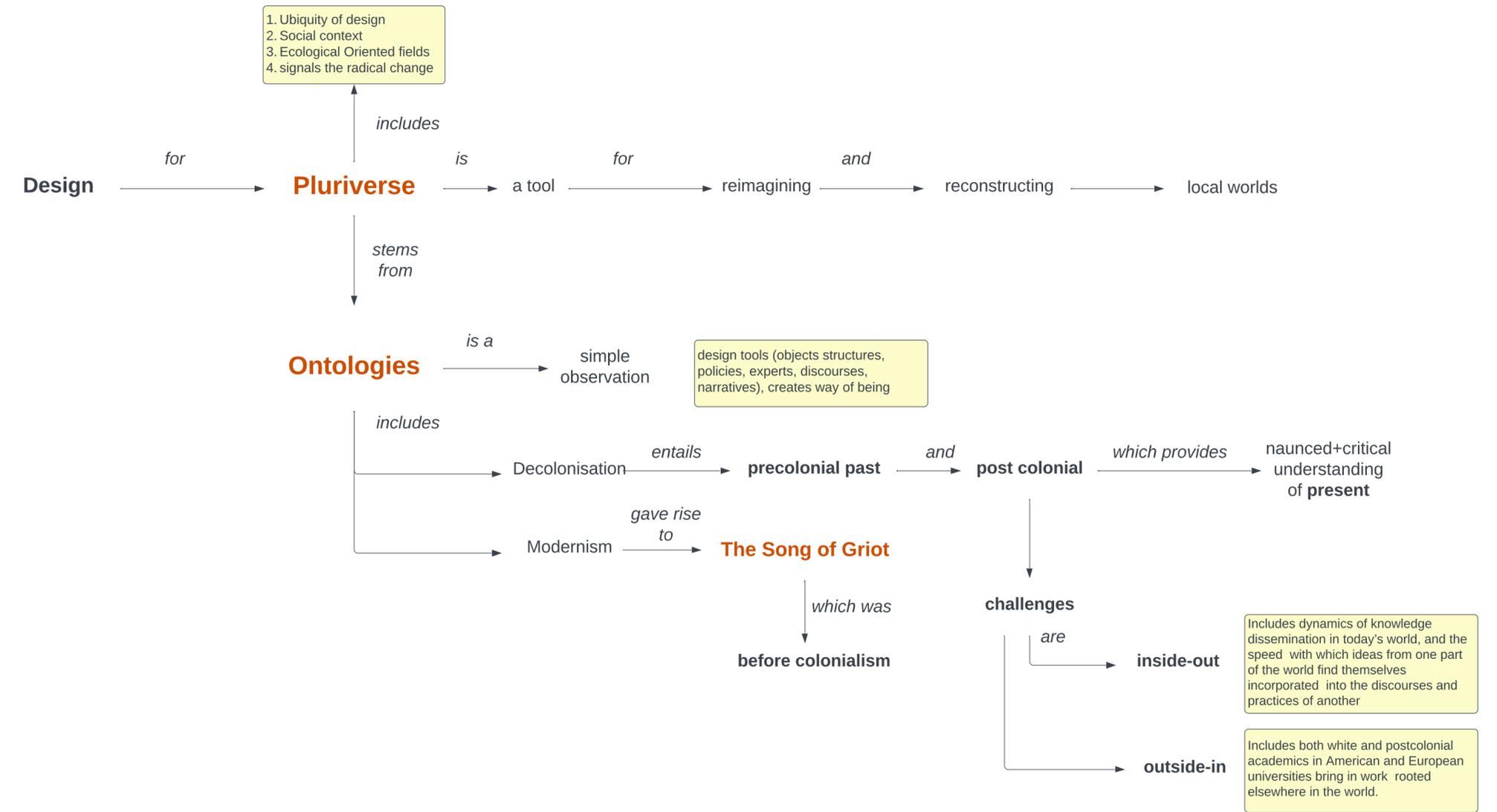
I2. Human–Machine Reconfiguration, Suchman, L.



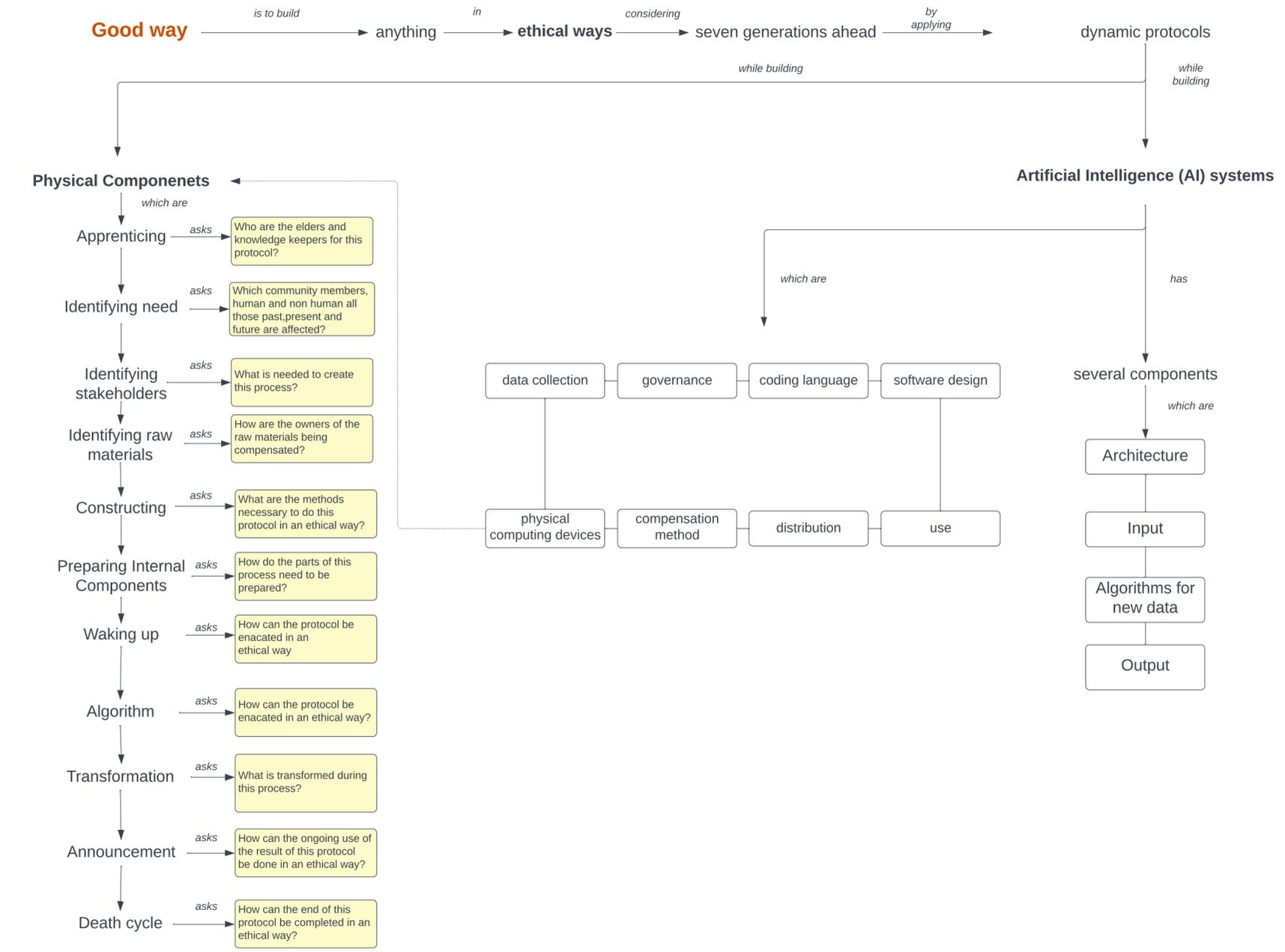
I3. Design Synthesis, Goldschmidt, G.



I4. Being Awake to Ma, Akama, Y.



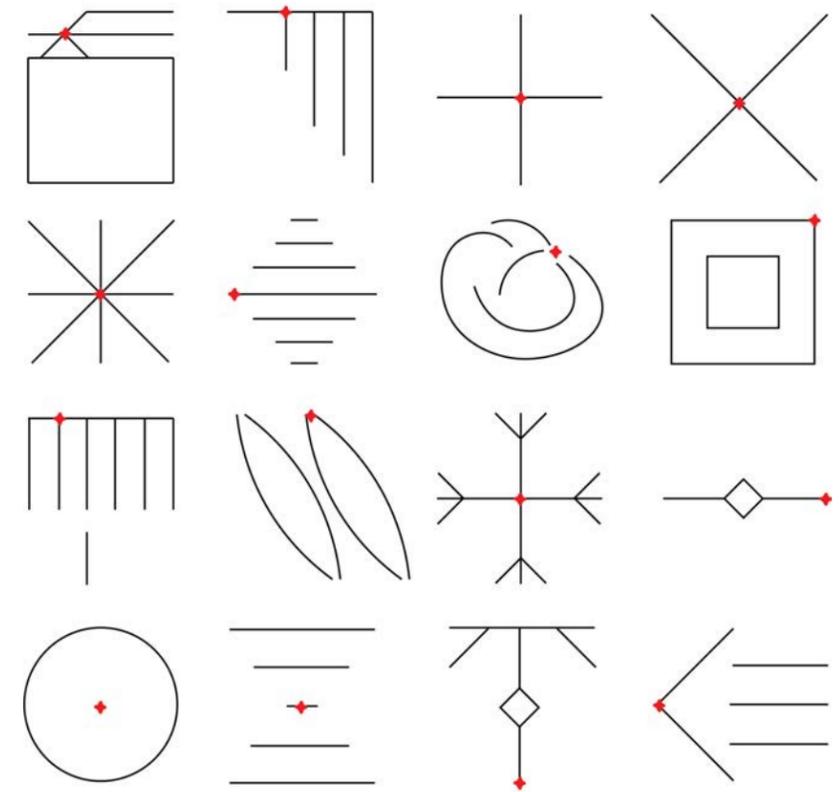
15. The History of Design and Design of Design of History, Ansari, A., Diawara, M., Escobar, A.



16. How to Build Anything Ethically, Kite, S., Stover, C., Janis, M. S., & Benesiinaabandan, S.

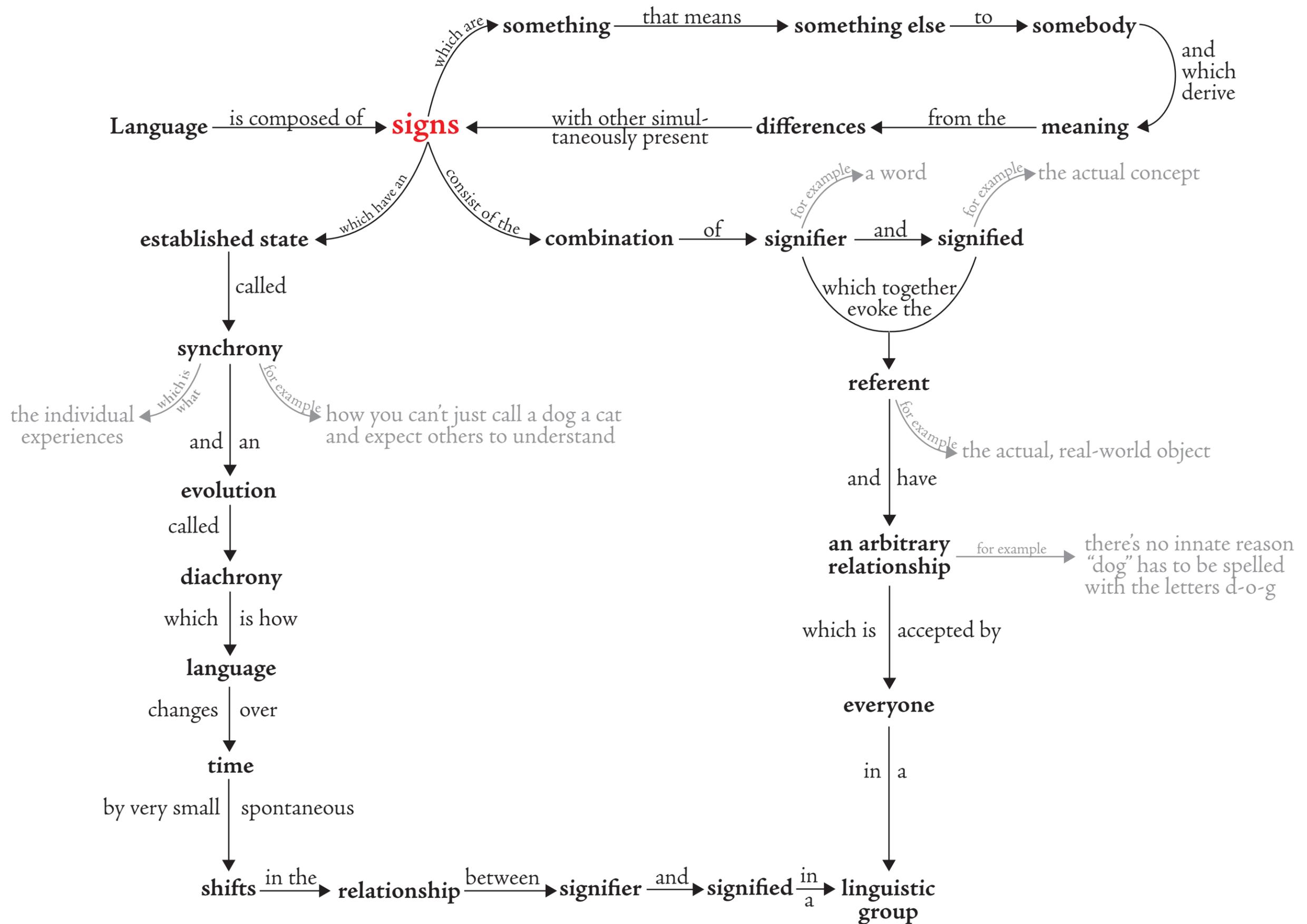
information design theory
& critical thinking
an introduction

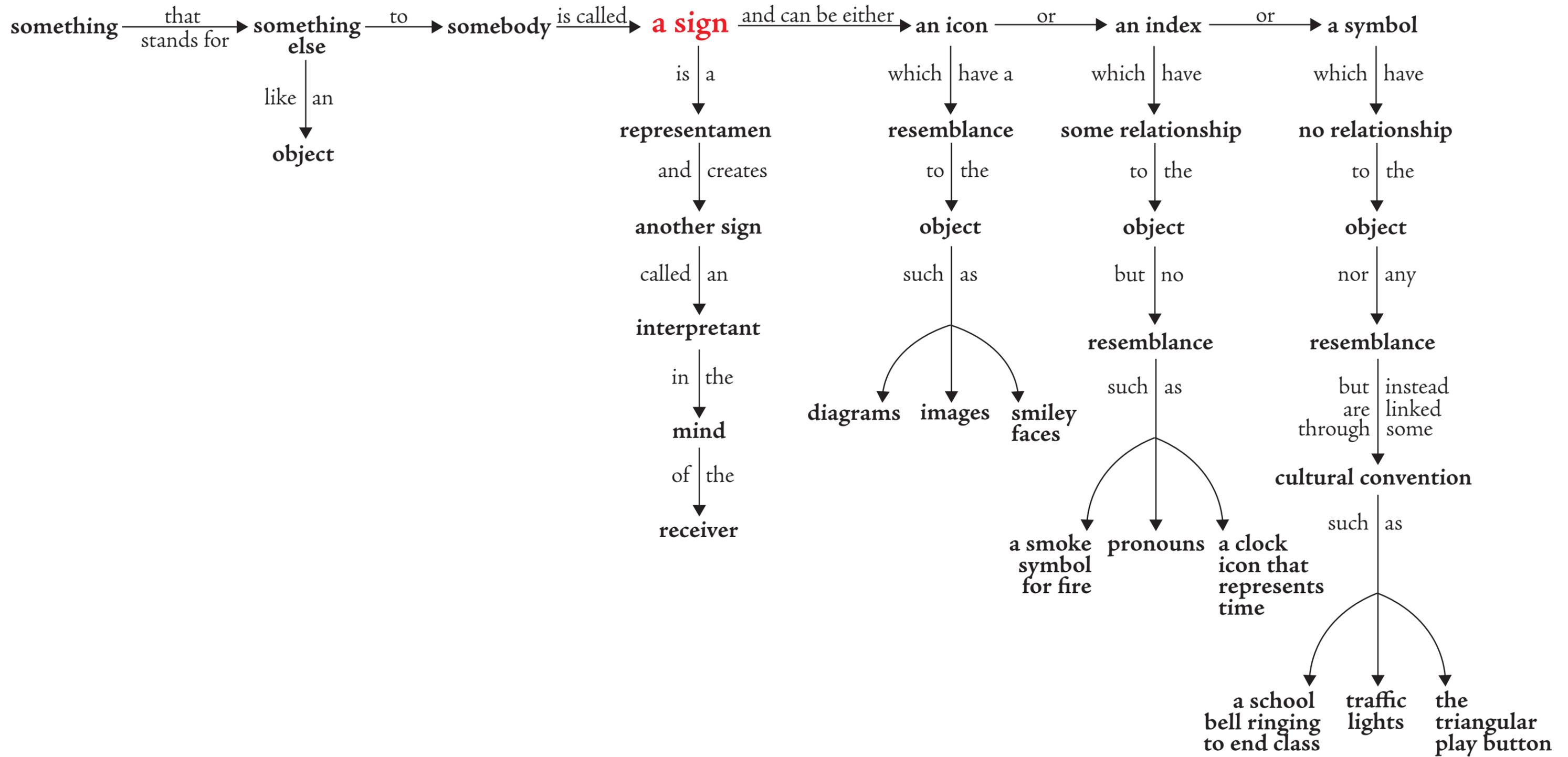
andrew noe

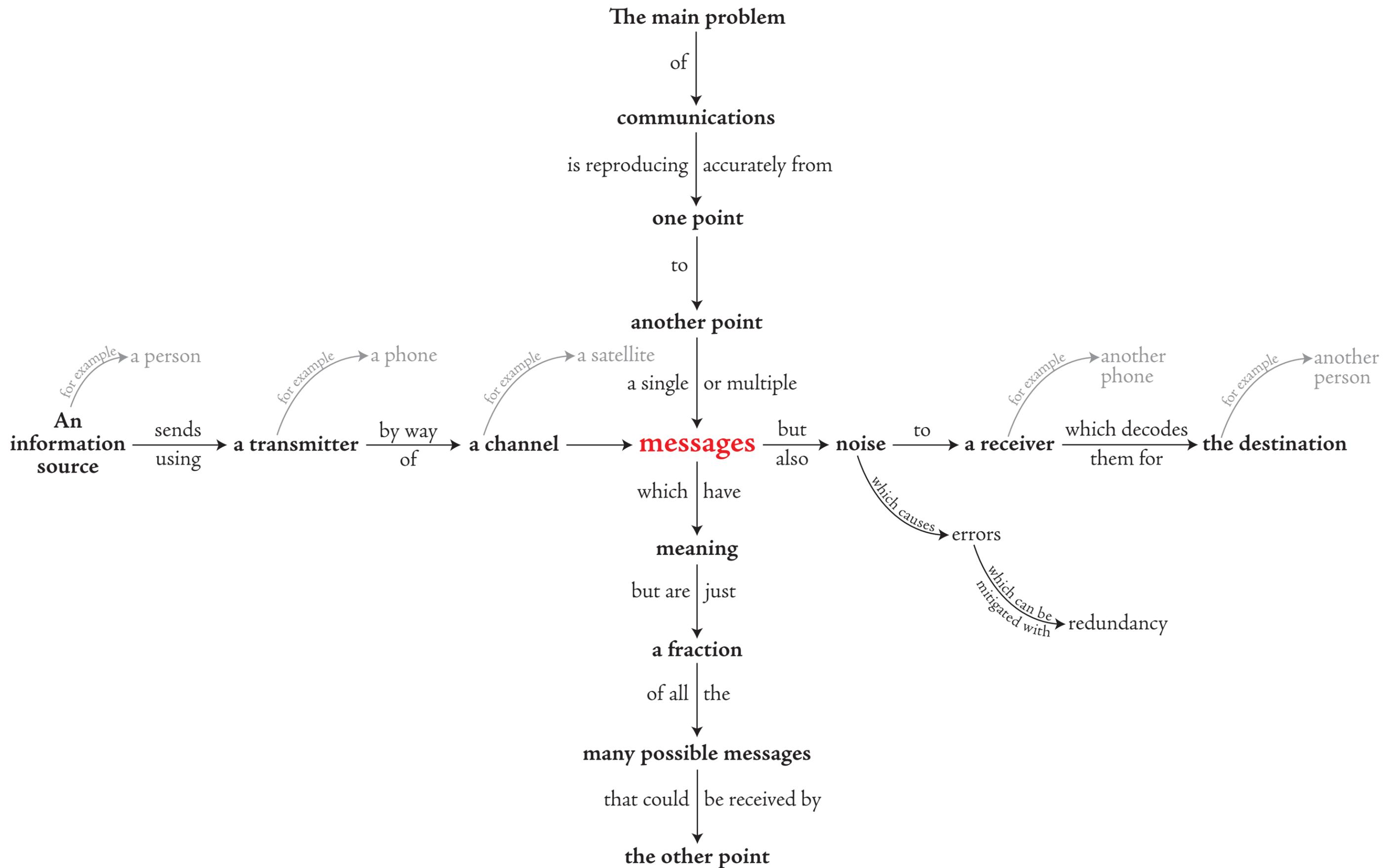


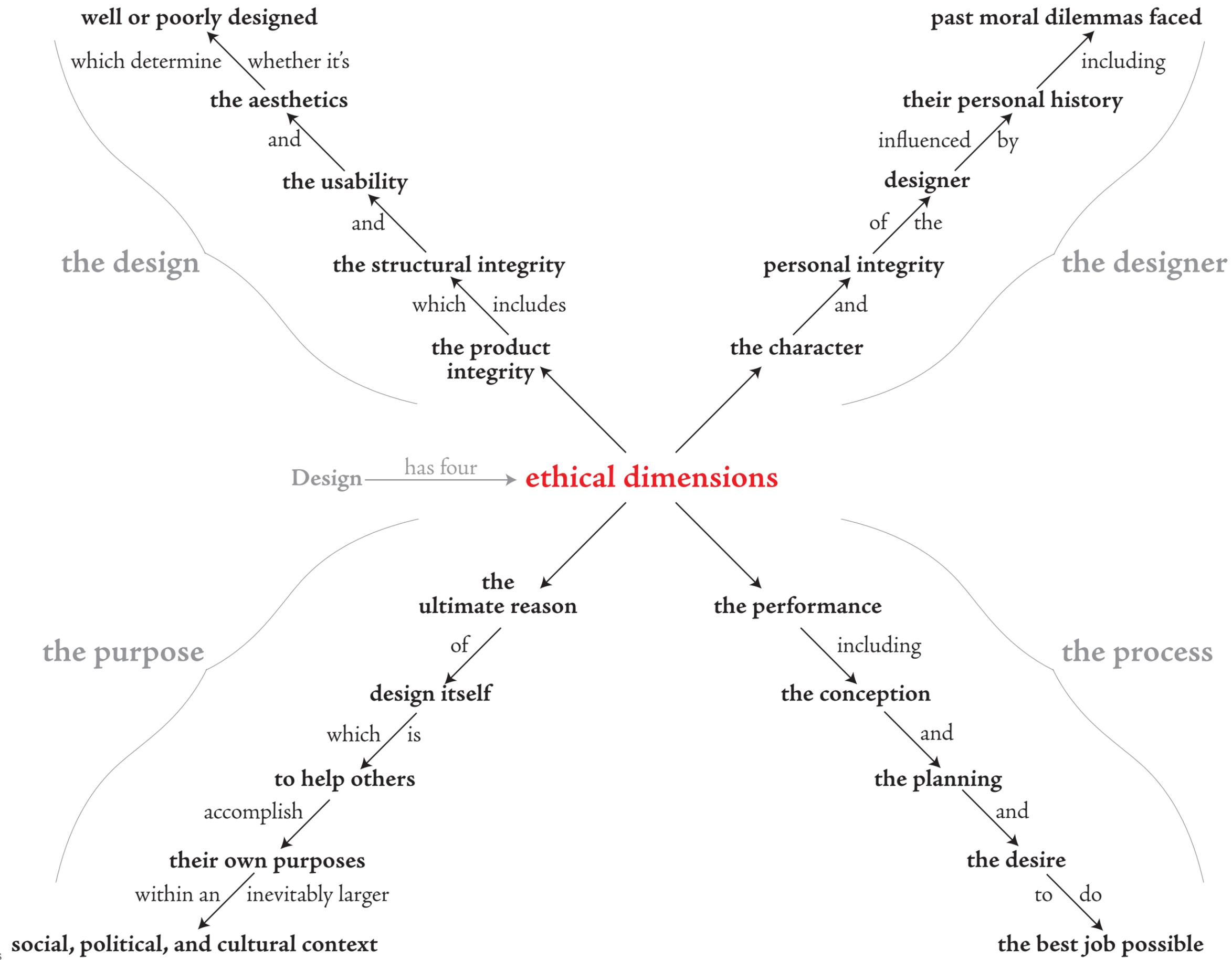
information design theory
& critical thinking

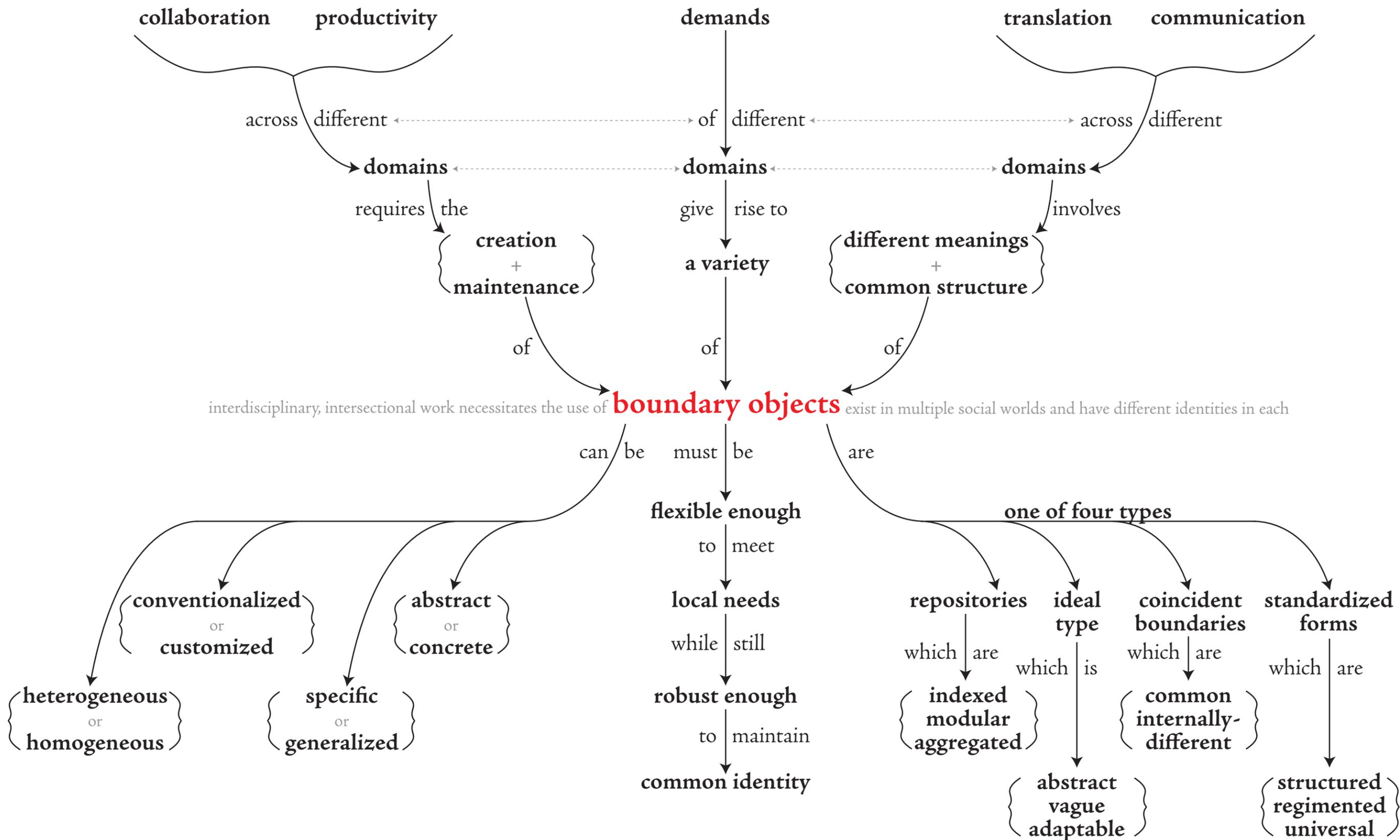
i.	nature of the linguistic sign	ferdinand de saussure
ii.	the theory of signs	charles peirce
iii.	a mathematical theory of communication	claud shannon
iv.	design ethics	richard buchanan
v.	institutional ecology, translations, and boundary objects	s. leigh star & james griesemer
vi.	the theory of affordances	james gibson
vii.	notes on the synthesis of form	christopher alexander
viii.	the analysis-synthesis bridge model + the SECI model	hugh dubberly
ix.	the sciences of the artificial	herbert simon
x.	the architectural relevance of cybernetics	gordon pask
xi.	plans and situated actions	lucy suchman
xii.	linkography	gabriela goldschmidt
xiii.	being awake to ma: designing in between-ness	yoko akama
xiv.	the pluriverse + the song of the griot + history of design	escobar, diawara, & ansari
xv.	how to build anything ethically	suzanne kite
xvi.	what is design?	andrew noe

