How do *Systems Changes* become natural practice?

History-making, commitment, argumentation + pattern language

David Ing

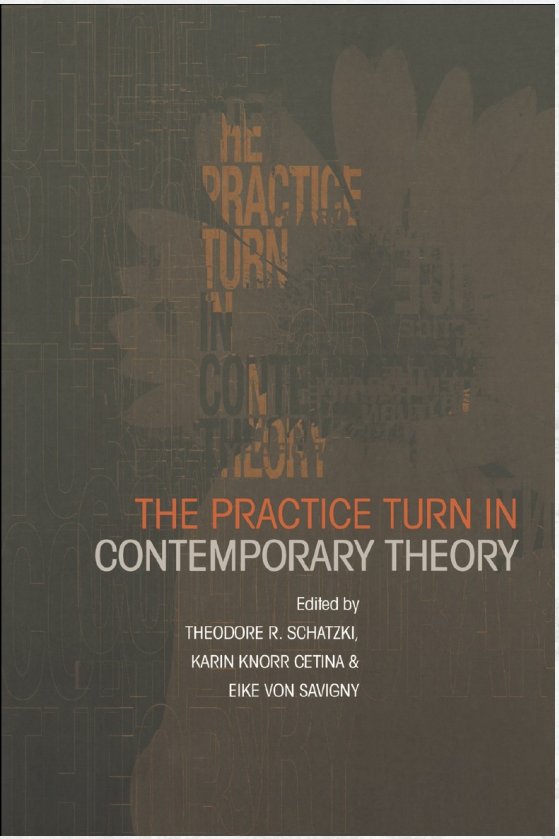
http://systemschanges.com

OCADU SFI – Systemic Design

Toronto, Ontario

March 2020

Systems Changes heeds *The Practice Turn in Contemporary Theory*



Thinkers once spoke of 'structures,' 'systems,' 'meaning,' 'life world,' 'events,' and 'actions' when naming the primary generic social thing. Today, many theorists would accord 'practices' a comparable honor. [p. 1]

... **practice** accounts are joined in the belief that such phenomena as **knowledge**, **meaning**, **human activity**, **science**, **power**, **language**, **social institutions**, and **historical transformation** occur within and are aspects or components of the field of practices.

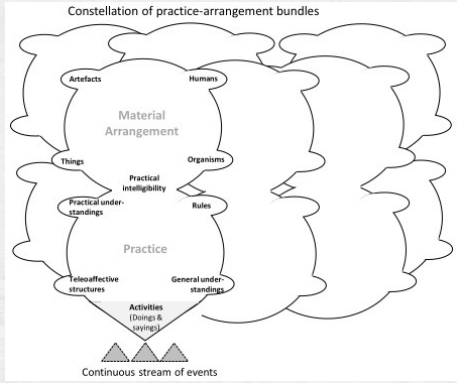


Figure 1: An overview of the central elements of Schatzki's site ontology

The field of practices is the total nexus of interconnected human practices.
The 'practice approach' can thus be demarcated as all analyses that
(1) develop an account of practices, either the field of practices or some subdomain thereof (e.g., science), or
(2) treat the field of practices as the place to study the nature and transformation of their subject matter.

Schatzki, Theodore R. 2001. "Introduction -- Practice Theory." In *The Practice Turn in Contemporary Theory*, edited by Theodore R. Schatzki, Karin Knorr-Cetina, and Elke von Savigny. Routledge. http://doi.org/10.4324/9780203977453.
Loscher, Georg, Violetta Splitter, and David Seidl. 2019. "*Theodore Schatzki's Practice Theory and Its Implications for Organization Studies*." In Management, Organizations and Contemporary Social Theory, 115–134. Routledge. http://doi.org/10.4324/9780429279591-7 .

Change as three steps attributed to Kurt Lewin isn't what he wrote

human relations

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Unfreezing change as three steps: Rethinking Kurt Lewin's legacy for change management

human relations
1–29

DOI: 10.1177/0018726715577707
hum.sagepub.com
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Stephen Cummings
Victoria University of Wellington, New Zealand

Todd Bridgman
Victoria University of Wellington, New Zealand

Kenneth G Brown
University of Iowa, USA

Abstract
Kurt Lewin's 'changing as three steps' (unfreezing → changing → refreezing) is regarded by many as the classic or fundamental approach to managing change. Lewin has been criticized by scholars for over-simplifying the change process and has been defended by others against such charges. However, what has remained unquestioned is the model's foundational significance. It is sometimes traced (if it is traced at all) to the first article ever published in *Human Relations*. Based on a comparison of what Lewin wrote about changing as three steps with how this is presented in later works, we argue that he never developed such a model and it took form after his death. We investigate how and why 'changing as three steps' came to be understood as the foundation of the fledgling subfield of change management and to influence change theory and practice to this day, and how questioning this supposed foundation can encourage innovation.

Keywords
CATS, changing as three steps, change management, Kurt Lewin, management history, Michel Foucault

Corresponding author:
Stephen Cummings, Victoria Business School, Victoria University of Wellington, Wellington, New Zealand.
Email: stephen.cummings@vuw.ac.nz

Kurt Lewin is widely considered the **founding father** of **change management**, with his unfreeze–change–refreeze or 'changing as three steps' … regarded as the 'fundamental' or 'classic' approach to, or classic 'paradigm' for, managing change …. [p. 34]

unfreeze → change → refreeze

Unfreezing change as three steps | Sage Publishing | Youtube

CATS has come to be **regarded** both as an **objective self-evident truth** and an idea with a **noble provenance**.

By going back and looking at what Lewin wrote (particularly the most commonly cited reference for CATS, 'Lewin, 1947': the first article ever published in Human Relations published just weeks after Lewin's death), we see that what we know of CATS today is **largely a post hoc reconstruction**.

Our forensic examination of the past is not, however, an end in itself. Rather, it encourages us to think differently about the future of change management that we can collectively create. In that spirit, we conclude by offering two alternative future directions for teaching and researching change in organization inspired by returning to 'Lewin, 1947' and reading it anew. [p. 35]

Cummings, Stephen, Todd Bridgman, and Kenneth G Brown. 2016. "Unfreezing Change as Three Steps: Rethinking Kurt Lewin's Legacy for Change Management." *Human Relations* 69 (1): 33–60. https://doi.org/10.1177/0018726715577707 .

Agenda

A. Situated Learning + History-making

- Legitimate Peripheral Participation + Practices (Lave, Wenger)
- Skill Acquisition + Disclosing New Worlds (Dreyfus, Spinosa)

B. Commitment + Language-Action Perspective

- Conversations for Action (Flores)
- Deliverables, procedures, capacities, relationships

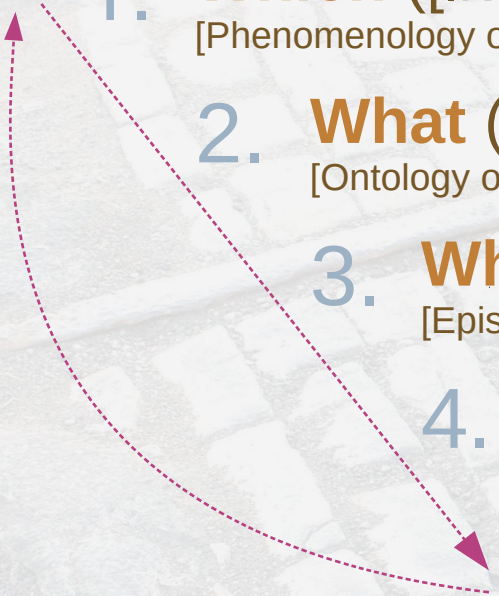
C. Argumentation + Pattern Language

- IBIS (Rittel), Timeless Way of Building (Alexander)
- Architectural Programming c.f. Designing

[postscript] (Open) Innovation Learning

- Quality-generating sequencing; Affordances wayfaring; Anticipatory appreciating
- Innovation learning for; Innovation learning by; Innovation learning alongside

A 5-Question Cycle for Systems Changes can guide modes of inquiry grounded on five philosophical traditions



1. **Which** ([living] wholes, containing wholes, parts)?
   [Phenomenology of joint attention on systems changes]
2. **What** (affordances, capacities, taskscapes-landscapes)?
   [Ontology of becoming with systems changes]
3. **Why** (causes)?
   [Episteme of systems changes]
4. **Whom**, **when**, **where** (impacts)?
   [Phronesis in systems changes]
5. **How** (collective action)?
   [Techne for systems changes]

Organizational change as “unfreeze-change-freeze” field theory has shifted to “situated learning” in communities of practice

Frozen Ice Cubes, CC-BY-NC Steven Depolo 2008

Scratch any account of creating and maintaining change and the idea that **change** is a **three-stage process** which necessarily begins with a process of **unfreezing** will not be far below the surface. Indeed, it has been said that the **whole theory of change is reducible** to this one idea of **Kurt Lewin**’s (1952).

Eureka, I've done it! CC-BY-NC-SA UNESCO UNEVOC / Amitava Chandra 2015

Within **communities-of-practice**, people **share tacit knowledge** and through dialogue bring this to the surface; they exchange ideas about **work practice** and experiment with new methods and ideas; they engage in discussions which **affirm or modify theories in use**; they innovate new problem-solving routines and simultaneously **manage and repair the social context**.

Hendry, Chris. 1996. “Understanding and Creating Whole Organizational Change through Learning Theory.” *Human Relations* 49 (5): 621–641. https://doi.org/10.1177/001872679604900505 .

Systems thinking, systems that learn, and learning in service systems

May 1, 2012 daviding 1 Comment

D. In human systems, social participation is a process of learning and knowing that includes meaning, practice, community and identity

Wenger outlines the domain of learning, from a social perspective. He first clarifies to outline theories focused on alternative aspects of learning, particularly as neurological, psychological or alternative hybrids.