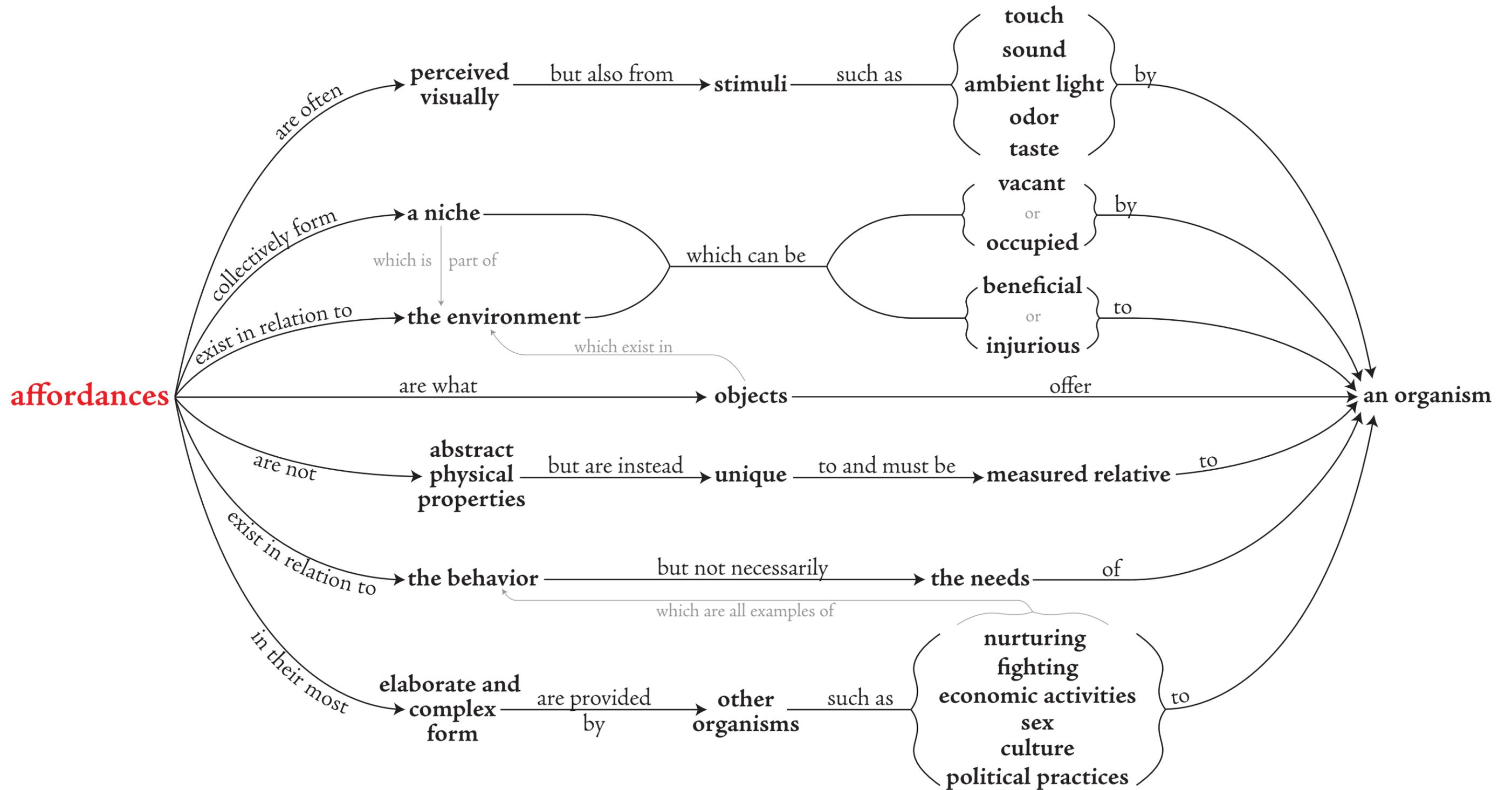


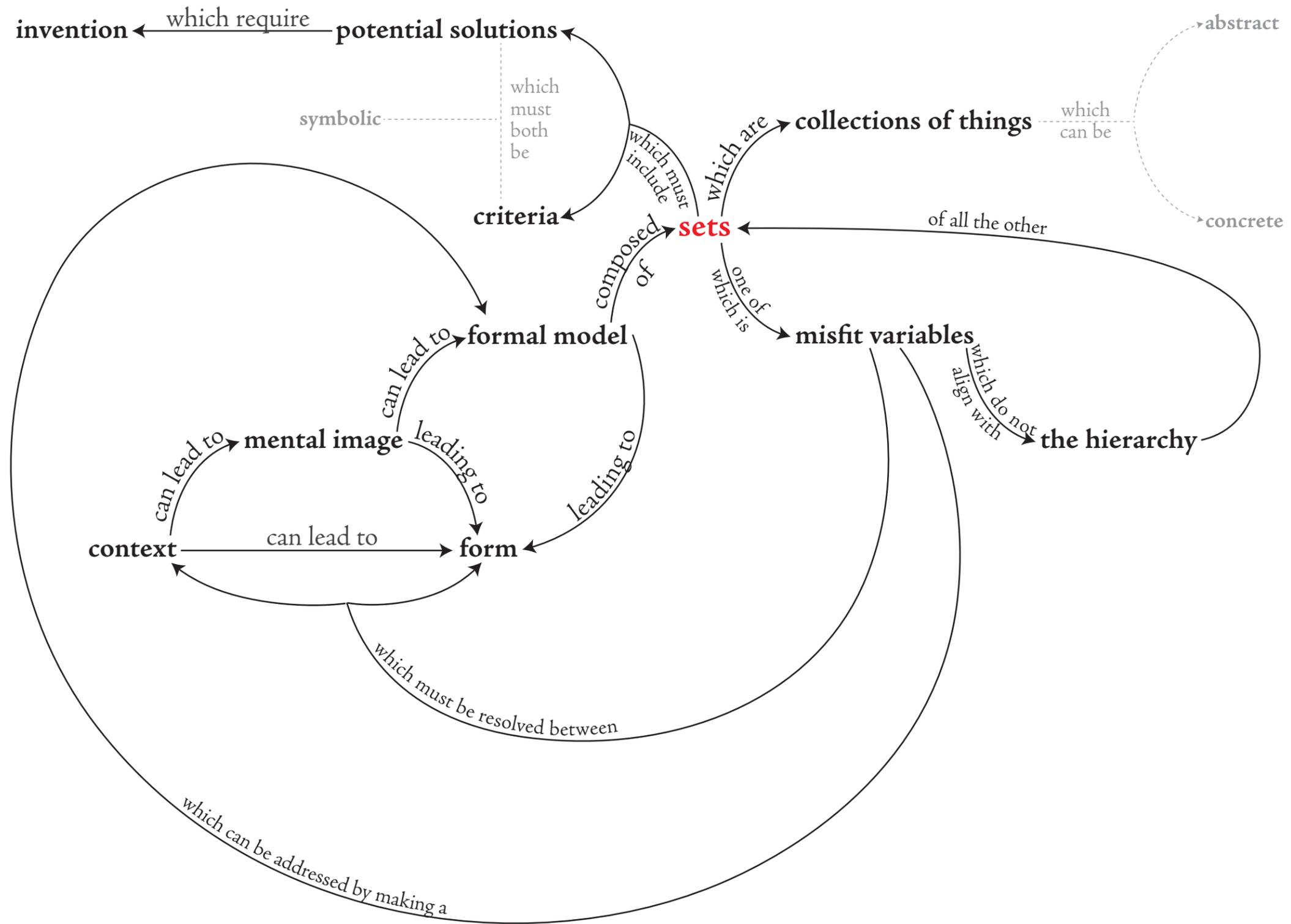


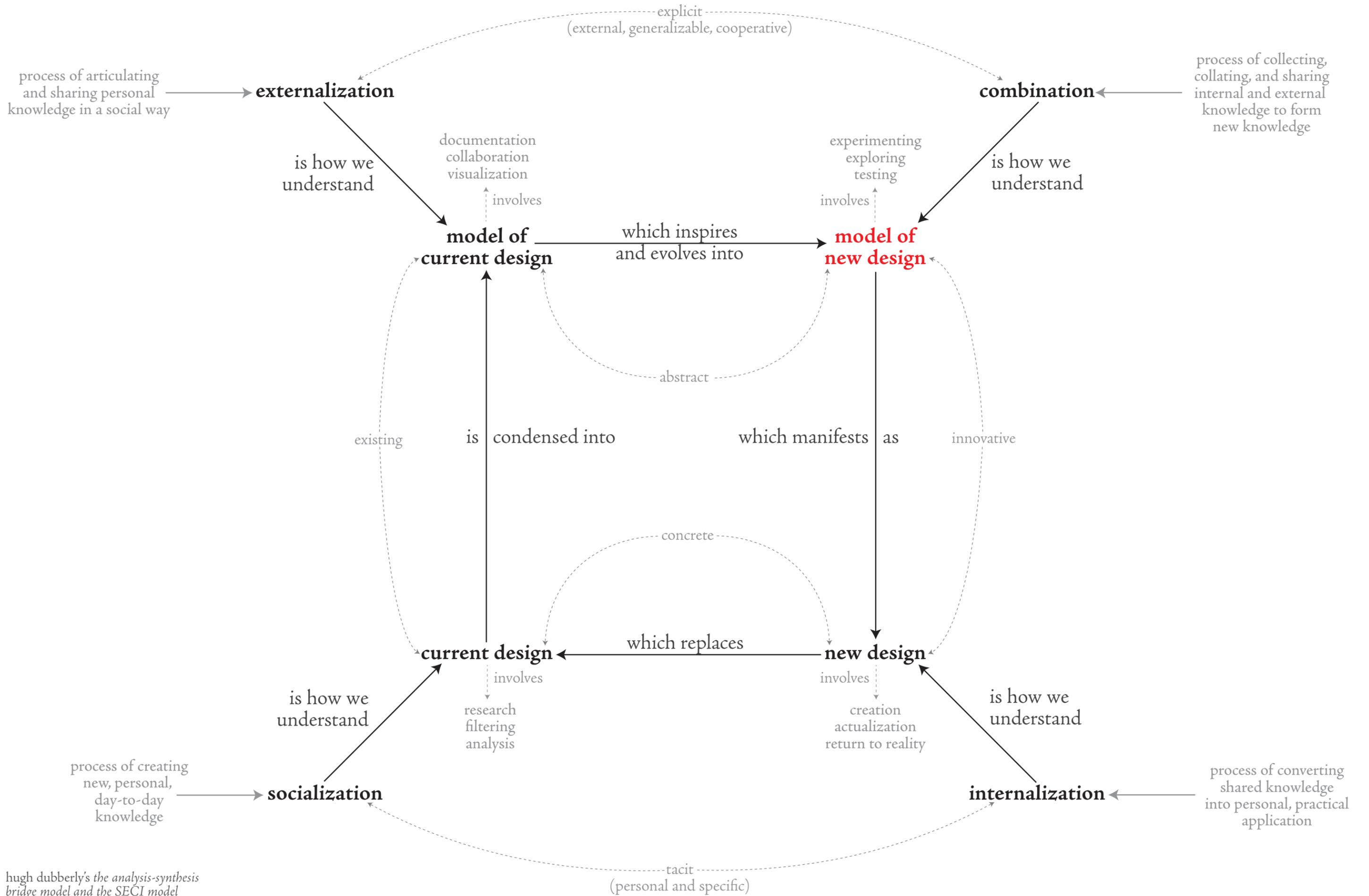


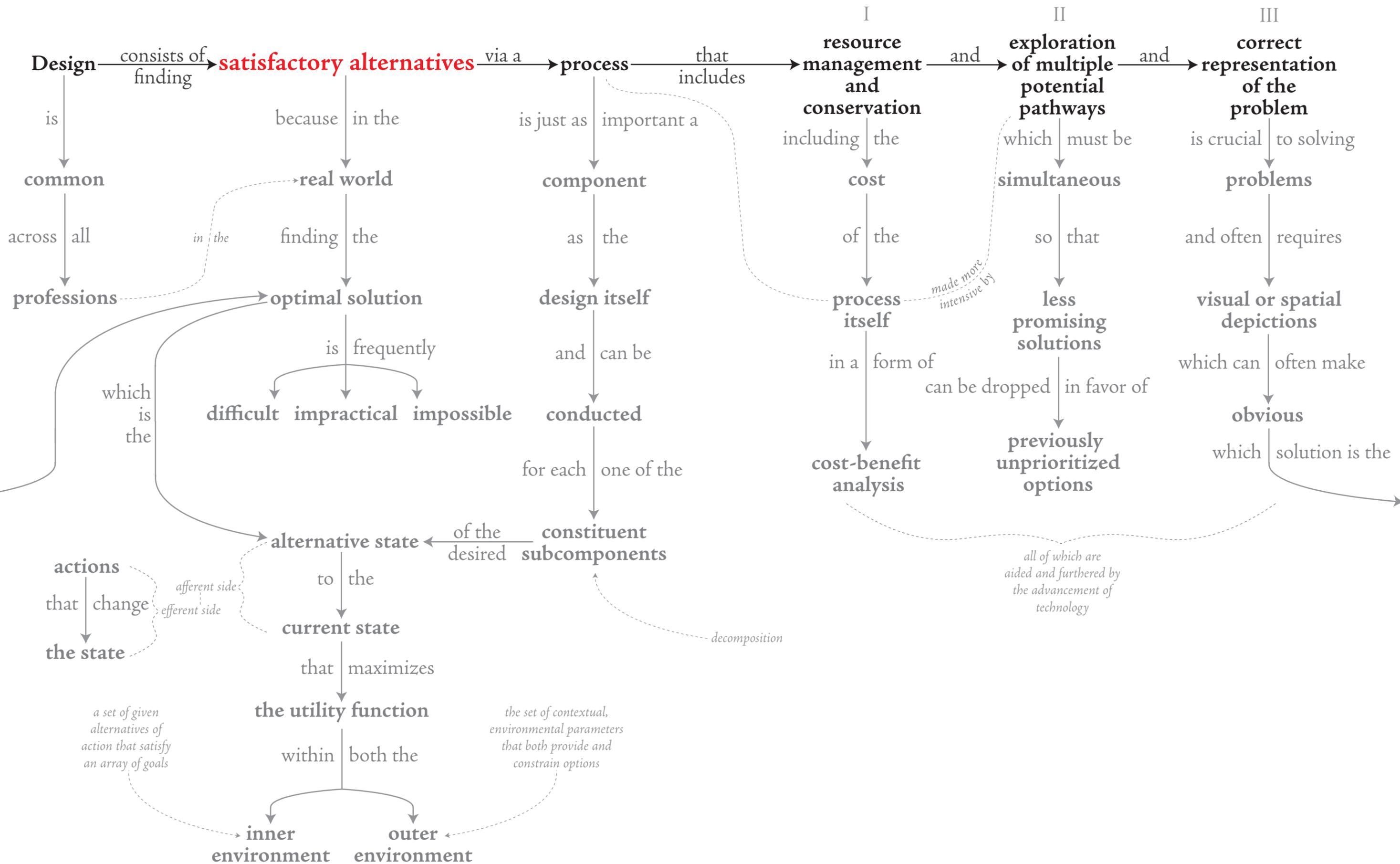


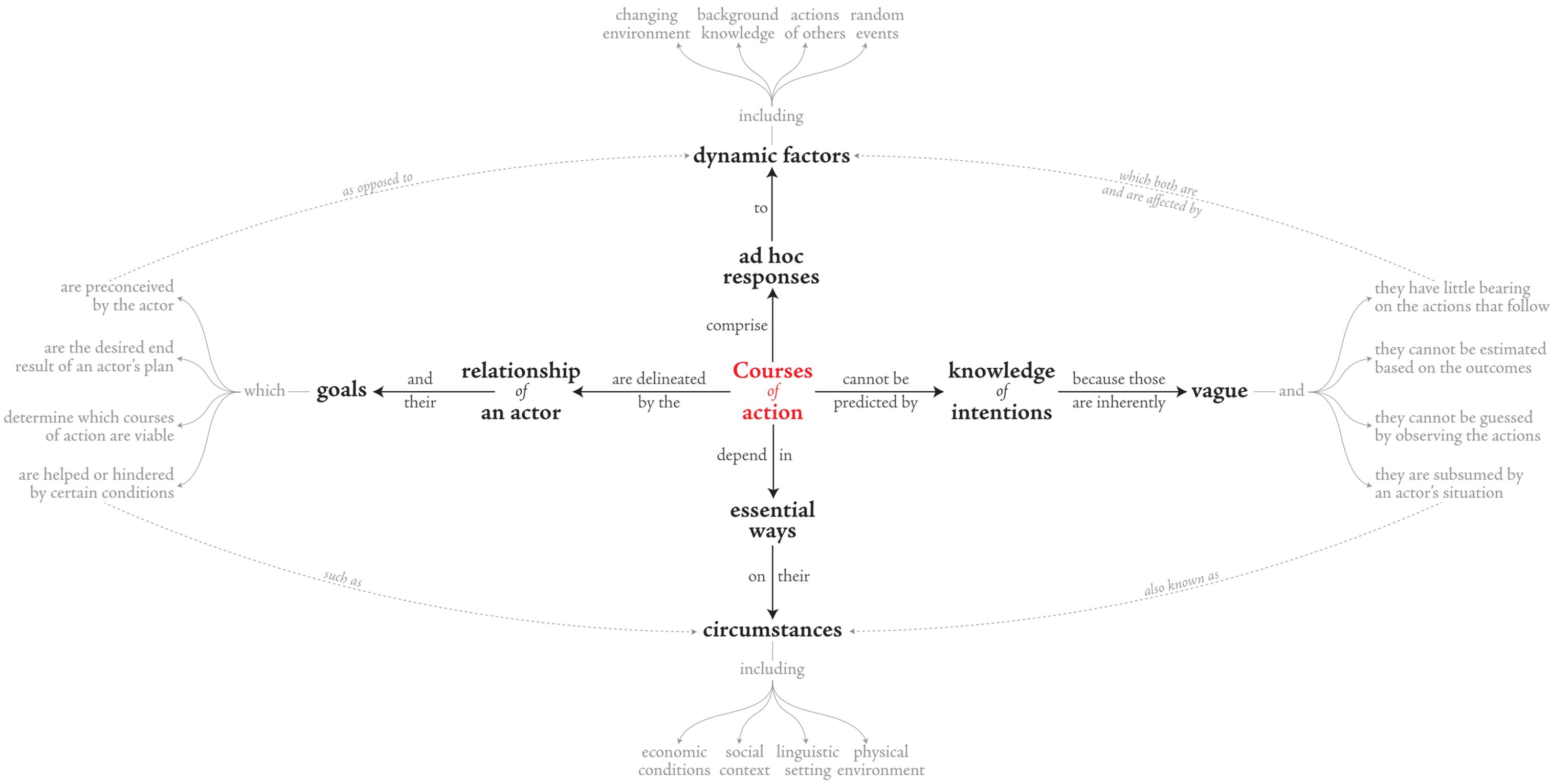


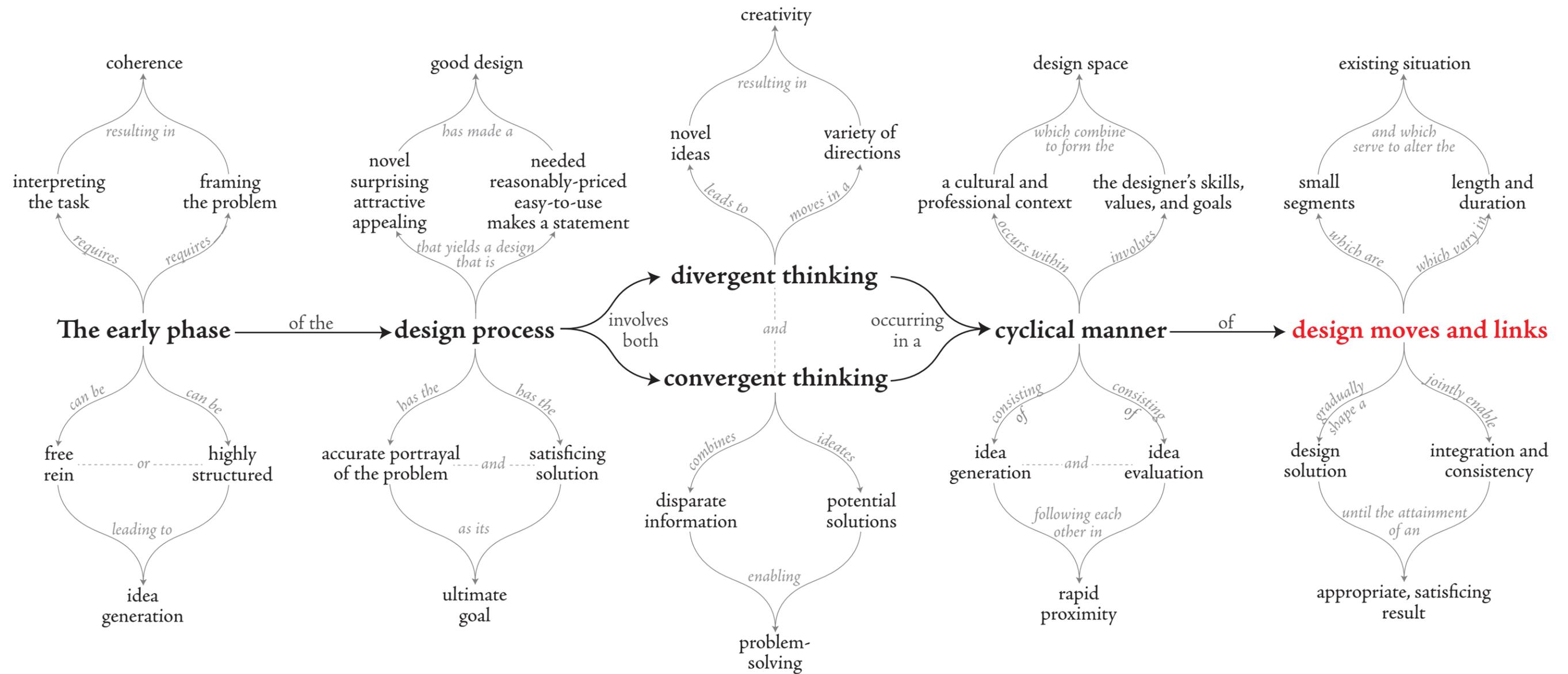




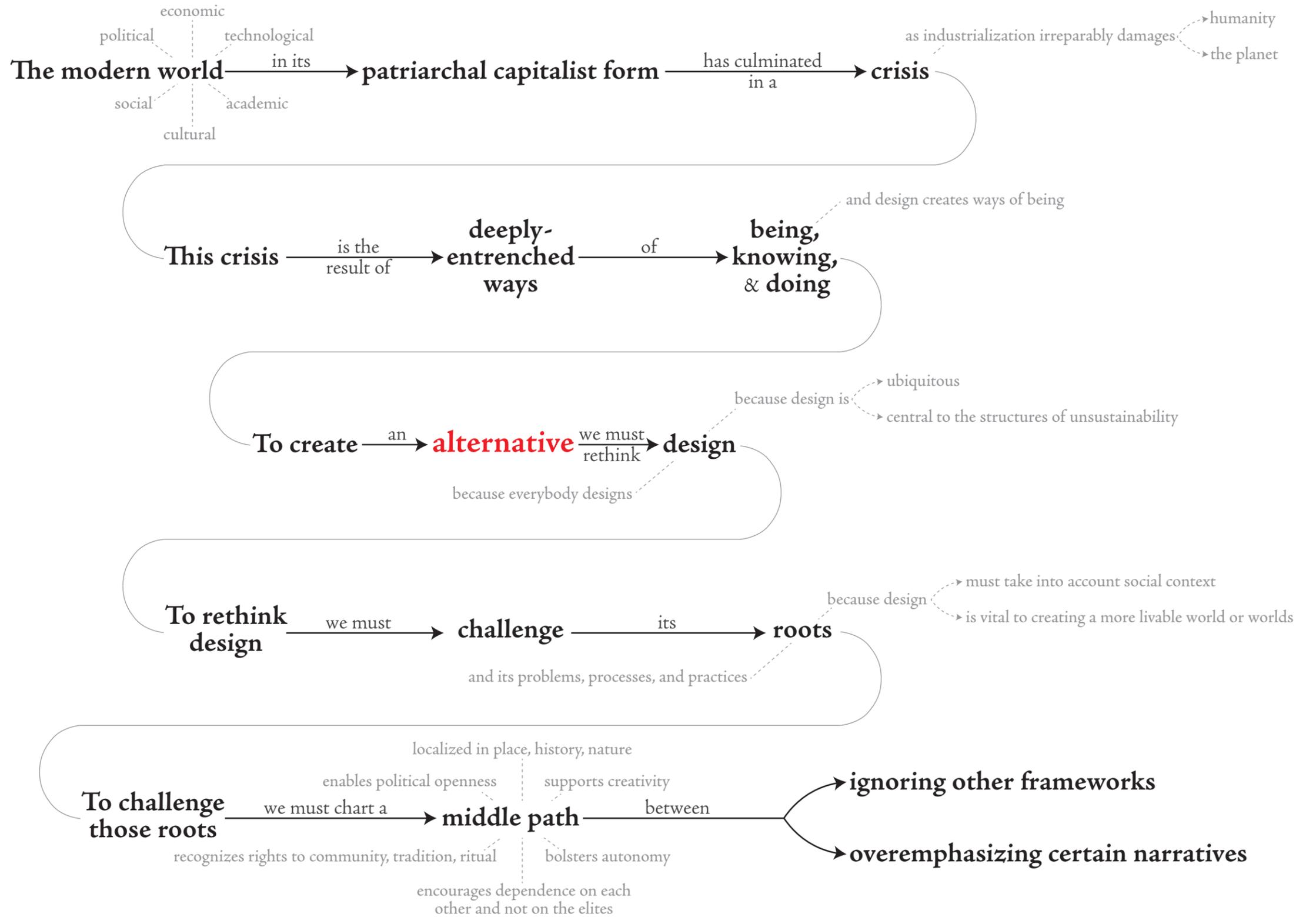


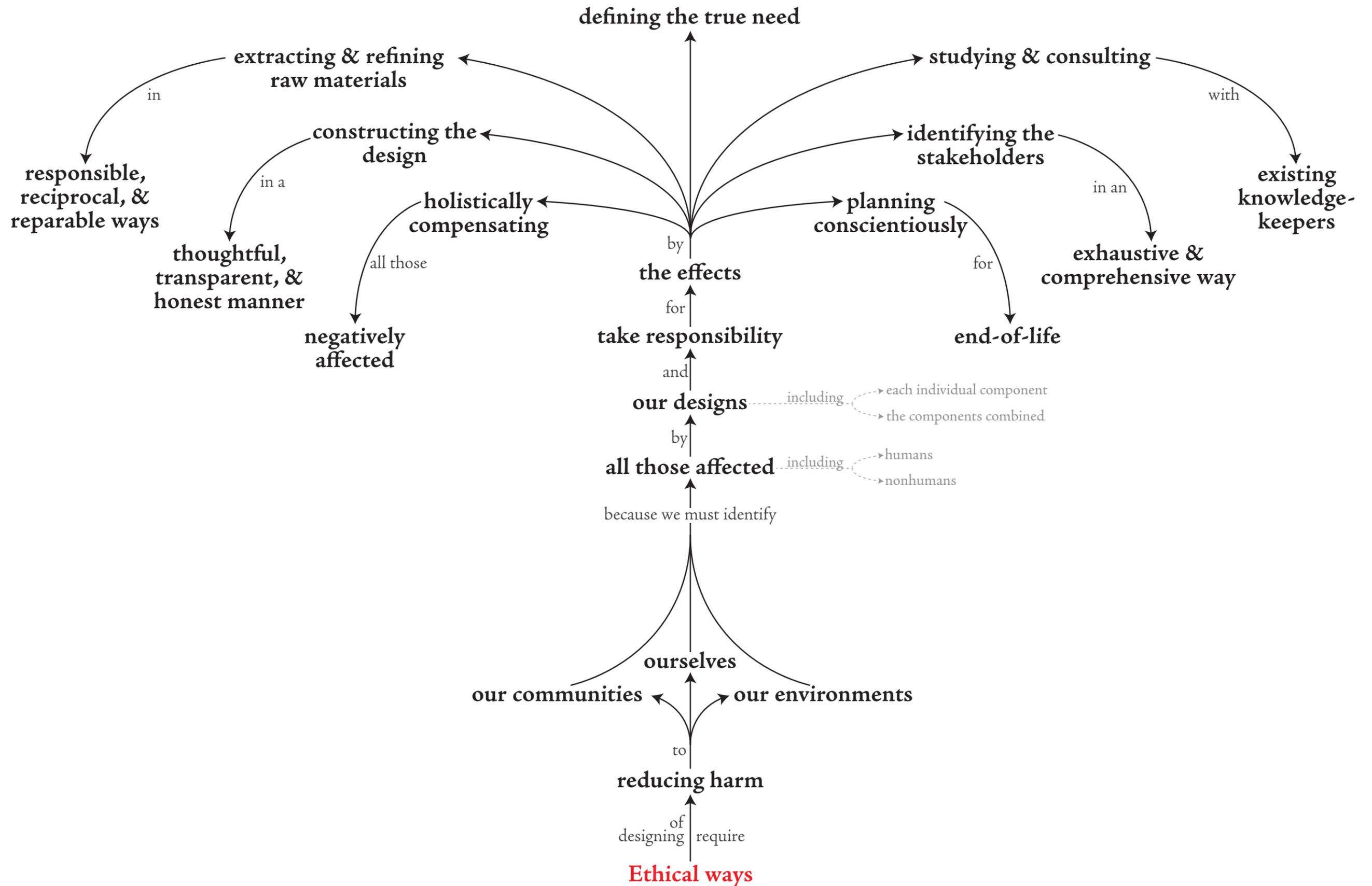


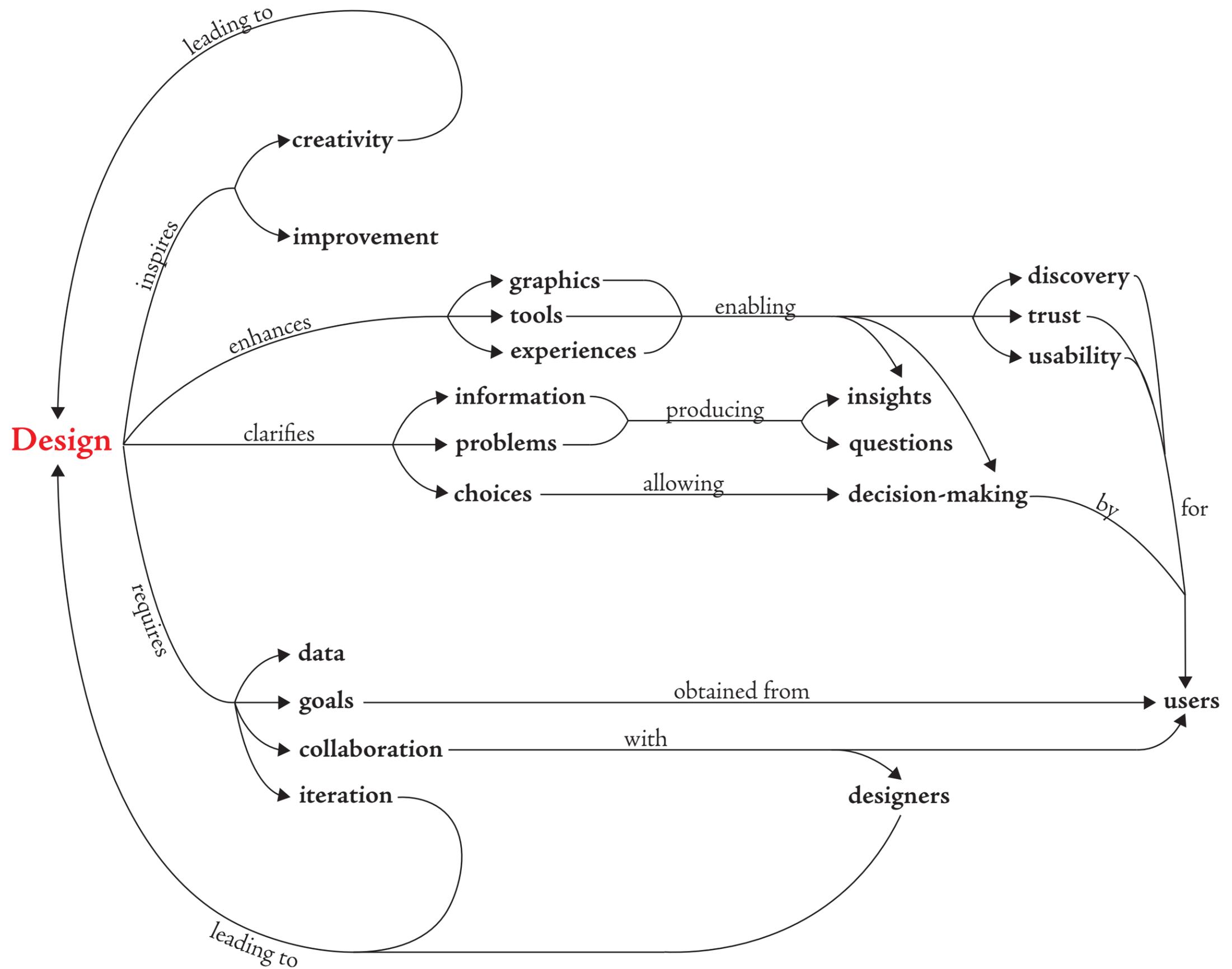


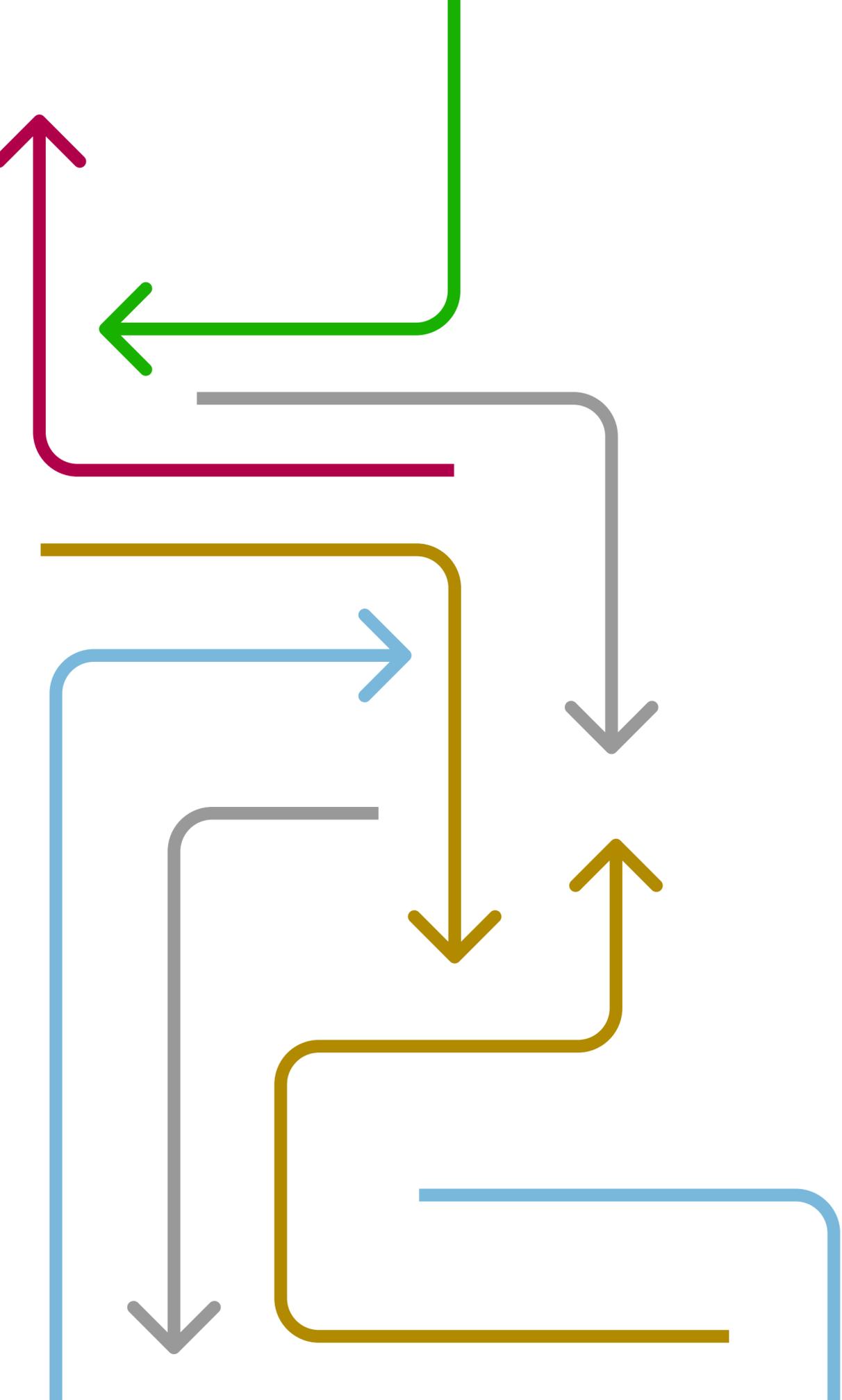












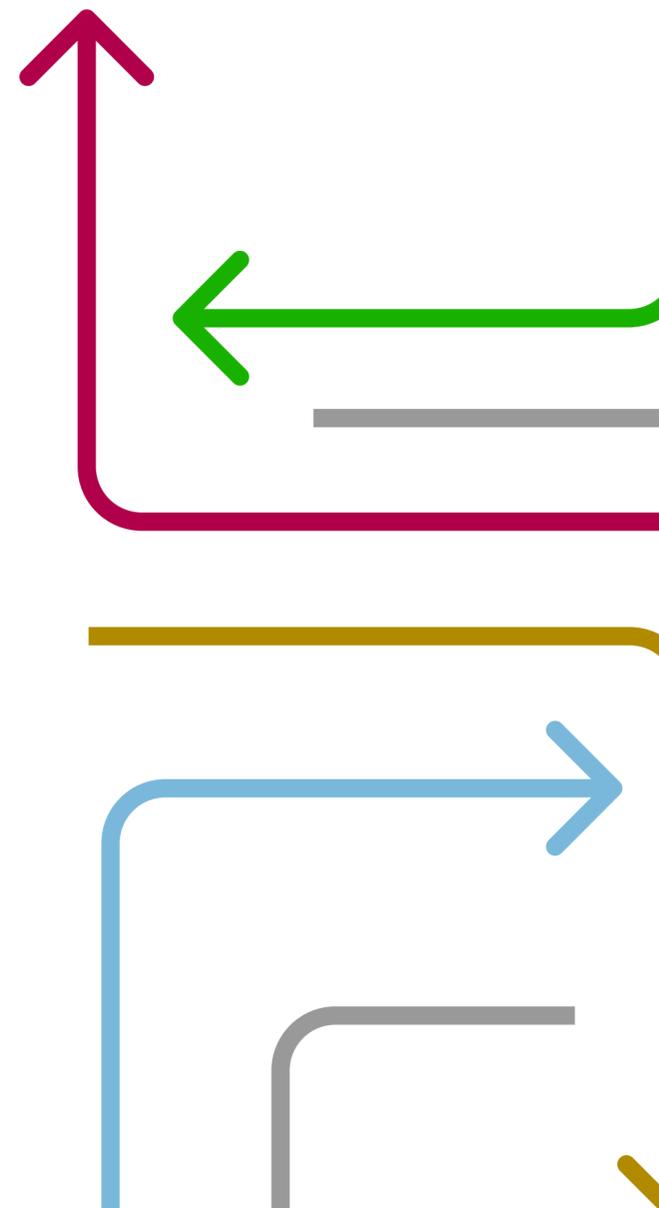
Concept Maps

Naveen kumar

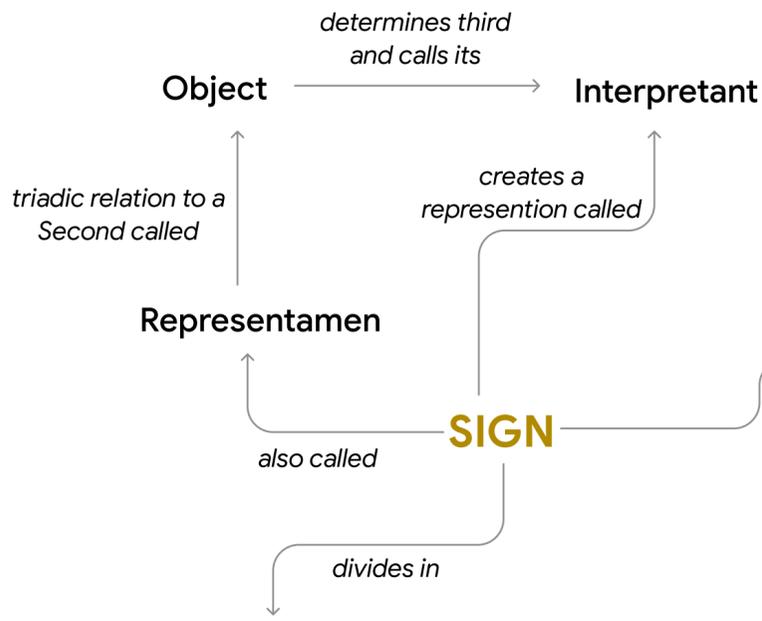
Information Design Theory and Critical Thinking

Table of contents

1. What is design?
2. Peirce's Theory of Signs
3. Saussure's Course in General Linguistics
4. Buchanan's Design Ethics
5. Shannon's Theory of Communications
6. Gibson's Theory of Affordances
7. Star and Griesemer's Boundary Objects
8. Alexander's Synthesis of Form
9. Dubberly's Analysis-Synthesis Bridge Model
10. Simon's The Science of Design
11. Pask's The Architectural Relevance of Cybernetics
12. Suchman's Human-Machine Reconfigurations
13. Goldschmidt's Linkography: unfolding the design process
14. Akama's Being Awake to Ma
15. Rittle's Planning Crisis
16. Escobar, Diawara & Ansari
17. Kite et al.'s How to Build Anything Ethically



THE PHILOSOPHY OF PEIRCE



10 Classes of signs

- A Qualisign $\xrightarrow{\text{example}}$ a feeling of "red"
- An Iconic Sinsign $\xrightarrow{\text{example}}$ an individual diagram
- A Rhematic Indexical Sinsign $\xrightarrow{\text{example}}$ a spontaneous cry
- A Dicent Symbol $\xrightarrow{\text{example}}$ a weathercock
- An Iconic Legisign $\xrightarrow{\text{example}}$ a diagram
- A Rhematic Indexical Legisign $\xrightarrow{\text{example}}$ a demonstrative pronoun

A Dicent Indexical Legisign

a street cry

A Dicent Sinsign

a general idea

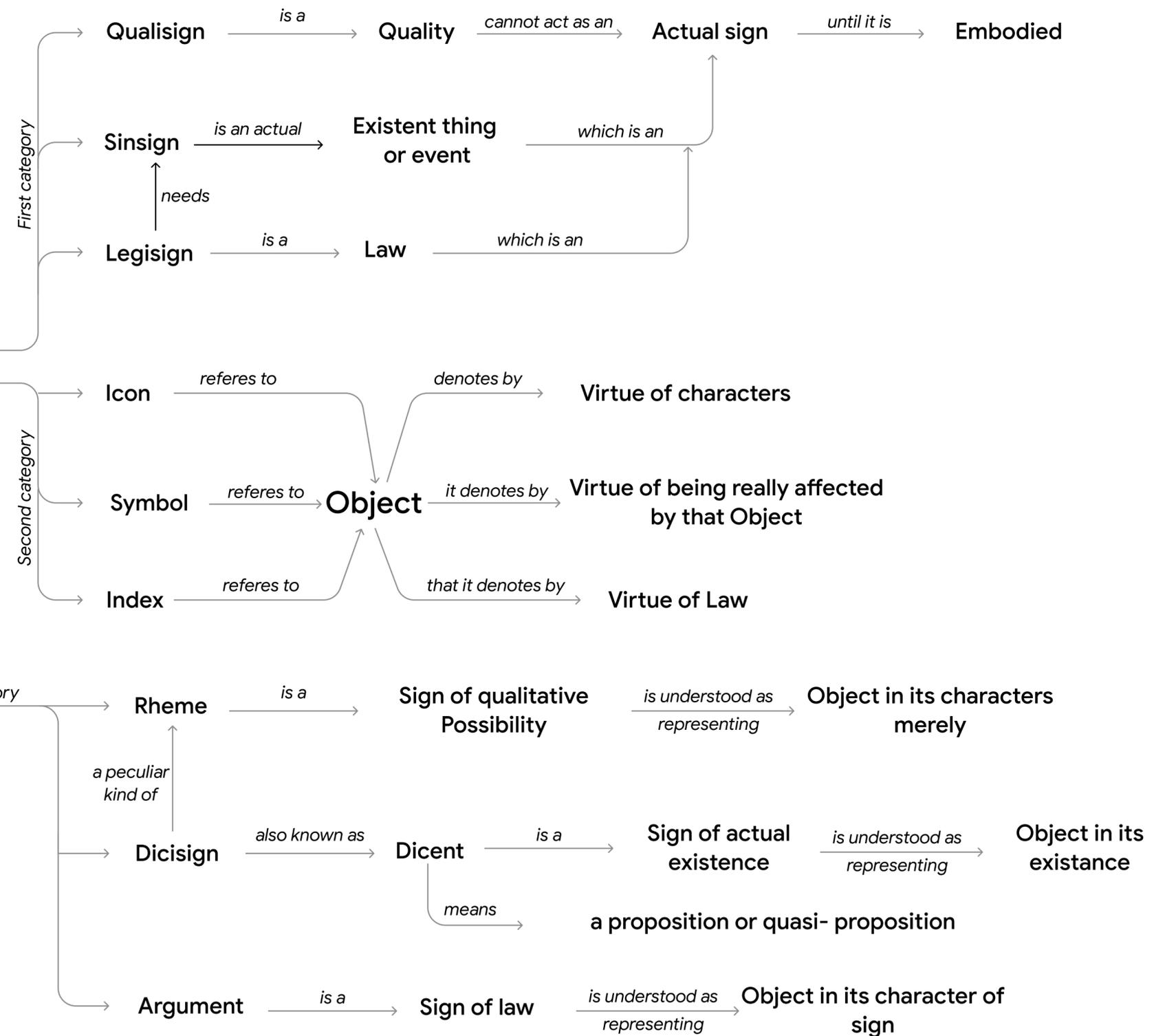
A Rhematic Symbol or Symbolic Rheme

a common noun

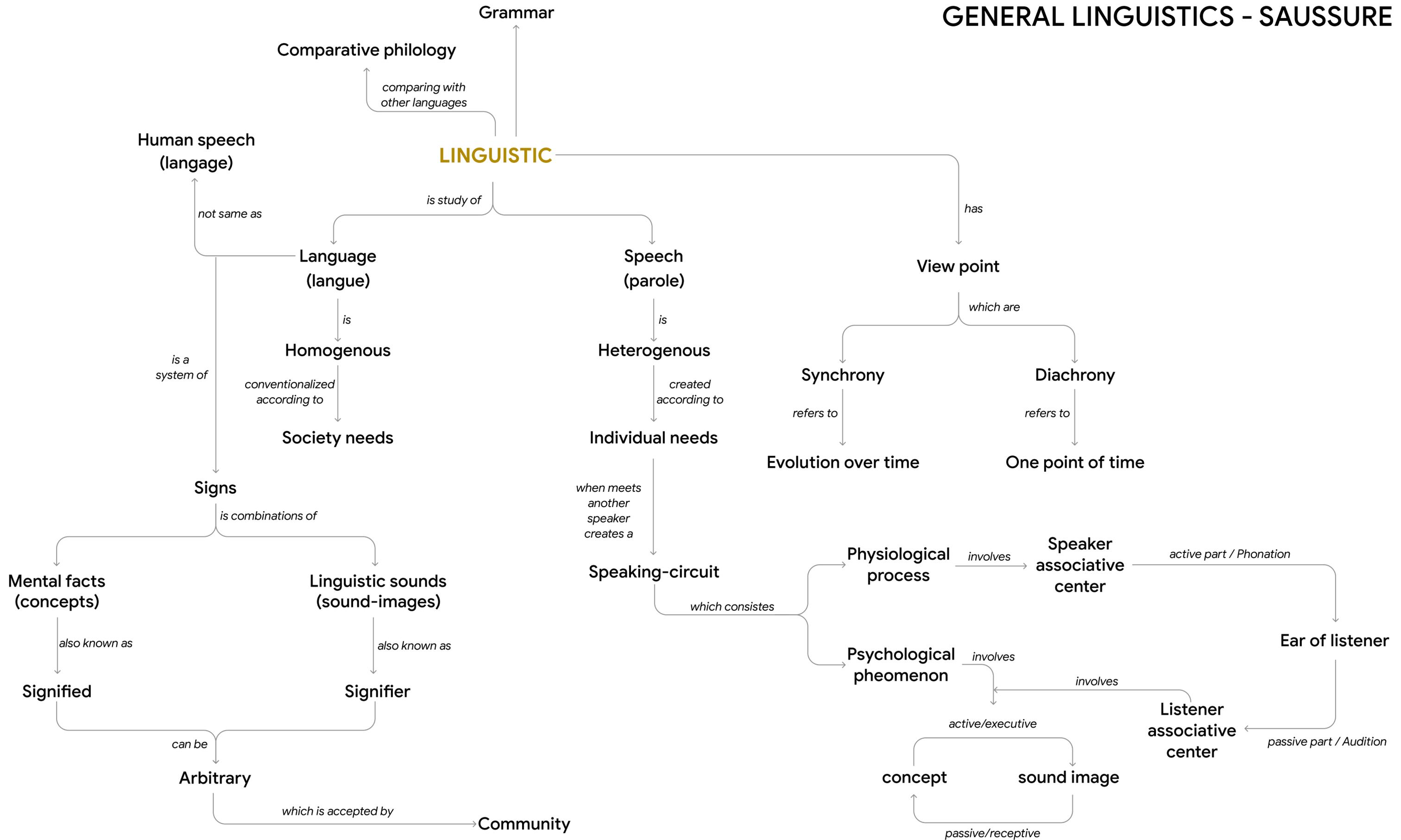
Argument Symbolic Legisign

an argument

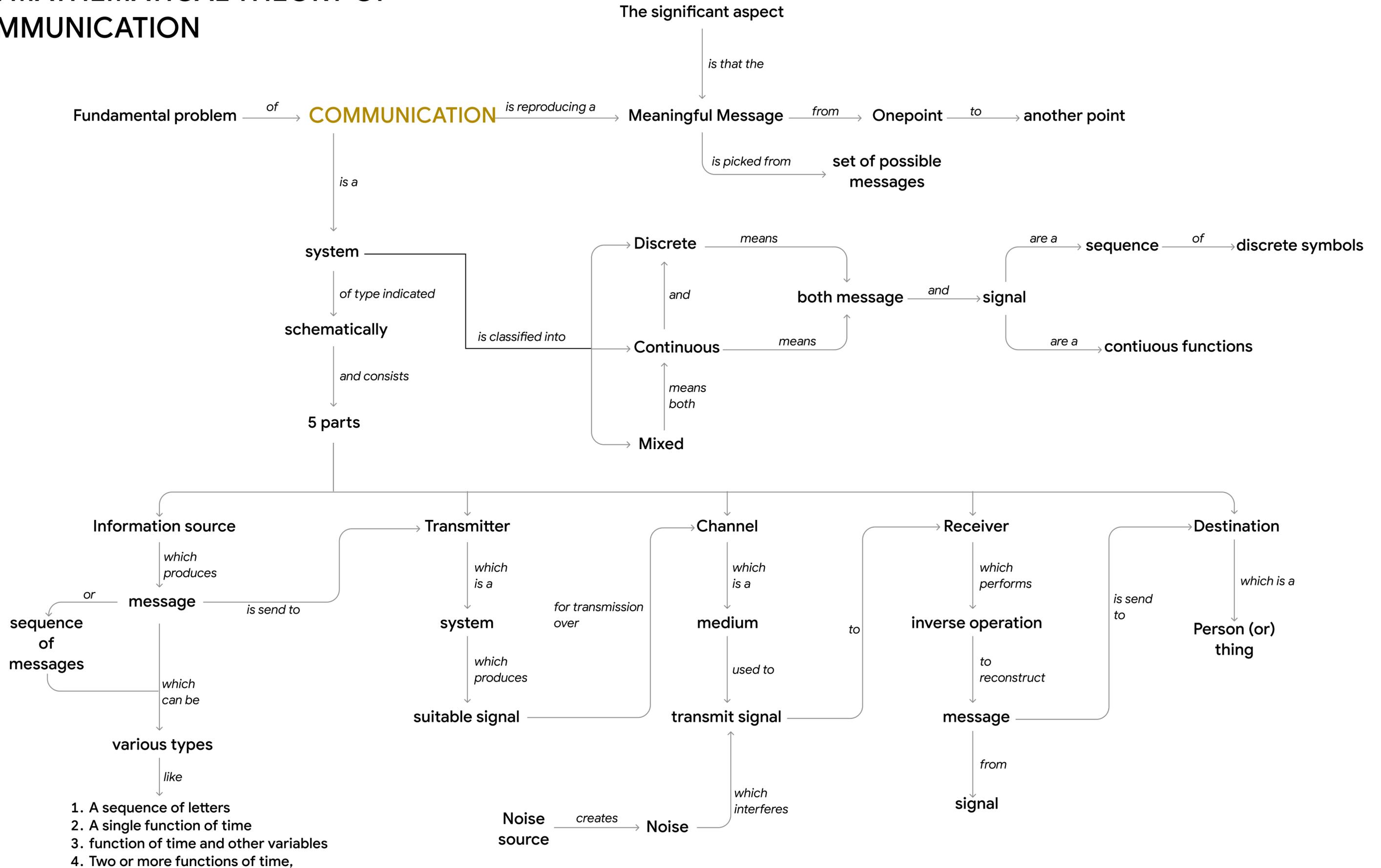
Three Trichotomies of Sign



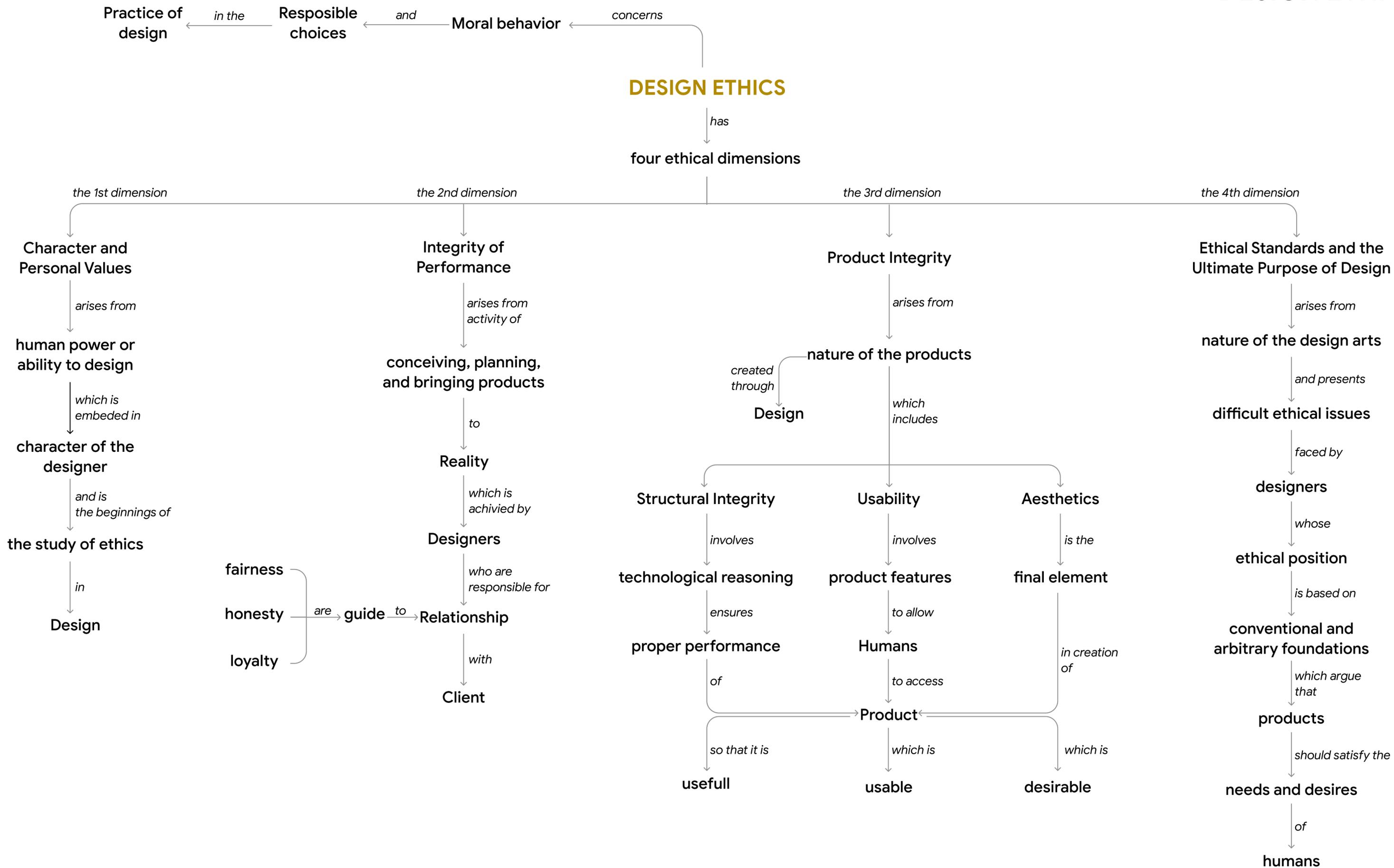
GENERAL LINGUISTICS - SAUSSURE



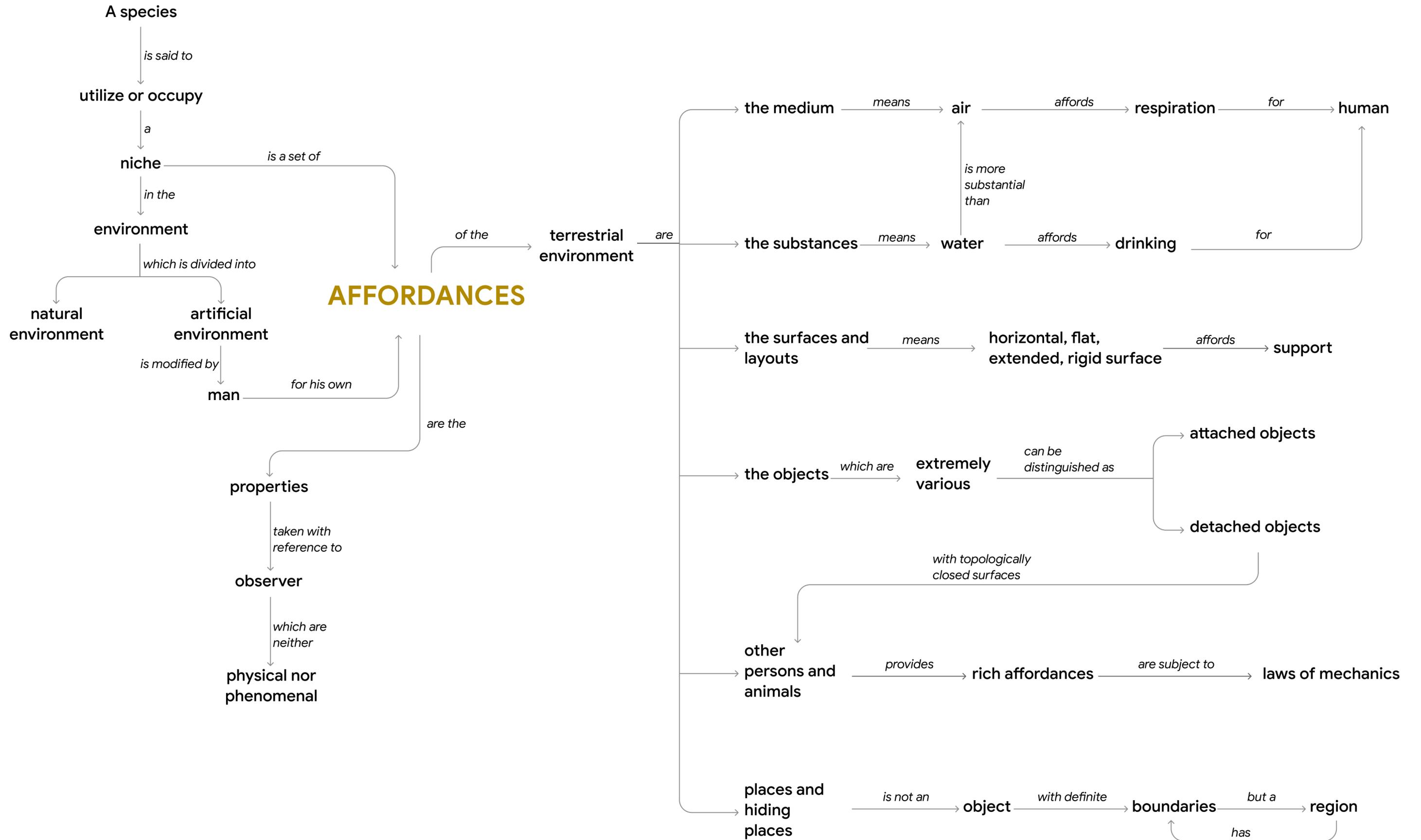
THE MATHEMATICAL THEORY OF COMMUNICATION



DESIGN ETHICS

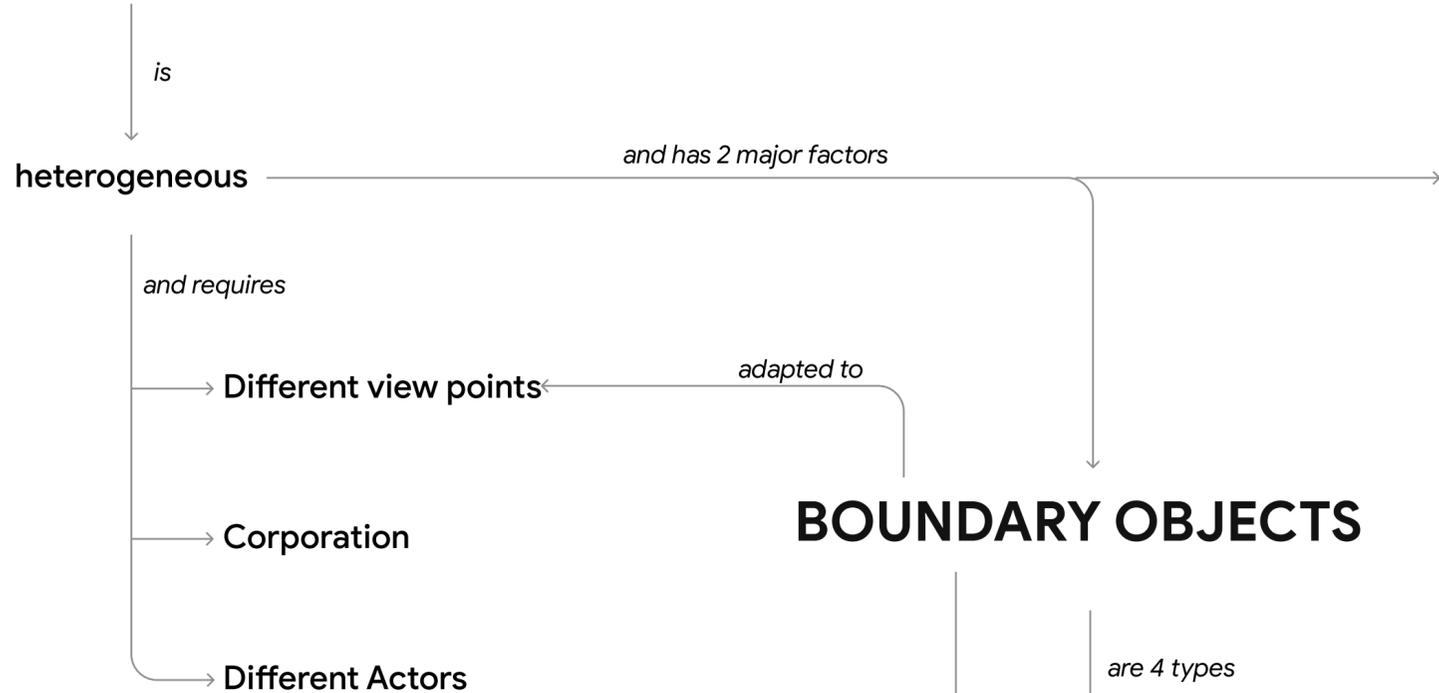


THE THEORY OF AFFORDANCES

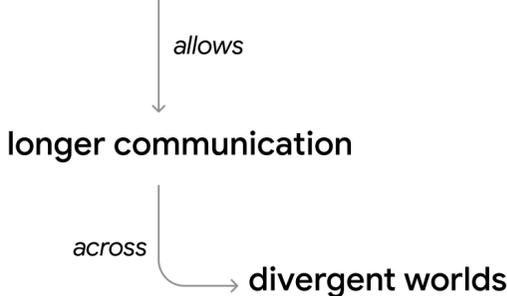


TRANSLATIONS AND BOUNDARY OBJECTS

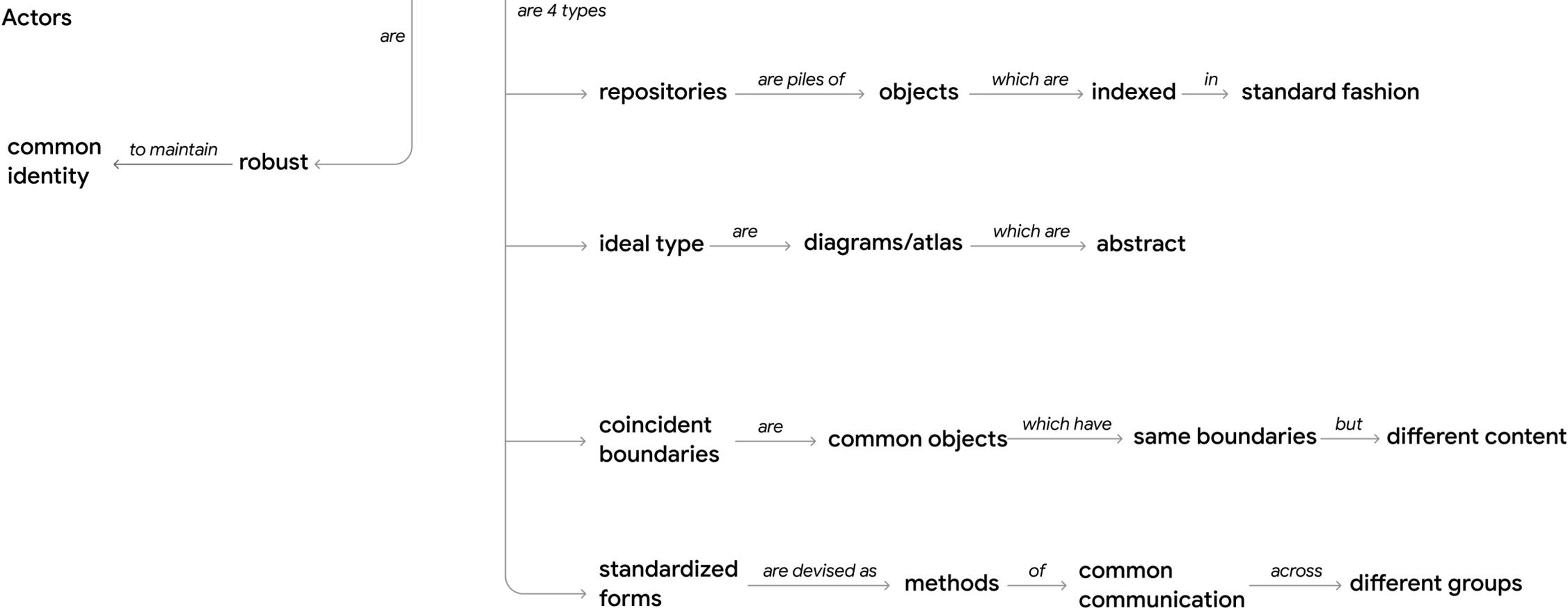
SCIENTIFIC WORK



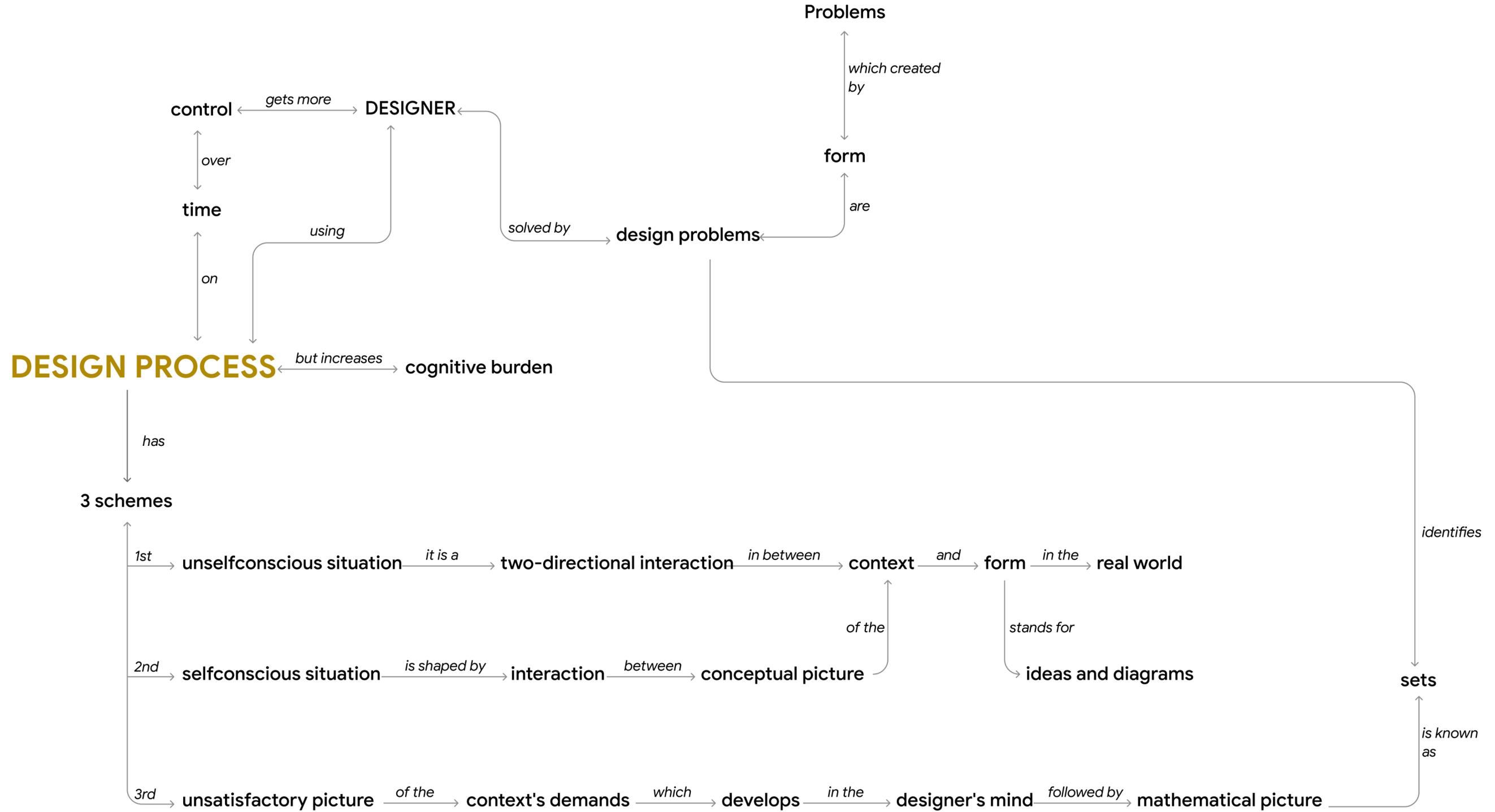
METHODS OF STANDARDIZATION



BOUNDARY OBJECTS



SYNTHESIS OF FORM



DESIGN AS LEARNING OR “KNOWLEDGE CREATION”

LEARNING ← *is a form of* **DESIGN**

is represented by

is represented by

SECI Spiral Model of Knowledge Creation

Analysis-Synthesis Bridge Model

*postulates
4 modes
of*

*has 4
steps*

knowledge conversion

Socialization

Externalization

Combination

Internalization

What “is”

Model of what “is”

Model of what “could be”

What “could be”

**researching a
current situation**

**prototyping a
future situation**

known as

known as

known as

known as

distilled to

are a part of

is a process of

is a process of

is a process of

is a process of

suggest

are a part of

**Sharing and
creating tacit
knowledge**

**Articulating
tacit knowledge**

**Systemizing
and applying**

**Learning and acquiring
tacit knowledge**

direct experience

dialogue

reflection

explicit knowledge

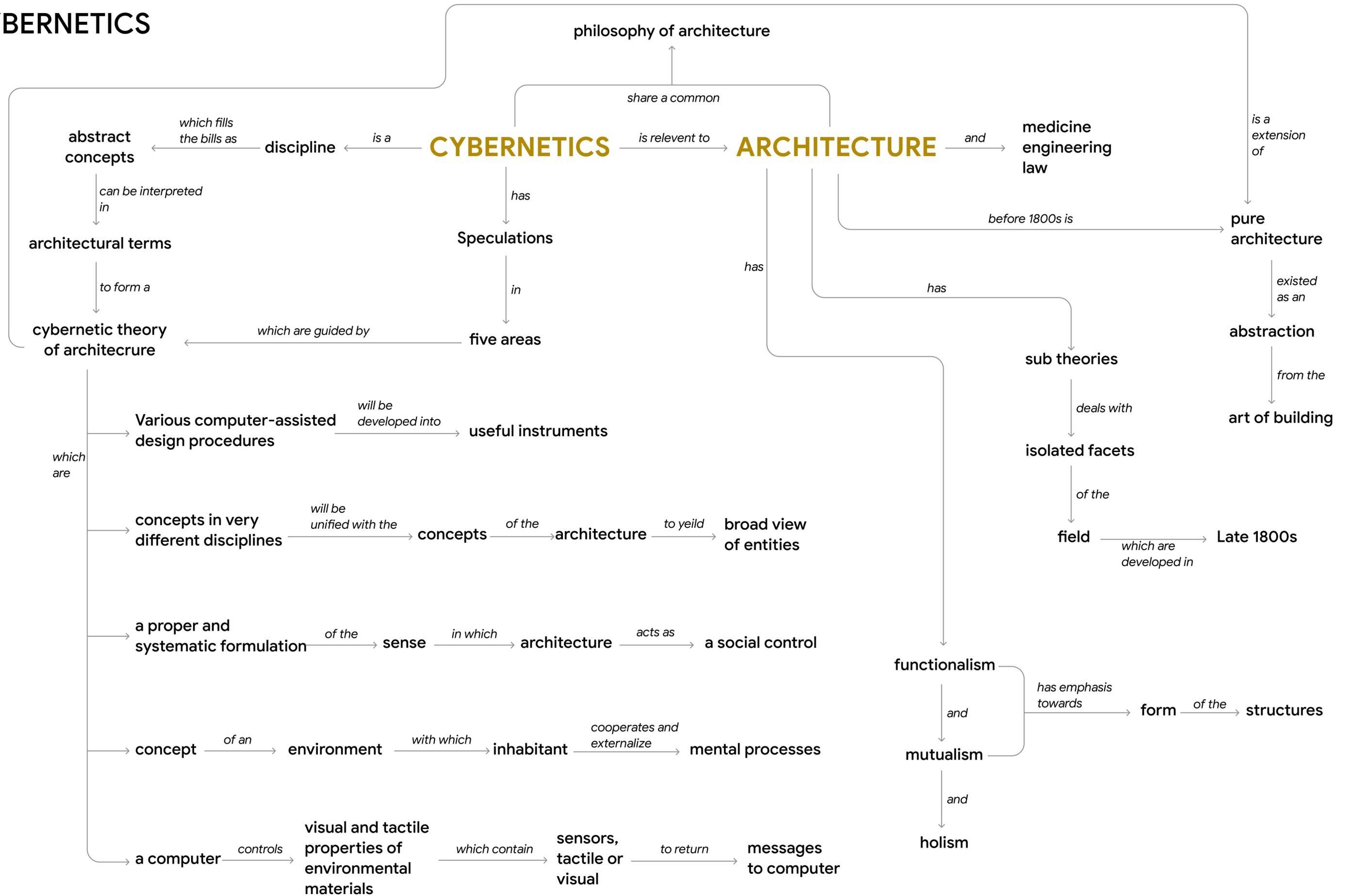
information

practice

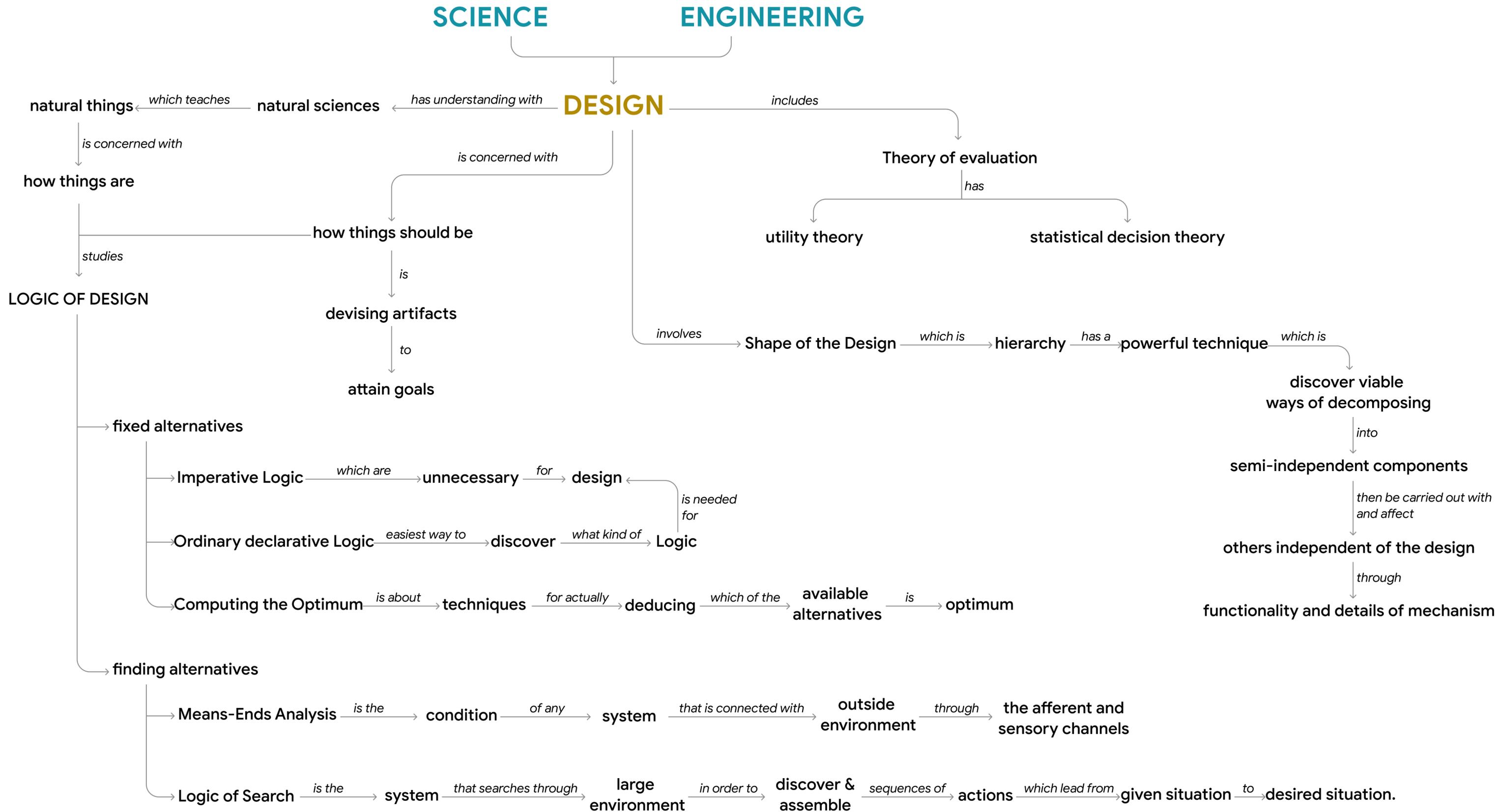
is aligned with



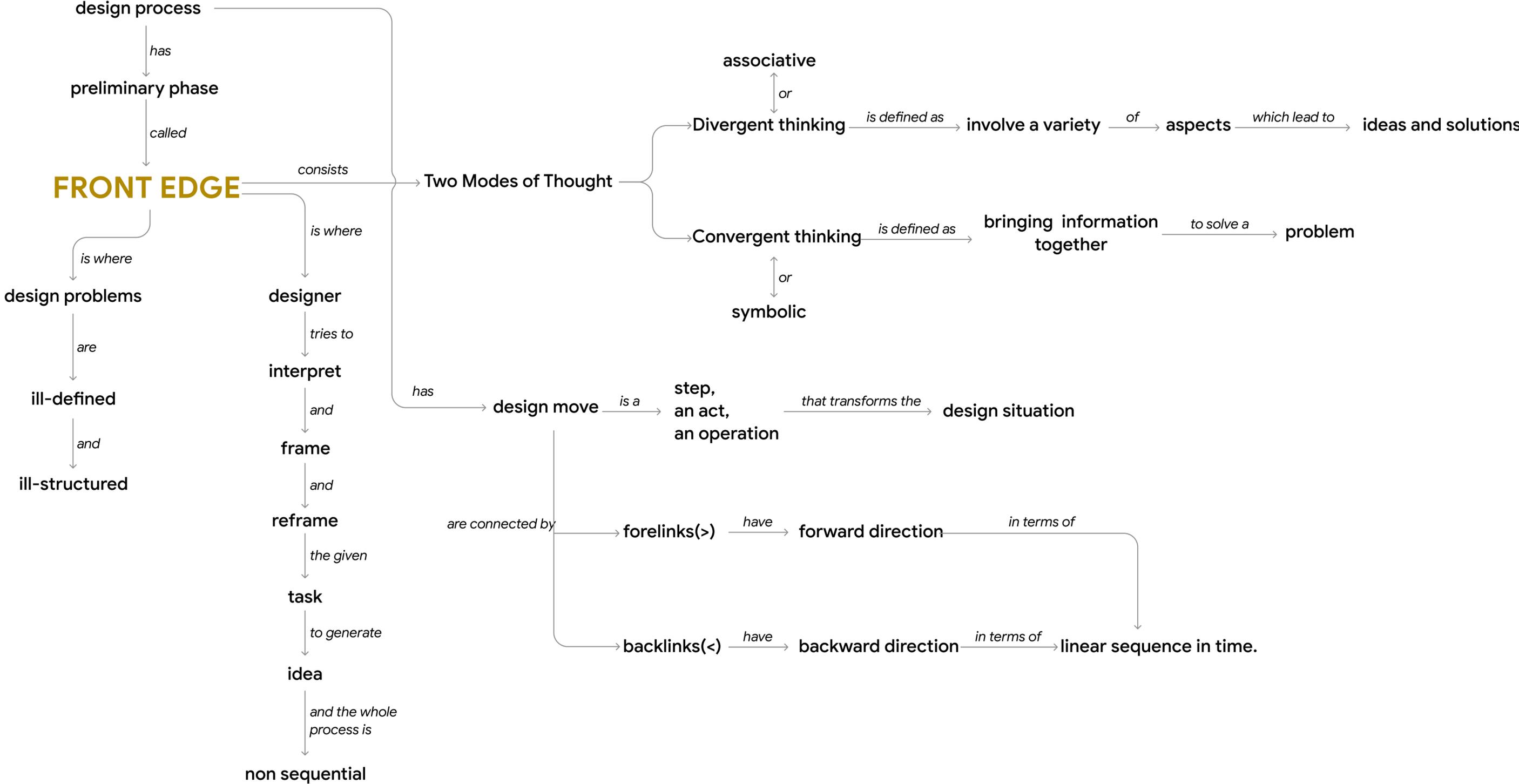
THE ARCHITECTURAL RELEVANCE OF CYBERNETICS



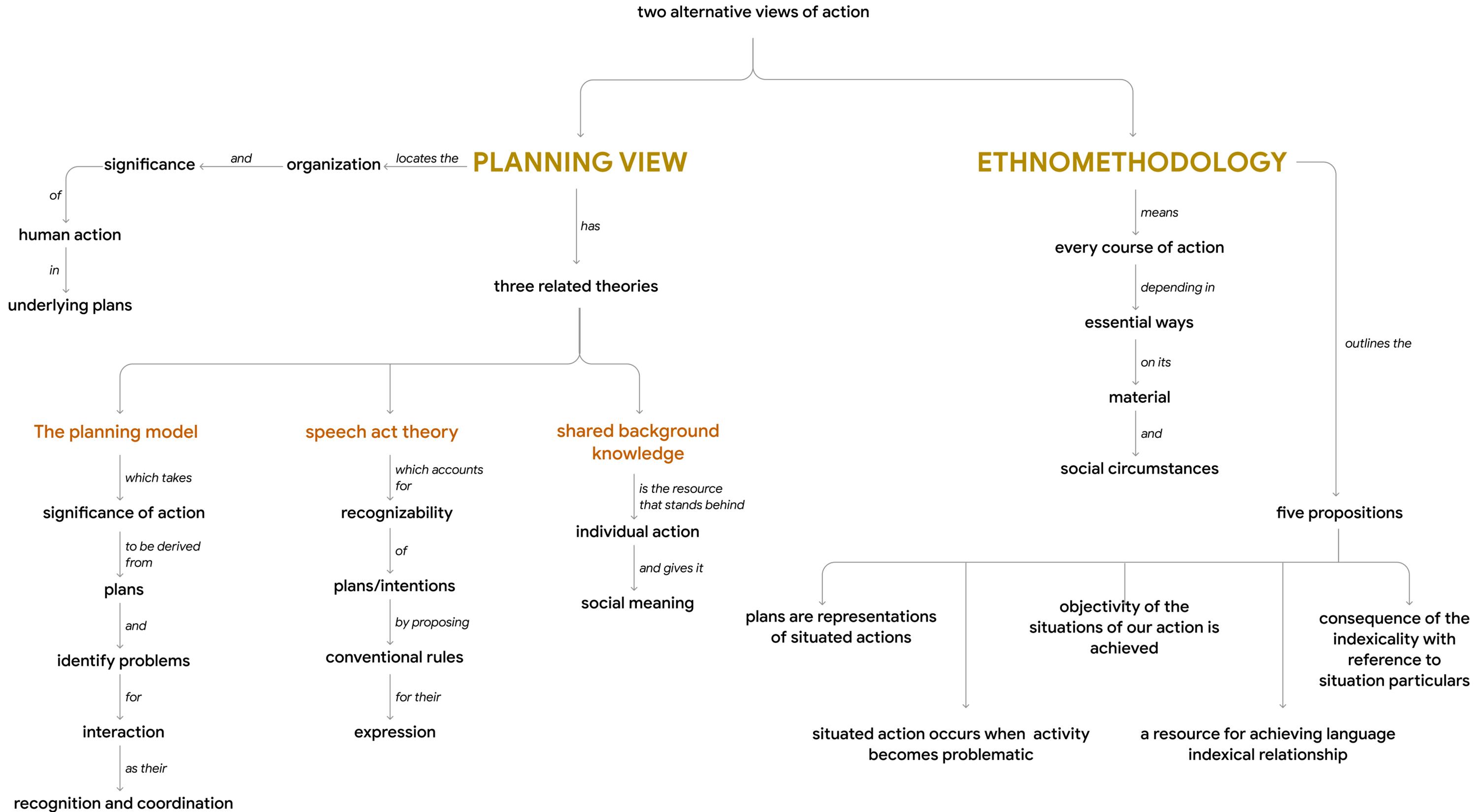
THE SCIENCE OF DESIGN: CREATING THE ARTIFICIAL



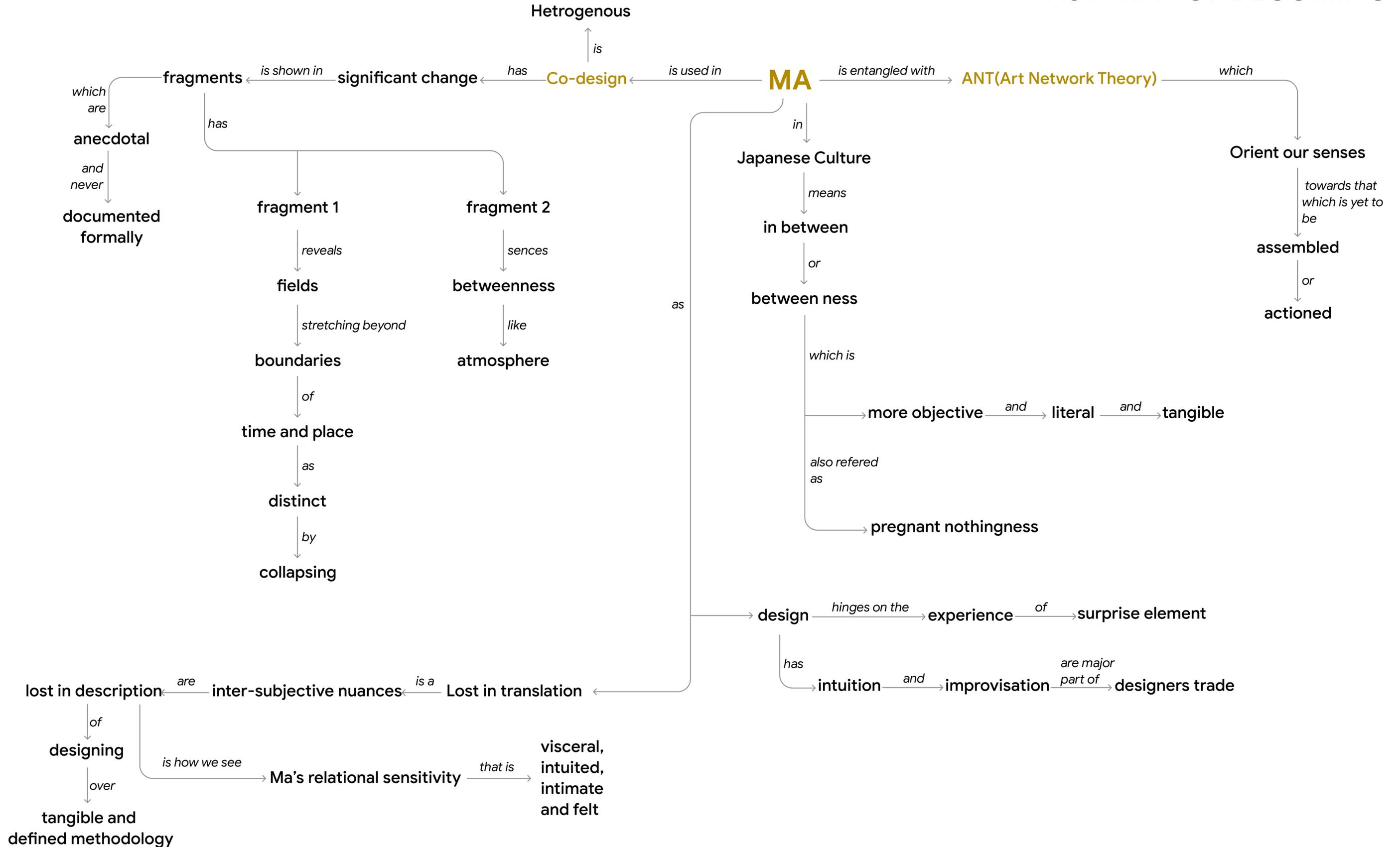
DESIGN PROCESS



HUMAN-MACHINE RECONFIGURATIONS



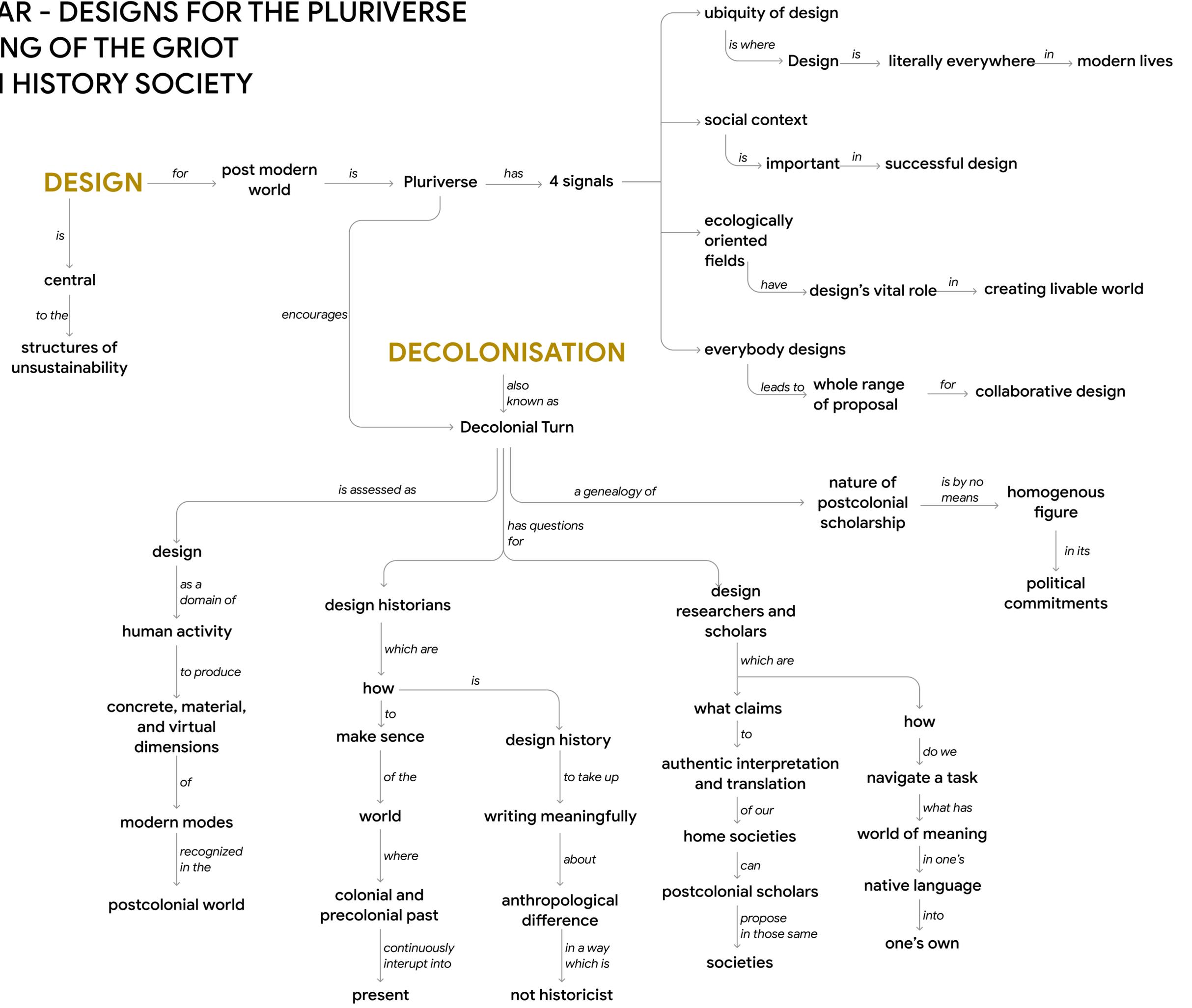
BEING AWAKE TO MA: DESIGNING IN BETWEEN-NESS AS A WAY OF BECOMING WITH



ESCOBAR - DESIGNS FOR THE PLURIVERSE

THE SONG OF THE GRIOT

DESIGN HISTORY SOCIETY



HOW TO BUILD ANYTHING ETHICALLY

A good way *is the* **LAKOTA WAY** *way of talking about* ethical protocols

to build a

AI system

has several

has protocols for

7 generations

has protocols for

build AI ethically

components

which are

- architecture
- input
- algorithms
- output

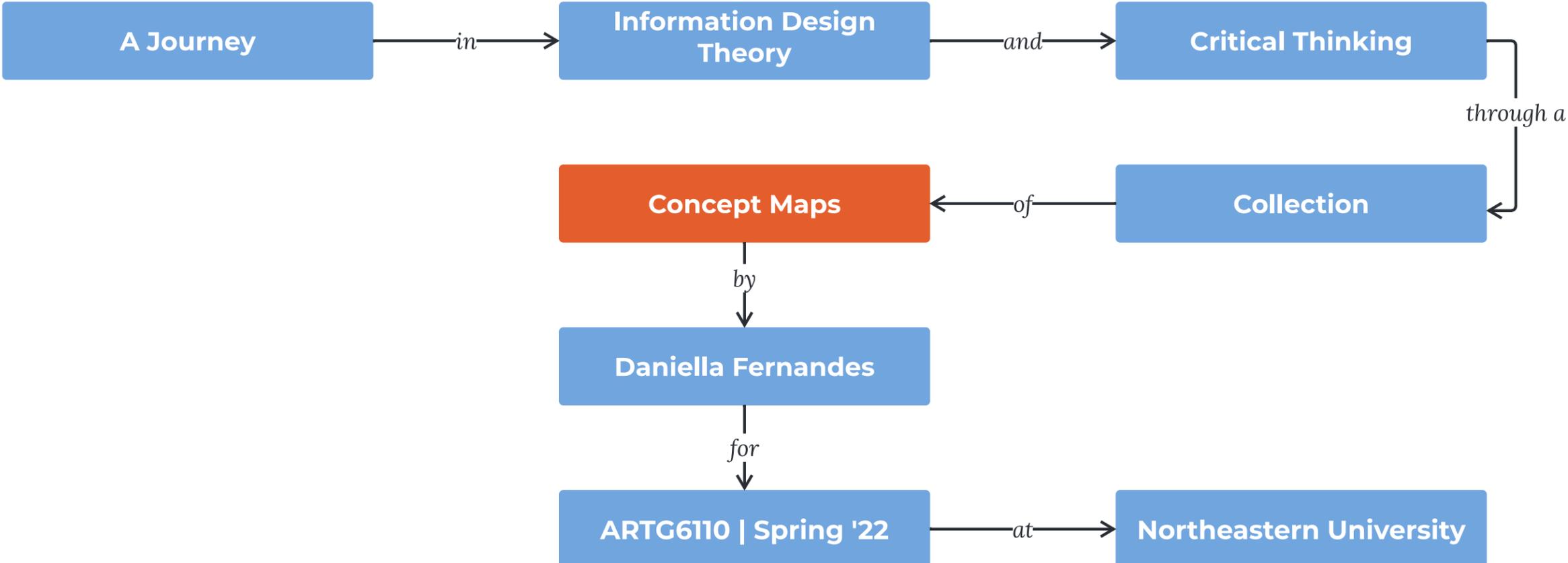
physical computing device

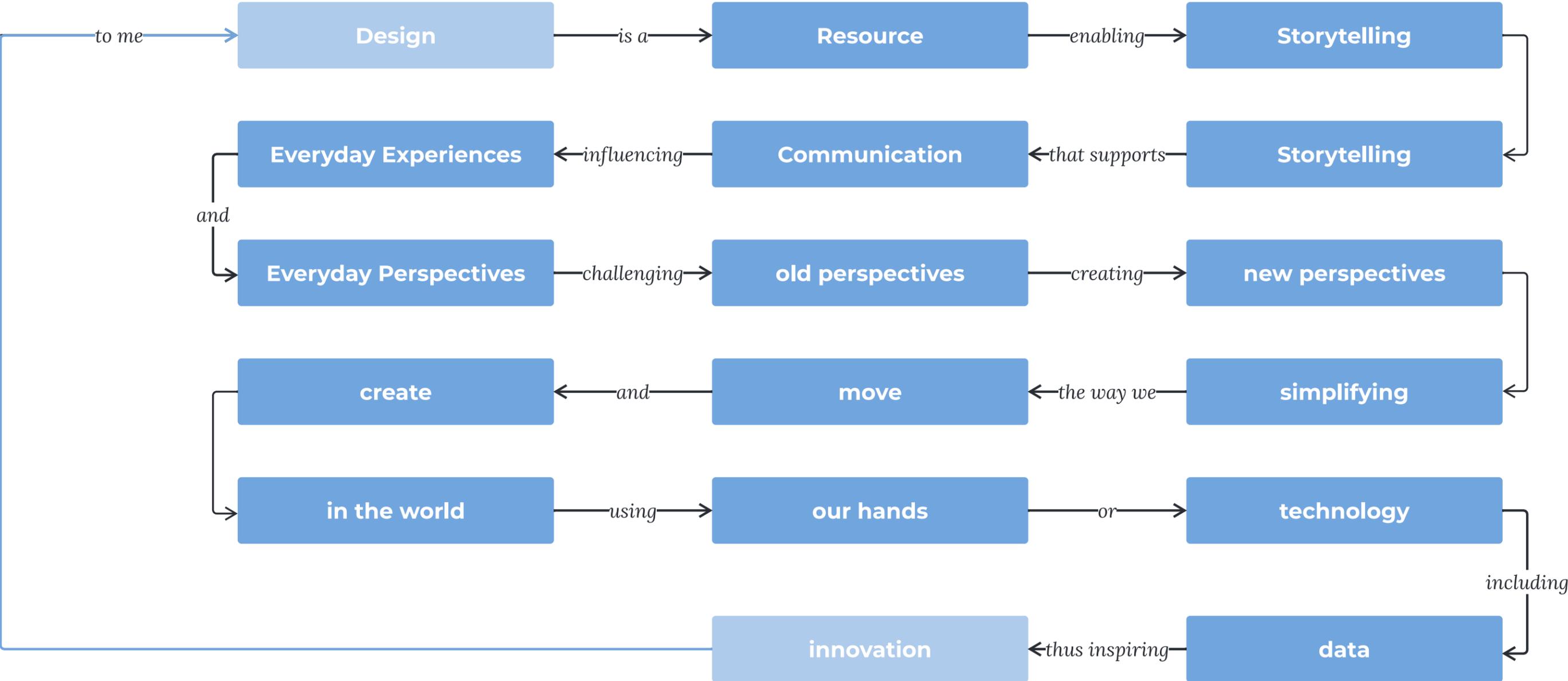
has steps

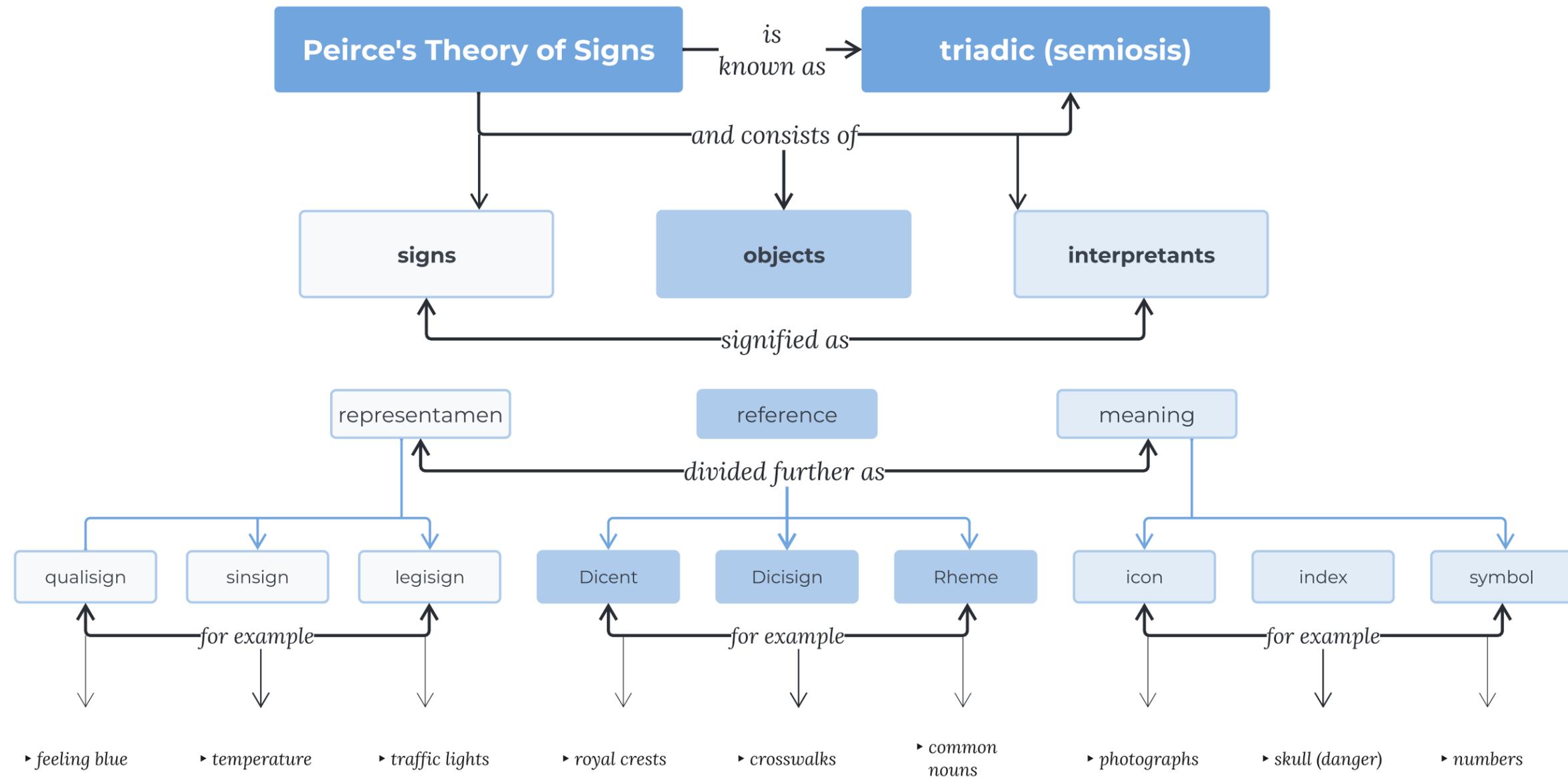
- **Appreticing** *ask* → Who are the elders and knowledge keepers for this protocol
- **Identifying Needs** *ask* → Which community members, human and non human all those past,present and future are affected
- **Identify Stakeholders** *ask* → What is needed to create this process
- **Identify Raw Materials** *ask* → How are the owners of the raw materials being compensated
- **Constructing** *ask* → What are the methods necessary to do this protocol in an ethical way
- **Prepare Internal Components** *ask* → How do the parts of this process need to be prepared
- **Waking up** *ask* → How can the protocol be enacated in an ethical way
- **Algorithm** *ask* → What is transformed during this process
- **Transformation** *ask* → How can this protocal be completed in a way that provides transparency to those affected
- **Annoucement** *ask* → How can the ongoing use of the result of this protocol be done in an ethical way
- **Death Cycle** *ask* → how can the end of this protocol be completed in an ethical way

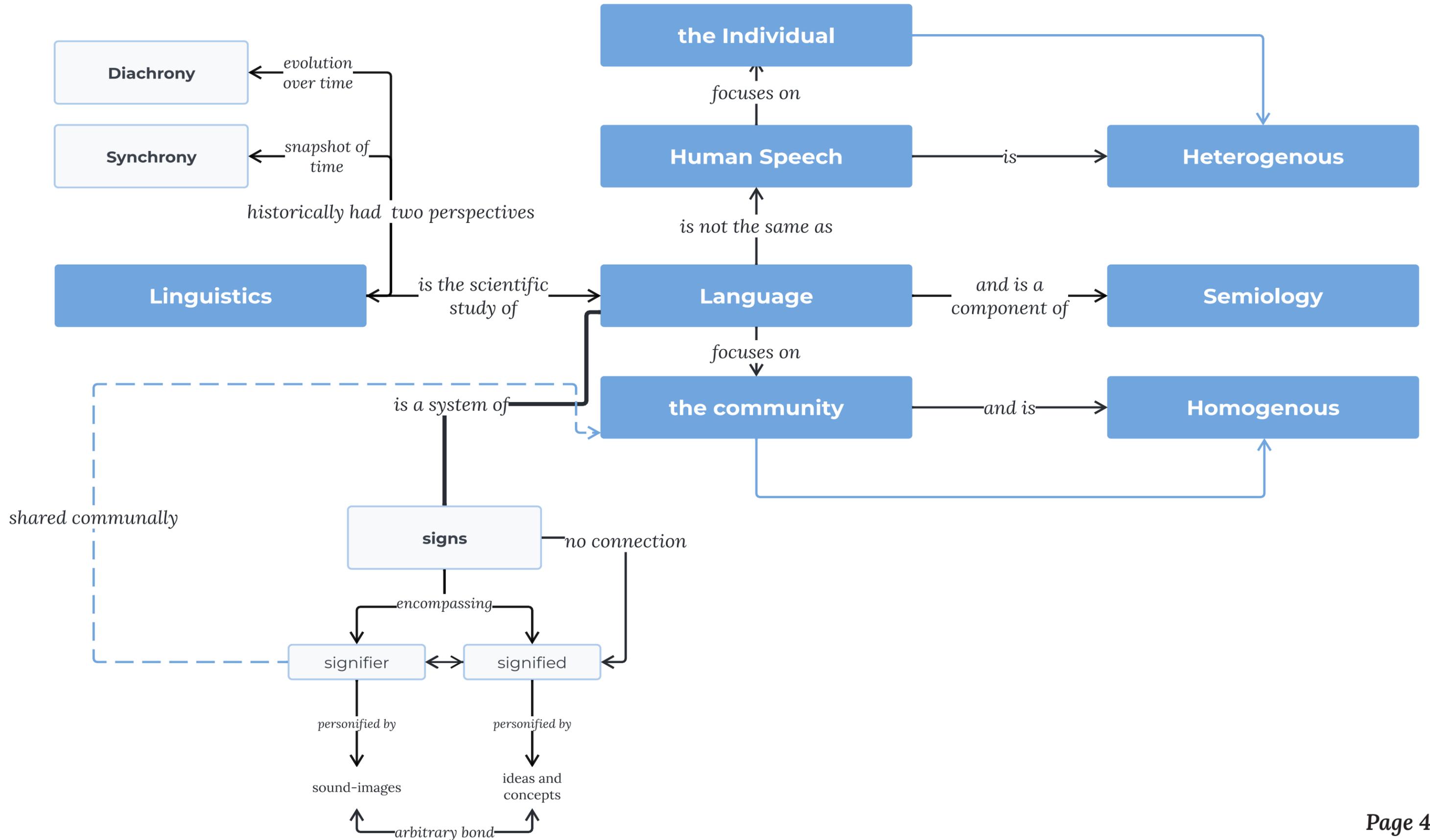
has steps

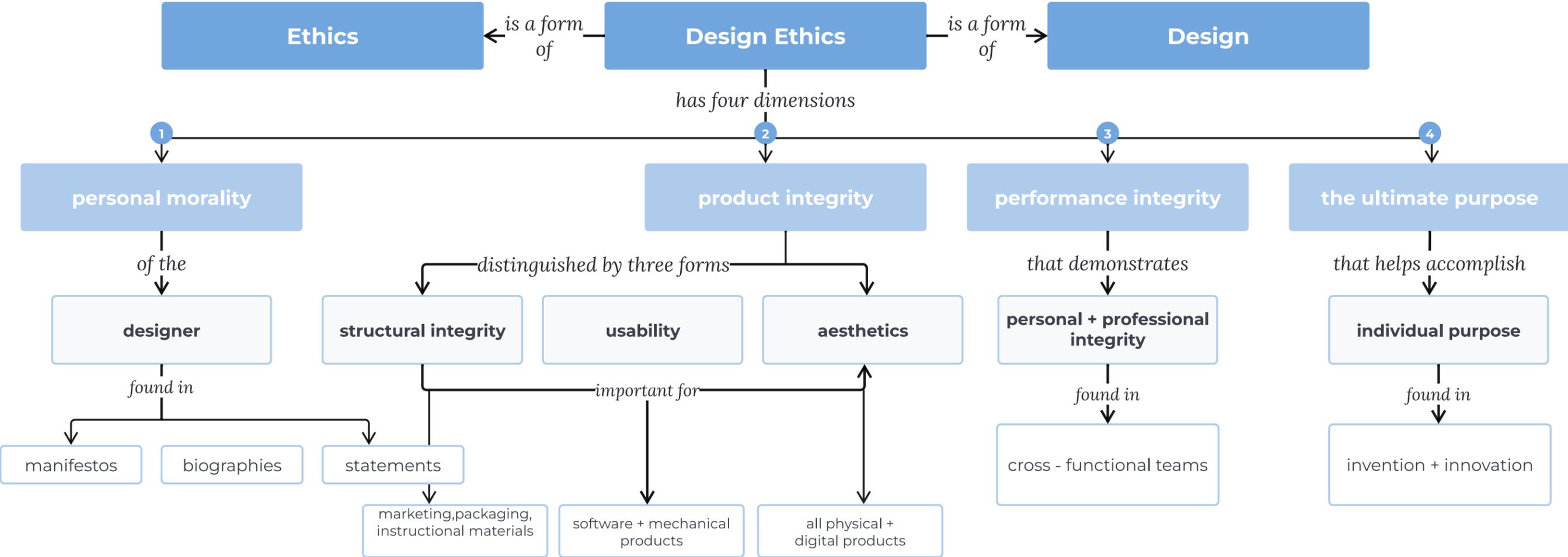
- governance
- data collection
- physical computing device
- compensation method
- distribution
- use
- coding language
- software design