A conceptual perspective: theory and practice

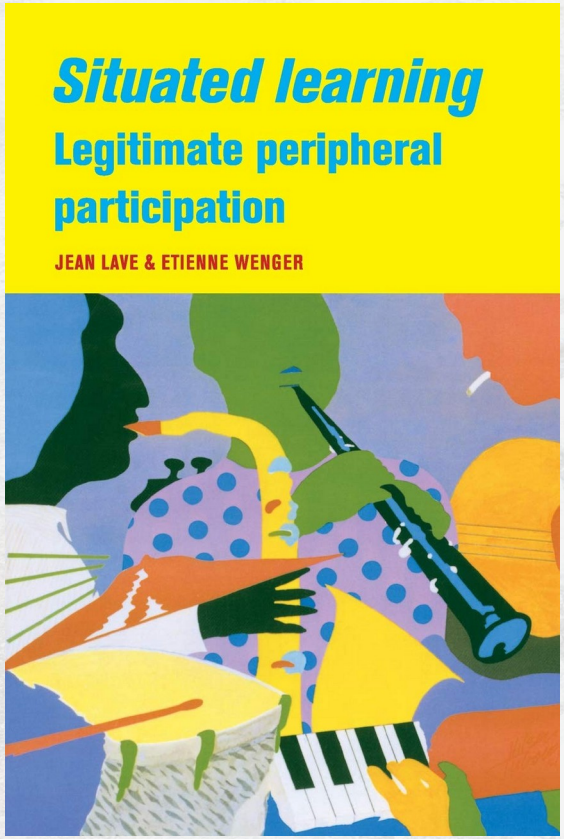
There are many different types of learning theory. Each emphasizes different aspects of learning, and each is therefore useful for different purposes. To some extent these differences in emphasis reflect a deliberate focus on a slice of the multidimensional

Wenger starts with an initial (simplified) inventory of components of a social theory of learning, which he eventually details further.

Figure 0.1. Components of a social theory of learning: an initial inventory

A social theory of learning must therefore integrate the components necessary to characterize social participation as a process of learning and of knowing. These components, shown in Figure 0.1, include the following. [pp. 4-5]

Legitimate peripheral participation sees apprentices developing skills through working alongside masters in social contexts



We present excerpts from **five accounts of apprenticeship**:

- among Yucatec Mayan **midwives** in Mexico ...,
- among Vai and Gola **tailors** in Liberia ...,
- in the work-learning settings of U.S. navy **quartermasters** ...,
- among **butchers** in U.S. supermarkets ..., and
- among "**nondrinking alcoholics**" in Alcoholics Anonymous ....

Even though this last case is not usually described as a form of apprenticeship, the learning this study describes is so remarkably similar to the first four in its basic character that it serves to highlight common features of the others

Learning viewed as **situated activity** has as its central defining characteristic a **process** that we call **legitimate peripheral participation**.

By this we mean to draw attention to the point that **learners** inevitably participate in **communities of practitioners** and that the mastery of knowledge and skill requires newcomers to move toward full participation in the **sociocultural practices** of a community. [….]

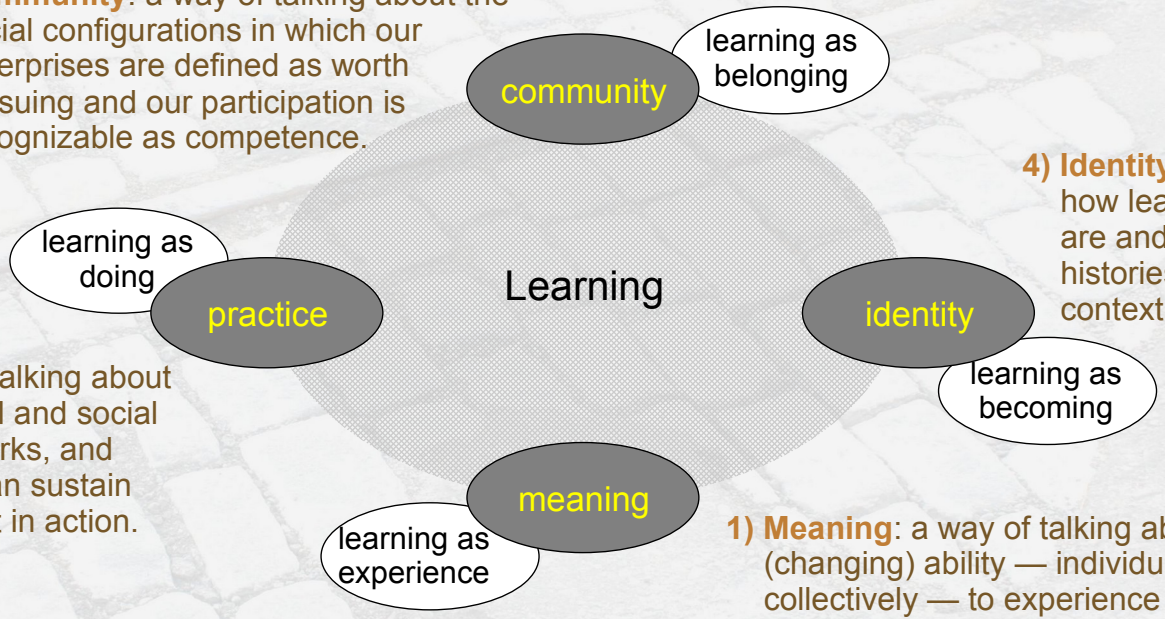
A person's intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a sociocultural practice. **This social process includes, indeed it subsumes, the learning of knowledgeable skills**.

Lave, Jean, and Etienne Wenger. 1991. Situated Learning: Legitimate Peripheral Participation. Cambridge University Press.

Communities of practice involve social participation in learning and knowing that includes meaning, practice, community and identity

A social theory of learning must ... integrate the components necessary to characterize social participation as a process of learning and of knowing. These components, shown in Figure 0.1, include the following. [pp. 4-5]

3) Community: a way of talking about the social configurations in which our enterprises are defined as worth pursuing and our participation is recognizable as competence.



4) Identity: a way of talking about how learning changes who we are and creates personal histories of becoming in the context of our communities.

2) Practice: a way of talking about the shared historical and social resources, frameworks, and perspectives that can sustain mutual engagement in action.

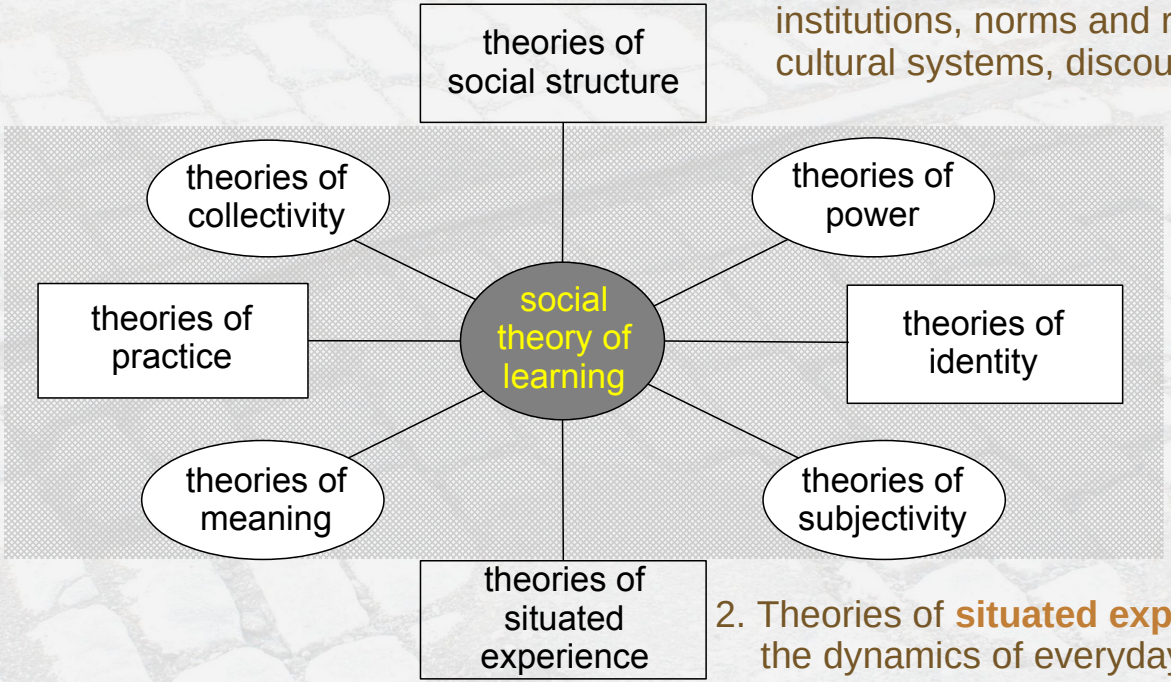
1) Meaning: a way of talking about our (changing) ability — individually and collectively — to experience our life and the world as meaningful.

Clearly, these elements are deeply interconnected and mutually defining. In fact, looking at Figure 0.1, you could switch any of the four peripheral components with learning, place it in the center as the primary focus, and the figure would still make sense. [p. 5]

Wenger, Etienne. 1999. *Communities of Practice: Learning, Meaning and Identity*. Cambridge, UK: Cambridge University Press.

A social theory of learning draws from intellectual traditions at the intersection of philosophy, social sciences and humanities

1. Theories of **social structure** give primacy mostly to institutions, norms and rules. They emphasize cultural systems, discourses, and history.