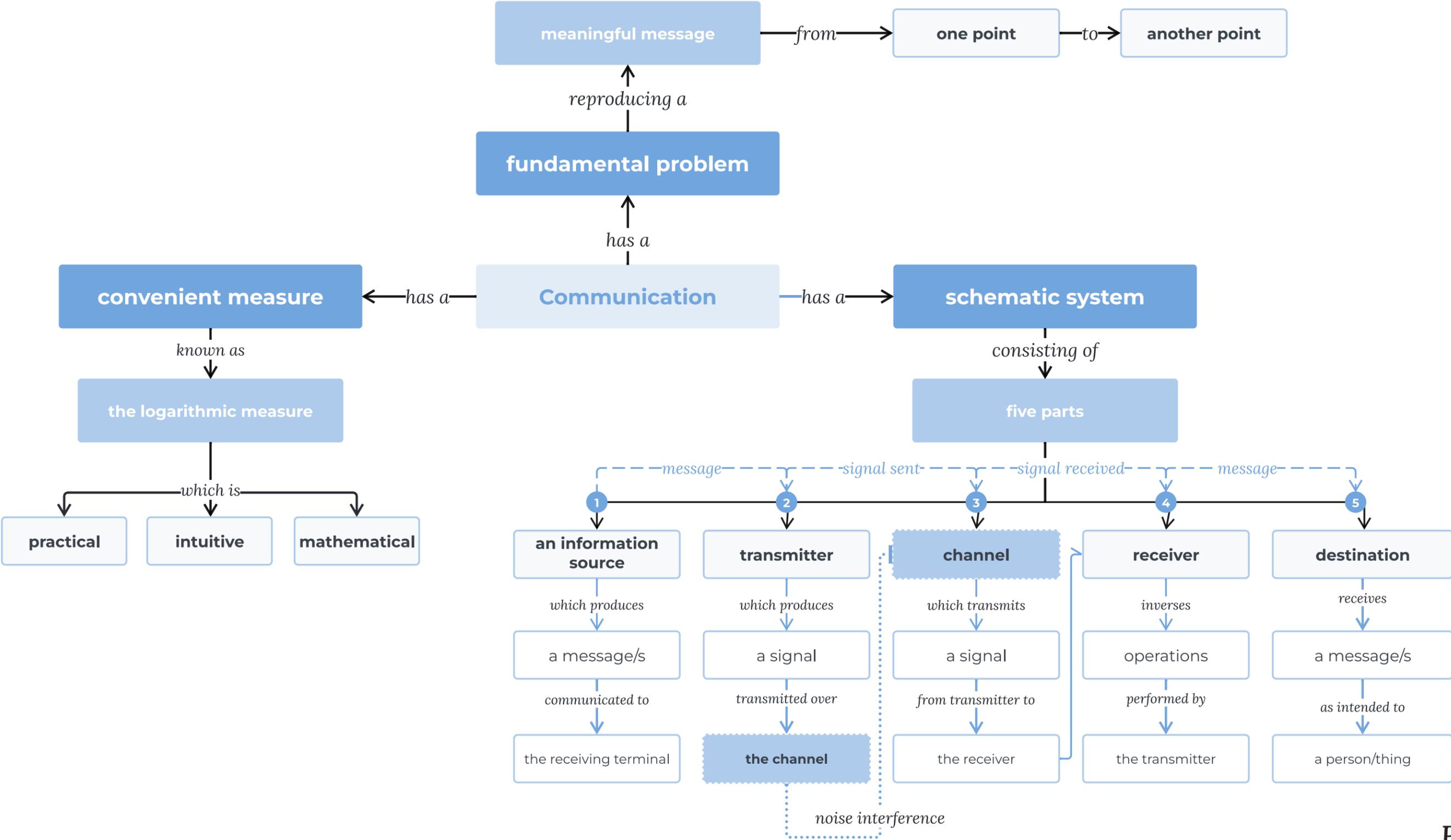


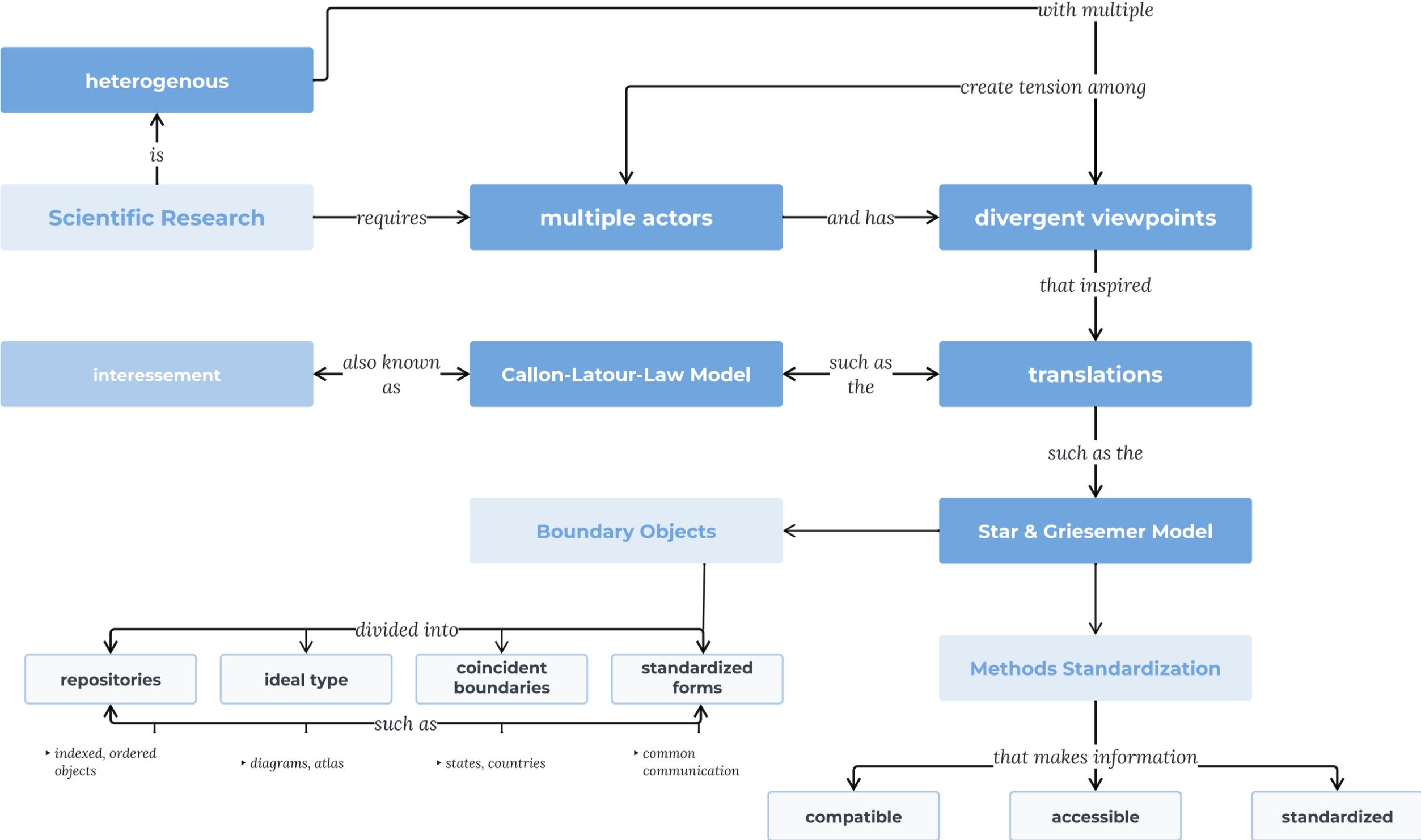




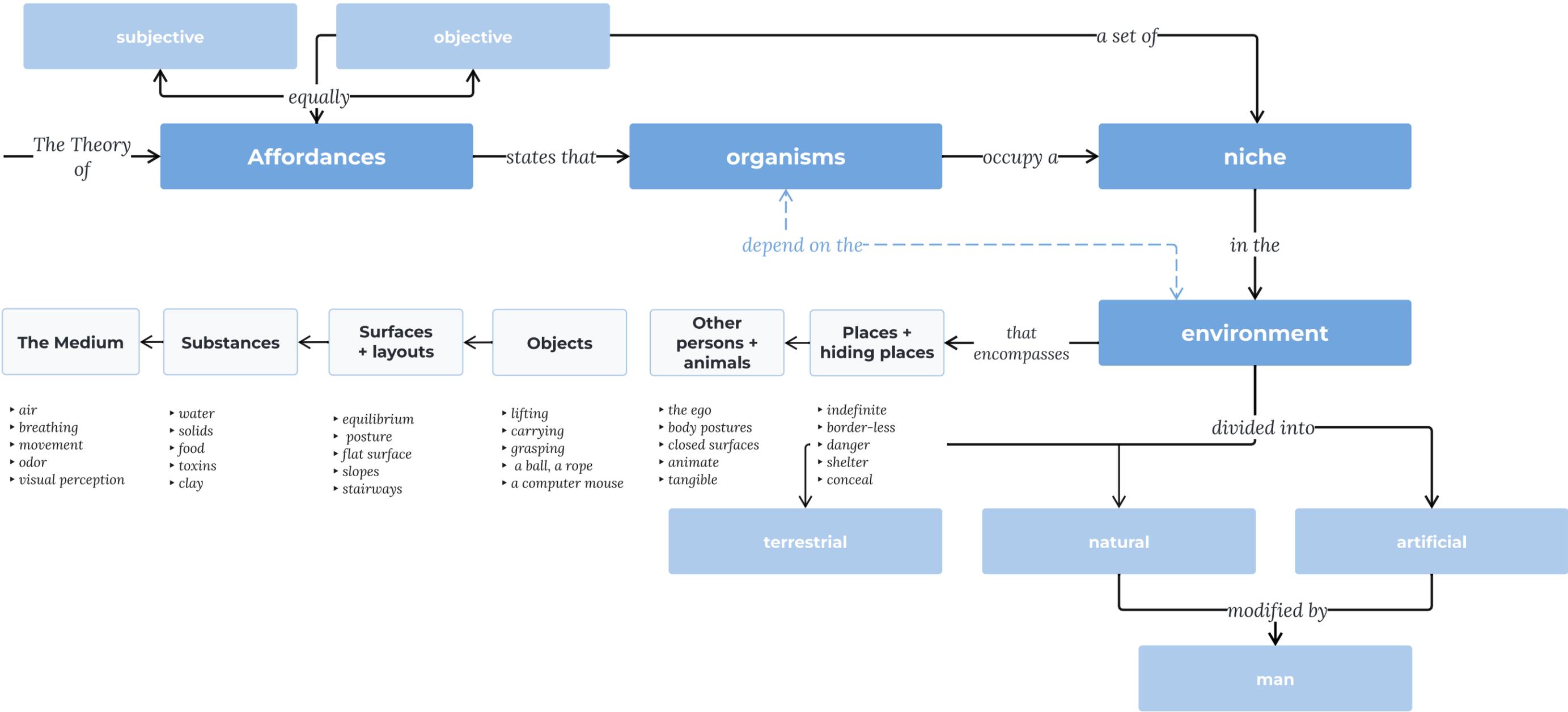


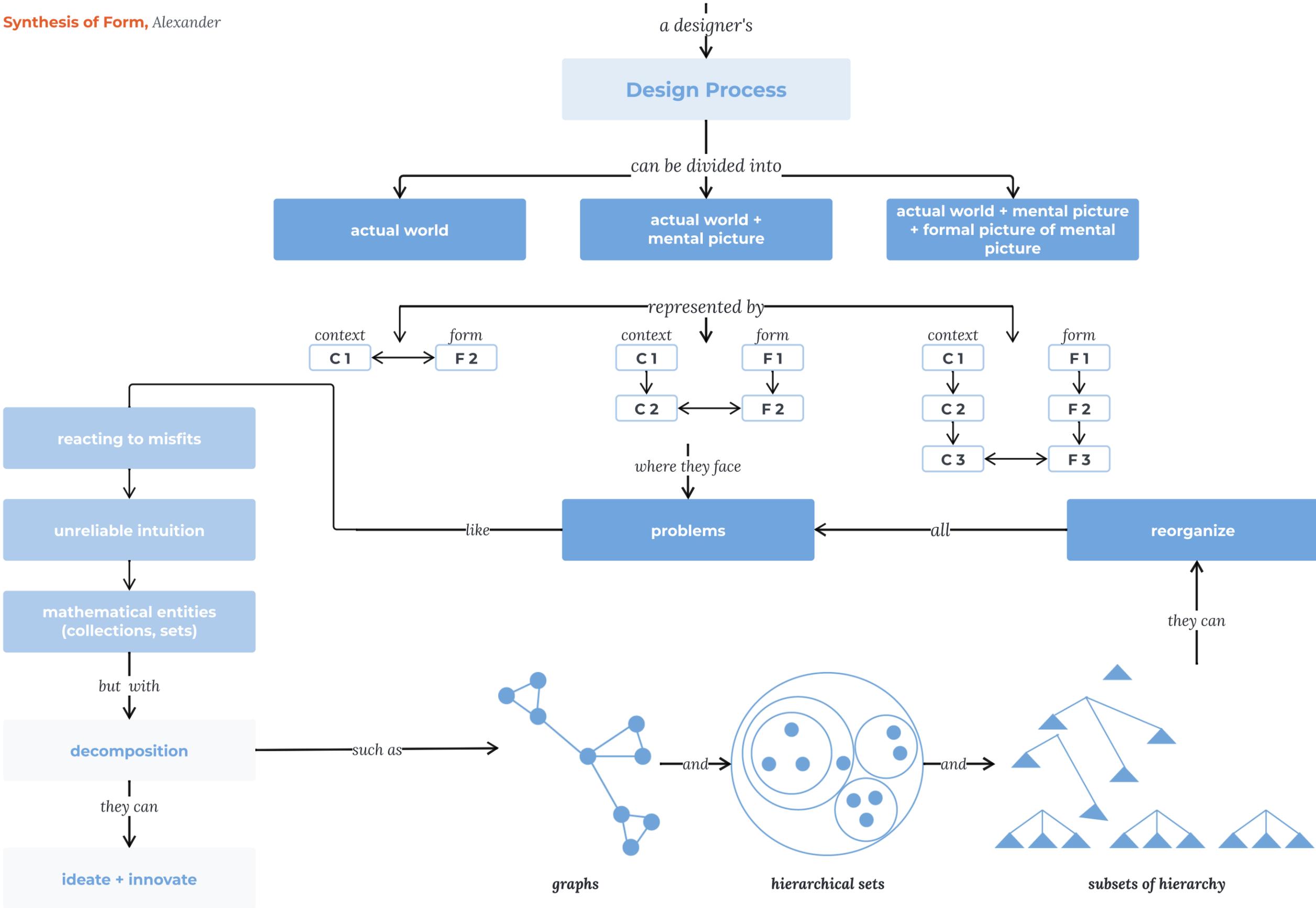


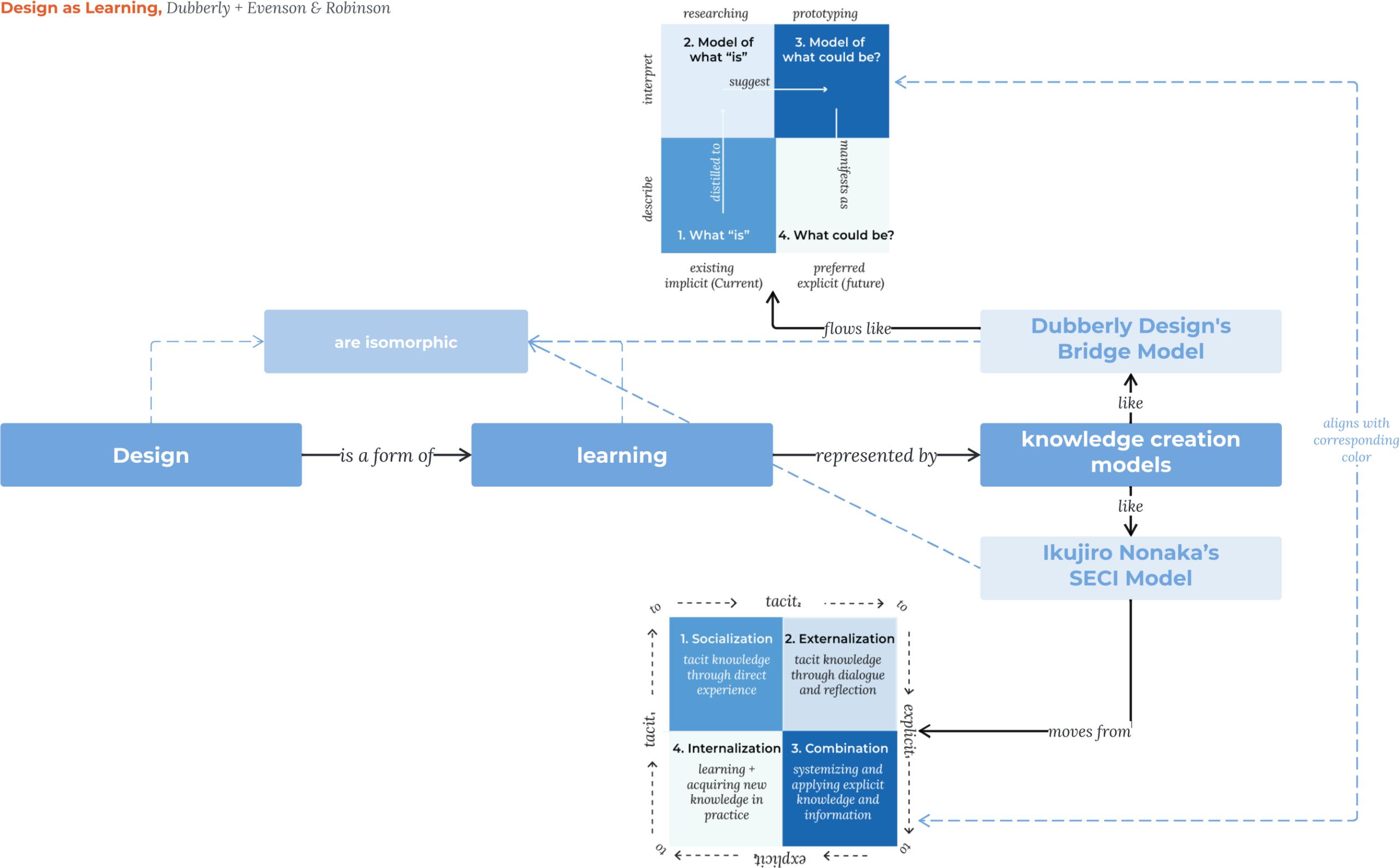


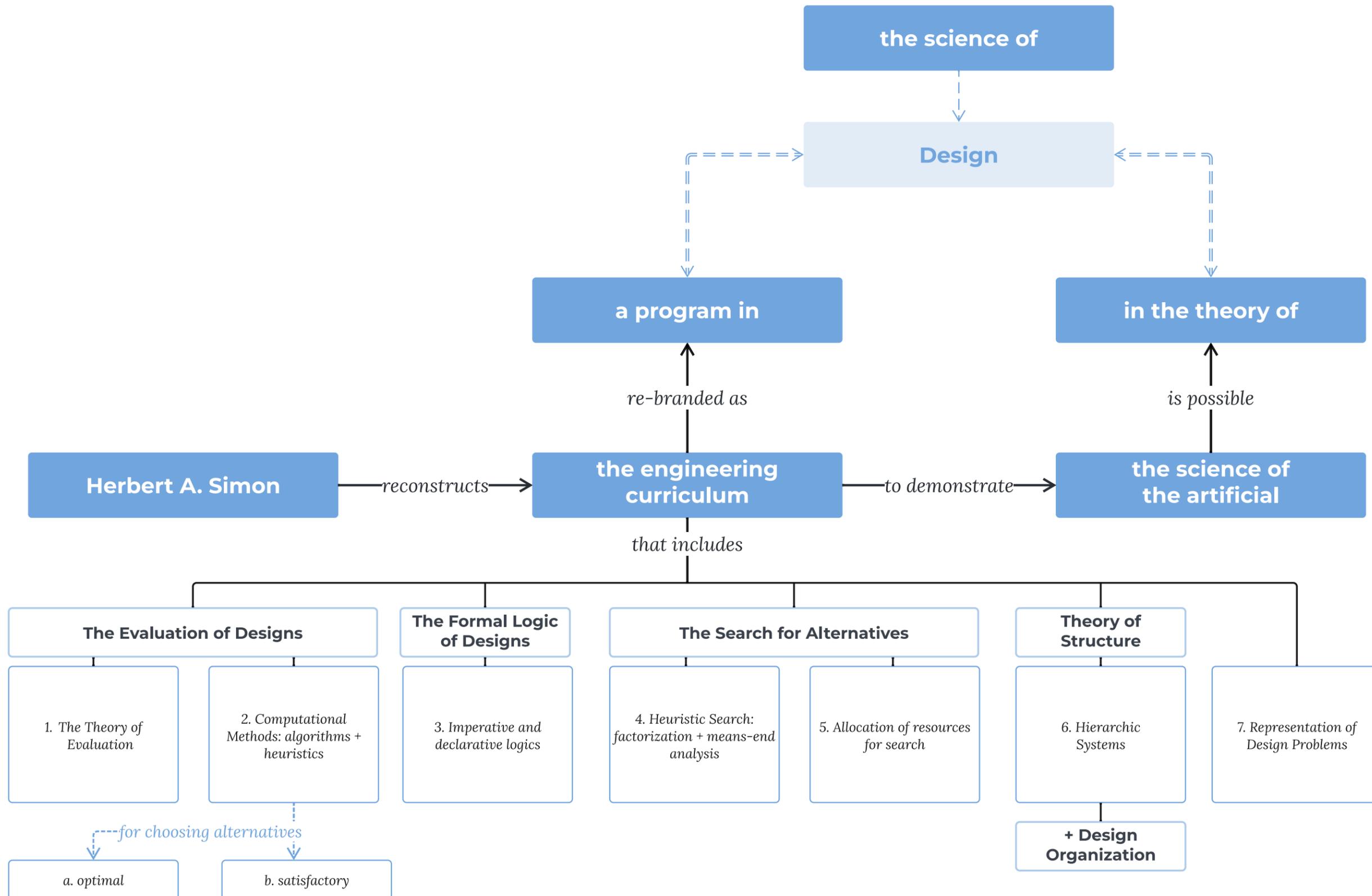


Theory of Affordances, Gibson

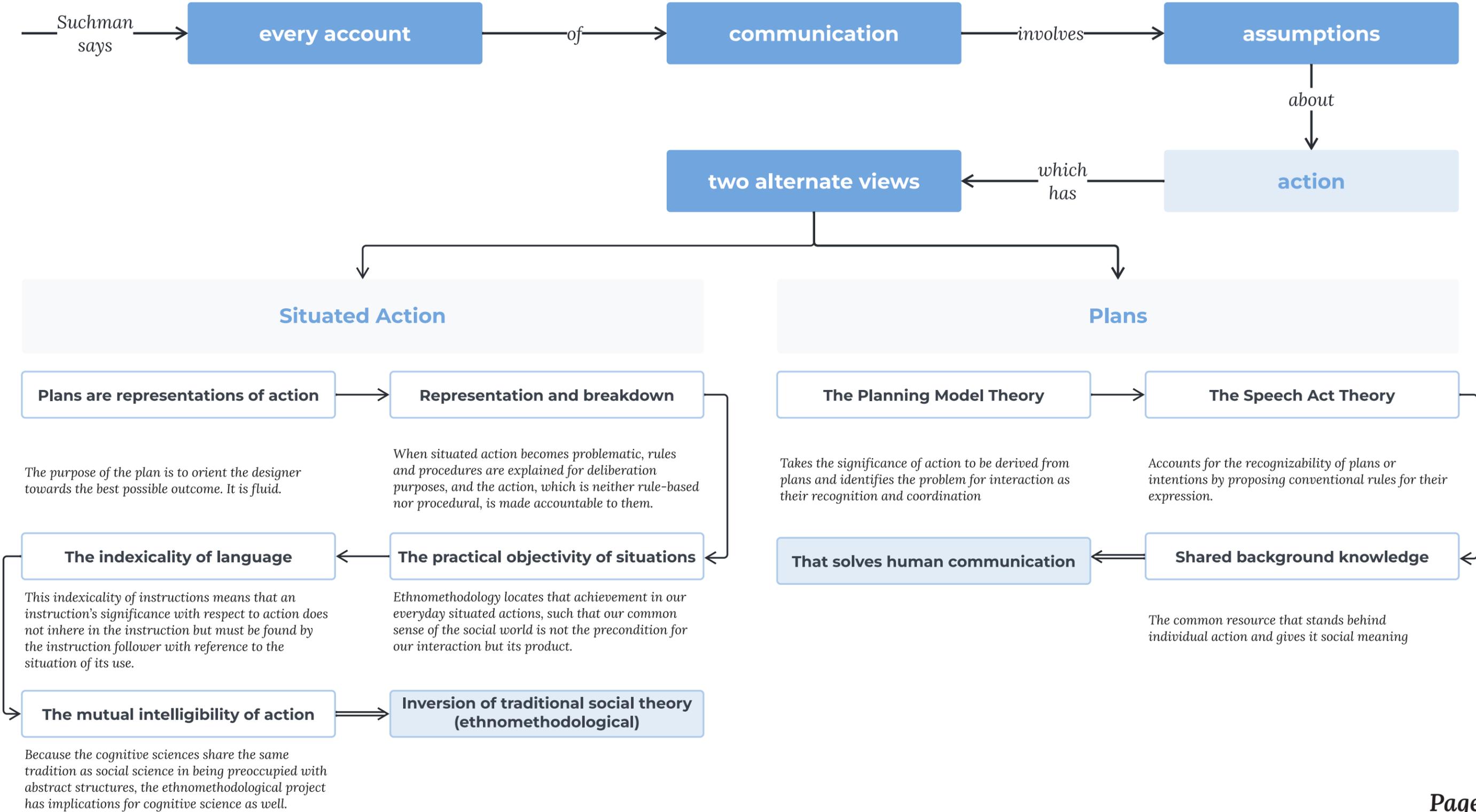


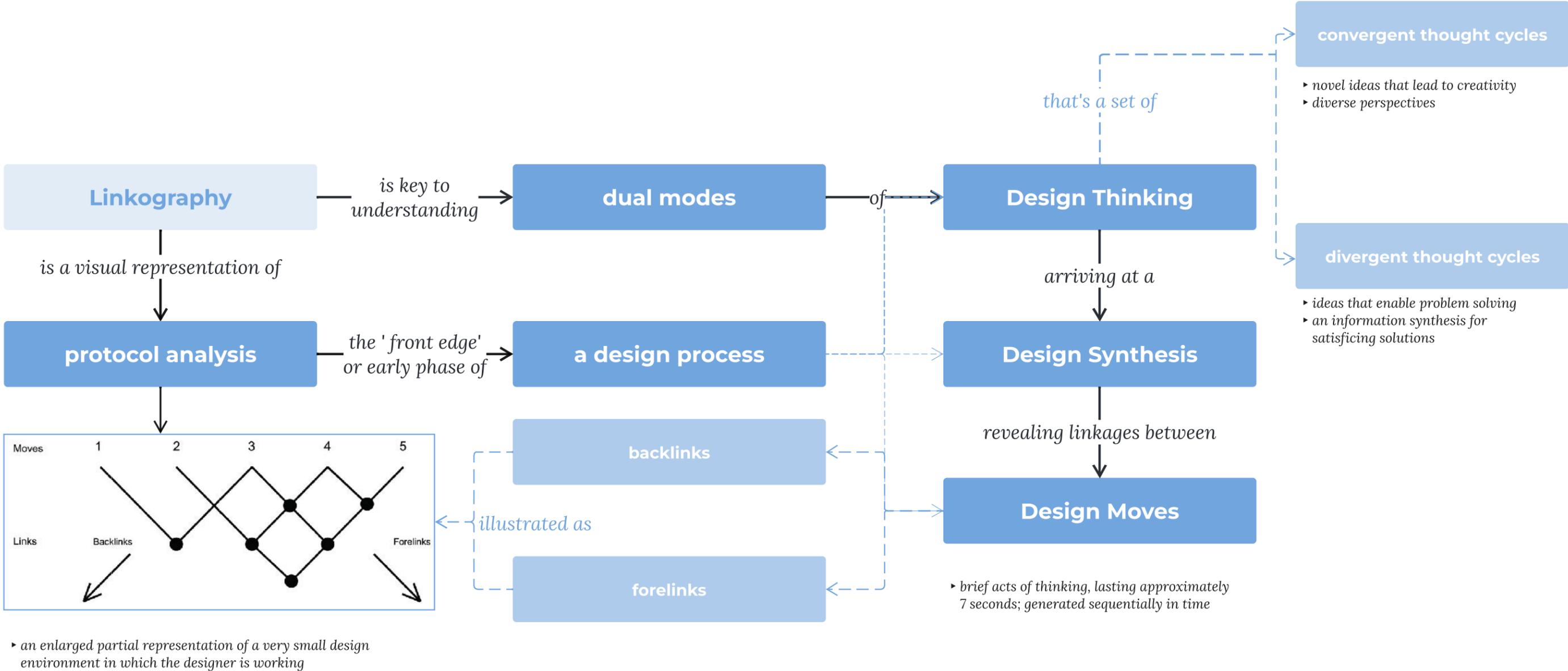




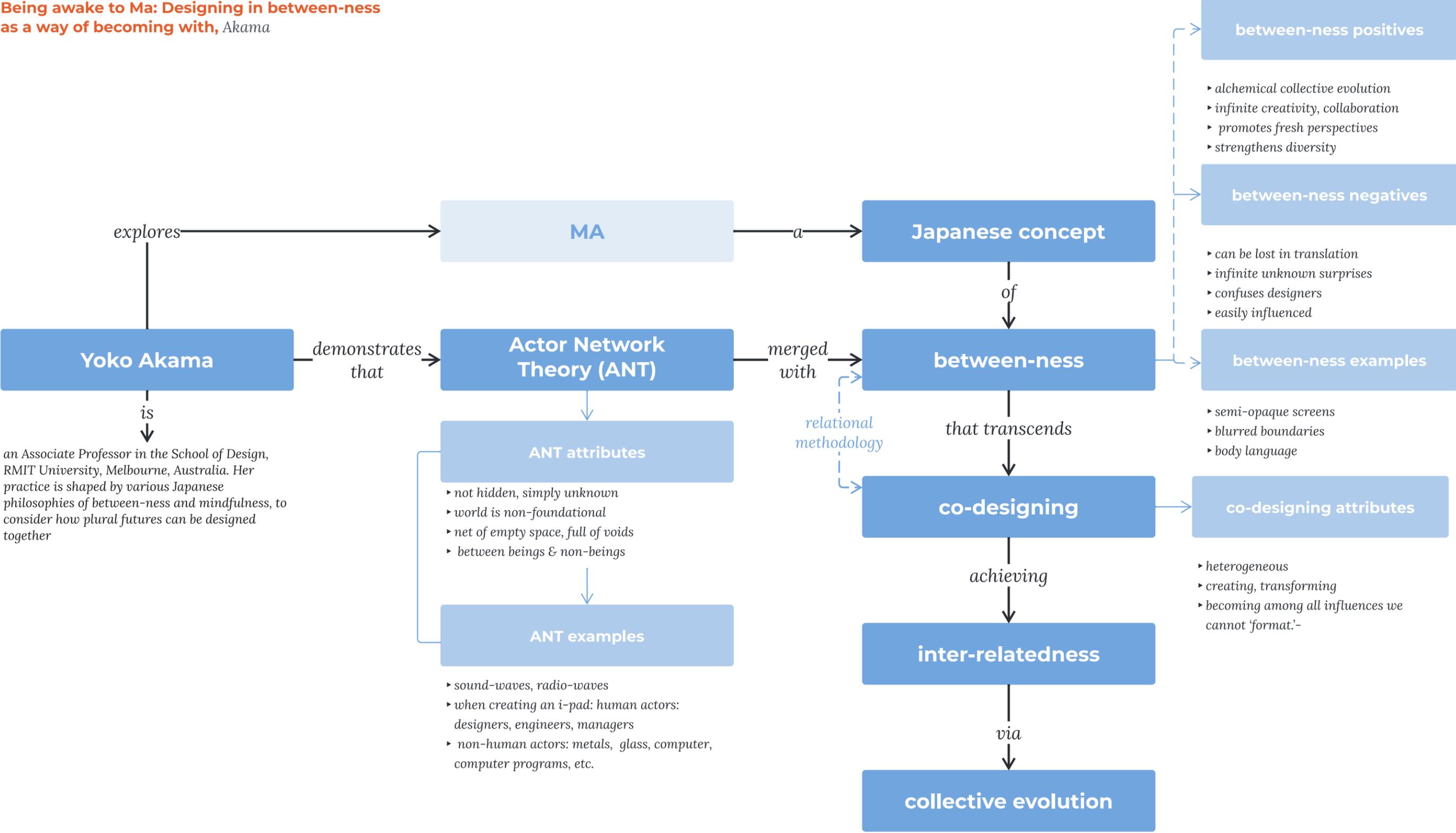


**Human- Machine Reconfigurations;
Plans & Situated Actions , Suchman, L.**



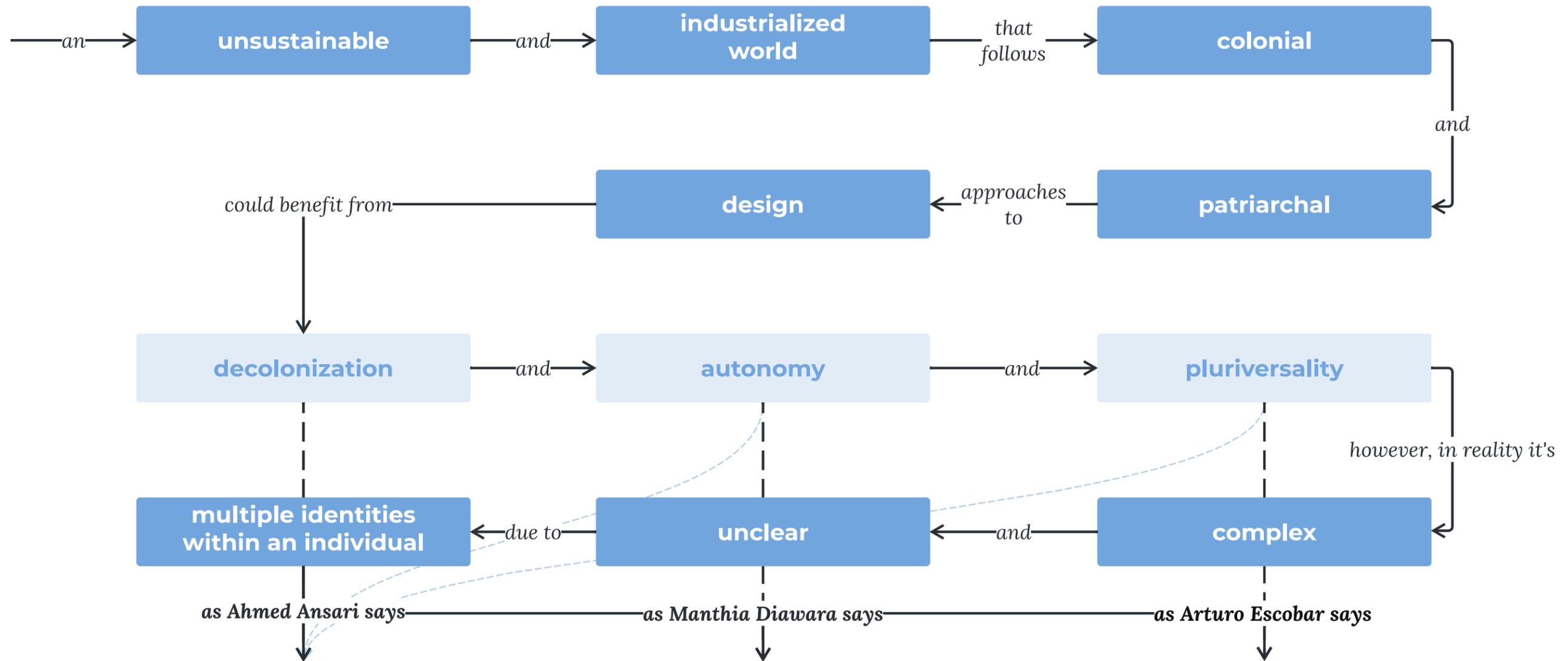


Being awake to Ma: Designing in between-ness as a way of becoming with, Akama



an Associate Professor in the School of Design, RMIT University, Melbourne, Australia. Her practice is shaped by various Japanese philosophies of between-ness and mindfulness, to consider how plural futures can be designed together

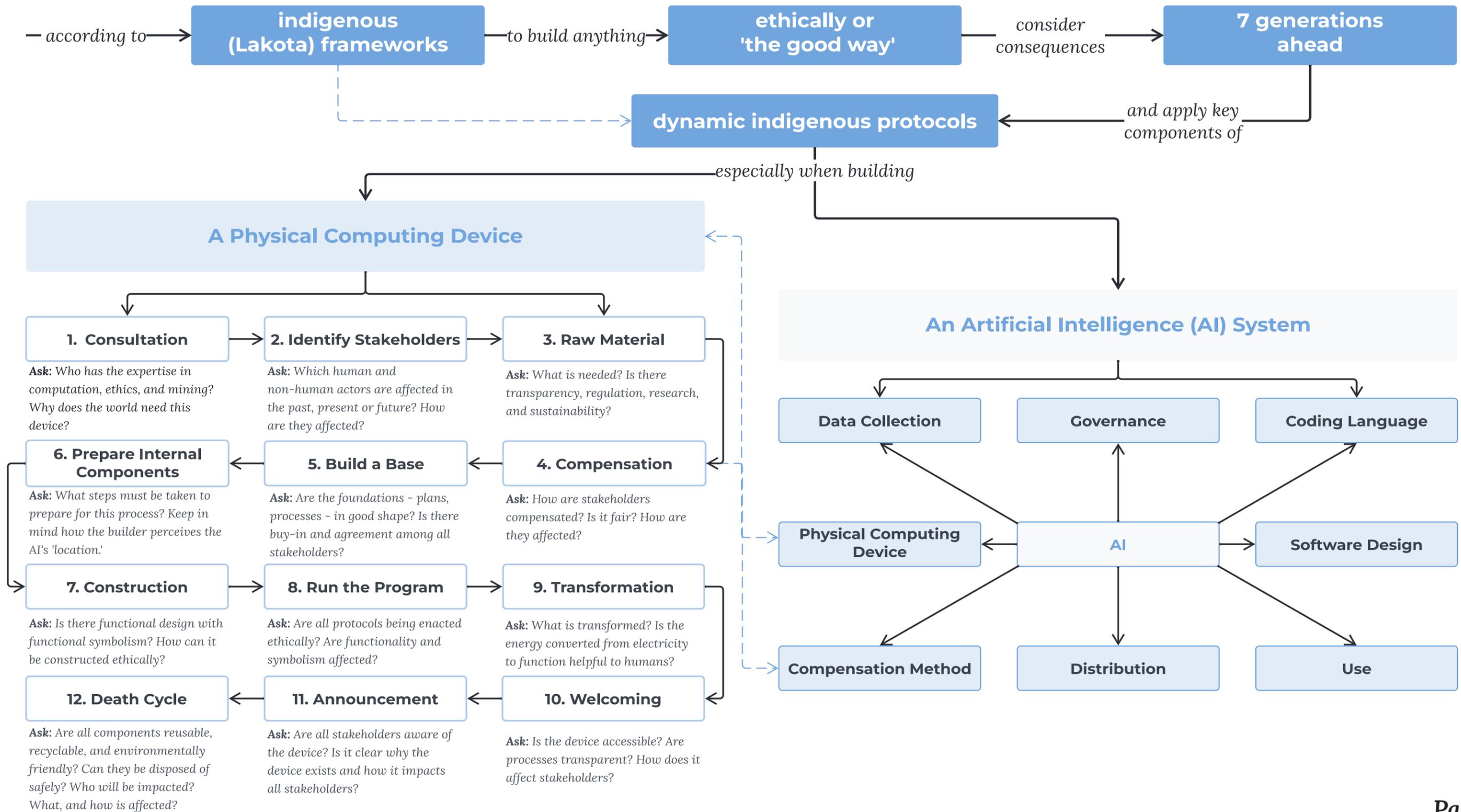
Design Historians Say:



"In practice... it is less clear how pluriversality and autonomous design can develop into something that speaks to tens, if not hundreds, of millions of people that all see themselves as national 'natives'"

"As individuals and communities we have different identities...We can be dishwashers in the present but kings in history, in song, in culture."

"The notion of oww [One-World World] signals the predominant idea in the West that we all live within a single world, made up of one underlying reality (one nature) and many cultures. This imperialistic notion supposes the West's ability to arrogate for itself the right to be 'the world,' and to subject all other worlds to its rules, to diminish them to secondary status or to nonexistence, often figuratively and materially. It is a very seductive notion [...]"



Dear Michael,

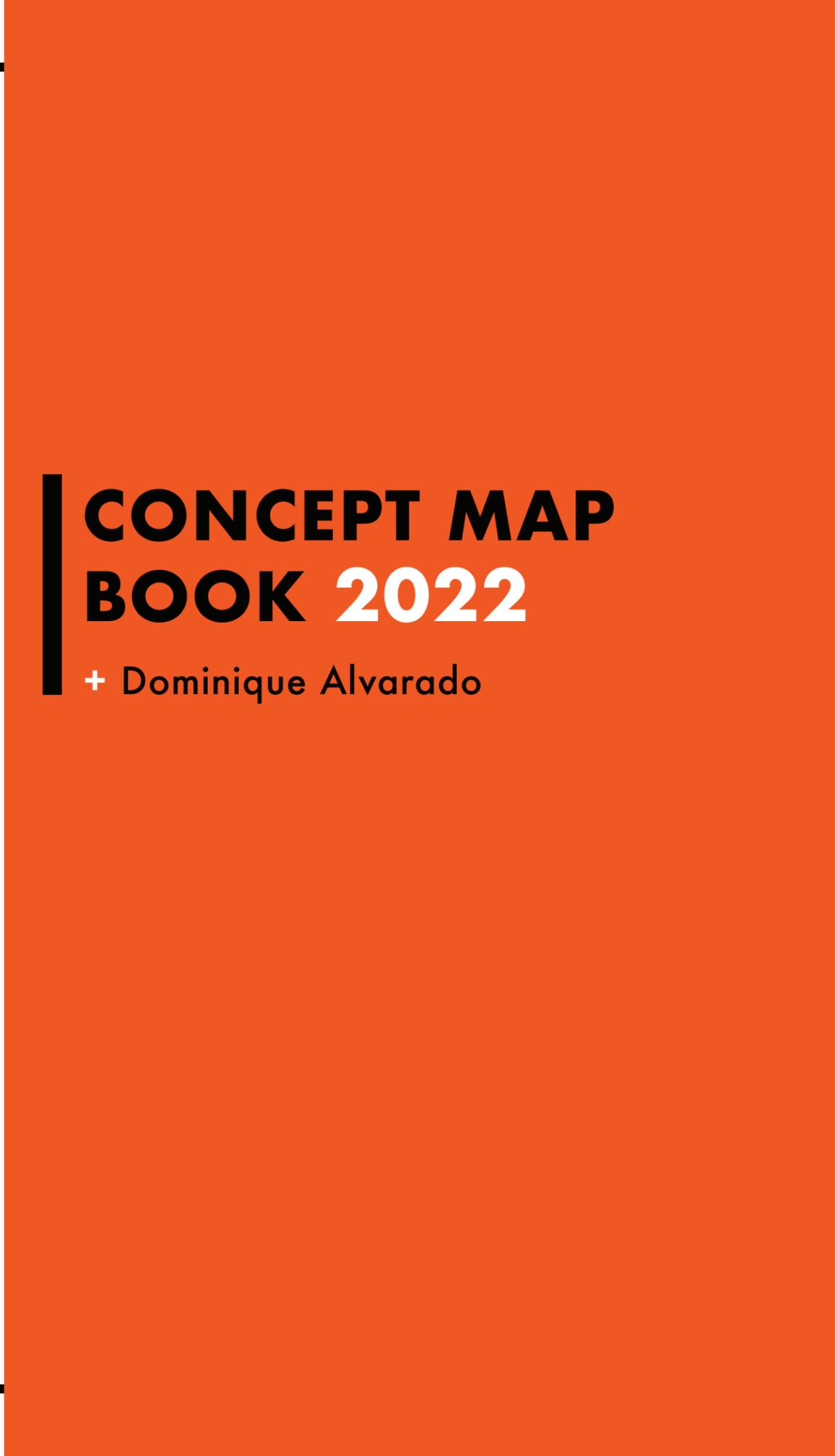
Thank you for being such an excellent instructor this semester.

Thank You for stretching our minds wide, and helping us see the world in a way we didn't and perhaps, wouldn't before.

Thank You for all the conversations, the laughs, and those incredibly delicious cookies.

Here's hoping our paths cross, again.

With lots of gratitude and memories,
Daniella

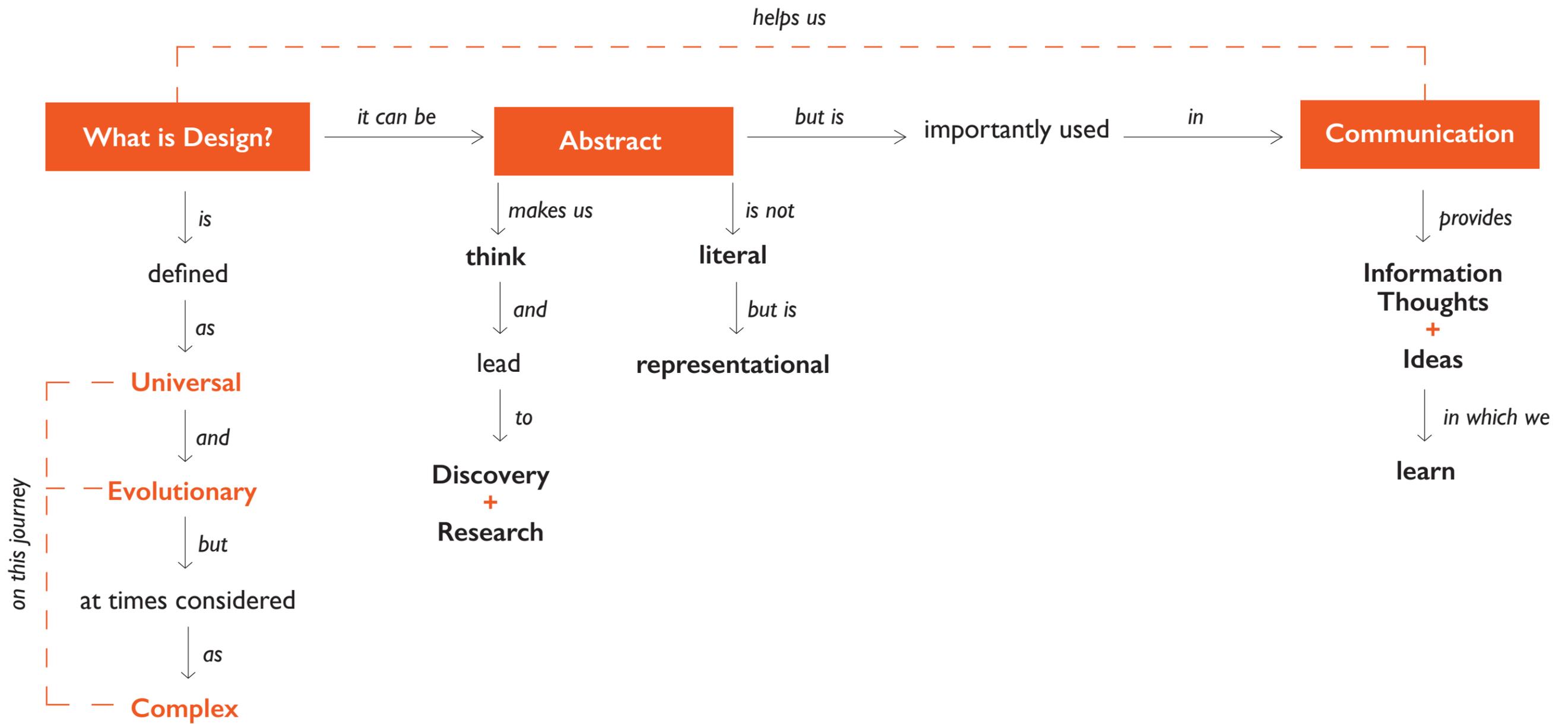


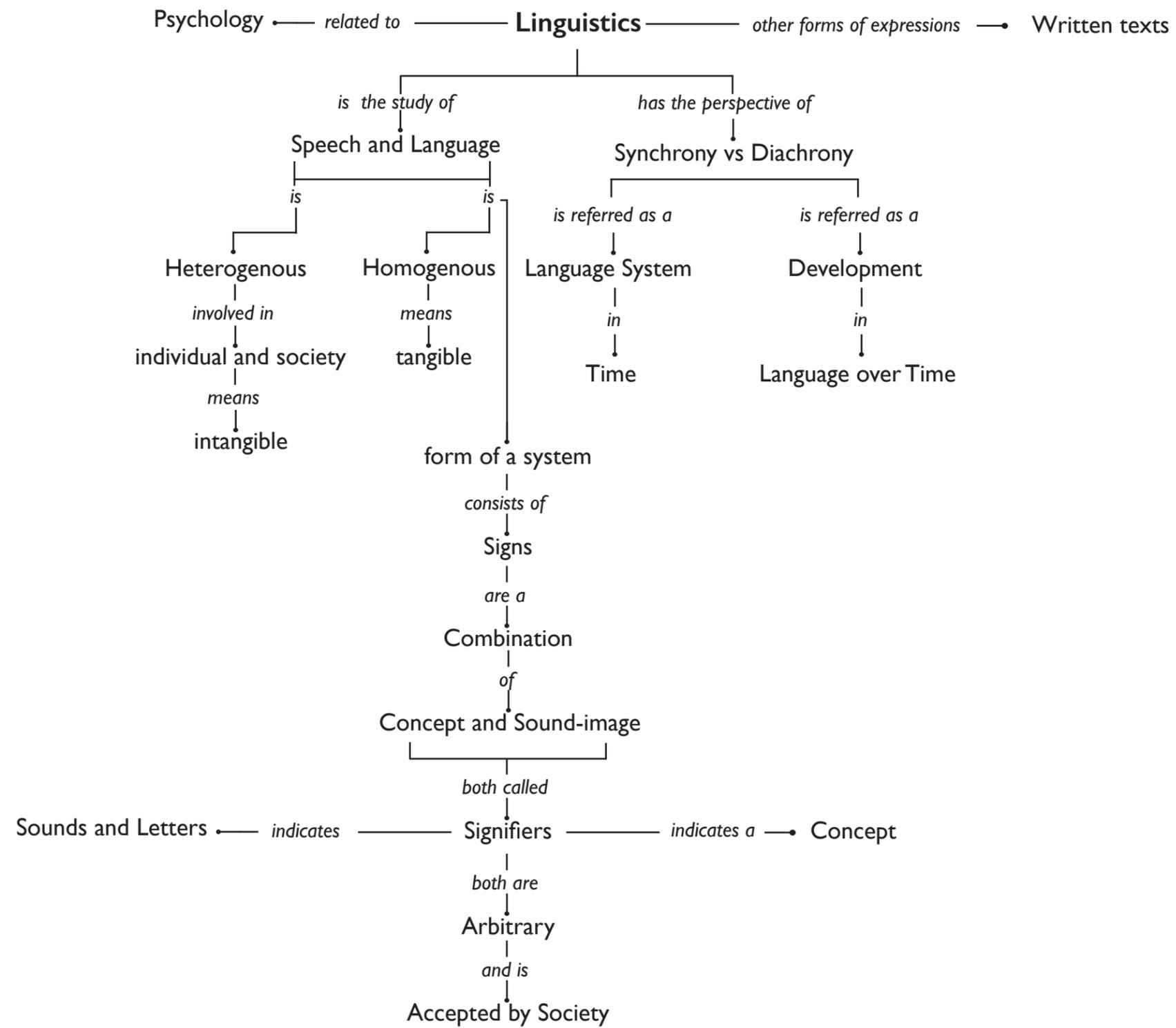
CONCEPT MAP **BOOK 2022**

+ Dominique Alvarado

TABLE OF CONTENTS

03	What is Design?	16	Akama
04	Saussure	17	Ansari - 3 in 1
05	Peirce	18	Kite
06	Shannon		
07	Buchanan		
08	Star		
09	Gibson		
10	Alexander		
11	Dubberly		
12	Simon		
13	Pask		
14	Suchman		
15	Goldschmidt		





Traffic Lights
Four Leaf Clover
"goodluck"
+
Rainbow means
"happiness"

↑ like

Pronouns
Green means
"GO"
+
Blue represents
"cold"

← like no similarity ← but an object ← to relationship ← some An Index + A Symbol → no relationship → to an object → but no similarity → to cultural convention

↑ or

an object ← to similarity ← has an icon ← also **A Sign** → is something → that stands → for something else → to someone

↓ like

Diagrams
Images
+
Emojis

↓ is

an representamen

↓ like

an object

↓ which

creates

↓ another

sign

↓ an

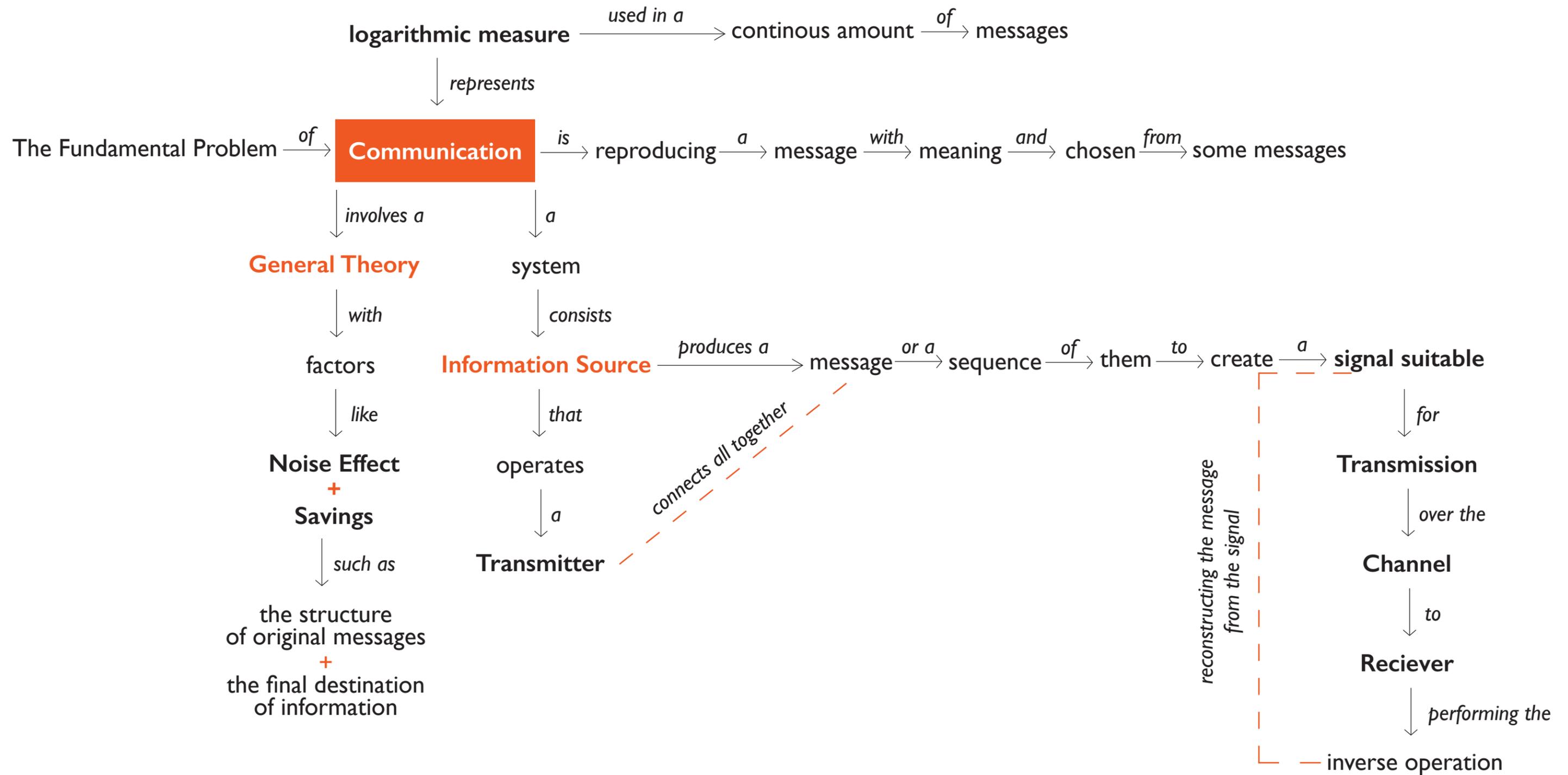
interpretant

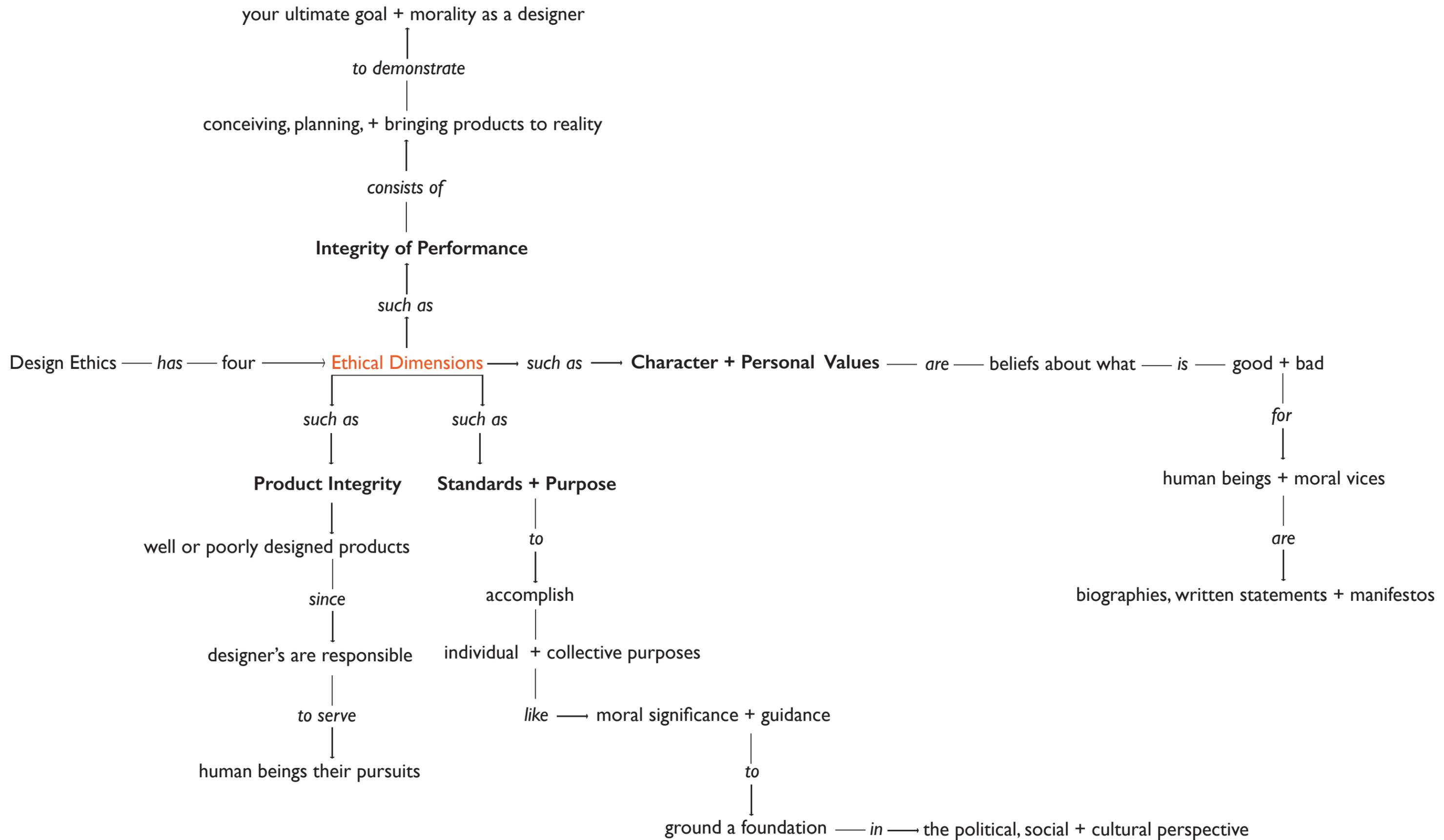
↓ in the

mind

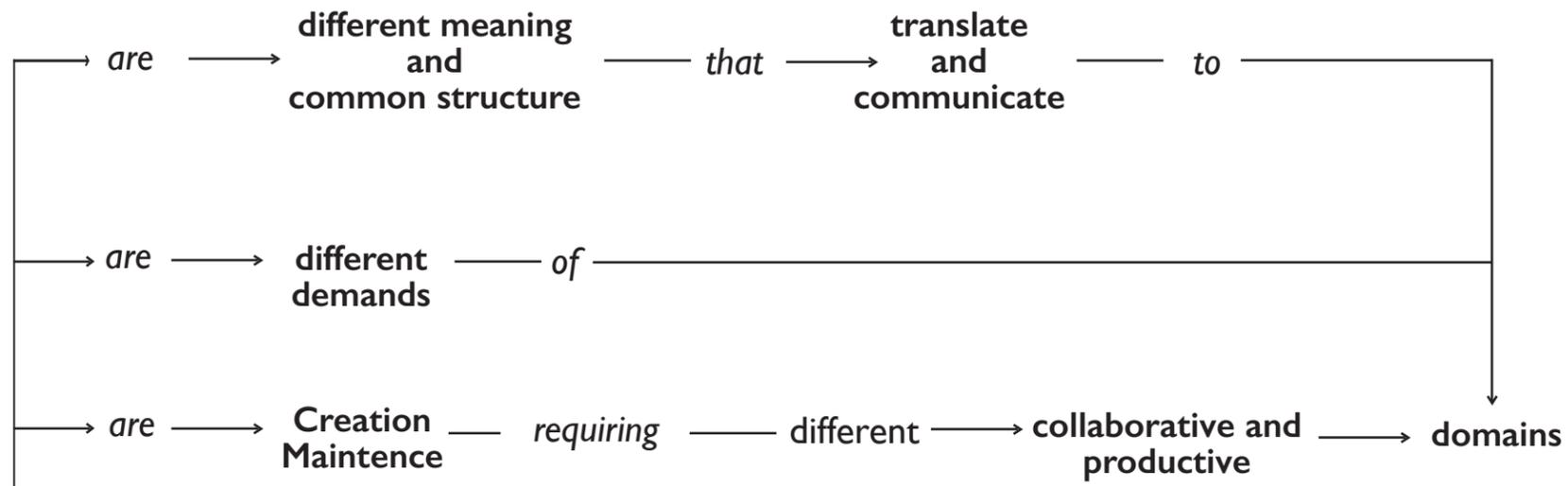
↓ of a

reciever

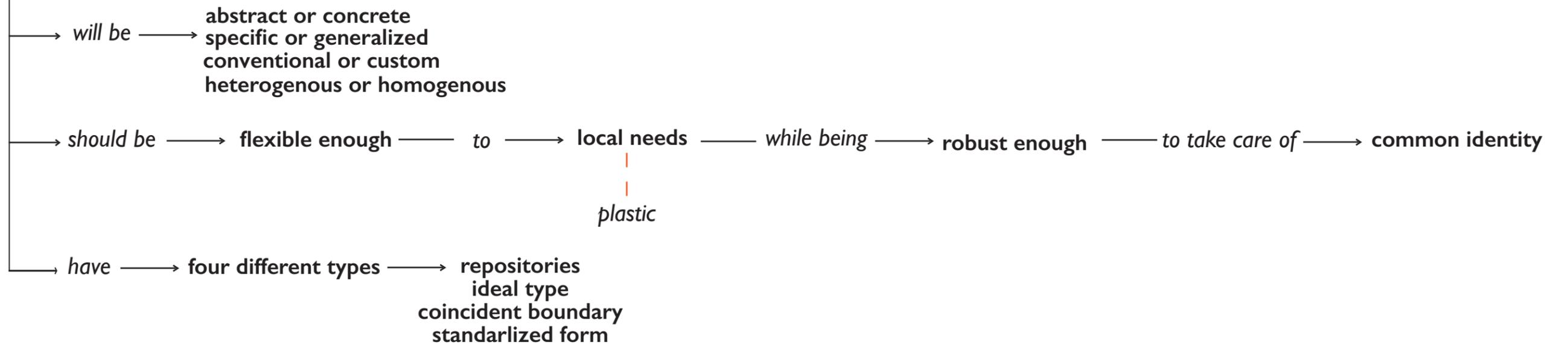




Scientific Works *are* relying *on* **Communication + Create New Findings**



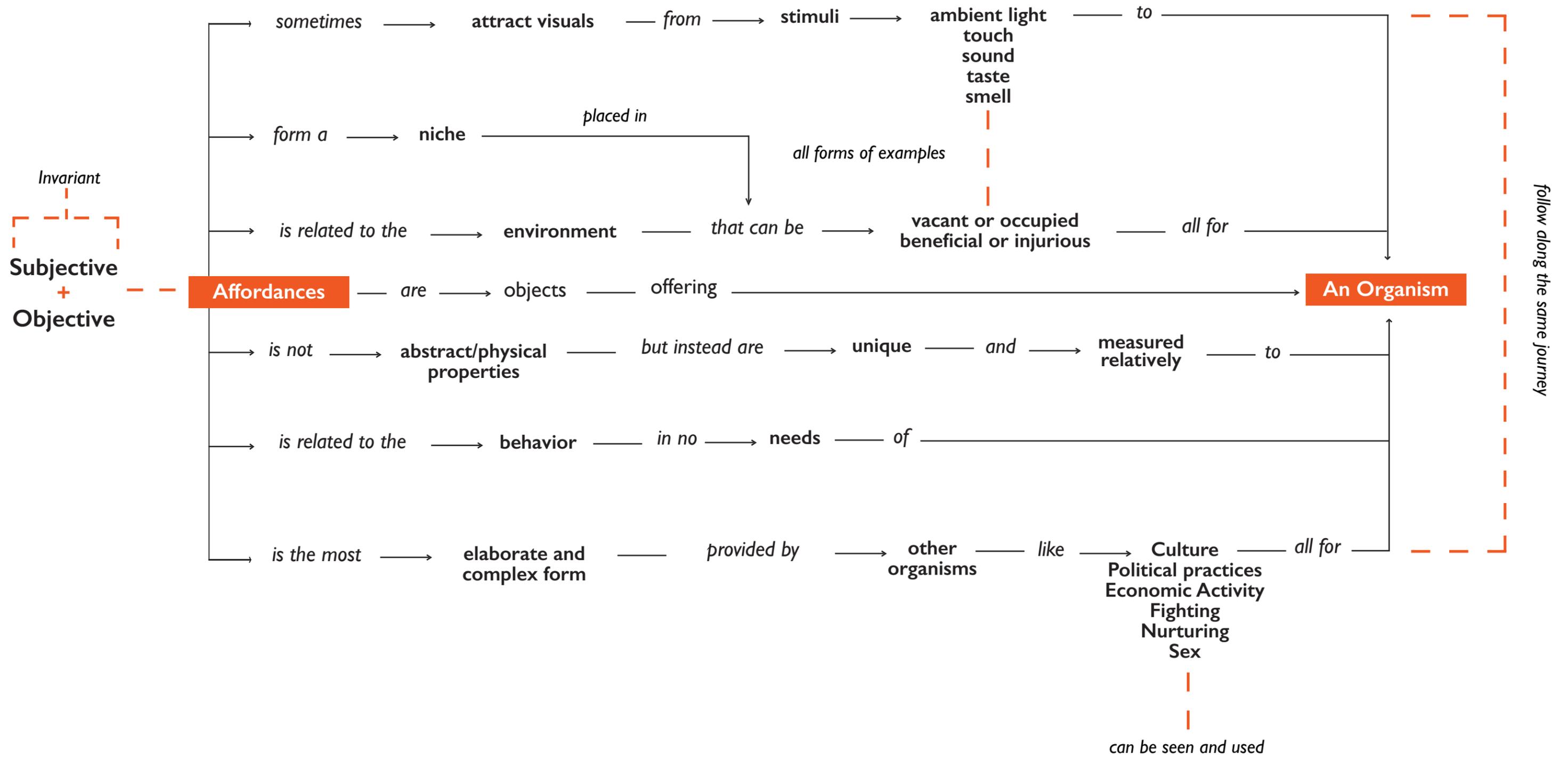
Boundary Objects

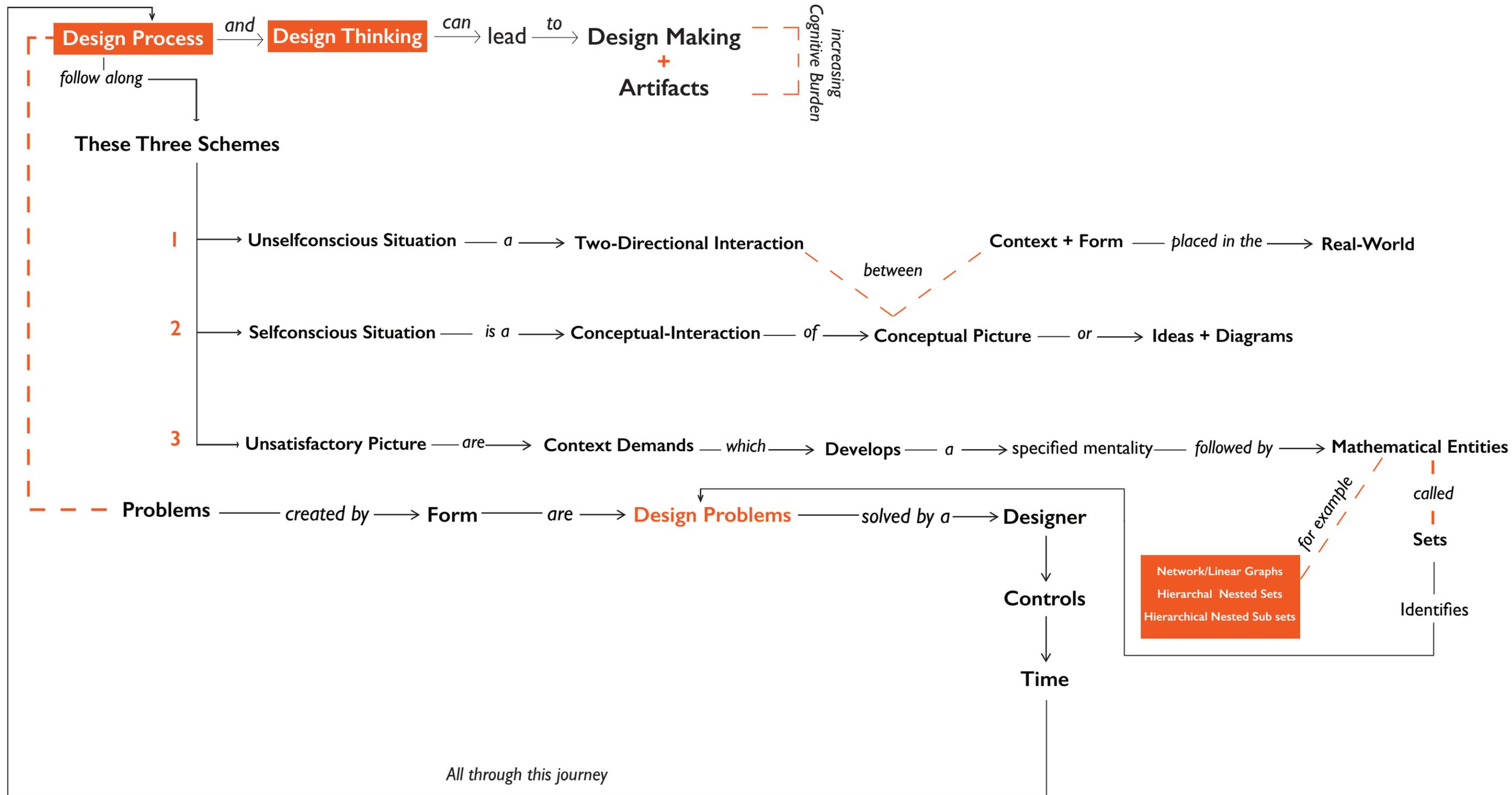


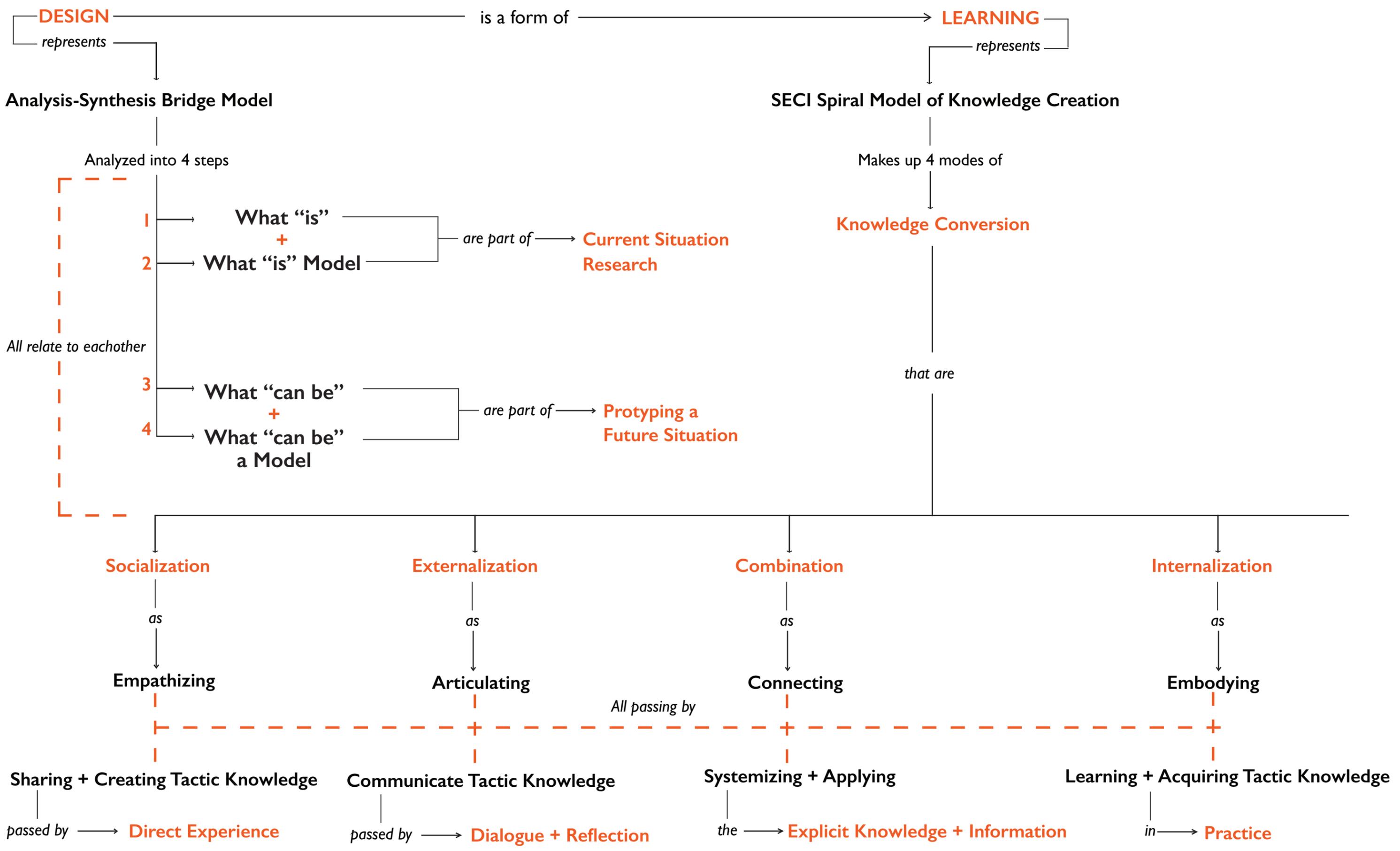
Methods of Standarization *are* compatible information *that* allows *a* longer reach *for* **Divergent Words**

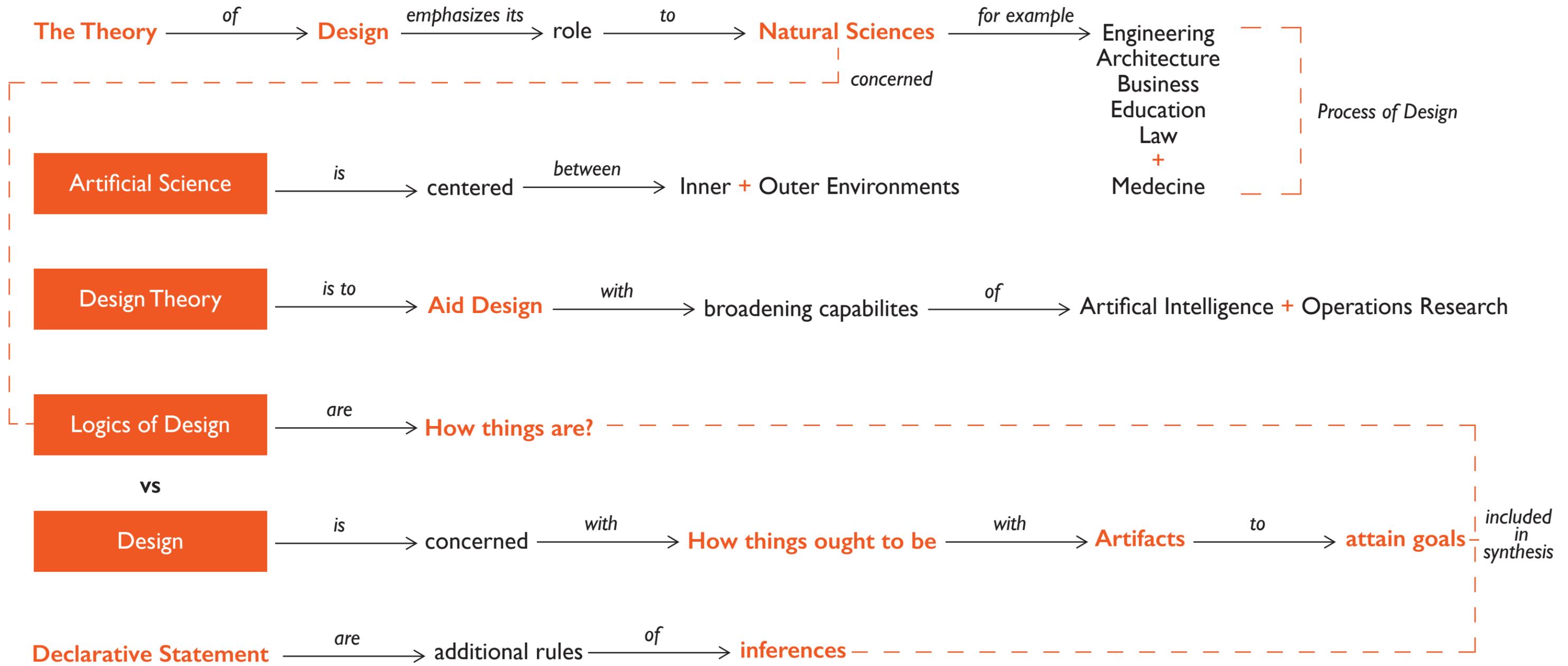
second main factor

one main factor

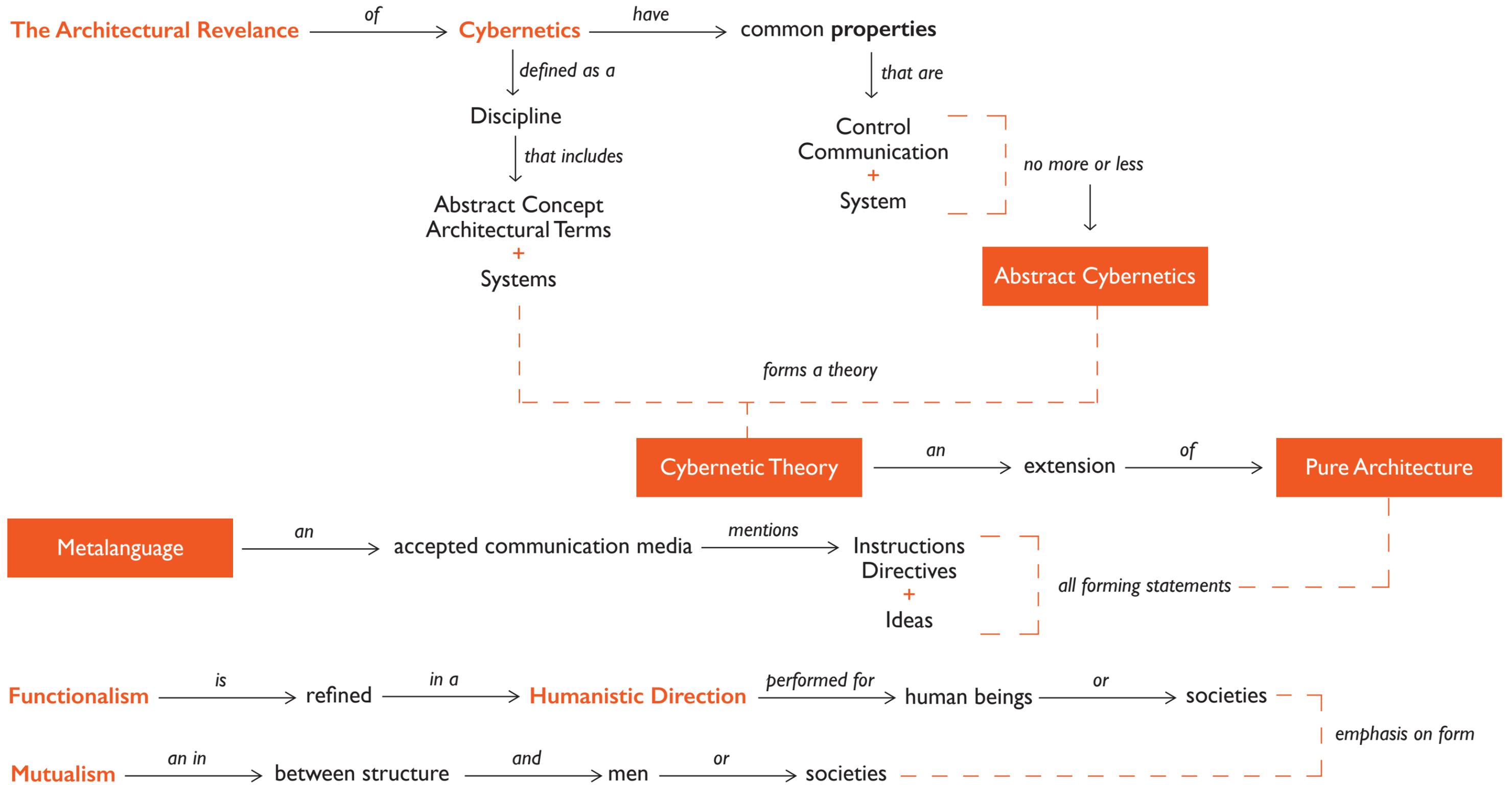


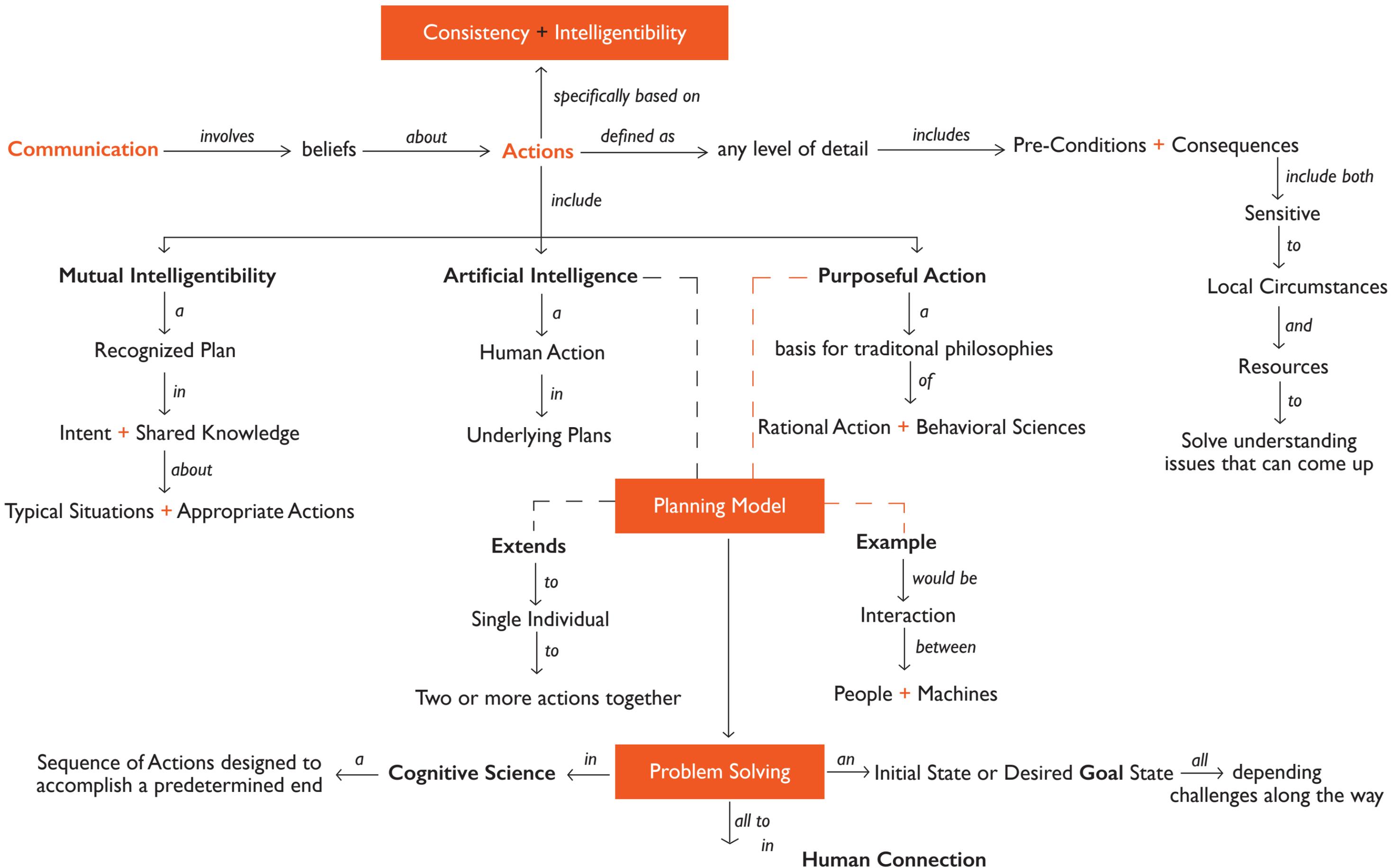


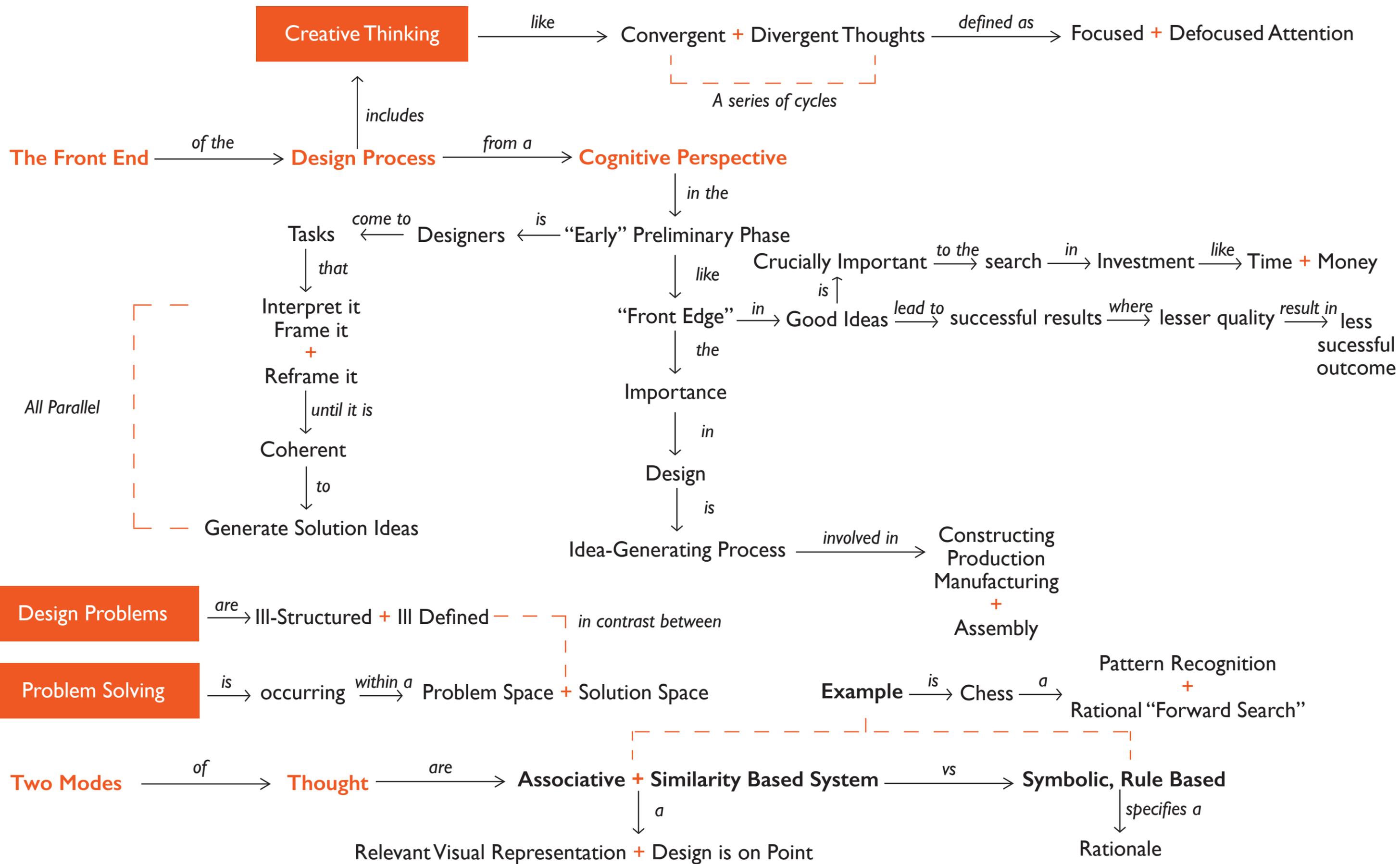


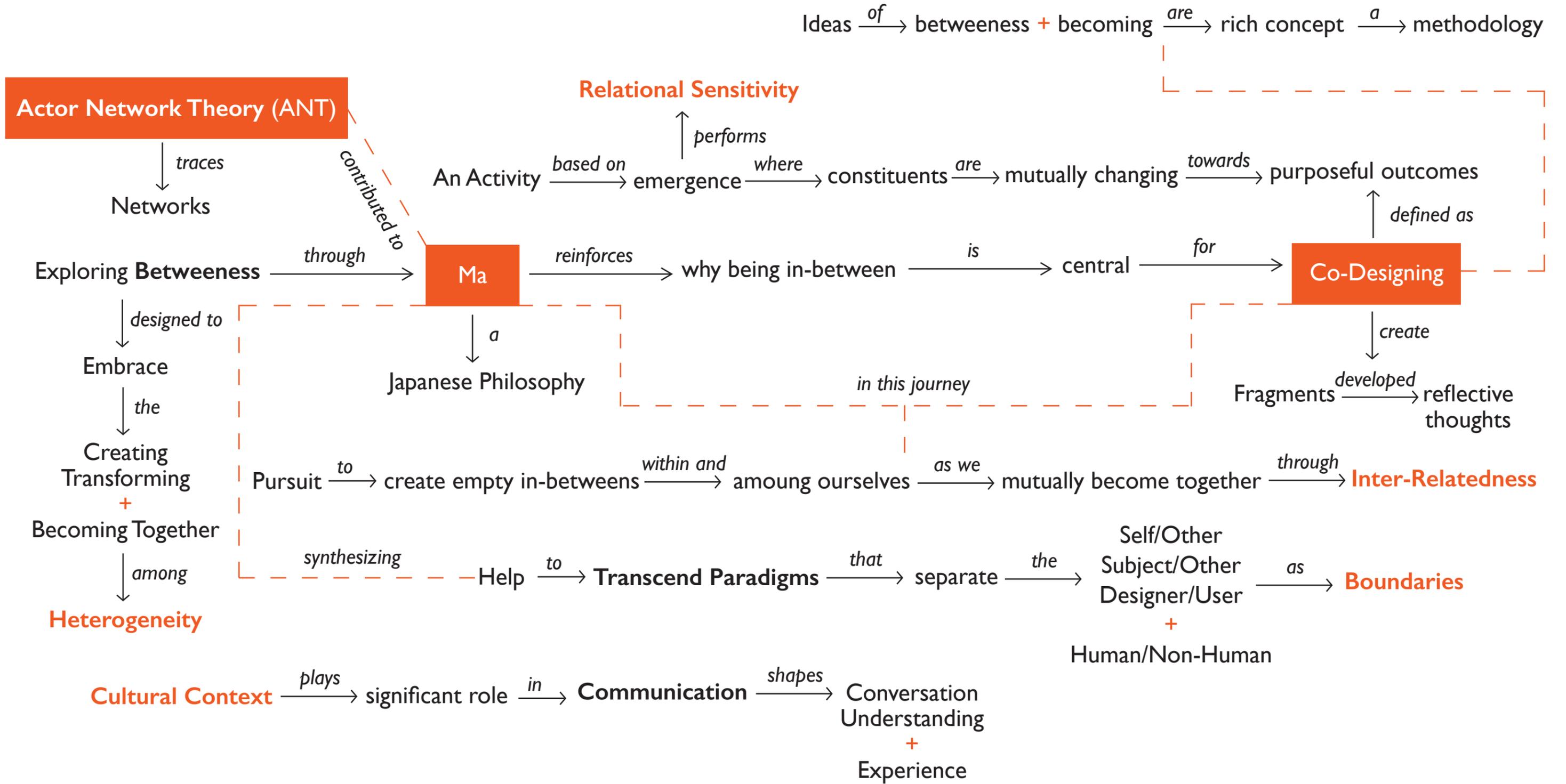


The Science *of* Design *not only is* possible *but also has been* emerging since *the* mid-1970's









in this journey

Decolonial Turn *has* shifted *in* **Critical Design Discourse + Practice** *over the* years *which* **Introduces New Conversations**

around
Representation + Epistemic Diversity

grounds
**Design Research
Practice
+
Theory**

Pluriverse *in* **Global Boom** *of* **Design** *are* categorized *in* **four signals**

which are

1.) Ubiquity of Design *from* largest structures *to* humble aspects

of
everyday lives

2.) Social Context *is* important *for* **successful design**

3.) Ecological Oriented Fields *have* realized design's vital role *in* creating *a* more livable world

a
type of design makes a difference

4.) Serious Design Notion *the* most radical change

follow along all together

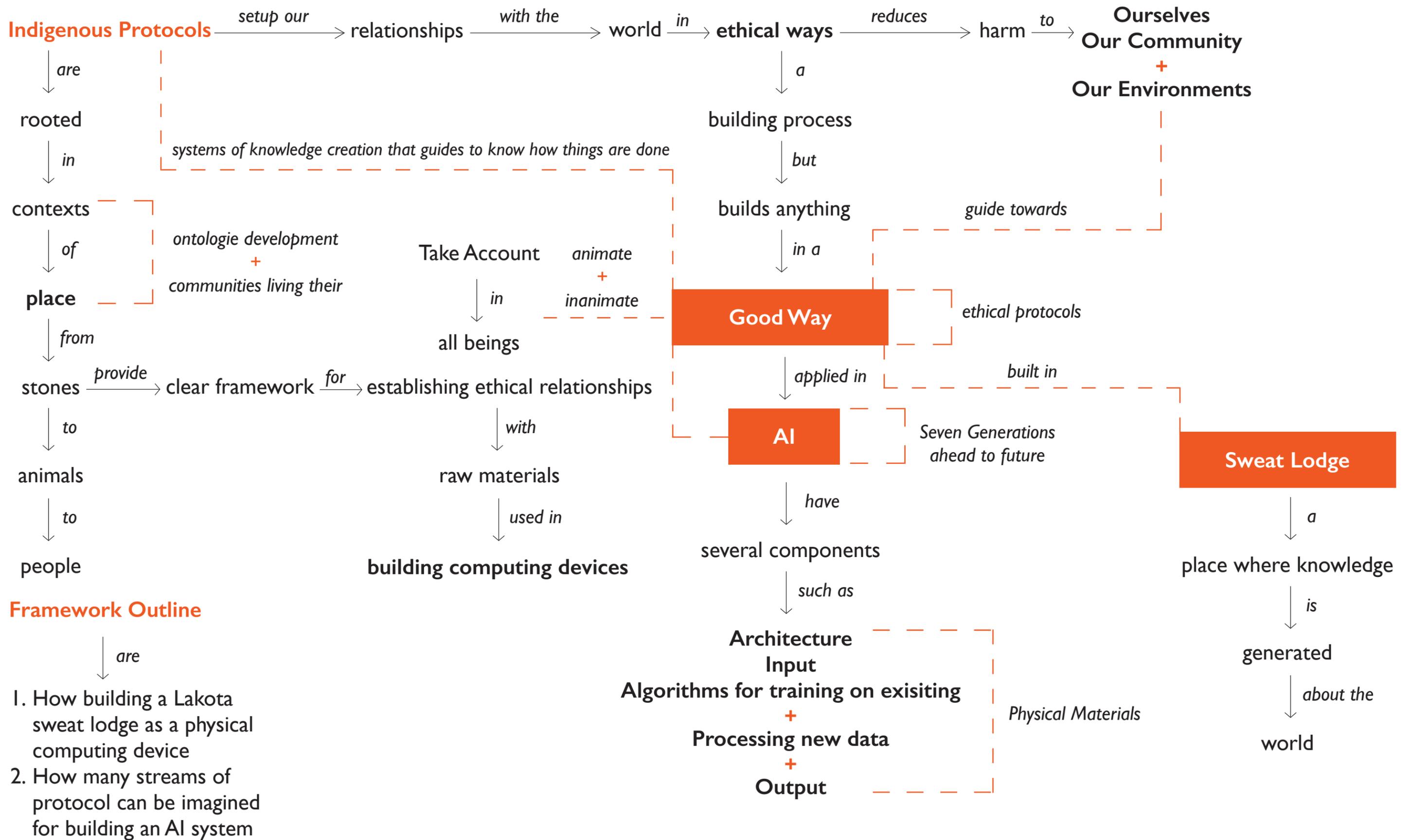
Griot *are* **before colonialism** *which* represents African history