3. Theories of **social practice** address the production and reproduction of specific ways of engaging with the world.

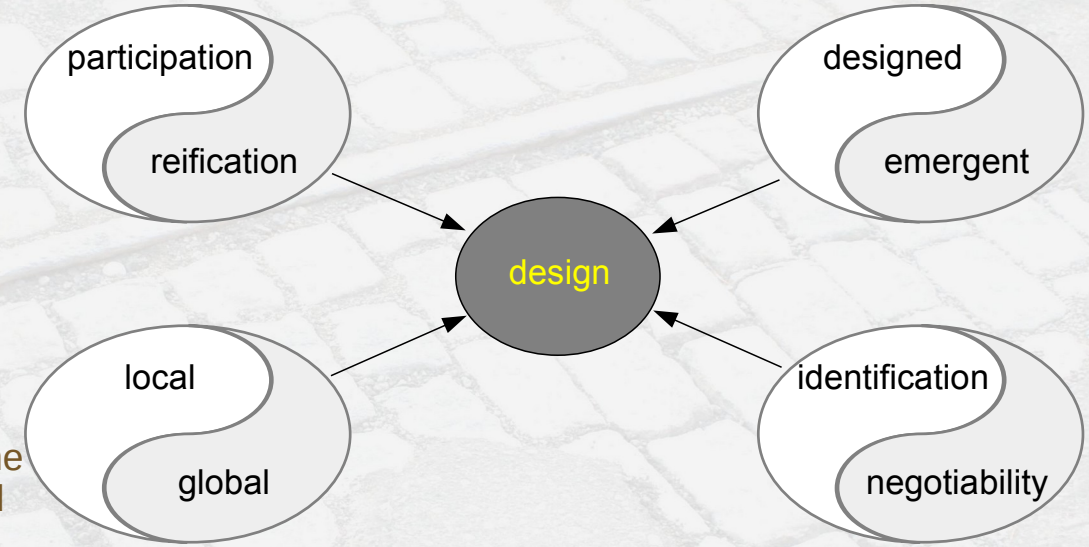
4. Theories of **identity** are concerned with the social formation of the person, the cultural interpretation of the body, and creation and use of marketers of membership such as rites of passage and social categories

2. Theories of **situated experience** give primacy to the dynamics of everyday existence, improvisation, coordination, and interactional choreography. They emphasize agency and intensions.

Wenger, Etienne. 1999. *Communities of Practice: Learning, Meaning and Identity*. Cambridge, UK: Cambridge University Press.

For designers, a conceptual architecture guides design with general questions, choices and trade-offs, and what needs to be achieved

1. … **participation** and **reification** … are two avenues for influencing the future … as complementary aspects of design that create two kinds of affordances for negotiating meaning.



2. … **design** is only one structuring element … the structure of practice is **emergent** …. [Practice] cannot be the result of design but instead a response to design.

3. … This complex relation between the **local** and the **global** can be expressed by the following paradox of design:
   * No community can fully design the learning of another.
   And at the same time:
   * No community can fully design its own learning.

4. Design for learning must generate social energy at the same it seeks to direct this energy. [….]
   This dilemma can be summarized as follows:
   * Design creates fields of **identification** and **negotiability** that orient the practices and identities of those involved to various forms of participation and non-participation

Wenger, Etienne. 1999. *Communities of Practice: Learning, Meaning and Identity*. Cambridge, UK: Cambridge University Press.

You know, I know this steak doesn't exist. I know that when I put it in my mouth,
The Matrix is telling my brain that it is juicy and delicious.
After nine years, you know what I realize? Ignorant is bliss.

EXISTENTIAL PHENOMENOLOGY AND THE BRAVE NEW WORLD OF *THE MATRIX*[1]

HUBERT DREYFUS & STEPHEN DREYFUS

The Matrix makes us rethink what we mean by contact with the real world, illusion, freedom, and what is required for human flourishing. Only then will we be in a position to take up the question, raised and answered in the three films, why, if at all, is it better to live in the real world, no matter how impoverished and unstable, than to live in a virtual world that is ordered so as to take care of our needs and let us get on with our everyday lives.

I. The Myth of the Inner

Thanks to Descartes, we moderns have to face the question: how can we ever get outside of our *private inner experiences* so as to come to know the things and people in the *public external world*? While this seems an important question to us now, it has not always been taken seriously. For the Homeric Greeks human beings had no inner life to speak of. All their strong feelings were expressed outwardly. Homer considered it one of Odysseus' cleverest tricks that he could cry inwardly while his eyes remained dry. [2]

A thousand years later, people still had no sense of the importance of their

II. Brains in Vats

So it looks like the inner/outer distinction introduced by Descartes holds only for thoughts. At the basic level of involved skillful coping, one is, Merleau-Ponty claims, simply an empty head turned towards the world.[12] But this doesn't show that *The Matrix* is old fashioned or mistaken. On the contrary, it shows that The Matrix has gone further than philosophers who hold we can't get outside our *mind*. It suggests a more convincing conclusion– one that Descartes pioneered but didn't develop – that we can't get outside our *brain*.

III. An Ethical Interlude

The distinction between a Matrix person and the body that is the causal basis of that person has serious ethical implications. In the movie innocent people doing their job, like the Police Officers in the opening scene, are killed with casual unconcern, if not with relish by Morpheus and his band. Morpheus justifies these killings by explaining that the Matricians have been told that the intruders are dangerous terrorists and so the police and other defenders of law and order will kill Morpheus and his friends if they don't strike first. But when we remember that each time a Matrician is killed an associated human body somewhere in a vat dies, it seems that the killing of a virtual person in the Matrix must be morally wrong because it causes the death of a real human being.

IV. A New Brave New World

We are now in a position to try to answer the question: Why live in the miserable and endangered world the war has produced rather than in a satisfying and stable world of appearances? Some answers just won't do. It doesn't seem to be a question of whether one should face the truth rather than live in an illusion. Indeed, most of the beliefs of the average Matrician are true; they can cope by acting in some ways and not others. When they sit on a chair it usually supports them, when they enter a house they see

ONTOLOGY

Existential Phenomenology and the Brave New World of *The Matrix*

By Hubert Dreyfus

THE MATRIX RAISES SEVERAL FAMILIAR PHILOSOPHICAL PROBLEMS IN SUCH FASCINATING new ways that students all over the country are assigning it to their philosophy professors. In so doing, they have offered us a great opportunity to illustrate some of the basic insights of existential phenomenology. *The Matrix* might seem to renew Descartes's worry that, since all we ever experience are our own inner mental states, we might, for all we could tell, be living in an illusion created by a malicious demon. In that case, most of our beliefs about reality would be false. But there is a way of understanding *The Matrix* that denies the mediation of mental states and shows those living in the Matrix to be in direct touch with Matrix reality. The Matrix world is public and objective, not a private subjective dream. Still, there is clearly a sense in which the Matrix world, while not merely mental, is not real either. There *is* after all a demon—the AI intelligences and their computer—that has in some sense fooled all those who accept the reality of the Matrix world. Thus, the film's account of our situation is even more disturbing than Descartes's claim that we are each confined to our own mind. The Matrix world is a vivid illustration of Descartes's additional prescient claim that we could *never* be in direct touch with the real world (if there is one) because we are all what we would now call *brains in vats*.[1]

But then, in choosing to leave the Matrix world for the "desert of the real," Neo and his friends are simply choosing one of two sets of systematic appearances. And, although we tend to disapprove of Cypher's choosing to return from the harsh "real world" to the Matrix world where he feels comfortable, he is just choosing a different, more satisfying set of appearances, and so being quite sensible. Before we can rationally approve of Neo and condemn Cypher, we have to rethink what we mean by experience, illusion, and our contact with the real world, as well as freedom and control.

Hubert Dreyfus is Professor of Philosophy in the Graduate School at the University of California, Berkeley. His research interests bridge the analytic and Continental traditions in 20th century philosophy and include phenomenology, existentialism, philosophy of psychology, philosophy of literature, and philosophical implications of artificial intelligence. His most recent work is On the Internet, *and he is working on a second edition of* Being-in-the-World, *his commentary on Heidegger's* Being and Time.

Heidegger thinks that our **freedom to disclose new worlds** is our special human freedom, and he holds that this freedom implies that there is no fixed preexistent set of possible worlds.

Each world exists only once it is disclosed.

So it makes no sense to think that a computer could be programmed with rules for producing the sensory-motor connections that would allow the creation of all possible worlds in advance of their being opened by human beings. Artificial intelligences couldn't program such a radically open world even if they wanted to. [p. 27]

Once we experience world disclosing, we understand why it's better to be in the real world than in the Matrix, even if, in the world of the Matrix, one can enjoy steak and good wine. Real salvation comes from transcending the world-foreclosing limits of the Matrix program.

What's **ultimately important** to us, then, is not whether most of our beliefs are true, or whether we are brave enough to face a risky reality, but **whether we are locked into a world of routine activities** or are **free to transform the world and ourselves**. [p. 28]

Dreyfus, Hubert. 2003. "Existential Phenomenology and the Brave New World of The Matrix." *The Harvard Review of Philosophy* 11 (1): 18–31. https://doi.org/10.5840/harvardreview20031113 .

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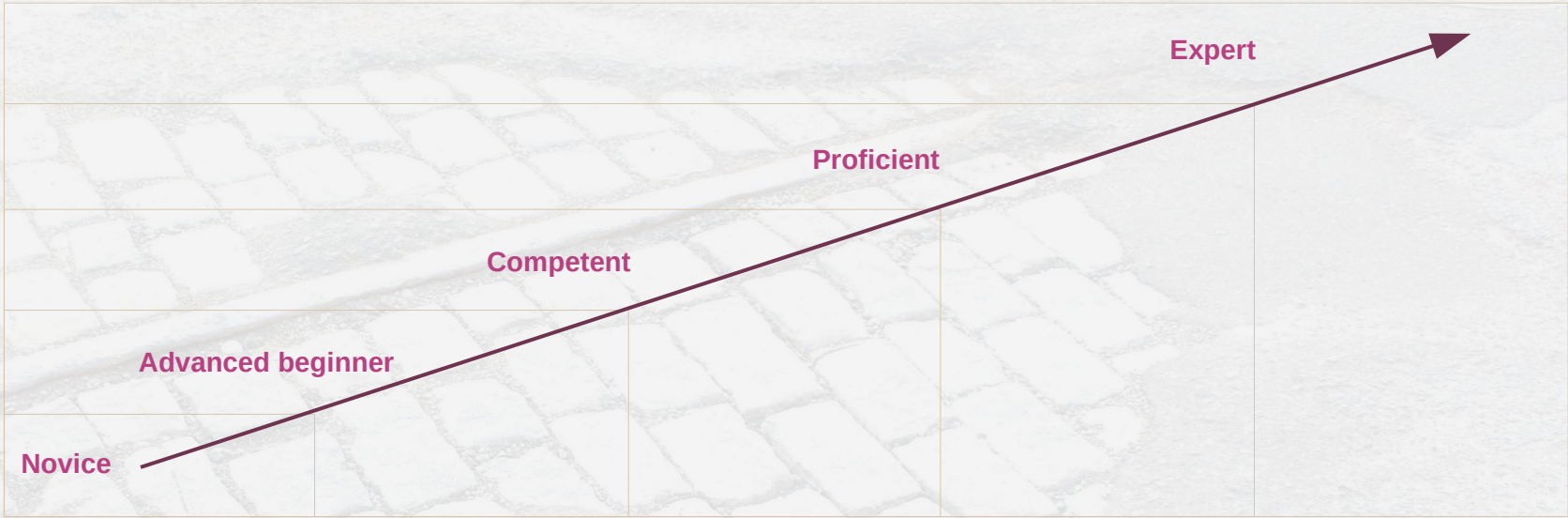
Philosophy 185 Heidegger

by Hubert Dreyfus

Skill acquisition[2000] sees individuals passing through five stages: (i) novice; (ii) advanced beginner; (iii) competence; (iv) proficiency; and (v) expertise



Scope of vision & Range of capability	Follows specific rules for specific situations. Rules are not conditional "Only capable of following the rules"	Begins to create and identify conditional rules. "Rules have nuance and become conditional in nature"	Learns ongoing principals [sic]. Information sorting by relevance begins "Higher order rules shape contexts and conditions"	Uses pattern recognition to assess what to do. Uses rules to determine how to do it "Intuition aides in identifying the situation; the actions are governed by the principals [sic]"	No analysis or planning. Pattern recognition extends to plan as well as action "Just does what works"

Fig 1.
Dreyfus model of skill acquisition
[Dreyfus, Hubert L., Stuart E. Dreyfus, and Tom Athanasiou. 2000. *Mind Over Machine*. Simon and Schuster]

Kirkpatrick, Katherine, and Ralph James MacKinnon. 2012. "Technology-Enhanced Learning in Anaesthesia and Educational Theory." *Continuing Education in Anaesthesia Critical Care & Pain* 12 (5): 263–67. https://doi.org/10.1093/bjaceaccp/mks027 .

Skill acquisition[1980] results through successive transformation of four mental functions: (i) recollection, (ii) recognition, (iii) decision, (iv) awareness

Mental Function \ Skill Level	Novice	Competent	Proficient	Expert	Master
Recollection	**Non-situational** →	**Situational** →	Situational	Situational	Situational
Recognition	Decomposed	**Decomposed** →	**Holistic** →	Holistic	Holistic
Decision	Analytical	Analytical	**Analytical** →	**Intuitive** →	Intuitive
Awareness	Monitoring	Monitoring	Monitoring	**Monitoring** →	**Absorbed**

Figure 2: Overview of the Dreyfus model of skill acquisition. [Dreyfus, Stuart E., and Hubert L. Dreyfus. 1980. "A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition." Defense Technical Information Center 80–2. Operations Research Centre. Berkeley, California: University of California, Berkeley. https://apps.dtic.mil/docs/citations/ADA084551 .]

A component mental function is represented on each row and associated skill levels are shown on the columns. The horizontal arrows on each row represent the change in an observed mental function that facilitates an increase in the skill level represented in the model.

O'Donovan, John, Byungkyu Kang, and Tobias Hollerer. 2014. "Competence Modeling in Twitter: Mapping Theory to Practice." In *Proceedings of the 2014 International Conference on Social Computing*. SocialCom '14. Palo Alto, CA: Academy of Science and Engineering. http://penguinkang.com/blog/publications/ .

Skill acquisition[2004] sees novices calculating rules and facts like a computer, while experts do not calculate or solve, just doing normally what works

Skill Level	*Novice*	*Advanced beginner*	*Competent*	*Proficient*	*Expert*
Components • Elements of the situation that the learner is able to perceive	**Context free** pertaining to general aspects of the skill	**Context free and situational** to specific situation	Context free and situational to specific situation	Context free and situational to specific situation	Context free and situational to specific situation
Perspective • Recognizing + choosing components to focus on	None	None	**Chosen**	**Experienced**	Experienced
Decision • On how to act in the situation	Analytic reasoning	Analytic reasoning	Analytic reasoning	**Analytic** reasoning	**Intuitive** based on experience + holistic discrimination of situation
Commitment • Degree to which learner is immersed in situation and action	Detached	**Detached**	**Detached understanding and deciding; involved outcome**	**Involved understanding; detached deciding**	**Involved** in understanding, deciding + outcome of situation-action pairing

Dreyfus, Stuart E. 2004. "The Five-Stage Model of Adult Skill Acquisition:" *Bulletin of Science, Technology & Society* 24 (3): 177–81. https://doi.org/10.1177/0270467604264992 .

Ontological designing is a practice with (i) the design object, (ii) the design process; and (iii) the design agency

Ontology means "of or belonging to the **understanding of being**."

Put extremely simply, **ontic** refers to **what is**;

ontology refers to **enquiry of what is**,

while **ontological** refers to the **condition or behaviour of what is**.

Tony Fry makes the point that **design is a meta-category** comprised of three elements, each of which get called design, often to the exclusion of the other two, but all of which are connected.

They are:

1. **the design object** – the material or immaterial outcome of designing
2. **the design process** – the system, organisation, conduct and activity of designing
3. **the design agency** – the designer, design instruction in any medium or mode of expression and the designed object itself as it acts on its world.

... **ontological designing** is a way of characterising the **relation between human beings and lifeworlds**. As a theory its claims are:

- that **design** is something far **more pervasive and profound** than is generally recognised by designers, cultural theorists, philosophers or lay persons;
- that **designing** is **fundamental to being human** – we design, that is to say, we deliberate, plan and scheme in ways which prefigure our actions and makings – in turn we are designed by our designing and by that which we have designed (i.e., through our interactions with the structural and material specificities of our environments);
- That this adds up to a double movement – **we design our world, while our world acts back on us and designs us**.

Willis, Anne-Marie. 2006. "Ontological Designing." *Design Philosophy Papers* 4 (2): 69–92. https://doi.org/10.2752/144871306X13966268131514 .

History making is an ontological skill for regularly seeing yourself and the world, in disclosing new ways of being

Great Expectations, CC-BY-ND- Squirrelbrand 2010

Something that **makes history**, we shall argue, **changes the way** in which we understand and **deal with ourselves and with things**.

Examples:

- The feminist movement
- Sending a man to the moon

Spinosa, Charles, Fernando Flores, and Hubert L. Dreyfus. 1999. *Disclosing New Worlds: Entrepreneurship, Democratic Action, and the Cultivation of Solidarity*. MIT Press.

A *new world* is a *disclosive space*, in which webs of practices and things have meaning that is no longer strange

Hammering CC-BY Rob Swystun 2008

We call any **organized set of practices** for **dealing with** oneself, other people and things that produces a relatively self-contained **web of meanings** a ***disclosive space***.

A **world** for Heidegger has three characteristics.

- It is a totality of interrelated pieces of ***equipment***, each used to carry out a specific task such as hammering a nail.
- These tasks are undertaken so as to achieve certain ***purposes***, such as building a house.
- Finally, this activity enables those performing it to have ***identities***, such as being a carpenter.

Worlds can interact, and where several worlds interact without presupposing a common world, we speak of ***local worlds***.

Spinosa, Charles, Fernando Flores, and Hubert L. Dreyfus. 1999. *Disclosing New Worlds: Entrepreneurship, Democratic Action, and the Cultivation of Solidarity*. MIT Press.

Style is a ground of meaning in human activity, on which practices are conserved, and is a basis for developing new practices

A **style**, or the **coordination of actions**, opens a disclosive space, and **does so** in a threefold manner:

(1) by ***coordinating*** actions,

(2) by determining how things and people ***matter***, and

(3) by being what is ***transferred*** from situation to situation.

Nursery Cart, CC-BY Pieterjan Vandaele 2009

Playing with Toys and Crying About It, CC-BY Bradley Gordon 2013

Japanese mothers tend to be soothing and mollifying, while **American mothers** tend to encourage passionate gesturing and vocalizing. In many ways, in short, **Japanese** mothers promote **relative passivity and sensitivity to harmony** in the actions of their babies, while **American** mothers situate babies' bodies and respond to their actions in such a way as to **promote an active and aggressive style** of behavior. The babies, of course, take up the style of nurturing to which they are exposed.