This *ongoing* **redefinition** *of* **design** *such as* **Politico-Ontological + Ontological**

are
simple observations

like

create ways of being
**Objects
Structures
Policies
Expert Systems
Discourses
+
Narratives**





Thinking of Design

Concept Map Book

Qinzhe Chen

Spring 2022

ARTG 6110

Table of contents

3	Introduction	
4	What is design?	
6	Course in General Linguistics	Ferdinand de Saussure
8	Philosophical Writings, Theory of Signs	Peirce
10	Design Ethics	Buchanan
12	A Mathematical Theory of Communication	Shannon
14	Boundary Objects	Star and Griesemer
15	The theory of affordances	James J. Gibson
17	Synthesis of Form	Alexander
18	Design as Learning, The Analysis-Synthesis Bridge Model	Dubberly
20	The architecture, relevance of cybernetic	Pask
21	The Sciences of the Artificial	Herbert A. Simon
23	Human-Machine Reconfigurations	Suchman
24	Design Synthesis	Goldschmidt
26	Being awake to Ma	Akama's
27	Design for the Pluriverse The song for the Griot Design History Society	Escobar Manthia Diawara Ahmed Ansari
28	How to Build Anything Ethically	Kite et al

INTRODUCTION

This process book is for ARTG 6110 Information Design Theory and Critical Thinking. During this semester, we read lots of books and articles of different scholars and explore what is design, some important theories about design ethics, design process and other related topics, such as the relationship with science and AI, the concept of a Japanese word "Ma".

This process book is a collection of all concepts map I made based on these readings each week, with important takeaways in the readings and feedback I got from class critique. It is a book about what I learnt from these concepts in the realm of designing and each concept map is a structure of the reading with the branches and details of different theories.

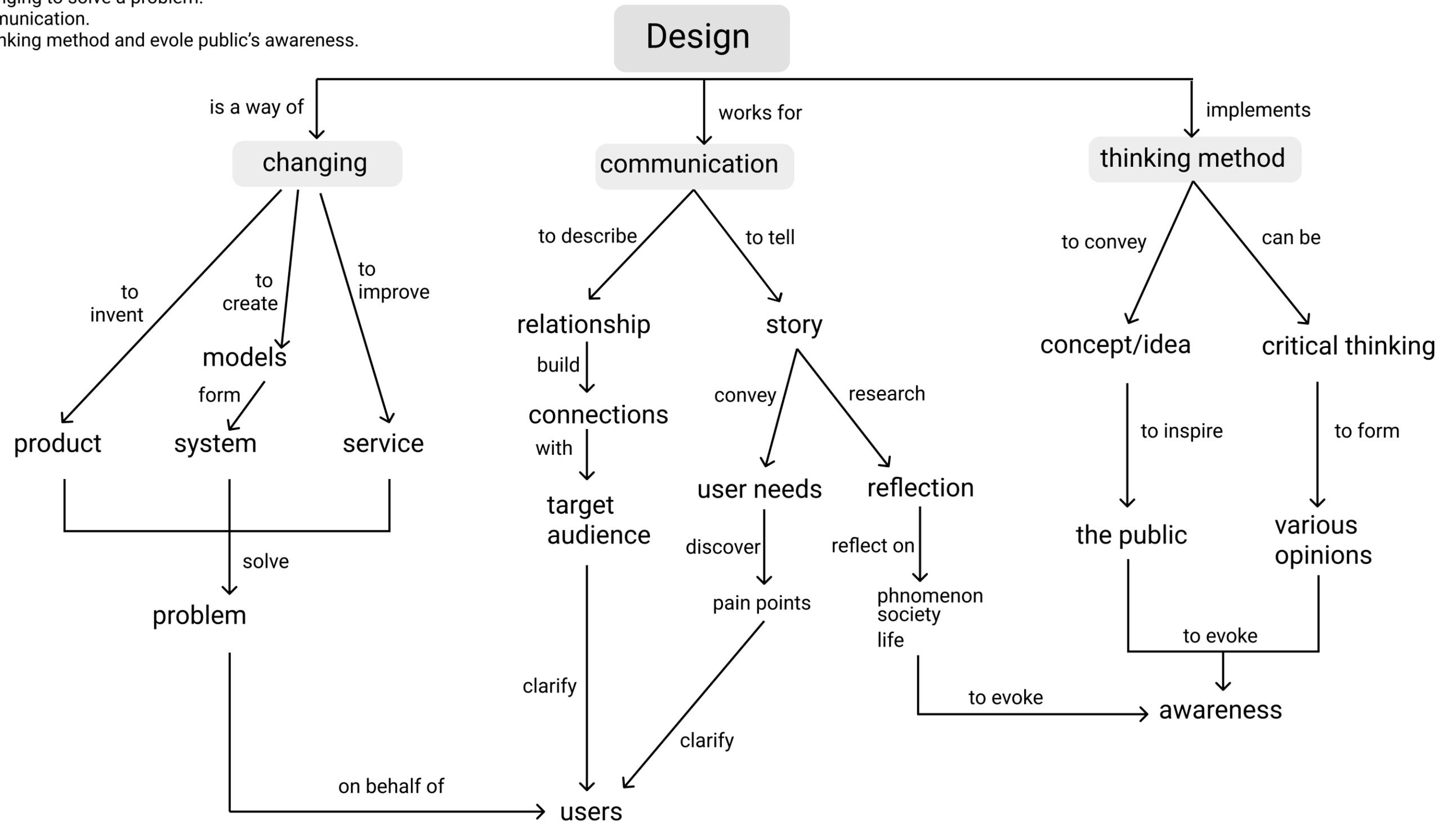
Concept map of DESIGN

What is design?

Design is a way of changing to solve a problem.

Design works for communication.

Design implements thinking method and evolve public's awareness.

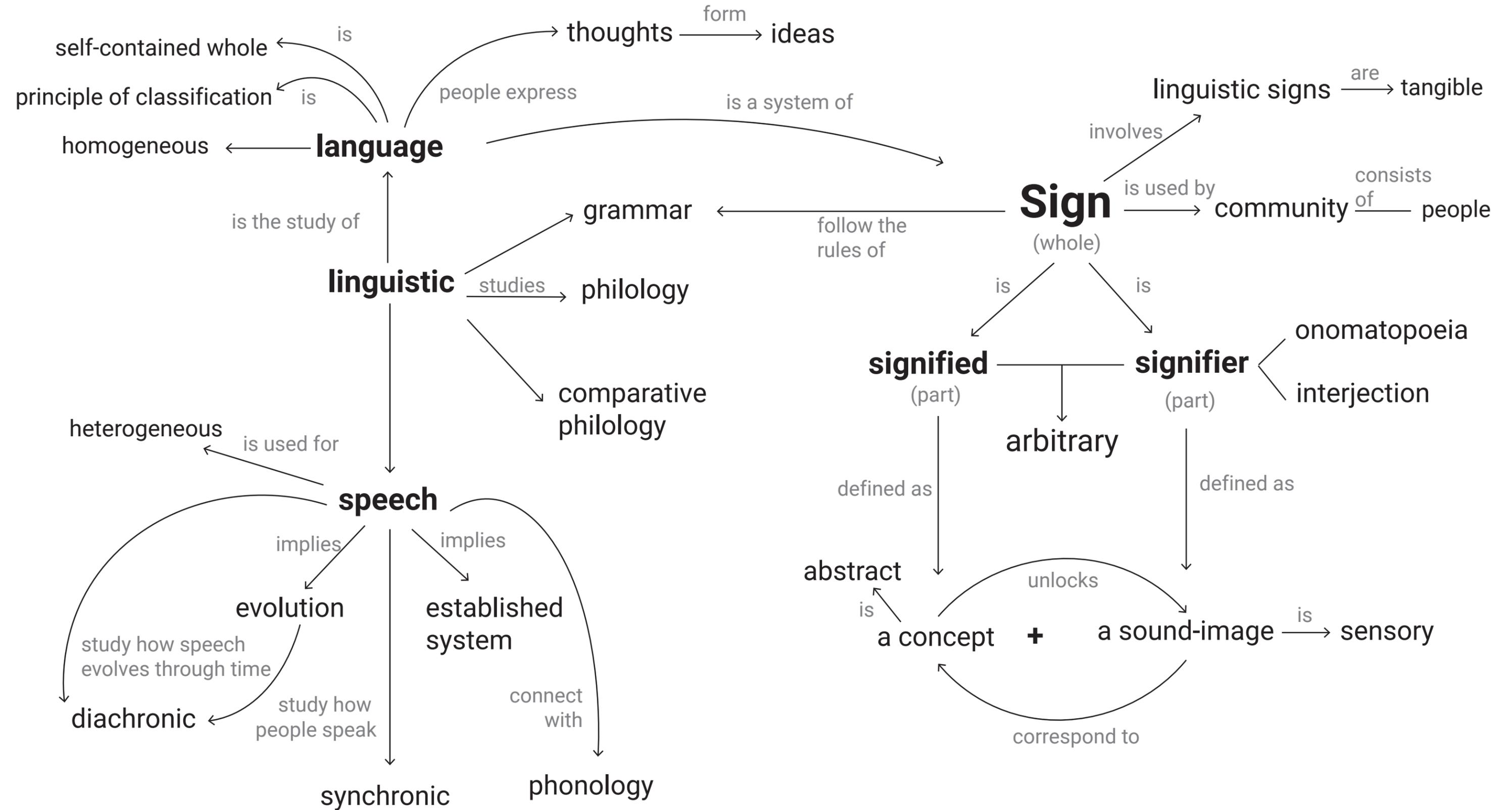


Feedback

1. **Word → word structures as a sentence fragment.** Try to have the **word → word** configuration read as a sentence for as long as possible. For instance, "Design is a presentation of thinking method" and "thinking method develop critical thinking" your meaning is not quite clear. Better would be "Design implements thinking methods", and "thinking methods can be critical thinking".
2. **Make stronger visual groupings of content.** Use white space to separate these into meaningful **chunks of content**.

Course in General Linguistics

Ferdinand de Saussure



Feedback

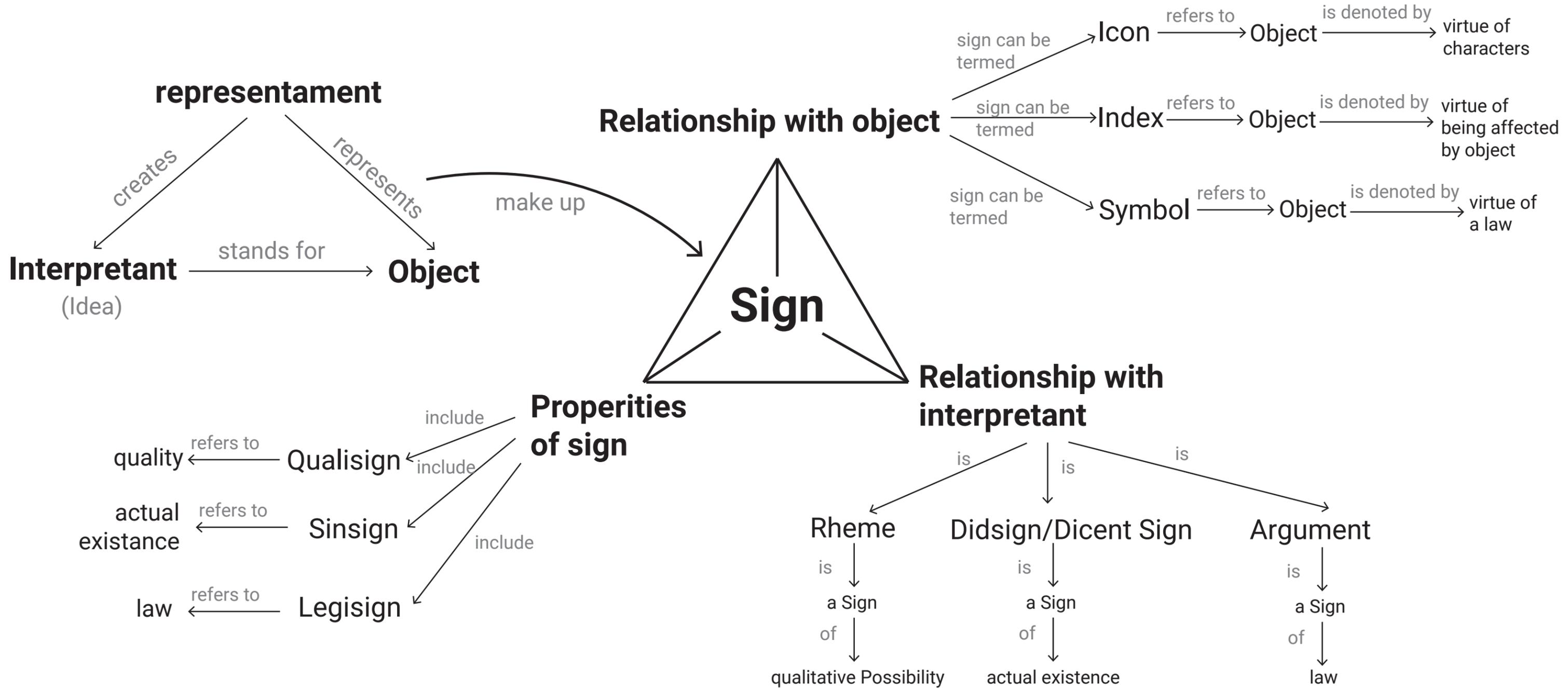
Suggestions for design layout:

1. use one "studies" if this is all the same relationship.
2. Care more about the whole structure. It can be more neat as a whole.
3. Try to make use of the white space on the paper.

Philosophical Writings

Peirce

THREE TRICHOTOMIES OF SIGNS



Important takeaways

1. THREE TRICHOTOMIES OF SIGNS

This article discusses about signs from three aspects:

properties of sign,

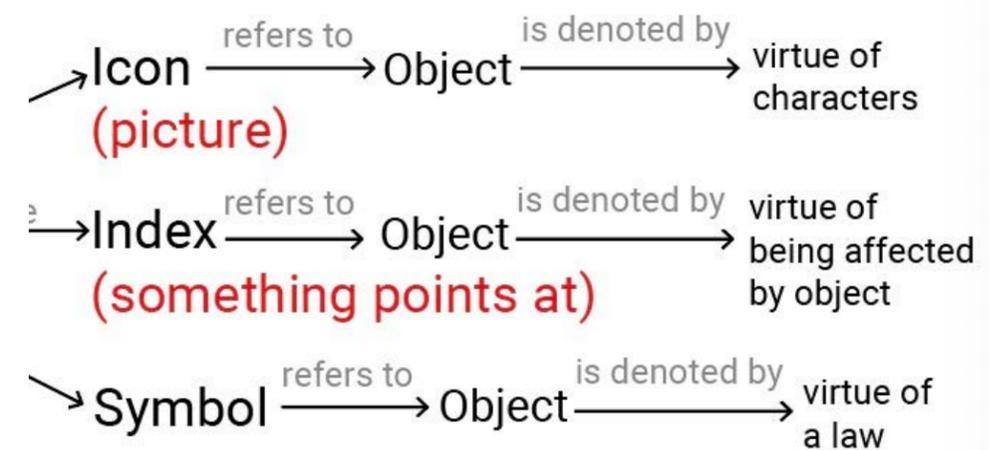
relationship with object,

relationship with interpretant.

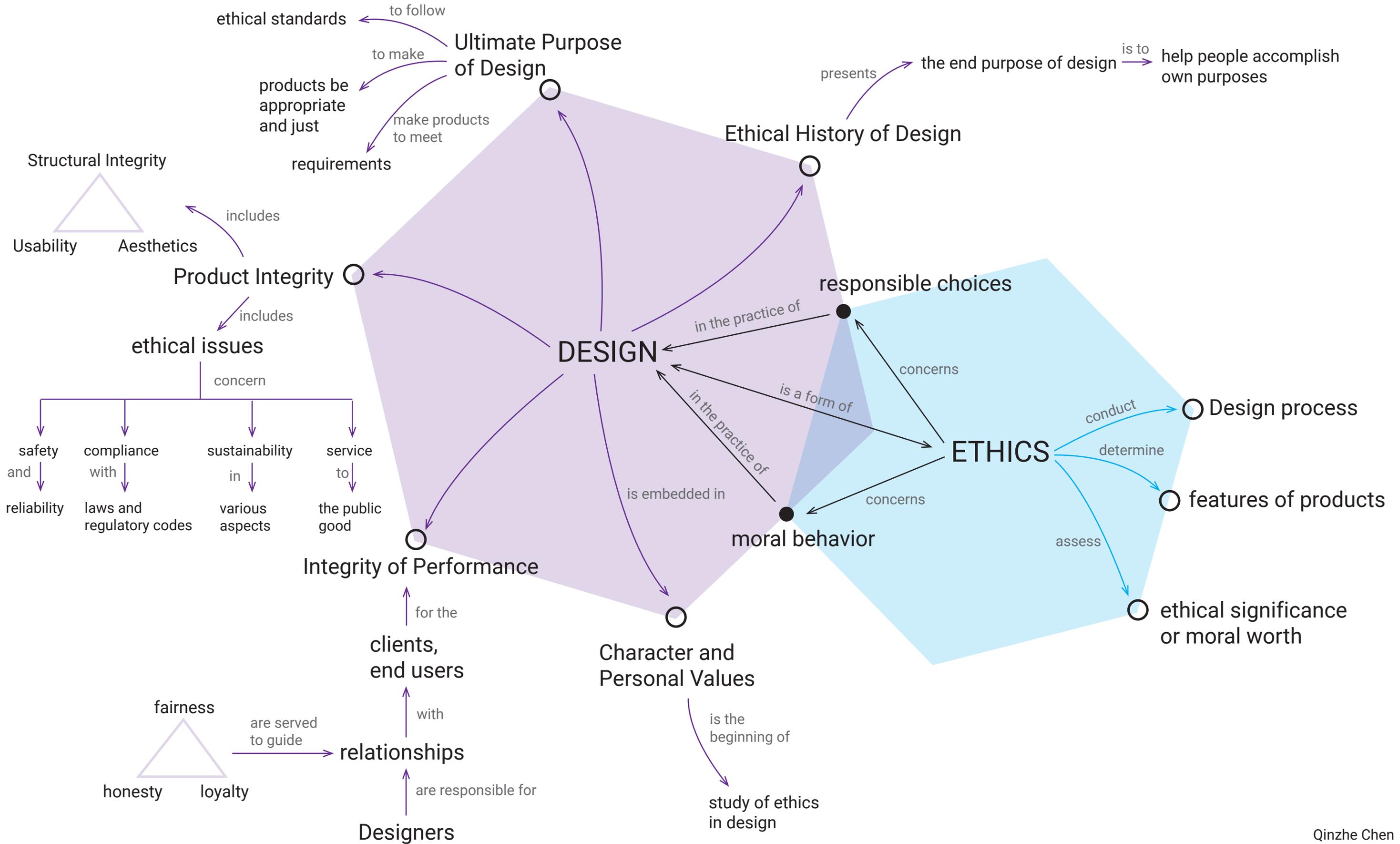
2. THREE TRICHOTOMIES OF SIGNS

In the **relationship with object**, we talk about an icon as a picture, and an index means something points at.

There's different between symbol and icon.
For example, "the sheep" represents one single sheep in the picture, so it is an icon of sheep.
However, "sheep" represents the symbol of this category of animal.



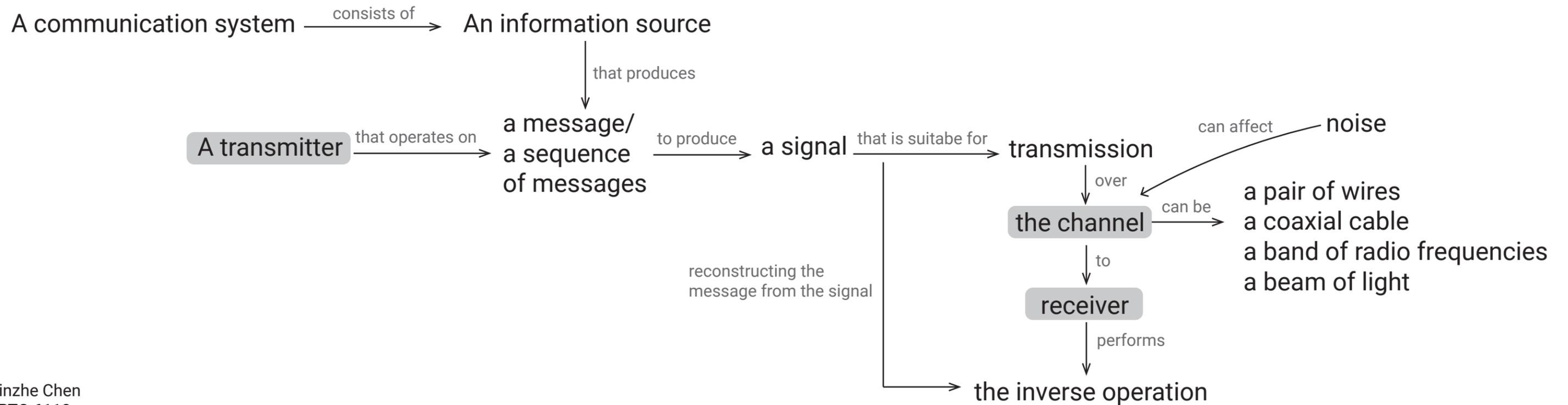
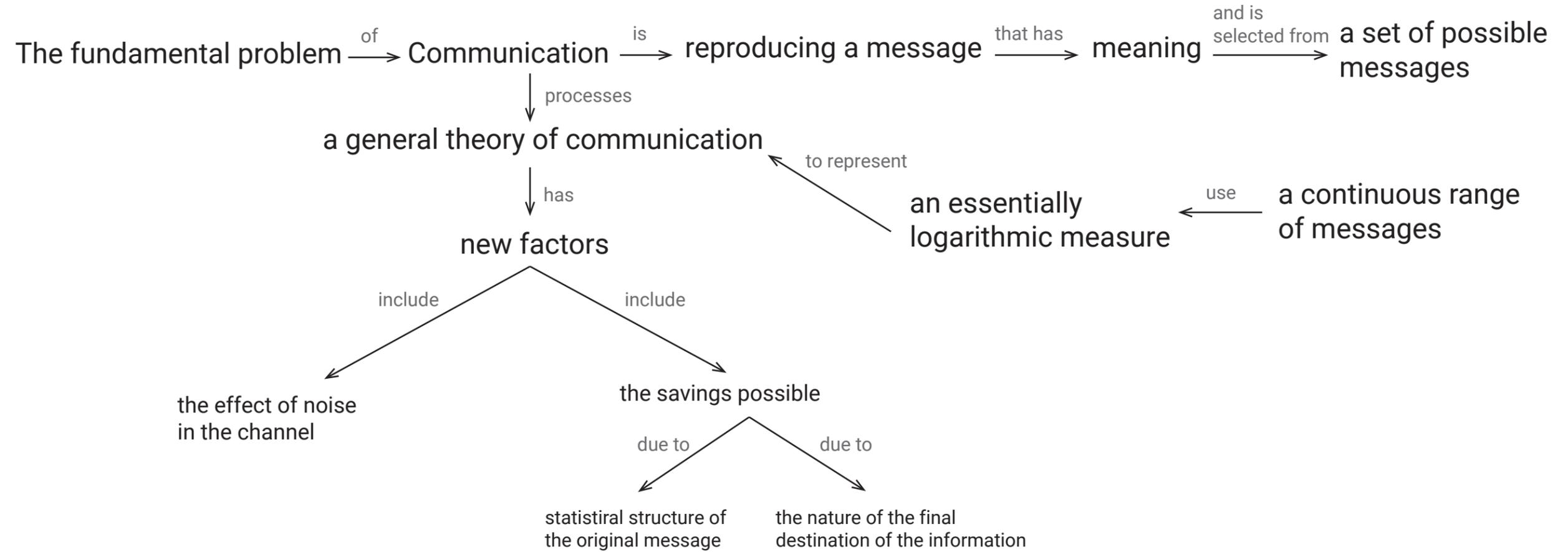
DESIGN ETHICS



Feedback

1. It's easy to read with the colorful diagrams. The two hexagons are clear for audience to see the categories and details in "design" and "ethics".
2. The connection between these two parts are nice to mention people about the logics between design and ethics. It's clear to understand what happens about design ethics in the process of designing.

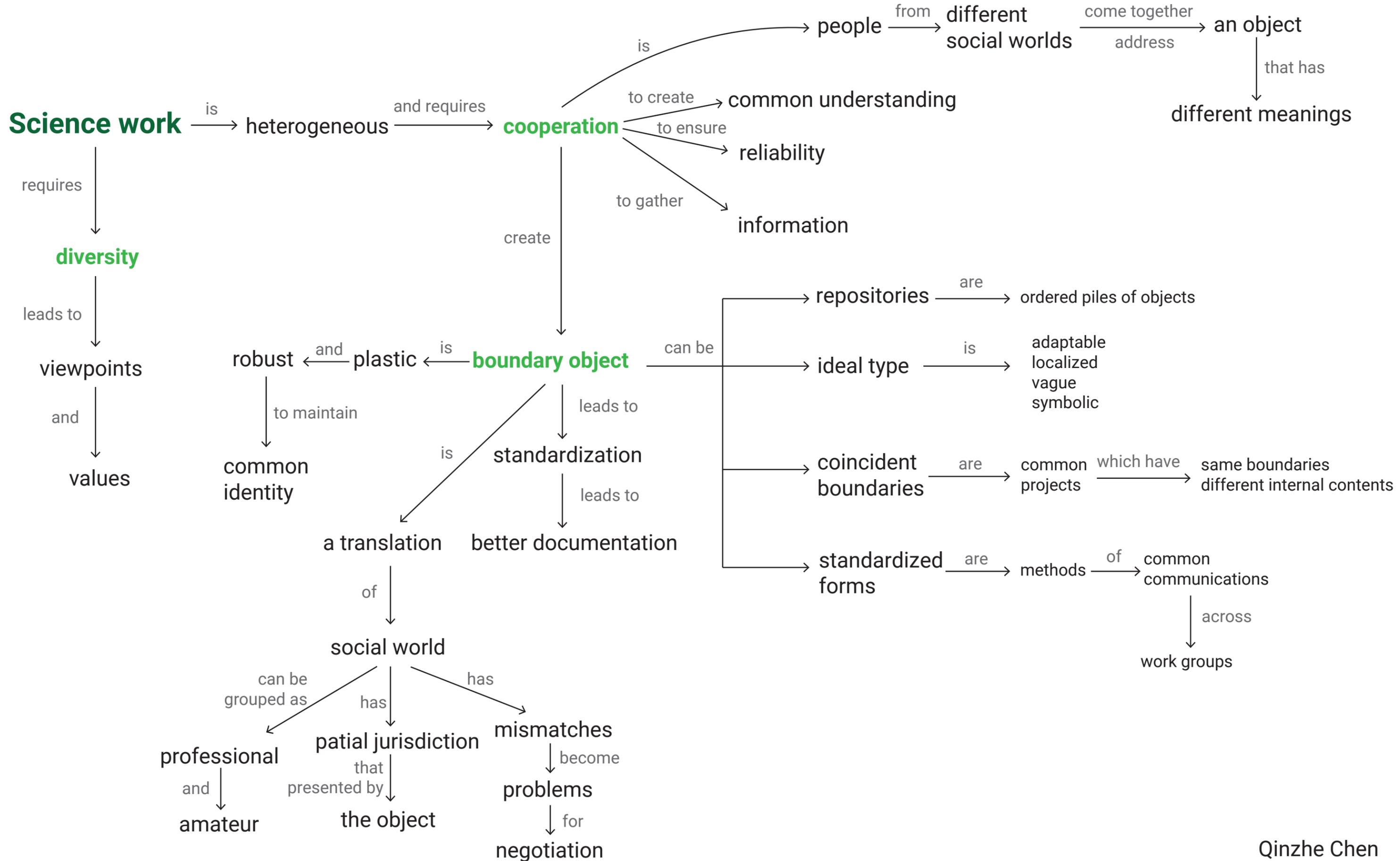
A Mathematical Theory of Communication



Important takeaways

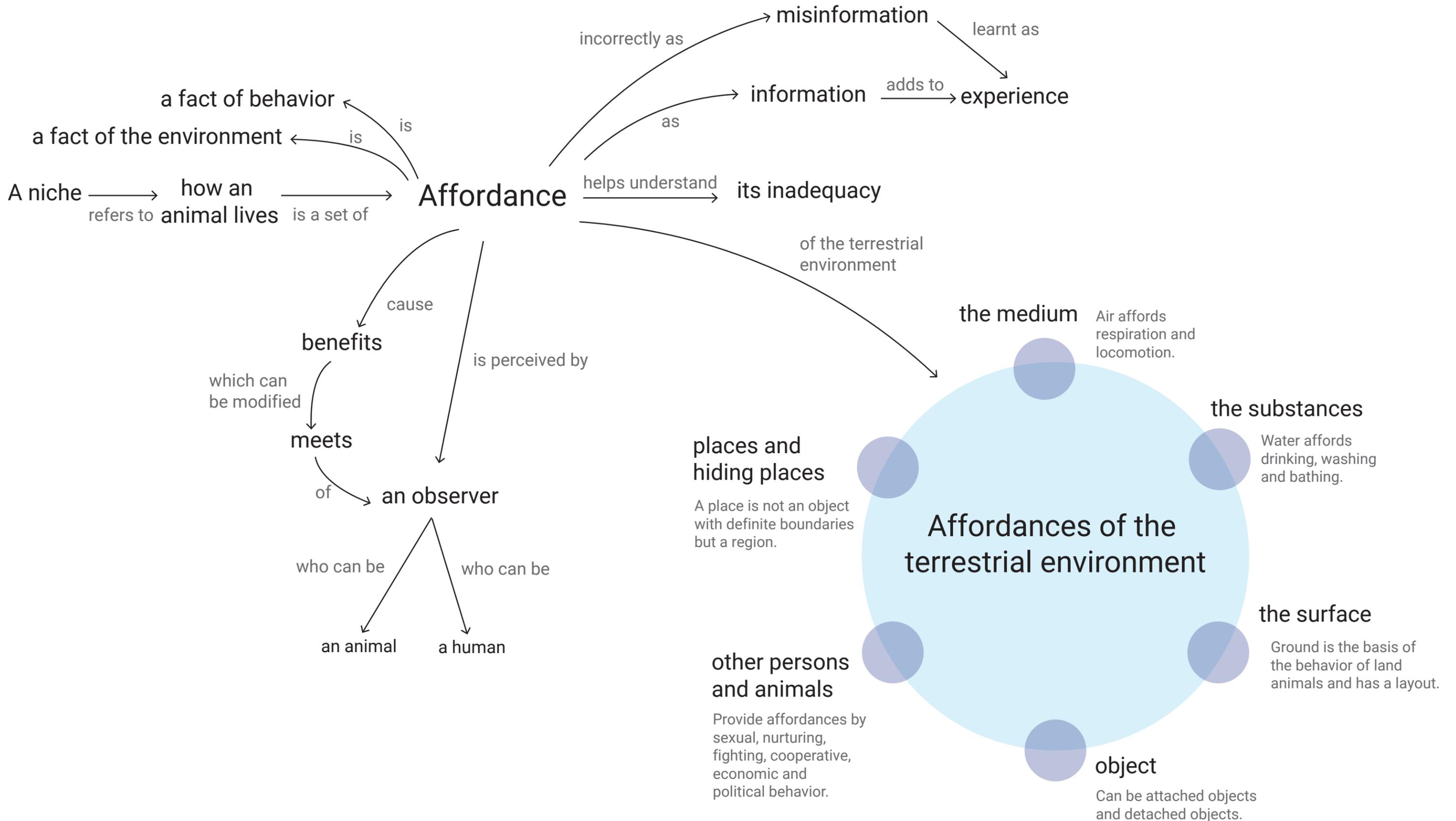
1. In the communication system, noise is also an important element to consider about. Noise can affect the channel in the process of transmitting the information and signal to the receiver.
2. The two separated diagrams can be connected better. The structure of communication can be linked to the communication system flow. The flow is a kind of explanation of the communication theory.

Star, Griesemer



THE THEORY OF AFFORDANCES

James J. Gibson

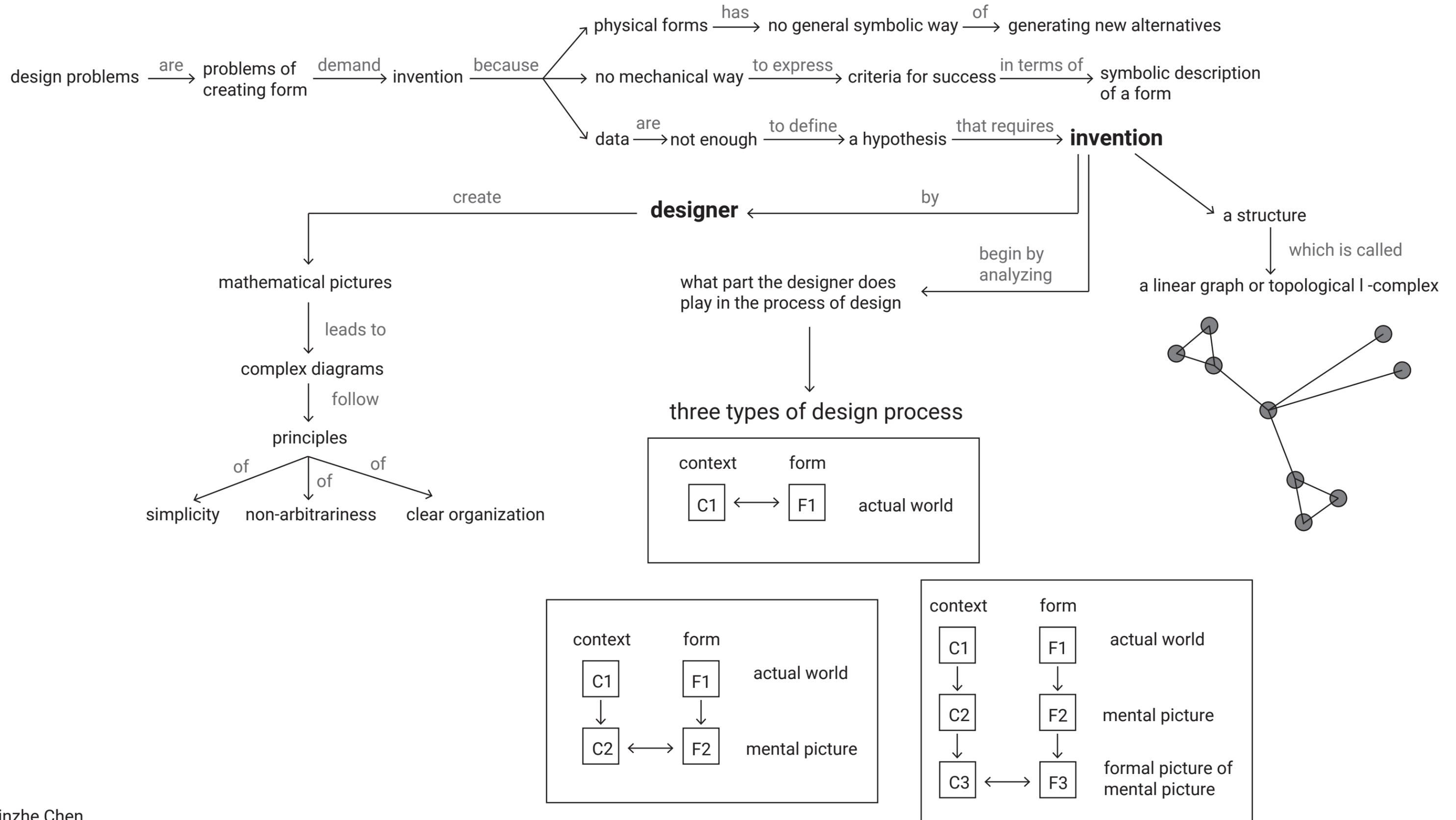


Feedback

1. The structure for “Affordances of the terrestrial environment” looks nice with the circles to spread the six important affordances.
2. Affordances of the terrestrial environment include six elements: the medium, substances, the surface, object, other persons and animals, places and hiding places.