Spinosa, Charles, Fernando Flores, and Hubert L. Dreyfus. 1999. *Disclosing New Worlds: Entrepreneurship, Democratic Action, and the Cultivation of Solidarity*. MIT Press.

General everyday activity is *customary disclosing*; changing style is an activity of *historical disclosing*

And Go, CC-BY Drewful 2011

Catch Me!, CC-BY Drewful 2011

A Fall, CC-BY Drewful 2011

There are **two** kinds of **skills** required for historical disclosing.

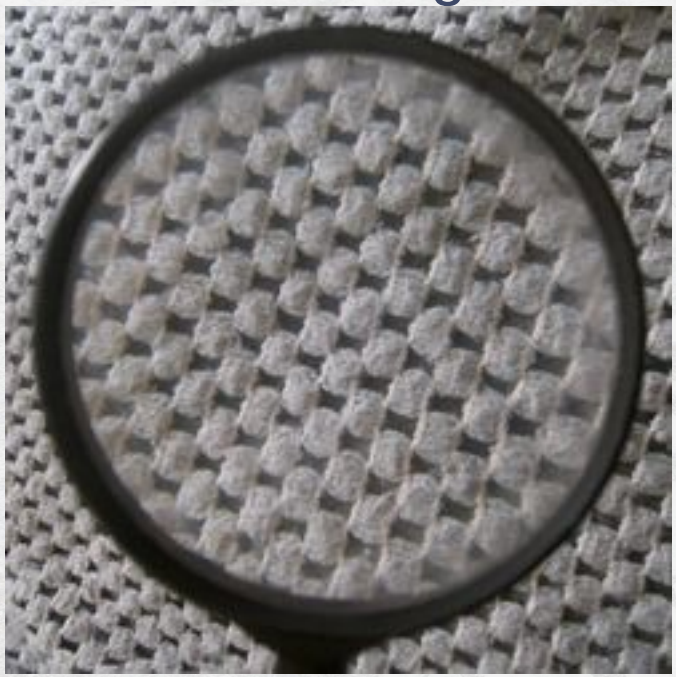
First, one has to be able to **sense and hold onto disharmonies** in one's current disclosive activity;

Second, one has to be able to **change one's current disclosive space** on the basis of the disharmonious practices

Disharmonies are practices in which we engage that common sense leads us to overlook, because they are not well coordinated with our other practices.

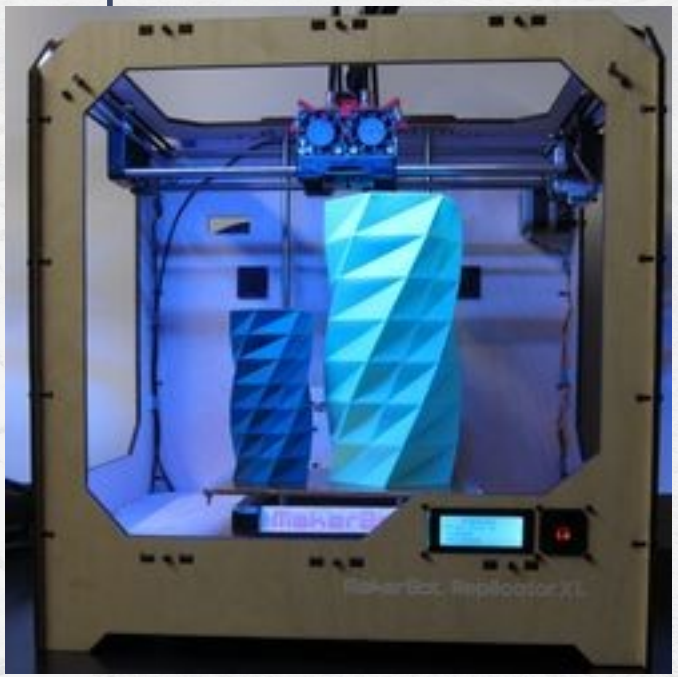
Spinosa, Charles, Fernando Flores, and Hubert L. Dreyfus. 1999. *Disclosing New Worlds: Entrepreneurship, Democratic Action, and the Cultivation of Solidarity*. MIT Press.

Articulation, reconfiguration and cross-appropriation are ways to bring about meaningful historical change of a disclosive space



Magnifying Glass CC-BY Eamon Curry 2014

Sorting, CC-BY Ernie 2010



Makerbot Replicator XL, CC-BY John Abella 2012

Articulating is the most familiar kind of style change ... when a style is brought into sharper focus.

Example: space race, family

Configuration is … more substantial … some marginal aspect of practice … becomes dominant.

Example: animals to machines

Cross-appropriation takes place when one disclosive space takes over … a practice it could not generate on its own.

Example: feminist movement

Spinosa, Charles, Fernando Flores, and Hubert L. Dreyfus. 1999. *Disclosing New Worlds: Entrepreneurship, Democratic Action, and the Cultivation of Solidarity*. MIT Press.

The skill of innovating is an adoption of new practice, with interaction patterns that can be learned as personal skills

Structure of Conversations and Actions	*Practices*	*Key Aspects*	*Characteristic Breakdowns*
The heart of invention	**Sensing** Possibilities	Sensing and articulating opportunities and their value in a community. Seeing possibilities in breakdowns. Being sensitive to disharmonies.	Blindness. Inability to move from sensing to articulation, to hold the though, or to see opportunities in disharmonies.
	Envisioning New Realities	Speculating about new worlds in which an opportunity is taken care of; and means to get there.	Inability to tell vivid, concrete, compelling stories or to design plans of action.
Innovator proposes to bring the idea into the world, and generates trust in his or her expertise to do so	**Offering** New Outcomes	Proposing new rules and strategies of play that produce the new outcomes. Listening to concerns then modifying proposals for better fit. Establishing better credibility in one's experience to fulfill the offer.	Missing awareness of and respect for customers. Inability to listen, to enroll people, to articulate value, or to see people as fundamental in the process. Unwillingness to modify proposals in response to feedback.
The main work of adoption	**Executing** Plans and Actions	Building teams and organizations. Carrying out action plans for reliable delivery.	Failure to manage commitments, satisfy customers, deliver on time, or build trust.
	Adopting New Practice	Demonstrating value of proposed adoption so that others can commit to it. Aligning action plans for coherence with existing practices, concerns, interests, and adoption rates of community members. Developing marketing strategies for different groups. Recruiting allies. Overcoming resistance.	Forcing adoption through compulsion. Failure to anticipate opposition, to anticipate differing adoption rates of segments of community, or to articulate the value from adopting. Lack of enabling tools and processes for adoption.
	Sustaining Integration	Developing supporting infrastructure. Aligning new practices with surrounding environment, standards and incentives. Assessing related innovations for negative consequences. Abandoning bad innovations. Discontinuing after end of useful life.	Failure to plan for support and training to change enabling tools and systems, or to align incentives with the new practices.
(Recruiting followers, articulating guiding principles)	**Leading**	Declaring new possibilities in the ways that people commit to them. Moving with care, courage, value, power, focus, sense of larger purpose (destiny), fluency of speech acts.	Inability to listen for concerns, offer value, work with power structures, maintain focus, operate from a larger purpose, or perform speech acts skillfully.
(An eighth, deeper practice that surrounds the other seven) Attending	**Attending to Somatics**	Work with the somatic aspects of communication and commitment. Ascending the ladder of competence. Connecting with people. Producing trust. Developing an open and inviting "presence." Blending with concerns, energies, and styles of others.	Inability to read and respond to body language, gesture, etc. Inability to connect and blend. Failure to recognize and overcome one's own conditioned tendencies, to appreciate differing levels of skill and their criteria, or to engage in regular practice in other practice areas.

Denning, Peter J., and Robert Dunham. 2006. "Innovation as Language Action." *Communications of the ACM* 49 (5): 47–52. https://doi.org/10.1145/1125944.1125974 .

Agenda

A. Situated Learning + History-making

- Legitimate Peripheral Participation + Practices (Lave, Wenger)
- Skill Acquisition + Disclosing New Worlds (Dreyfus, Spinosa)

B. Commitment + Language-Action Perspective

- Conversations for Action (Flores)
- Deliverables, procedures, capacities, relationships

C. Argumentation + Pattern Language

- IBIS (Rittel), Timeless Way of Building (Alexander)
- Architectural Programming c.f. Designing

[postscript] (Open) Innovation Learning

- Quality-generating sequencing; Affordances wayfaring; Anticipatory appreciating
- Innovation learning for; Innovation learning by; Innovation learning alongside

The fable of the chicken and the pig asks whether parties offer (i) a mere *contribution*, or (ii) a total *commitment*

A pig and a chicken, alleges W. R. Grady, were promenading down a Fort Worth thoroughfare when the chicken suddenly proposed,

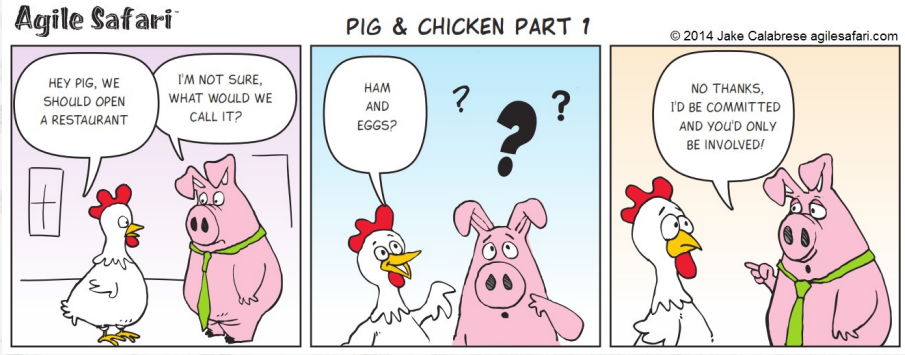
"Let's stop in at yonder beanery and **eat some ham and eggs**."

"A thoughtless and repugnant suggestion," was the pig's reaction.

"Kindly remember that for you a dish of that sort is a **mere contribution**.

For me it means a **total commitment**."

Source: Bennett Cerf, October 1964 (published in many American newspapers, syndicated by King Features)



strategy+business

THOUGHT LEADERS | November 24, 2009 / Winter 2009 / Issue 57 (originally published by Booz & Company)

Fernando Flores wants to make you an offer

Having moved from political prisoner to cognitive scientist to Chilean senator, this uncompromising philosopher of communication is now educating business leaders for the world of social media.

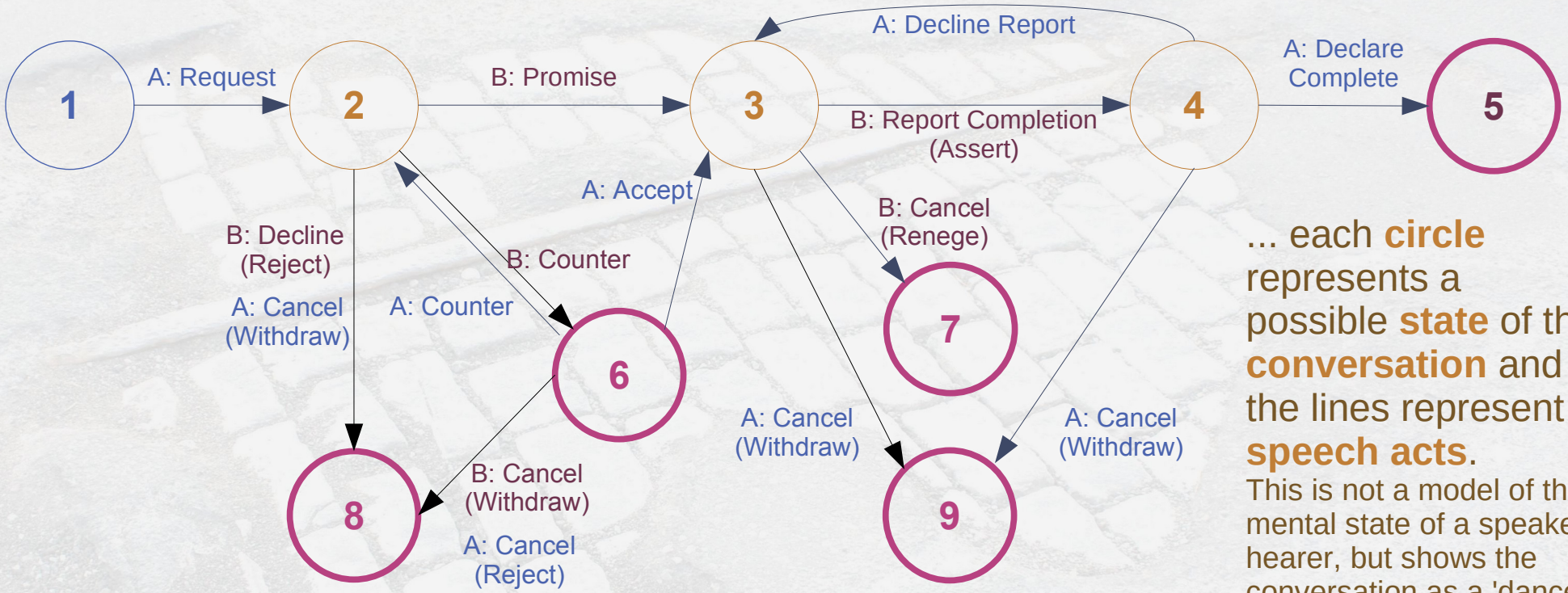
Spend any time with Fernando Flores and he will *assess* you. He may make an *offer*, which you are free to *accept* or *decline*. If you accept, he will make a *commitment* to fulfill his *promise*. These simple words, or "speech acts," form the vocabulary of a set of practices that he has deployed across three continents. Their purpose is to help organizations realize improvements in productivity, coordination, and culture — by codifying and making effective the directives and agreements at the core of business conversation.

Call it "commitment-based management," "conversations for action," or "ontological design"; Flores has used all three terms, never quite settling on a single name for his special blend of philosophy, neuroscience, and linguistics. His ideas may be rooted in dense texts most people don't touch outside grad school, but companies as diverse as IBM, ABB, and the Mexican construction materials giant Cemex have found Flores's insights quite useful in practice.

At the heart of Flores's work is the realization that most communication between individuals consists not of pure information, but of prompts for action. This concept was first articulated by Cambridge University professor J.L. Austin in a series of lectures published posthumously in 1962 as *How to Do Things with Words*. Just in the act of saying something, Austin proposed, people can create tangible change, as when the starter at a race shouts "Go!"

Flores adds that by using language deliberately, a person can consciously shape his or her future — not in some fuzzy New Age sense, but on the more pragmatic level of constructing possibilities by giving voice to them. "Will you marry me?" opens

Conversations for action are interplays of requests and commissives towards explicit cooperative action



... each **circle** represents a possible **state** of the **conversation** and the lines represent **speech acts**.

This is not a model of the mental state of a speaker or hearer, but shows the conversation as a 'dance.'

Winograd, Terry. 1986. “A Language/Action Perspective on the Design of Cooperative Work.” In *Proceedings of the 1986 ACM Conference on Computer-Supported Cooperative Work*, 203–20. Austin, Texas: ACM. https://doi.org/10.1145/637069.637096 , posted at http://hci.stanford.edu/winograd/papers/language-action.html

Winograd, Terry, and Fernando Flores. 1986. *Understanding Computers and Cognition: A New Foundation for Design*. Norwood, NJ: Ablex.

Interactions between language and action are linked through *directives* and *commissives*

From a **language/action perspective** we say that **People act through language**.
As a contrast, consider the more **predominant perspective** that **People process information and make decisions**.
Of course everyone in an organization can be described as doing both, but there is a difference of focus.

If we examine the basic issues underlying the questions, "**What do people do in an office?**" and "**What is communication in an office?**" we find that the questions are not truly different. Our **theory of commitments and conversations** allows us to give an answer to these questions that provides guidelines for examining the work in an office or organization.

Let us use the insights gained into the relationship between commitments and action to analyze organizations. For this purpose we make the following assertions:

Organizations exist as **networks** of **directives** and **commissives**.

Break-downs will inevitably occur and organizations need to be prepared for them. In the process of coping with break-downs, **whole new networks** of directives and commissives are triggered.

The process of **division of labor** may be considered a cultural heritage of ways to **cope successfully with anticipated break-downs**. This has been a constant concern for managers.

Winograd, Terry. 1986. “A Language/Action Perspective on the Design of Cooperative Work.” In *Proceedings of the 1986 ACM Conference on Computer-Supported Cooperative Work*, 203–20. Austin, Texas: ACM. https://doi.org/10.1145/637069.637096 , posted at http://hci.stanford.edu/winograd/papers/language-action.html

Fernando Flores and Juan J. Ludlow. 1980. *Doing and speaking in the office*. Decision Support Systems: Issues and Challenges, Proceedings of an International Task Force Meeting, IIASA, June 23-25, 1980, pp. 102-103.

An emphasis on conversations for action recognizes conversations for orientation, possibilities and clarification

There is no sharp line between [types of conversation], but they are accompanied by different moods.

In a ***conversation for orientation***, the mood is one of creating a shared background as a basis for future interpretation of conversations. This shared background includes specific knowledge, interpersonal relations, and general attitudes.

The most obvious examples are meetings labelled orientation, in which newcomers begin to develop the understanding that is required to function in the organization. Conversations for orientation are prominent in less formal settings (shooting the bull). Although the mood here is not directed towards action, it is important to recognize the importance of developing mutual orientation as the basis for future effective action and for appropriately shared interpretation of language acts.

In a ***conversation for possibilities***, the mood is one of **speculation**, anticipating the subsequent generation of conversations for action. Specific conditions of satisfaction will emerge in the course of the conversation, and associated conversations for action will be initiated.

Many gatherings that are called meetings are best conducted in this mood. The meeting is a failure if some action does not come out of the discussion. Some conversations for possibilities are highly routinized. For example, work rounds on a hospital ward is a routine conversation for possibilities, during which the medical team visits each patient and specific requests and commitments are generated.

In a ***conversation for clarification*** the participants cope with or anticipate **breakdowns concerning interpretations of the conditions of satisfaction** for a CfA. The conditions are always interpreted with respect to an implicit shared background, but the sharing is partial and needs to be negotiated.