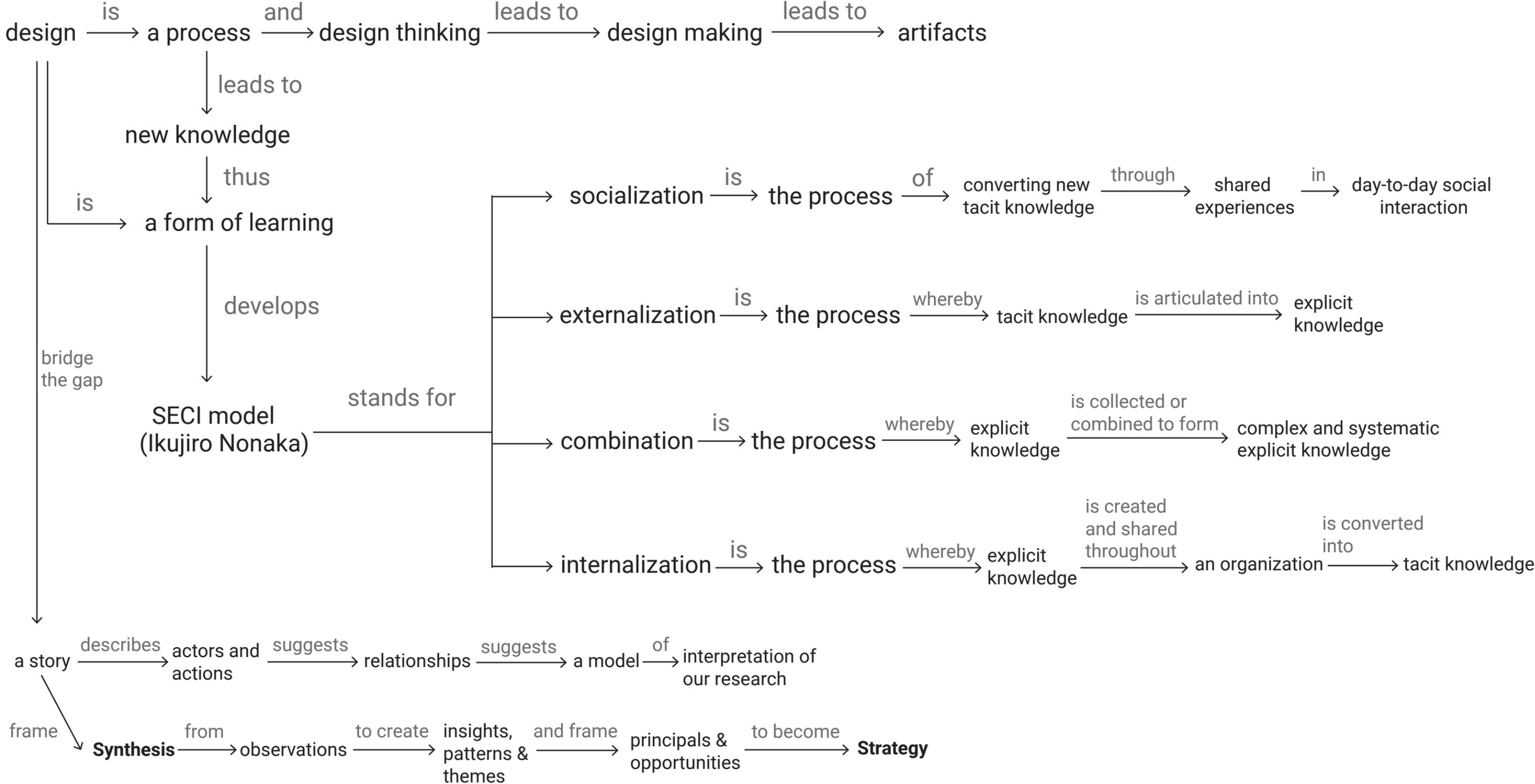
Synthesis of Form

Alexander



Design as Learning

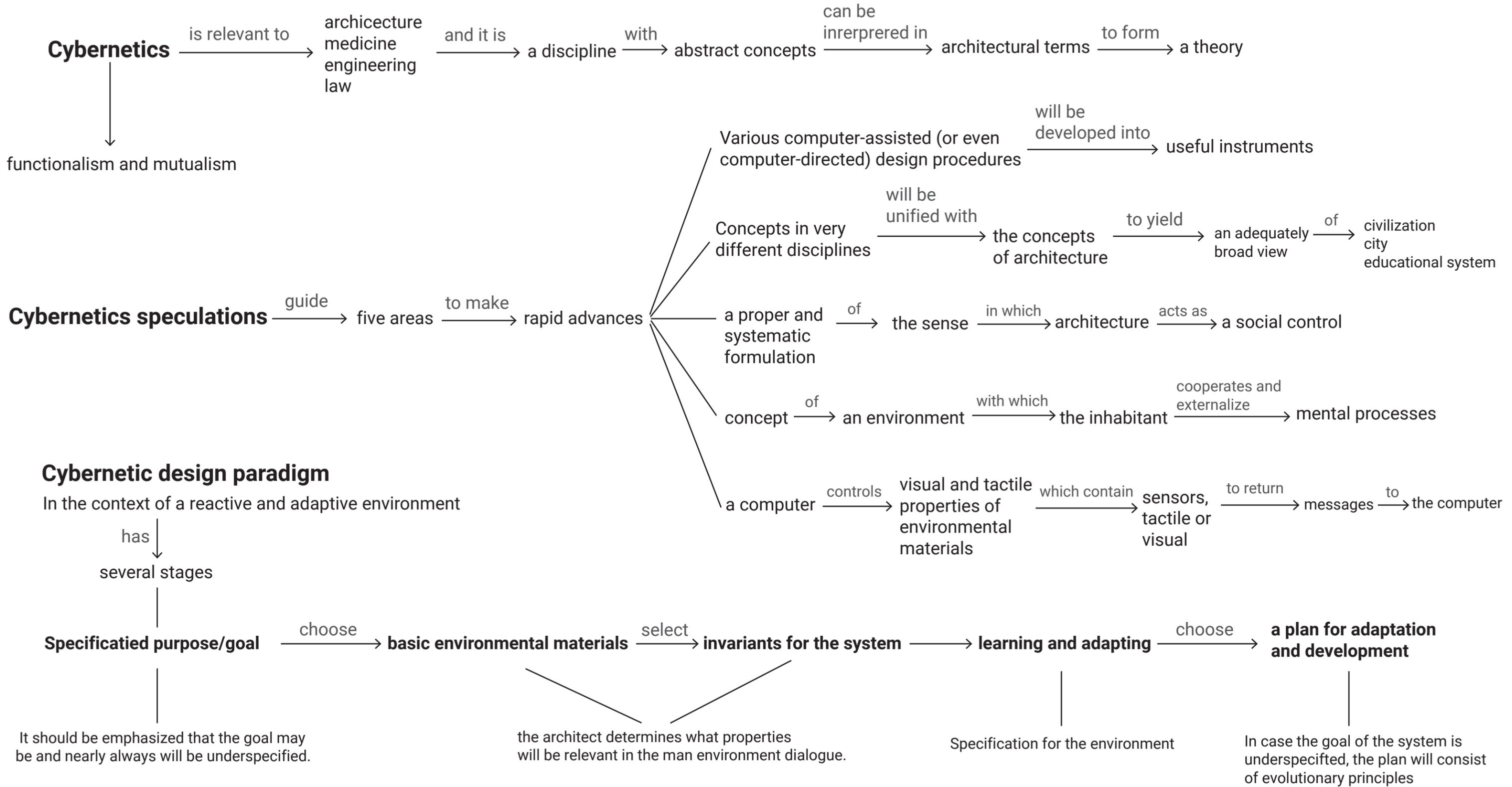
The Analysis-Synthesis Bridge Model



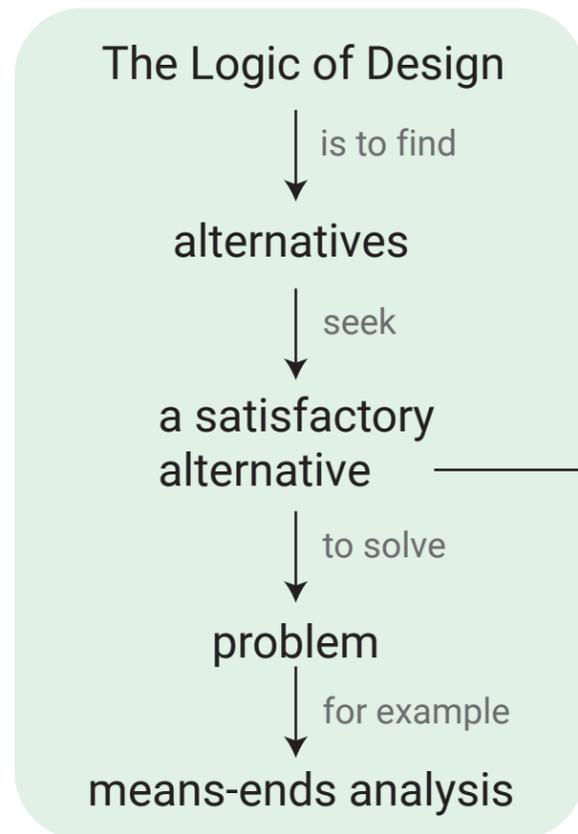
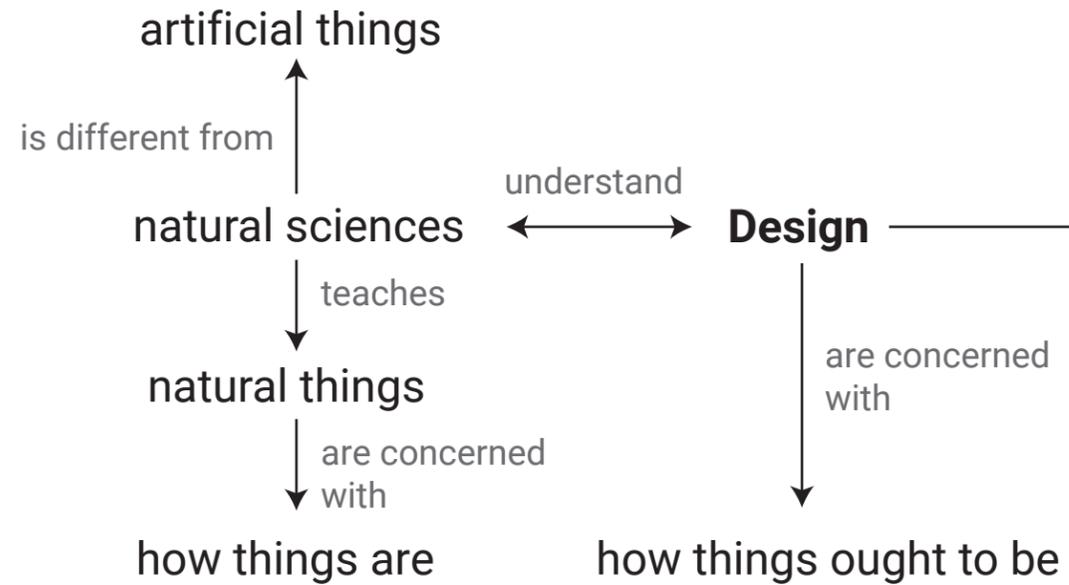
Feedback

In the concept map of “Synthesis of Form “ written by Alexander, I used many arrows to present the completed statements and describe the structure with a very clear directivity. It’s really clear to see the direction and know the concept, but sometimes, a graph is a better way to present some concepts for readers to understand.

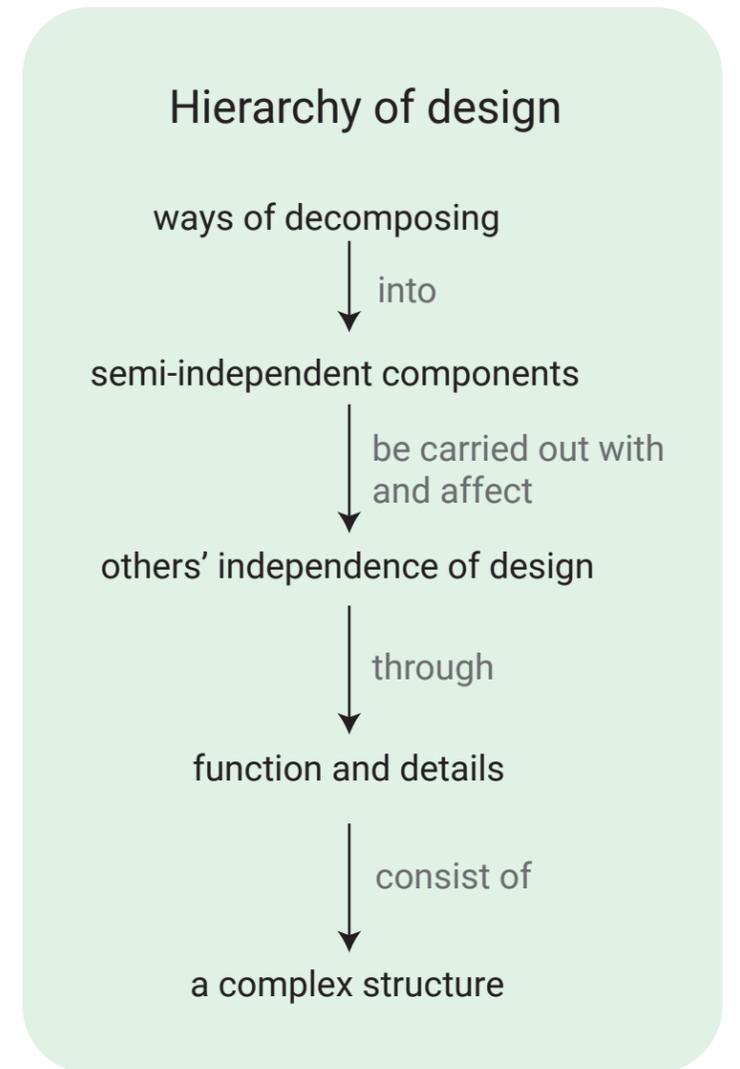
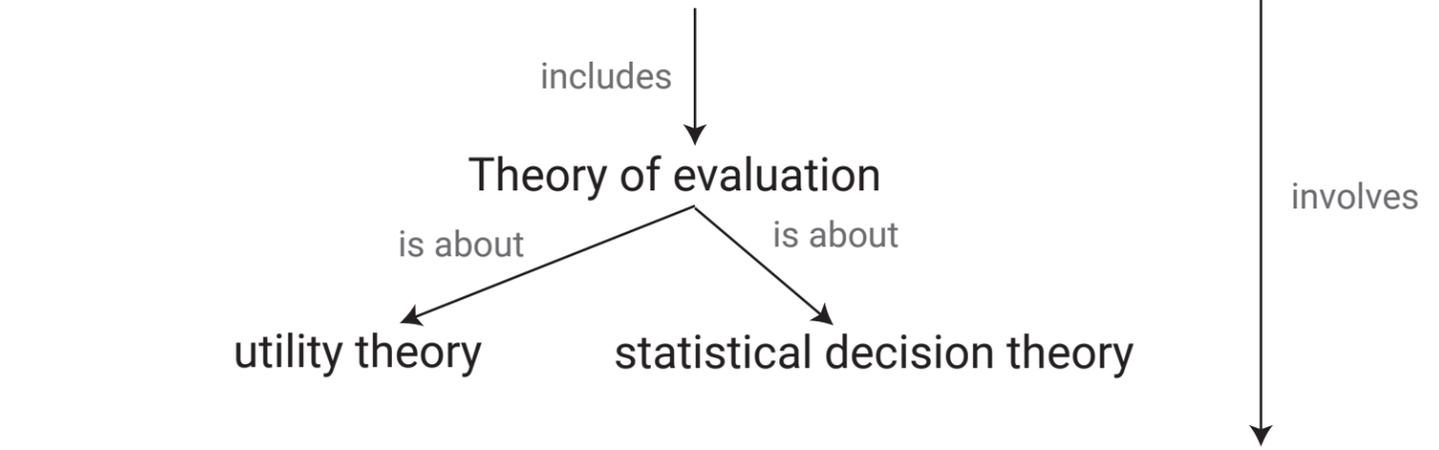
THE ARCHITECTURE RELEVANCE OF CYBERNETIC



Engineering + Science = Design



THE EVALUATION OF DESIGNS



Important takeaways

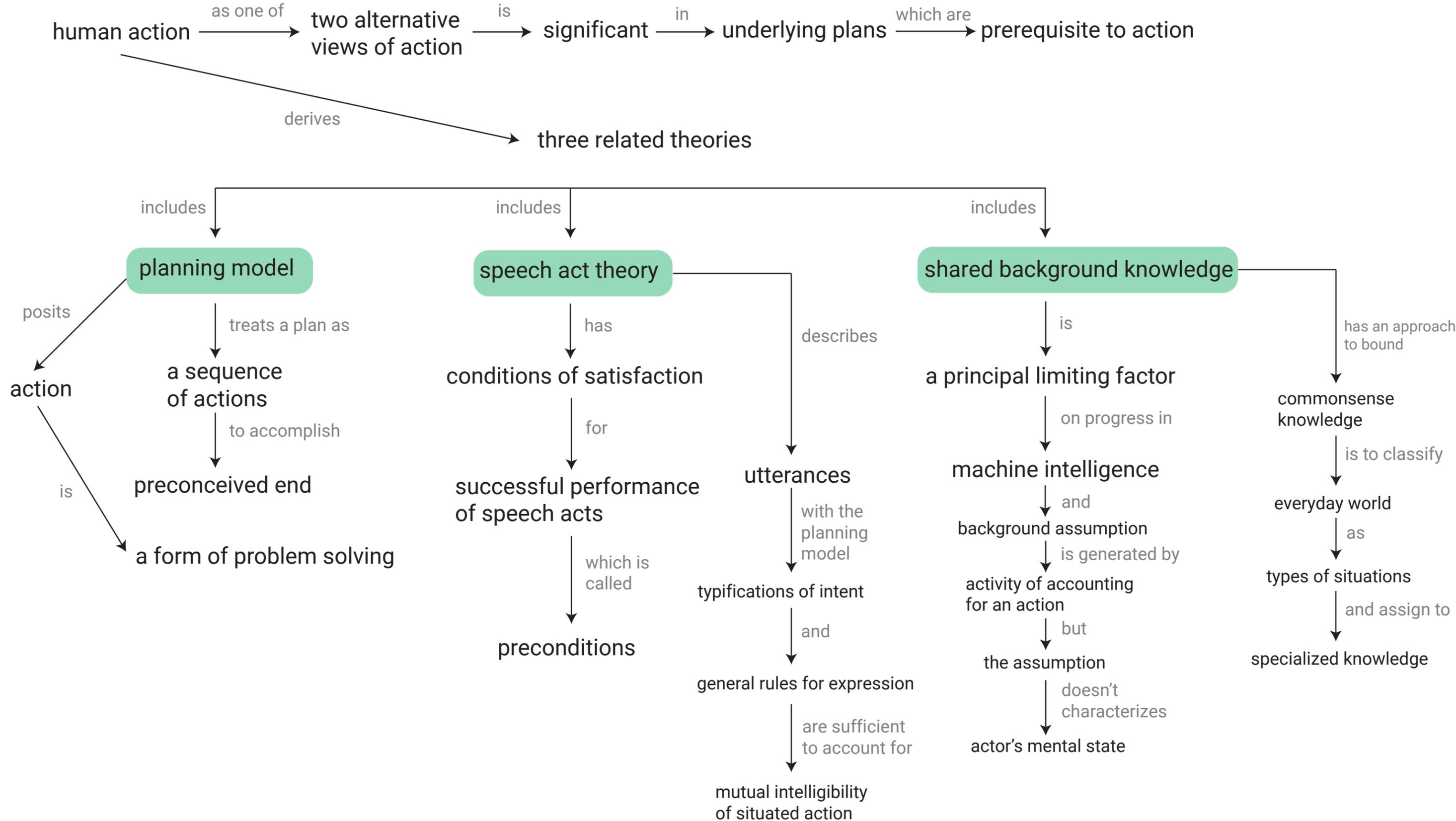
“Engineering + Science = Design”

From learning about “The Sciences of the Artificial”, Herbert A. Simon gives a special explanation of design. From the perspective of AI and engineering, the author says that design is a combination of engineering and science.

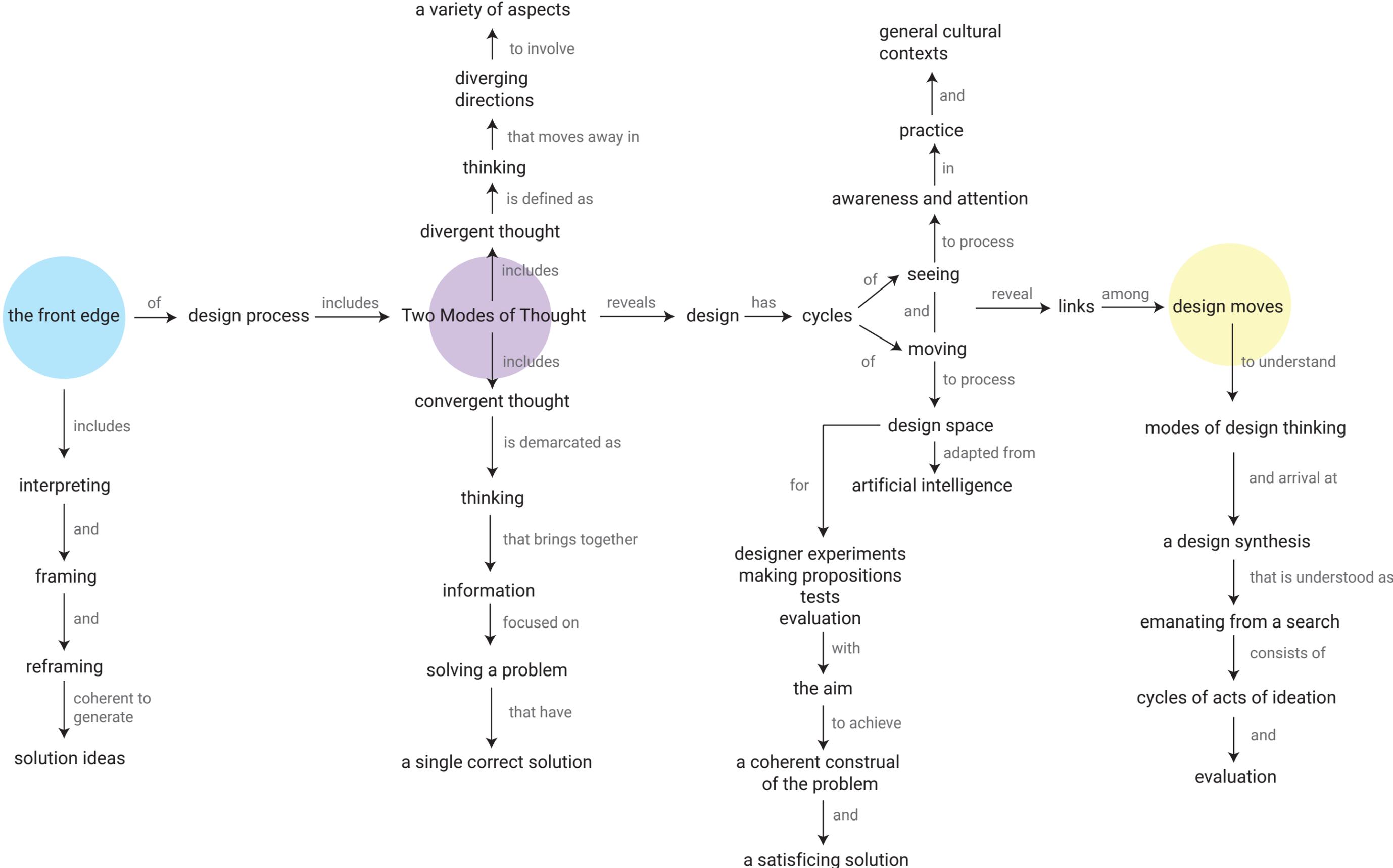
The Logic of Design also explains that in the process of problem-solving, we seek for a satisfactory alternative to solve a problem.

The evaluation of design emphasizes the importance of utility theory and statistical decision theory.

Human-Machine Reconfigurations



Design Synthesis

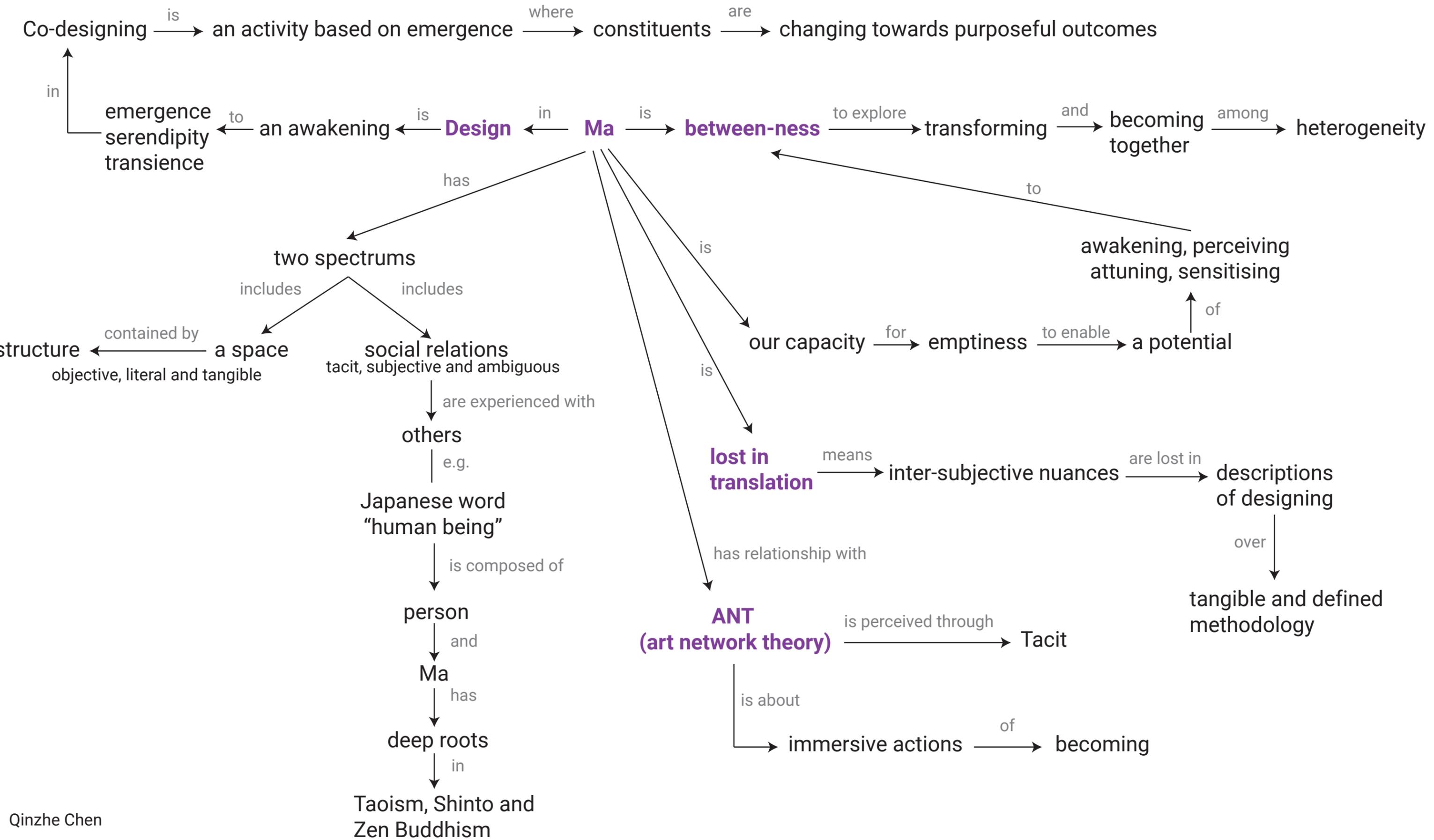


Important takeaways

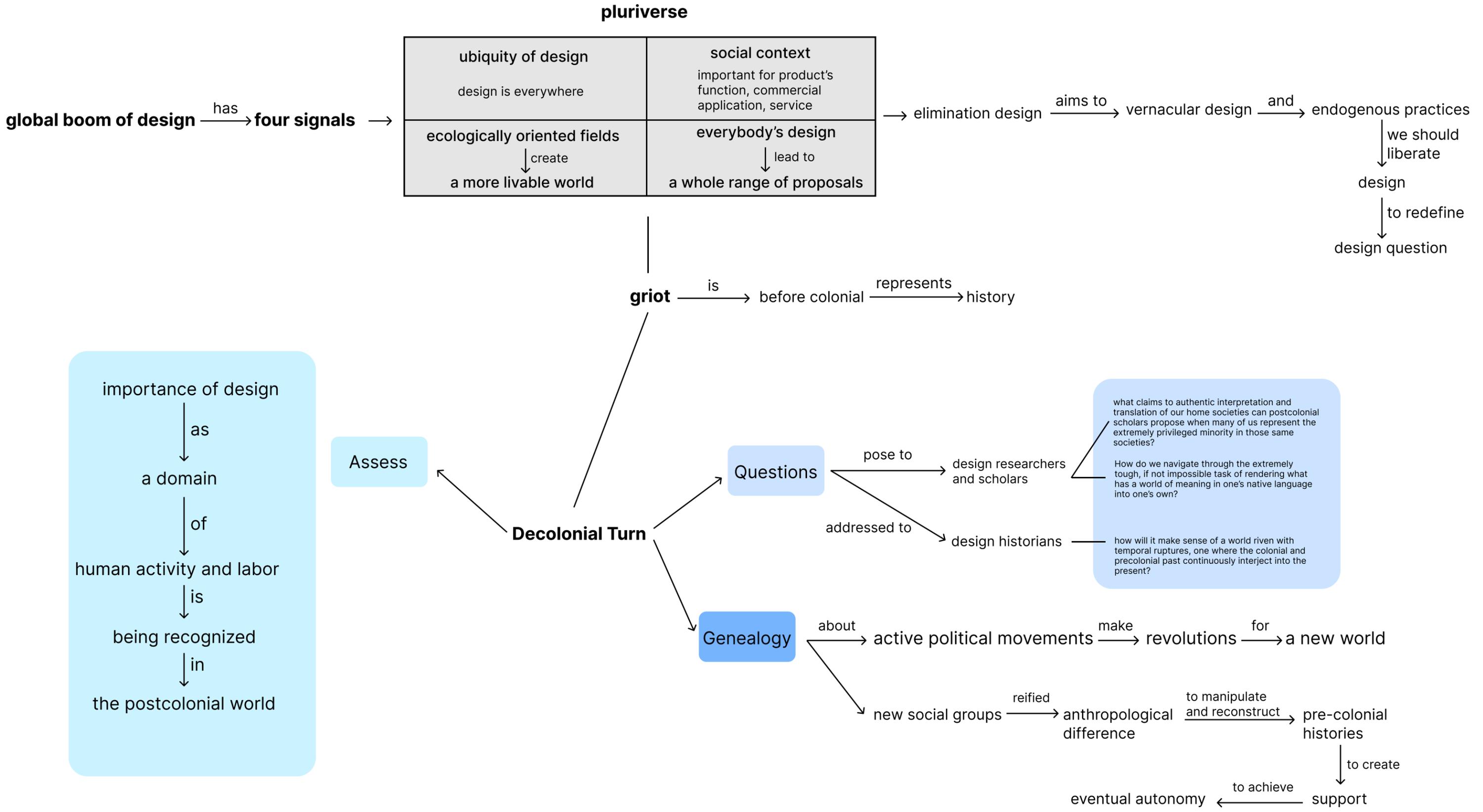
Design Synthesis is an important step in the process of designing. In my final project discussion about what is design process, I refer to this material and compare the theory mentioned in this book with other resources.

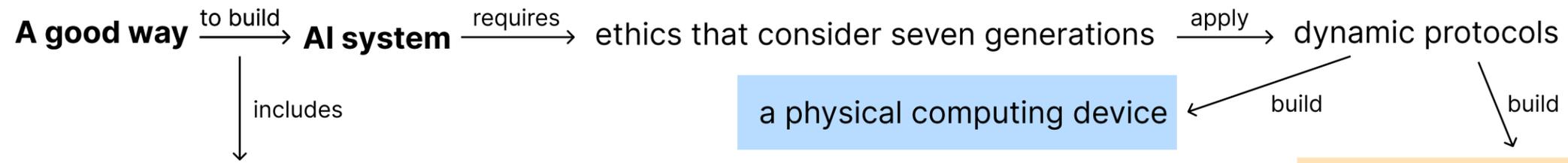
With the two modes of thoughts, design thinking can be divergent and convergent. Divergent thinking is like a brainstorming to develop various ideas of designing. Convergent thinking is more focused to one direction or one aspect to explore more details.

**Being awake to Ma:
designing in between-ness as a way of becoming with**



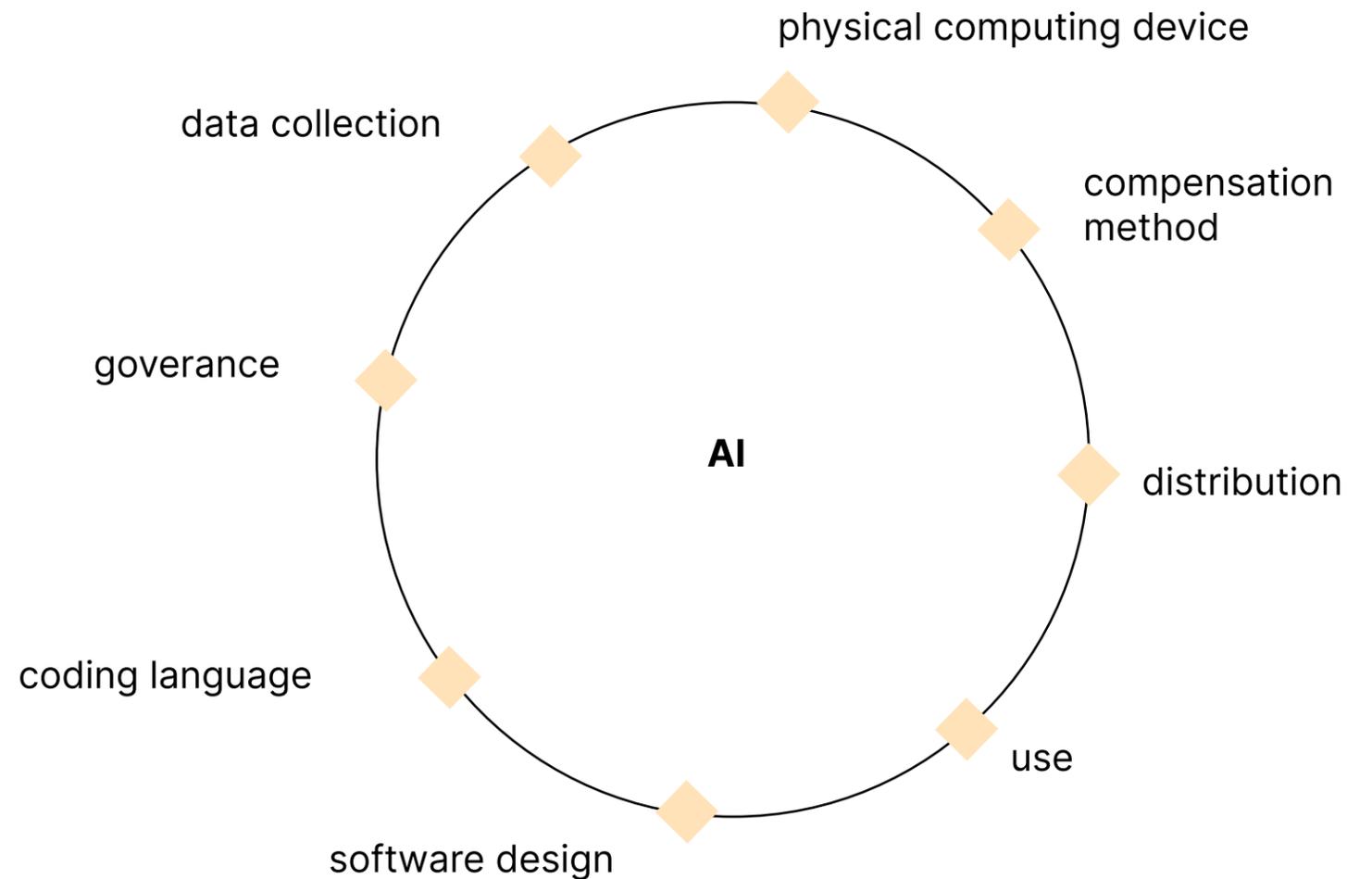
Escobar_Designs for the Pluriverse
The song of the Griot
Design History Society





an AI system

8 protocol streams to form an AI



Mapping Design Theories

A collection of “*mental models*” that summarize design processes, theories, and perspectives by design researchers since 1955, some of which are contrasting, but at the same time gives young designers a holistic take on design.

Why concept maps? To categorize the most important concepts from the readings and allow readers to grasp & digest content fast & easily with interesting connections.

Designed by Tanvi Modi

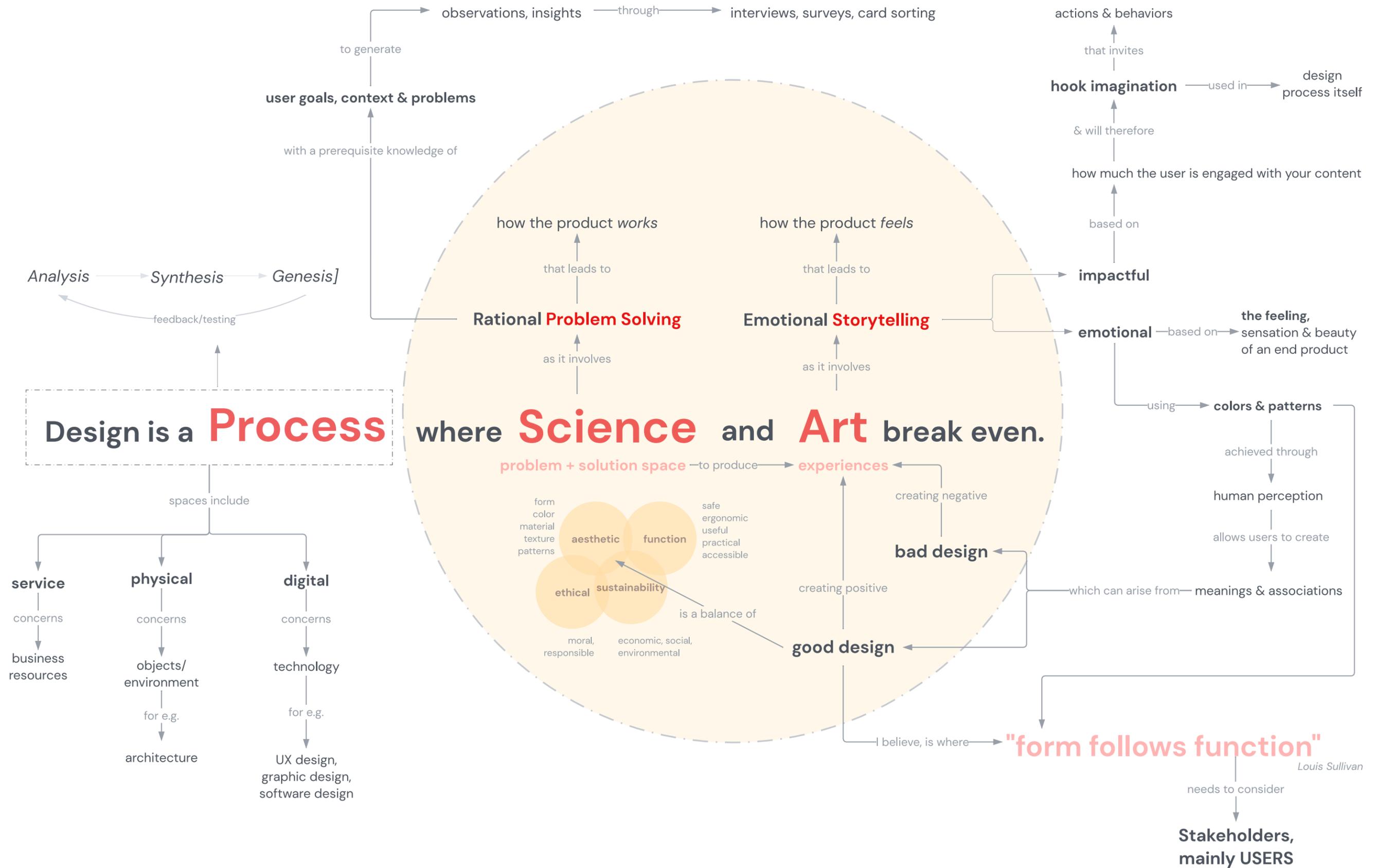
NORTHEASTERN UNIVERSITY

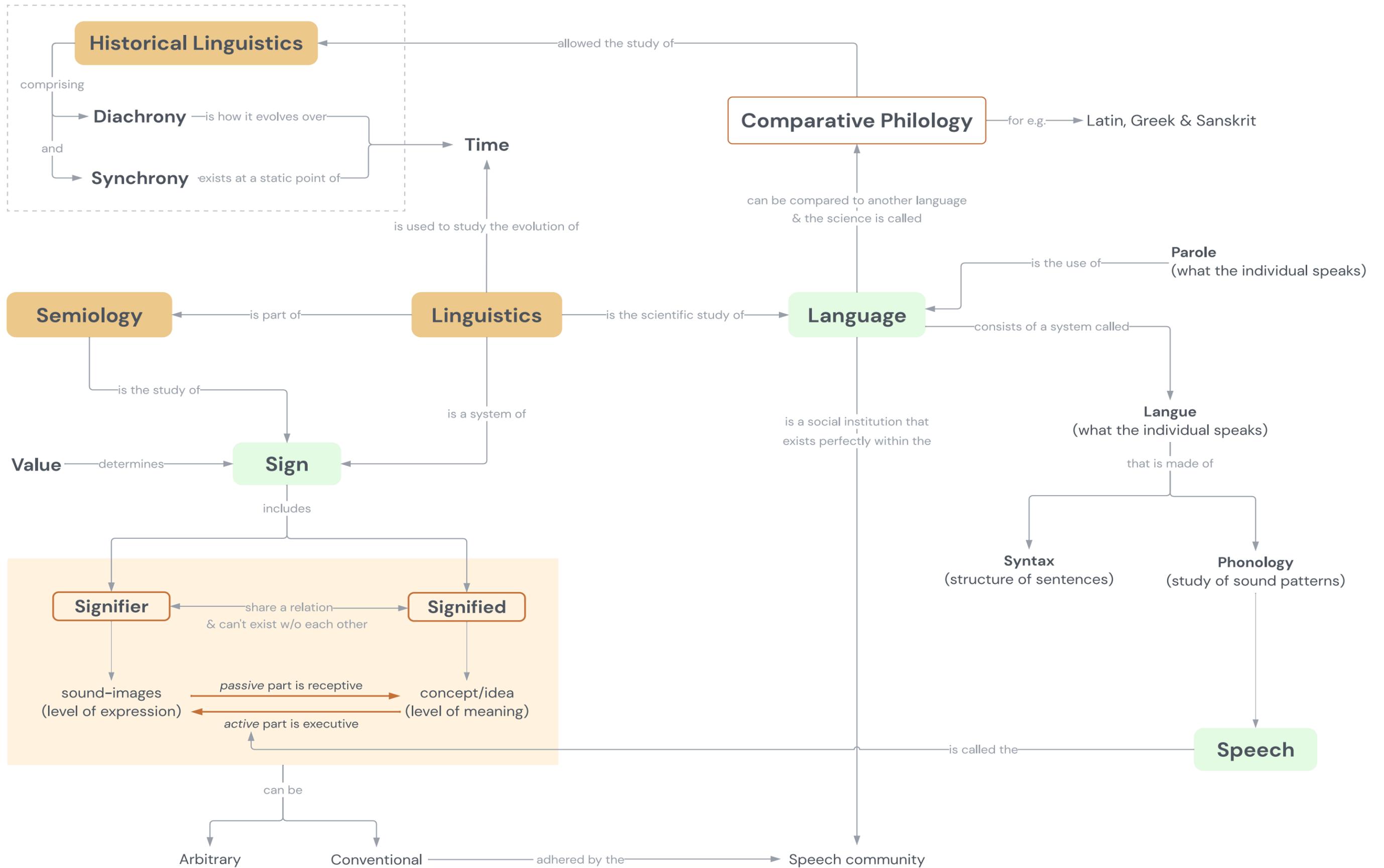
ARTG 6110 Information Design Theory & Critical Thinking

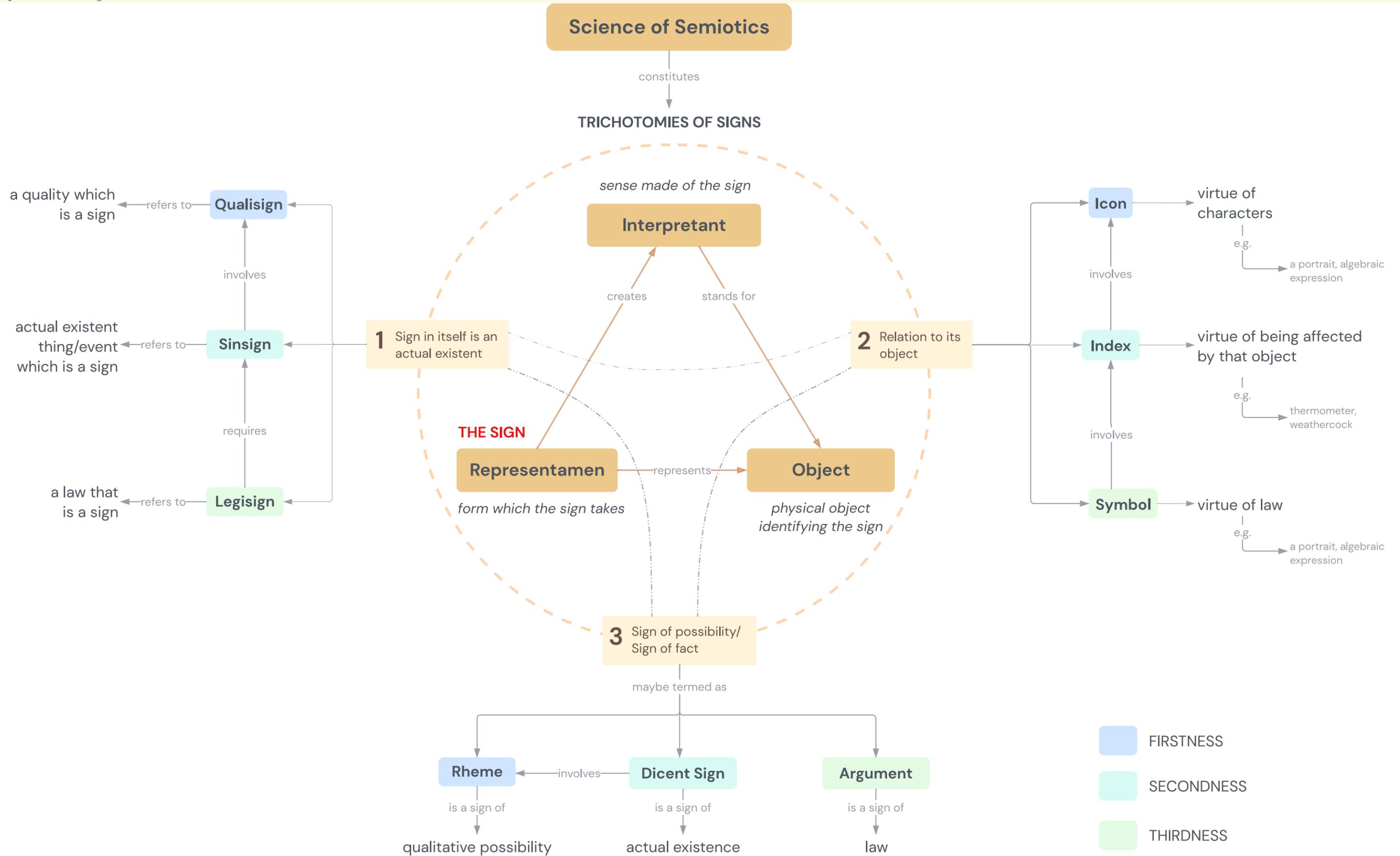
Spring '22 | Prof. Michael Arnold Mages

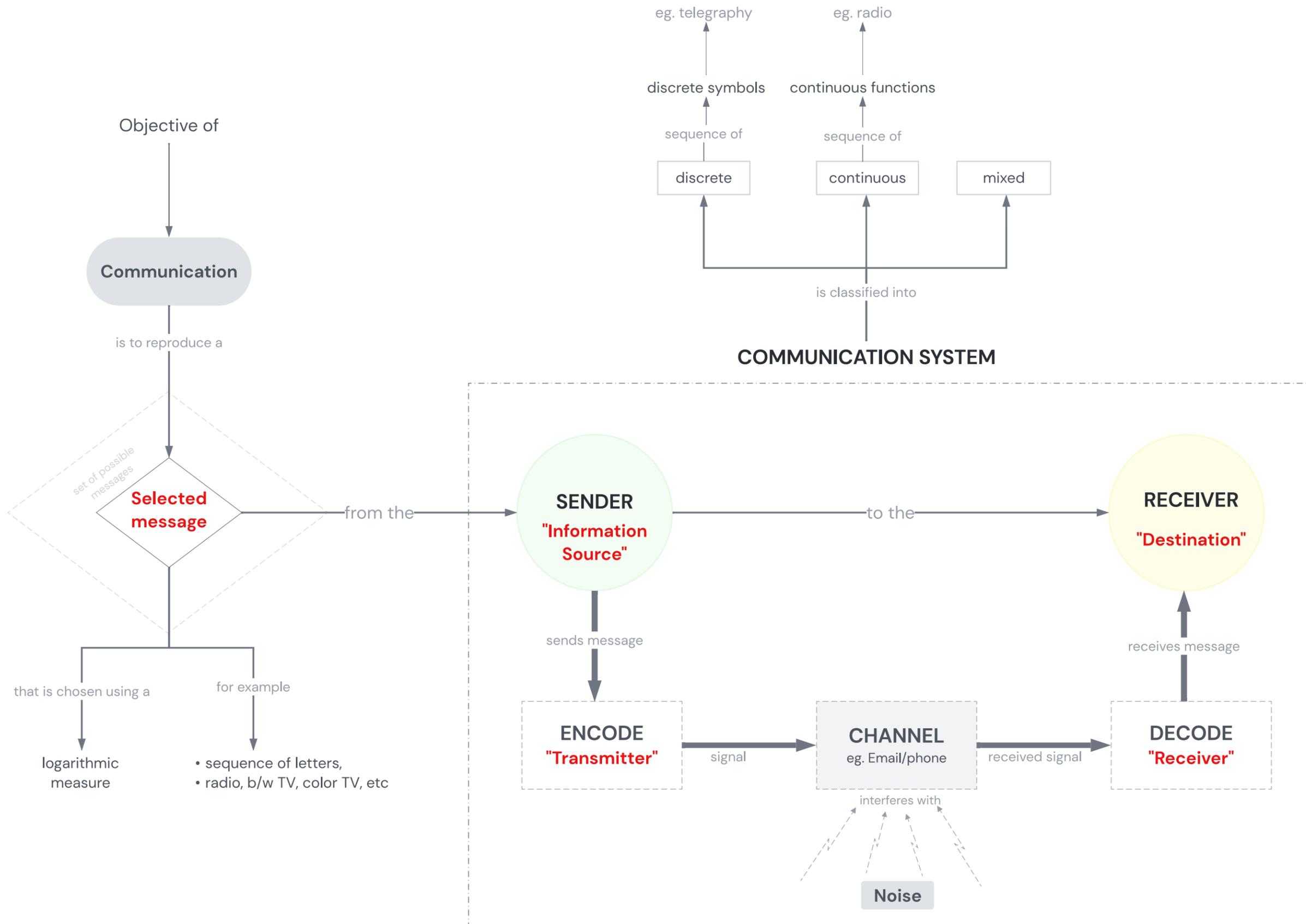
Table of Contents

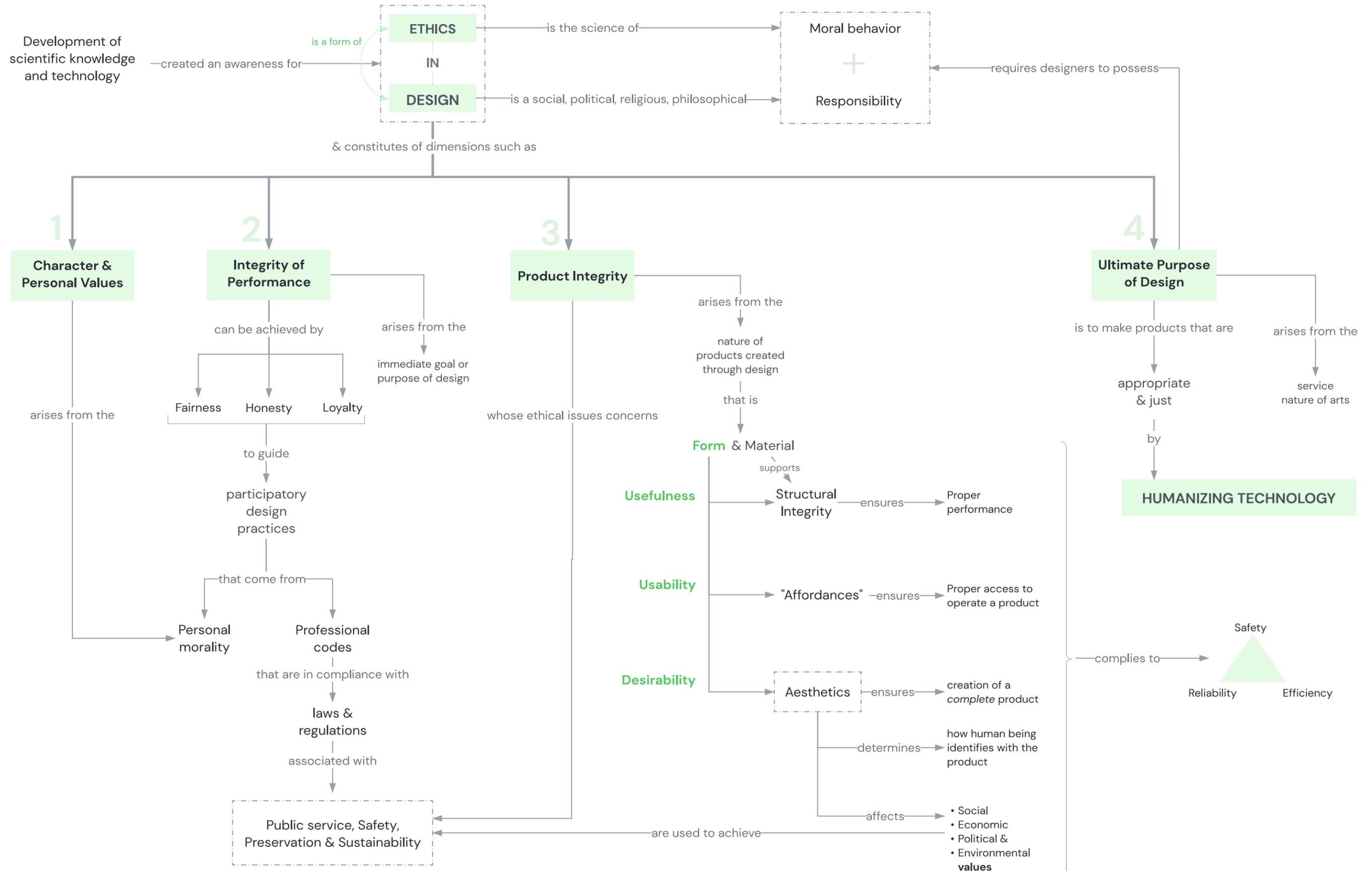
- 01 Tanvi Modi**
My Perspective of “Design”
- 02 de Saussure**
Course in General Linguistics
- 03 Peirce**
Philosophical Writings of Peirce
- 04 Shannon, C. and Weaver, W.**
The Mathematical Theory of Communication
- 05 Buchanan, R**
Design Ethics, Encyclopedia of Science, Technology, and Ethics
- 06 Star, S. and Griesemer, J**
“Institutional Ecology and “Translation” of Boundary Objects, Social Studies of Science
- 07 Gibson, James J.**
The Theory of Affordances
- 08 Alexander, C.**
Notes on the Synthesis of Form
- 09 Dubberly & Dubberly and Evenson**
The Analysis-Synthesis Bridge Model | Designing as learning or ‘knowledge creation’—the SECI model
- 10 Simon, H.**
The Sciences of the Artificial – “The Science of Design”
- 11 Pask, G.**
“The Architectural Relevance of Cybernetics”
- 12 Suchman, L.**
Human–Machine Reconfigurations – Plans & Situated Actions
- 13 Goldschmidt, G.**
Linkography: unfolding the design process – Design Synthesis
- 14 Akama, Y.**
Being Awake to Ma
- 15 Ansari, A. – The History of Design and the Design of History**
Diawara, M. – The Song of the Griot
Escobar, A. – Introduction — Designs for the Pluriverse
- 16 Kite, S., Stover, C., Janis, M. S., & Benesiinaabandan, S.**
How to Build Anything Ethically