As a simple example, the request “Give the patient some diazine” might evoke responses such as “Right now, or with the morning meds?” or “What dosage?” One can never guarantee that everything is totally precise. Precision is relative to each party’s implicit anticipation that the other party will have a sufficiently shared background to carry out the action in a satisfactory way.p

Winograd, Terry. 1986. “A Language/Action Perspective on the Design of Cooperative Work.” In *Proceedings of the 1986 ACM Conference on Computer-Supported Cooperative Work*, 203–20. Austin, Texas: ACM. https://doi.org/10.1145/637069.637096 , posted at http://hci.stanford.edu/winograd/papers/language-action.html

Sense-and-respond (Adaptive Enterprise) sees an alternative to command-and-control, where parties can structure action as *who owes what to whom*

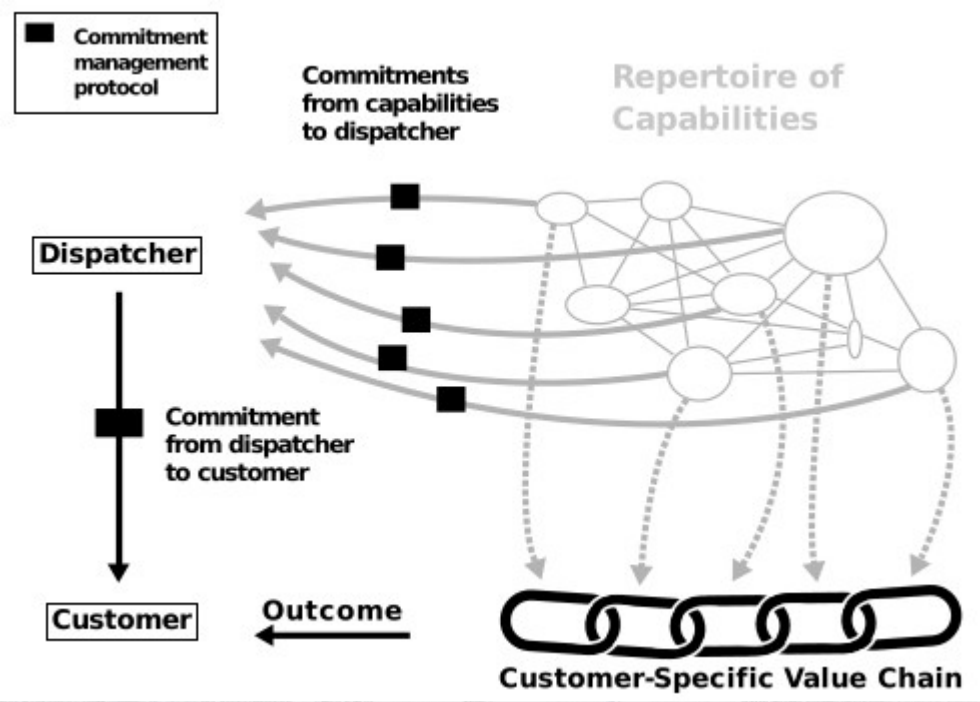


Figure 8.2 Creating a Customer-Specific Value Chain

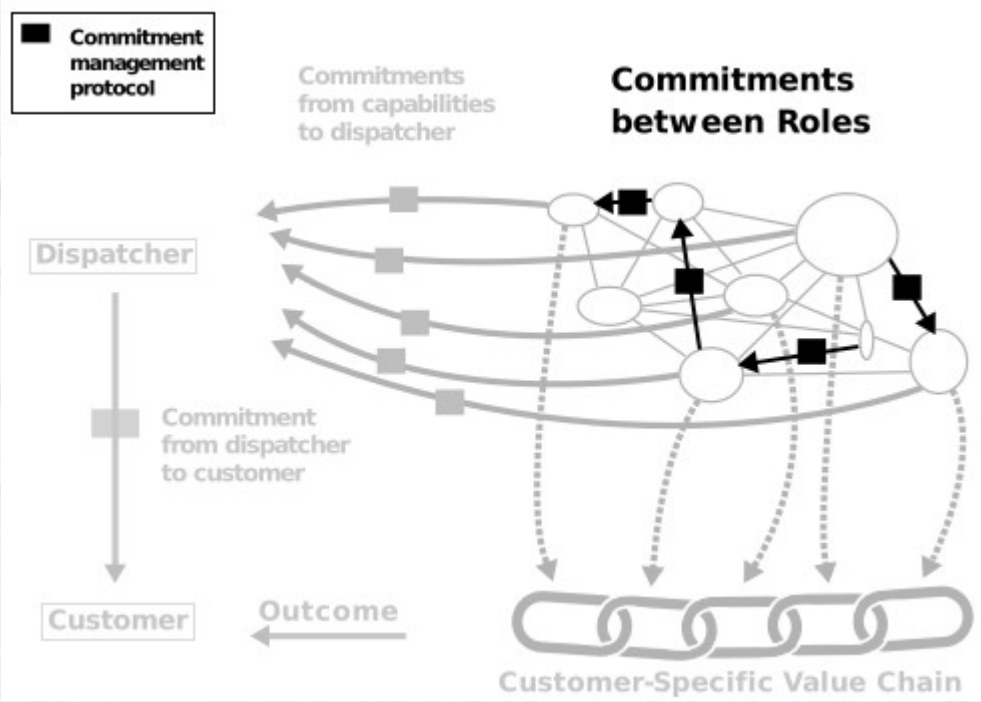
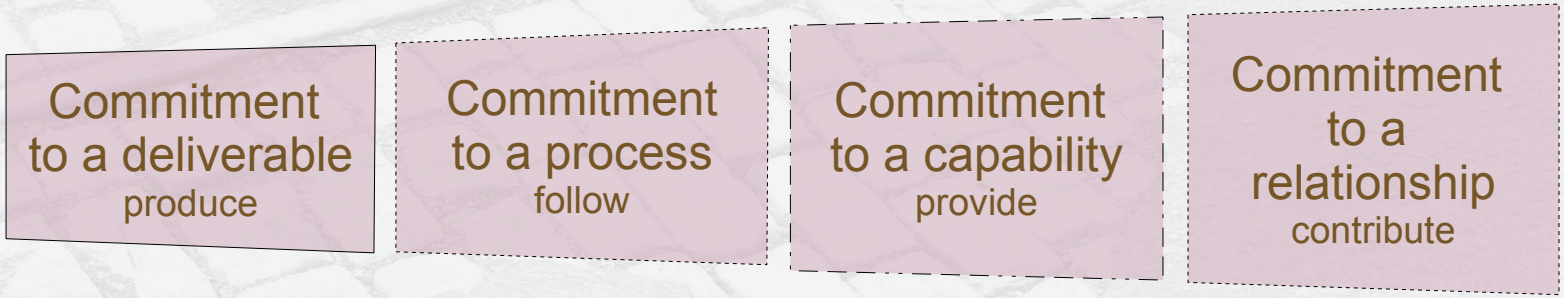


Figure 8.3 Establishing "Who Owes What to Whom"

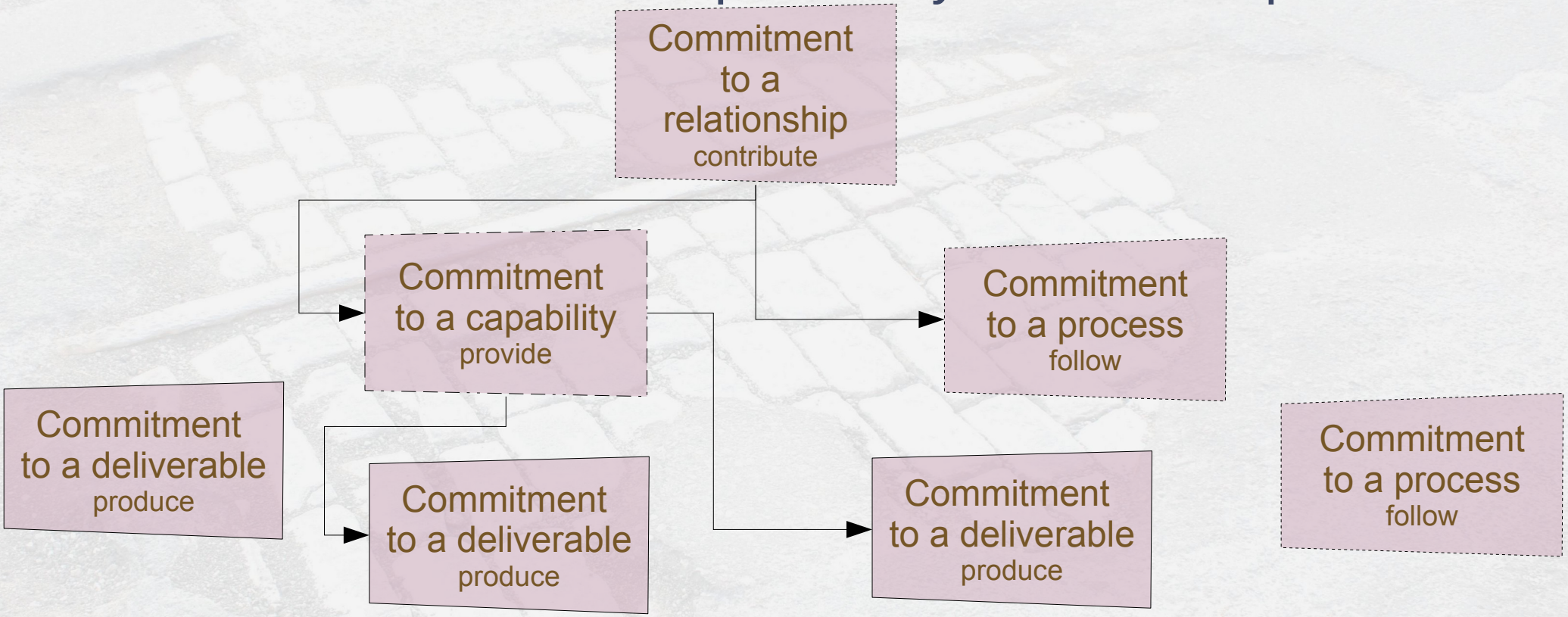
Haeckel, Stephan H. 1999. *Adaptive Enterprise: Creating and Leading Sense-and-Respond Organizations*. Boston, MA: Harvard Business School Press.