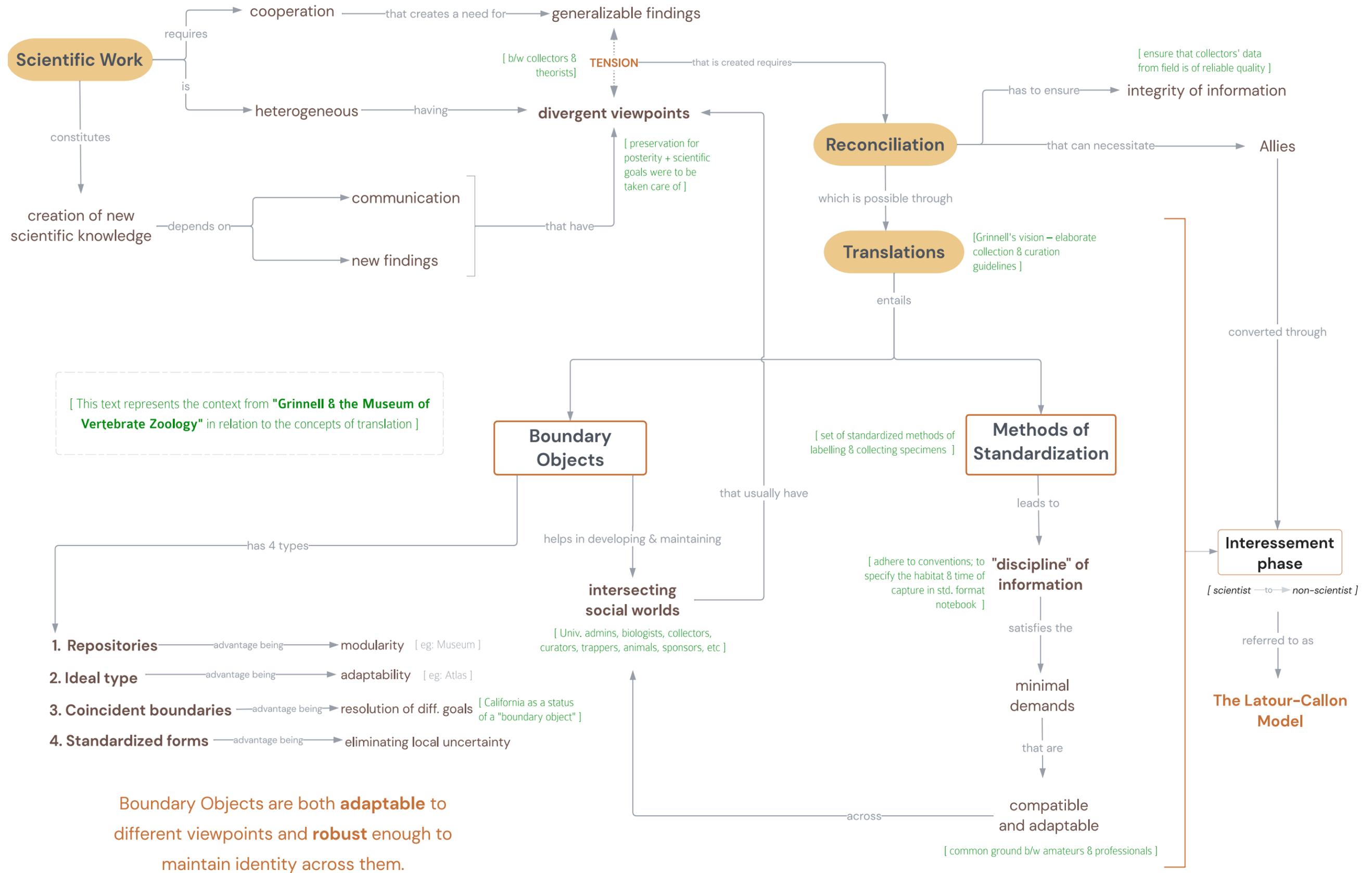


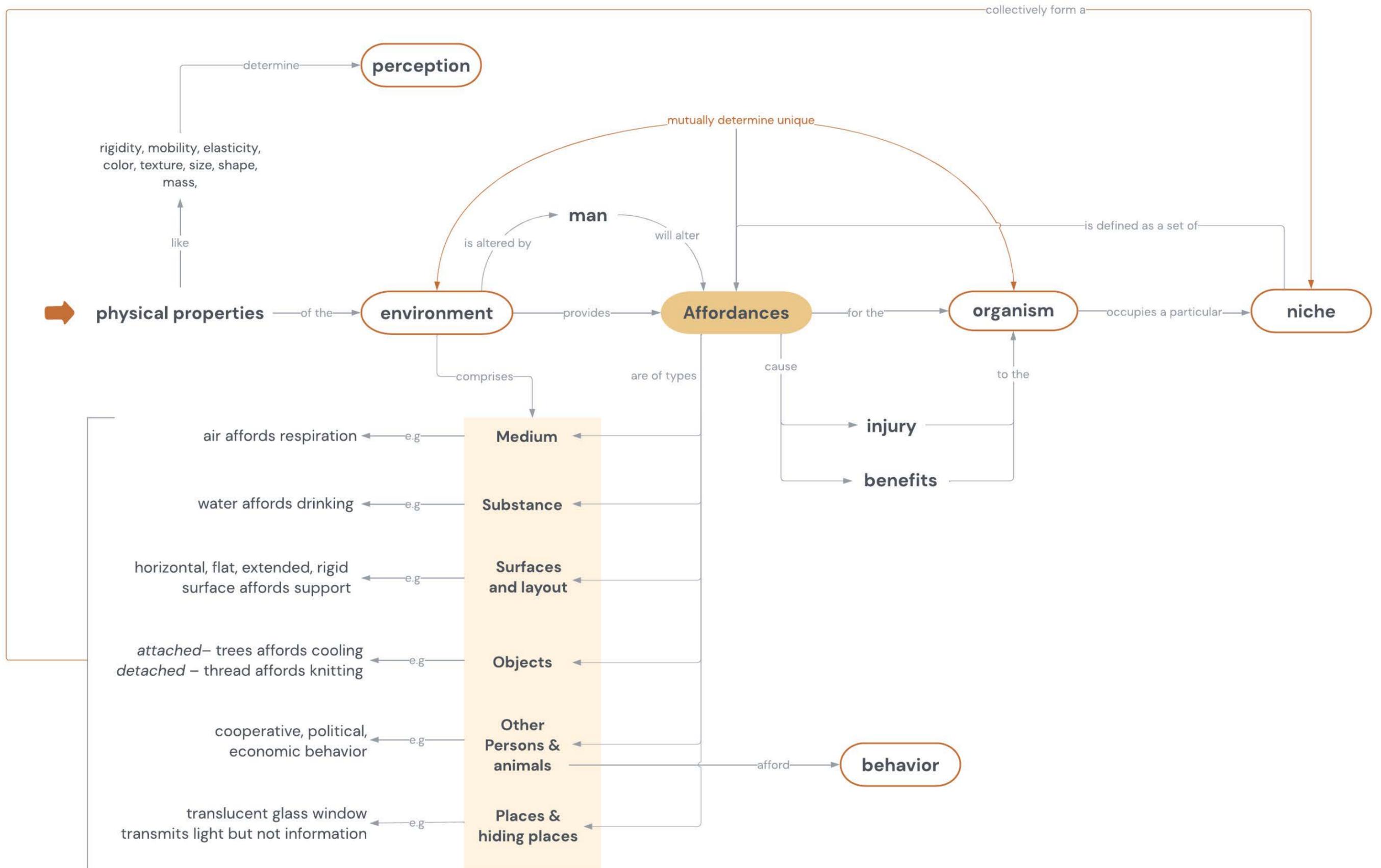


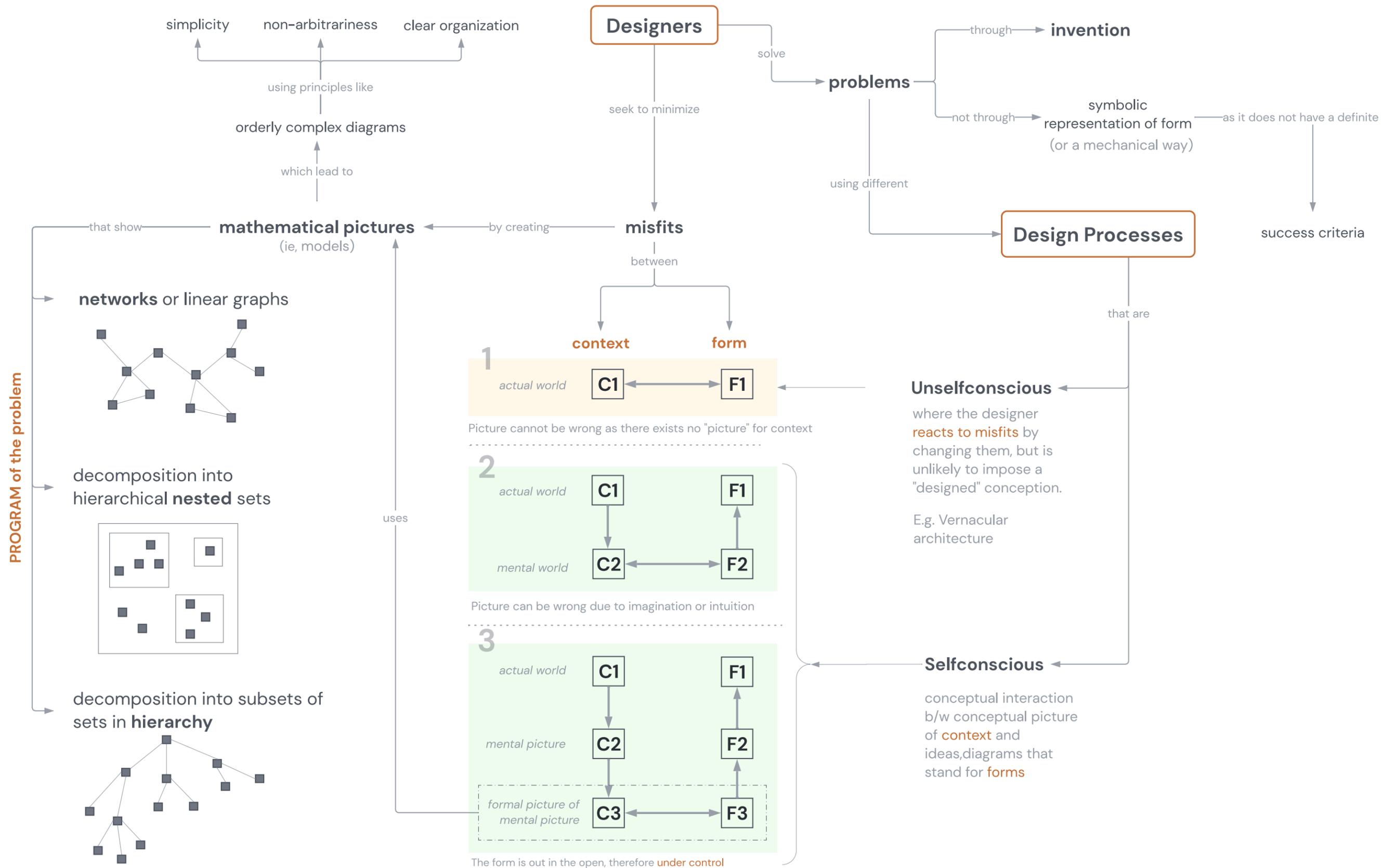




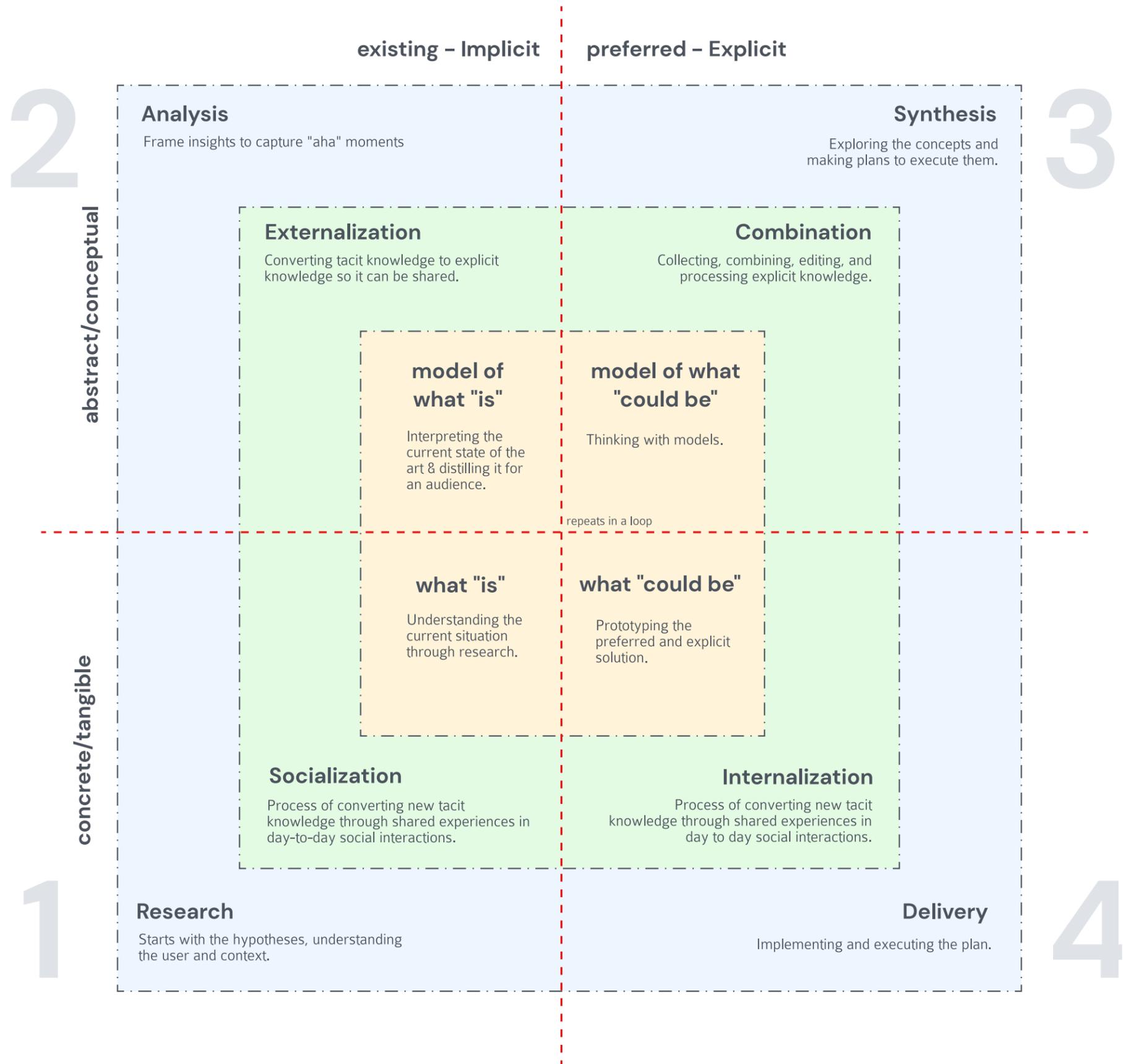
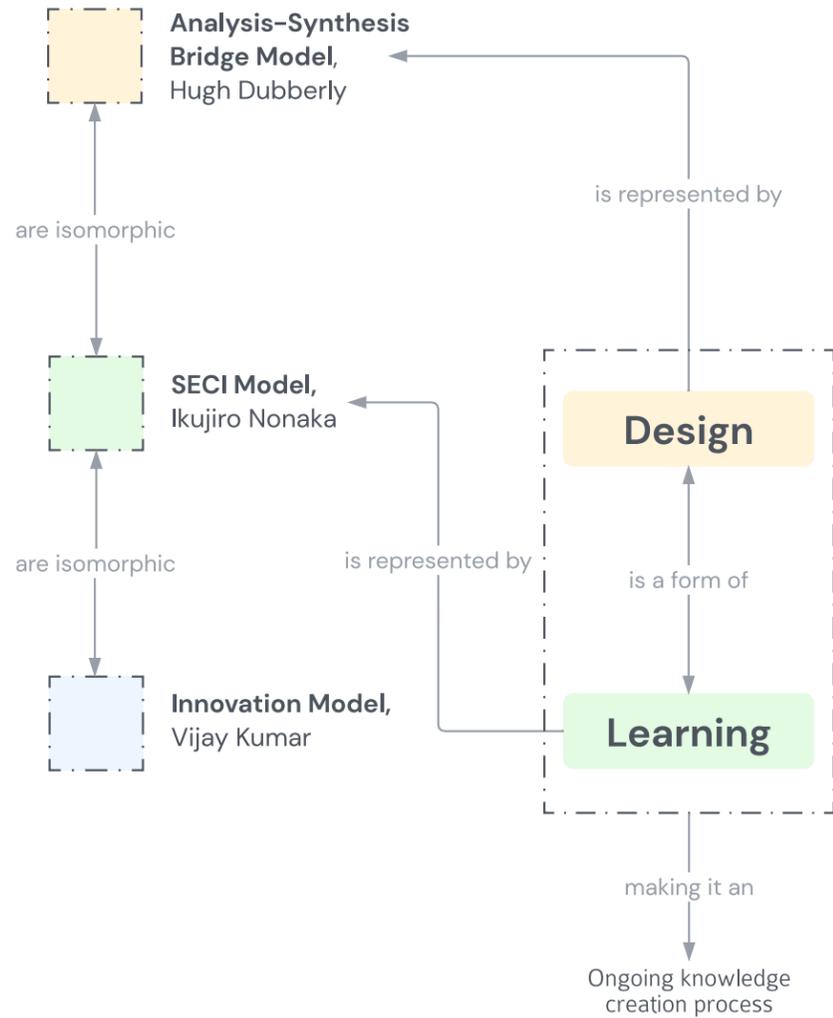


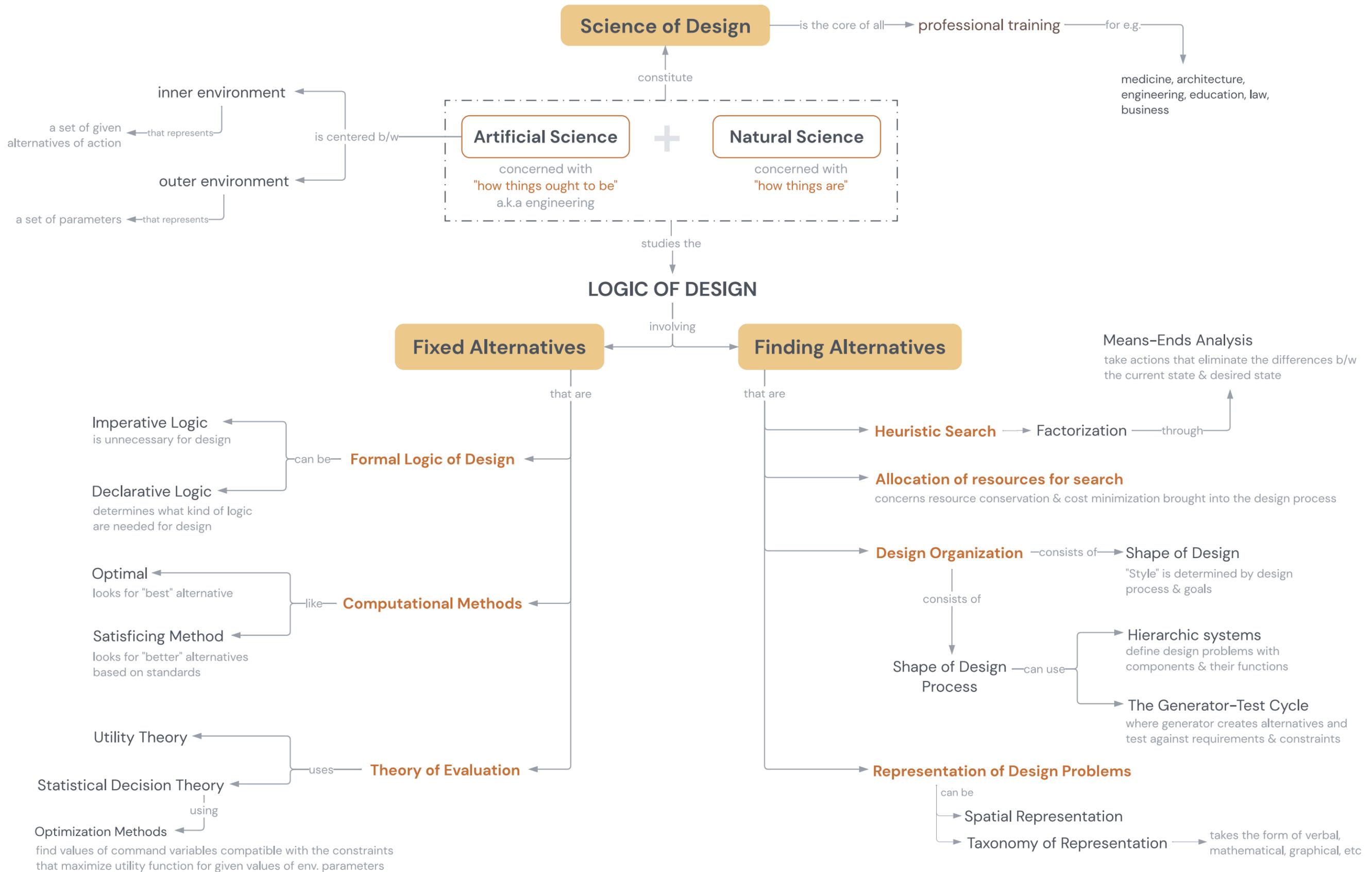


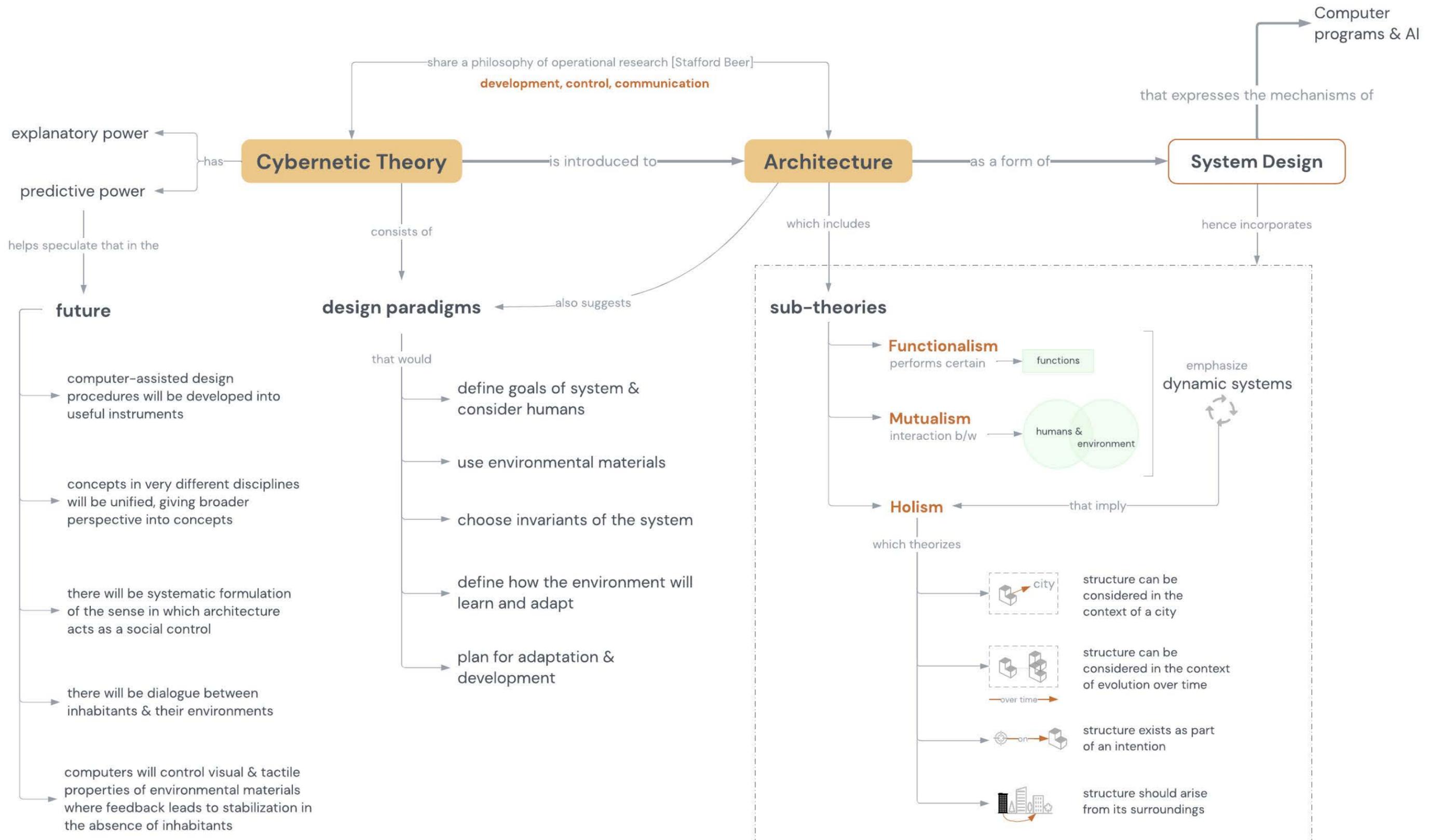


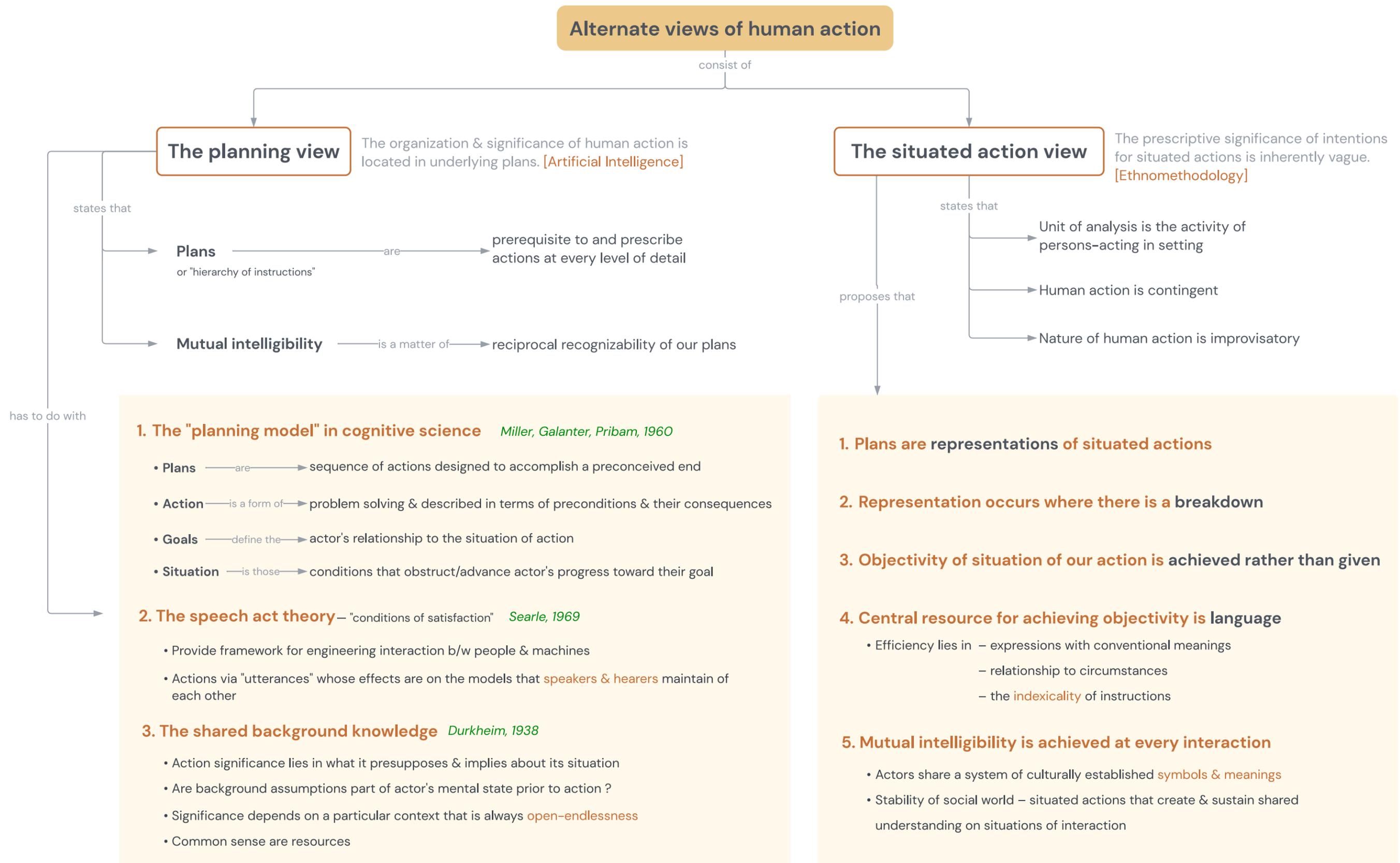


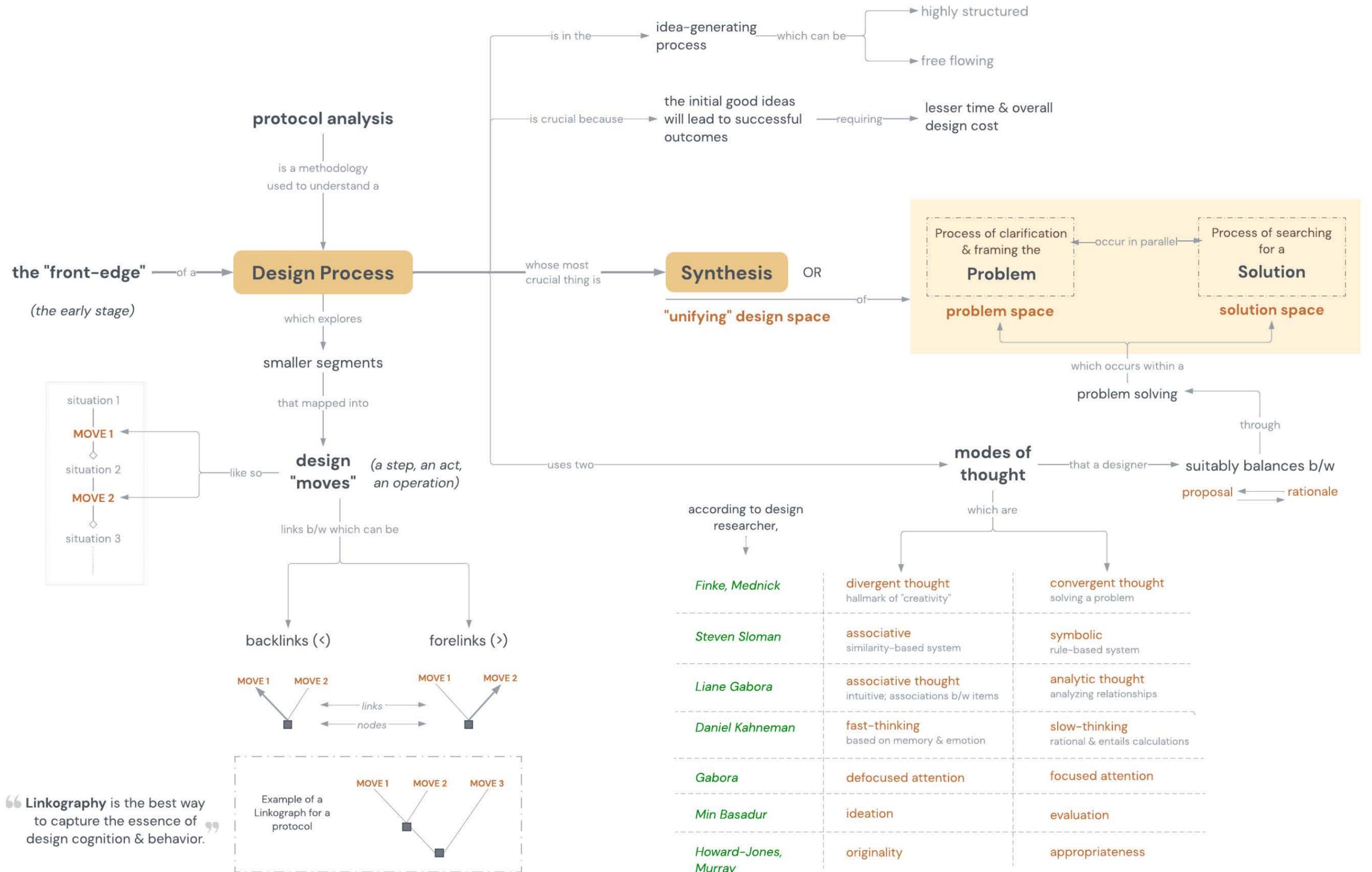
How to read it:



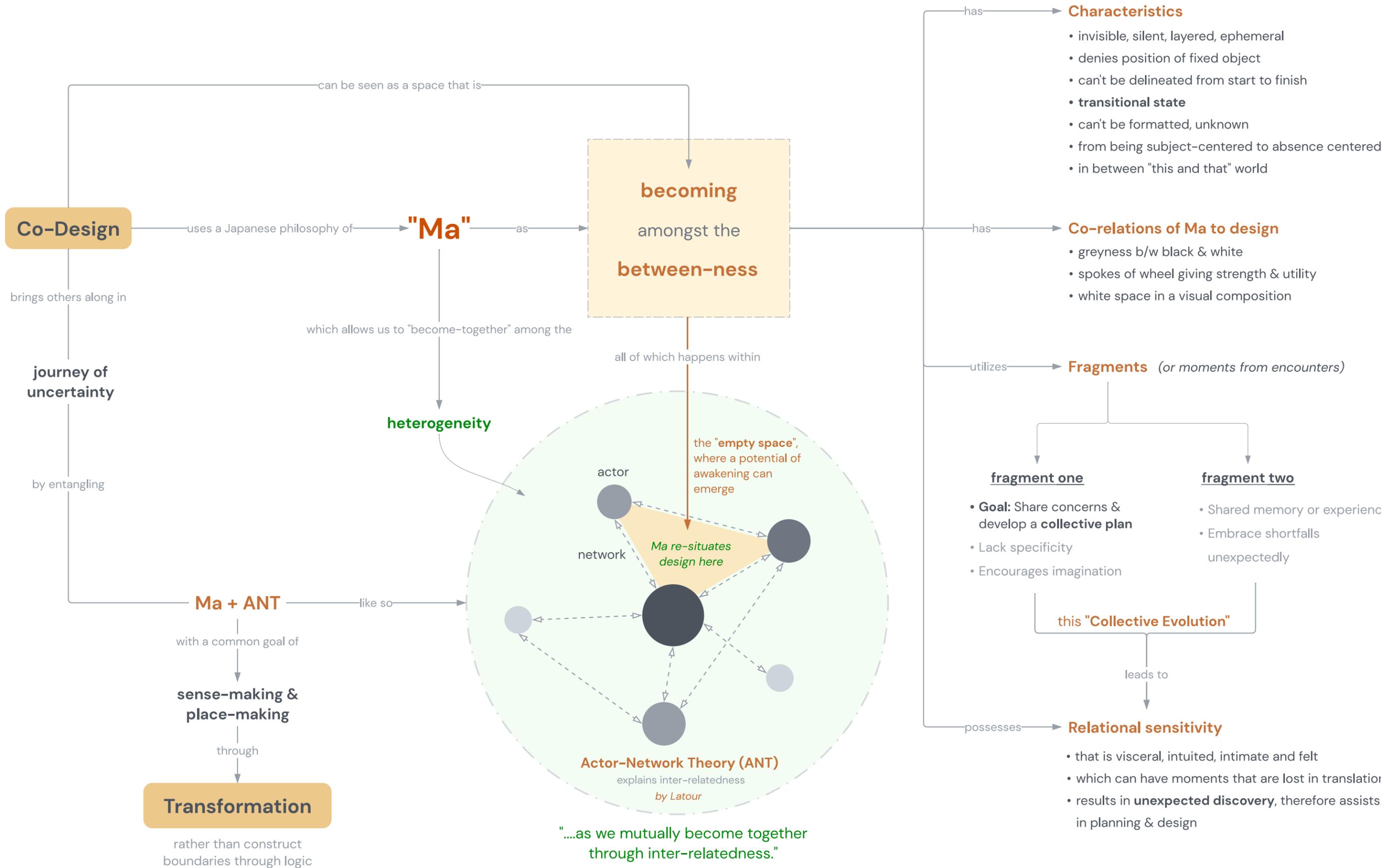


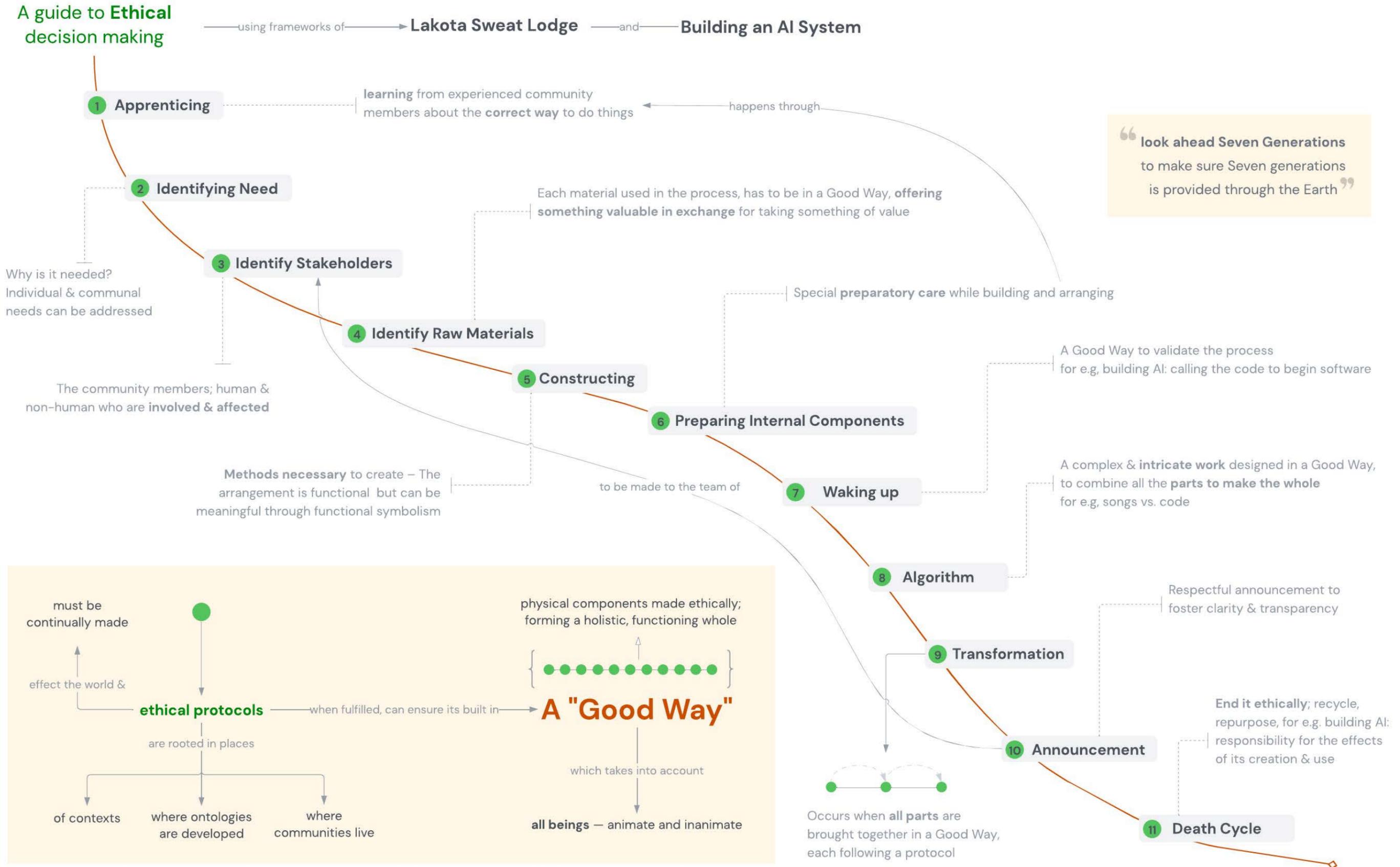






“Linkography is the best way to capture the essence of design cognition & behavior.”





Other areas where I utilized the concept-map strategy

Takeways & Learnings

Prior to this class, I had a very shallow understanding of design. When someone asked me – “What exactly is design?” or “Do you just make things pretty?”, I was simply not able to explain. I had a lot of aha-moments from some of these readings from class and now I’m able to think/talk about design in profound ways (including the jargon!). I learned the why’s and how’s of good design being ethical, functional, aesthetic and sustainable. The **design process** in itself is a designed system, sometimes within a boundary and most times within a “Ma” [pg. 14]. Now while I design, I consciously think of my design decisions based on reflections from this class.

Concept maps! This strategy has truly helped me think of complex information in visual, categorical and connective ways. When my brain is able to connect concepts, I tend to digest and remember information more easily. Reading some of this material was out of my comfort zone, but by the end of this semester, I was able to confidently put my understanding on paper through these mental models.

I would like to thank Prof. Michael Arnold Mages for conducting insightful discussions on theories of design and making us think of design in a mindful way that I had never unmasked before. Thank you to my peers who have inspired me in many ways through each of their journeys of making this book.

Now I have a book to show anyone who asks me, “What is Design?” !

Understanding data structures & classes for Javascript