Obligations can be formalized as commitments to deliverables, process and/or relationships (at least)



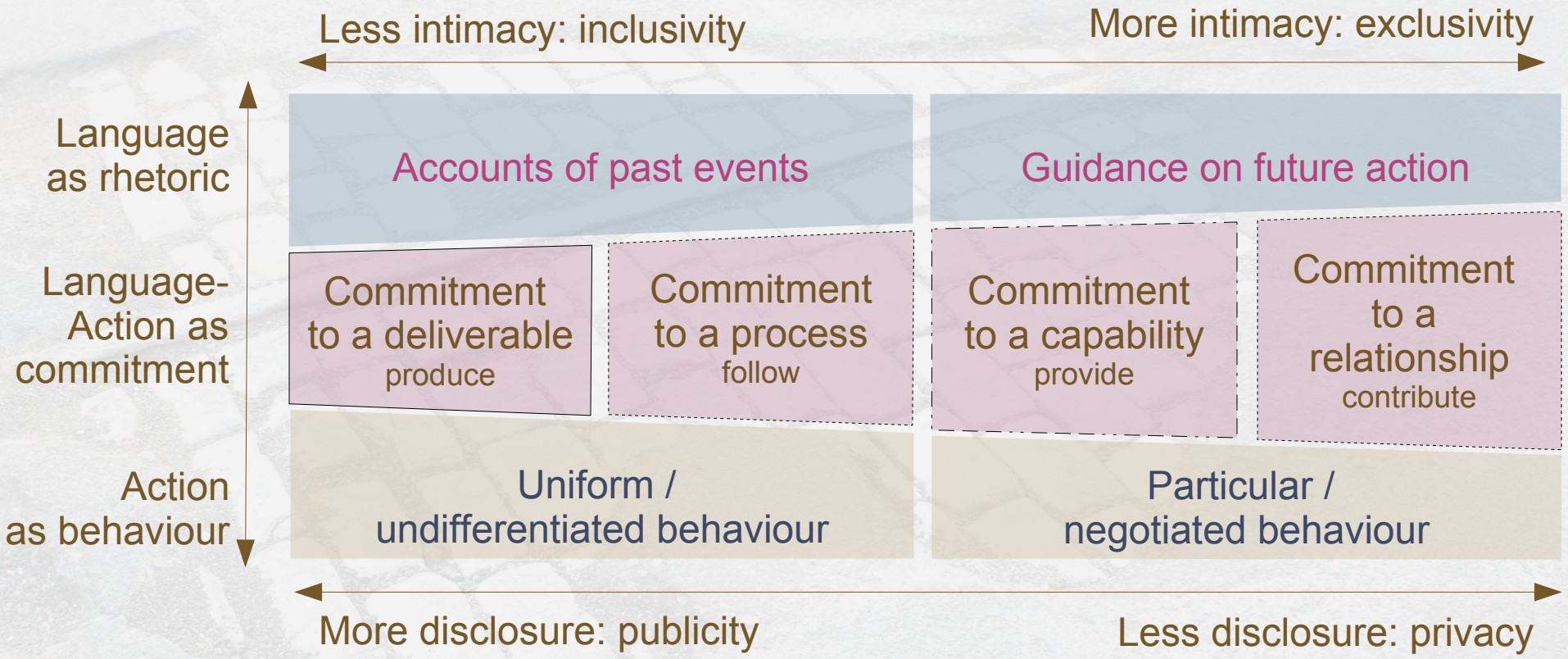
Ing, David. 2008. “Offerings as Commitments and Context: Service Systems from a Language Action Perspective.” In *Proceedings of the 12th International Conference of the UK System Society*. Oxford, UK.

Commitments can be explicitly linked upstream or downstream, and can be impacted by the unanticipated



Ing, David. 2008. "Offerings as Commitments and Context: Service Systems from a Language Action Perspective." In *Proceedings of the 12th International Conference of the UK System Society*. Oxford, UK.

Commitments occur in contexts of language decoupled from action, and action decoupled from language



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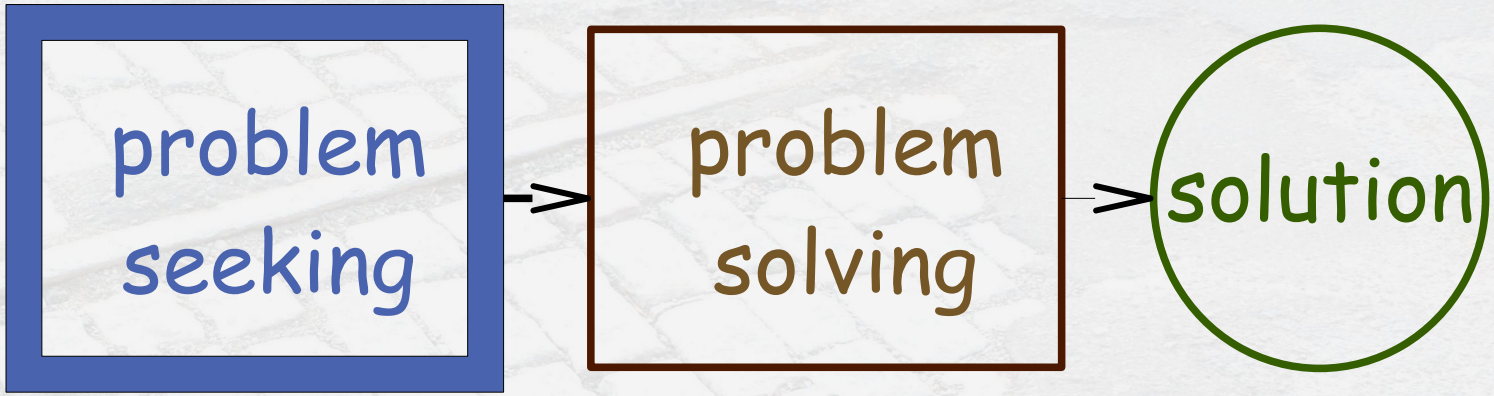
In 1969, problem seeking was *architectural programming*, and problem solving was *design*

Programming is a specialized and often misunderstood term. It is "*a statement of an architectural problem* and the requirements to be met in offering a solution. While the term is used with other descriptive adjectives such as *computer* programming, *educational* programming, *functional* programming, etc., in this report, programming is used to refer only to architectural programming.

Why programming? The client has a project with many unidentified sub-problems. The architect must define the client's total problem.



Design is problem solving; programming is problem seeking. The end of the programming process is a statement of the total problem; such a statement is the element that joins programming and design. The "total problem" then serves to point up constituent problems, in terms of four considerations, those of form, function, economy and time. The aim of the programming is to provide a sound basis for effective design. The State of the Problem represents the essense and the uniqueness of the project. Furthermore, it suggests the solution to the problem by defining the main issues and giving direction to the designer (Pena and Focke 1969, 3).

At Berkeley: Churchman, Rittel and Alexander taught in 1960-1970s

C. West Churchman (1913-2004)

- 1957 joined Berkeley, graduate programs in OR at School of Business Administration
- 1964-1970 Associate Director and Research Philosopher, Space Sciences Laboratory
- 1981-1994 retired, taught Peace & Conflict Studies

Horst Rittel (1930-1990)

- 1963 Berkeley College of Environmental Design
- 1974 both Berkeley and University of Stuttgart

Christopher Alexander (1936 -)

- 1963 Berkeley College of Environmental Design
- 1967 cofounder Center for Environmental Structure
- 1998 retired from university

Both Alexander and Rittel were part of what at the time was called the 'design methods' movement in architecture, worked and taught in the same building, and did talk and were seen walking off to have lunch together. Churchman was teaching in the Business School a few minutes down on the way to the center of campus.

- *Thor Mann*
  (posted April 17, 2017)

“Dilemmas in a General Theory of Planning”, (Rittel + Weber, 1973)

The kinds of problems that planners deal with -- societal problems – are inherently different from the problems that scientists and perhaps some classes of engineers deal with.

Planning problems are inherently wicked.

The problems that scientists and engineers have usually focused upon are mostly "**tame**" or "**benign**" ones.

As an example, consider a problem of mathematics, such as solving an equation; or the task of an organic chemist in analyzing the structure of some unknown compound; or that of the chessplayer attempting to accomplish checkmate in five moves.

For each the mission is clear.

It is clear, in turn, whether or not the **problems** have been solved.

Wicked problems, in contrast,
have neither of
these clarifying traits; and
they include
nearly all public policy issues –
whether the **question** concerns the
location of a freeway,
the adjustment of a tax rate,
the modification of school curricula,
or the confrontation of crime.

There are at least **ten distinguishing properties** of planning-type problems, i.e. wicked ones ... We use the term “wicked” in a meaning akin to that of “malignant” (in contrast to “benign”) or “vicious” (like a circle) or “tricky” (like a leprechaun) or “aggressive” (like a lion, in contrast to the docility of a lamb).

Horst WJ Rittel, and Melvin M. Webber. 1973. “Dilemmas in a General Theory of Planning.” *Policy Sciences* 4 (2): 155–169. https://doi.org/10.1007/BF01405730.

Ten distinguishing properties of planning-type (wicked) problems (#1 - #5)

	Tame (benign) problems	*Wicked (malignant) problems*
1.	An **exhaustive formulation** can be stated containing all the information needed for understanding and solving the problem	There is **no definitive formulation** of a wicked problem.
2.	There are **criteria** that tell when *the* or *a* **solution has been found**.	Wicked problems have **no stopping rule**.
3.	There are conventionalized **criteria for objectively deciding** whether the offered solution is correct or false.	Solutions to wicked problems are not true-or-false, but **good or bad**.
4.	One can determine on the spot **how good a solution-attempt** has been.	There is no immediate and **no ultimate test** of a solution to a wicked problem
5.	The problem-solver can try various **experimental runs** without penalty.	Every solution to a wicked problem is a "**one-shot operation**"; because there is no opportunity to learn by trial and error, every attempt counts significantly.

Ten distinguishing properties of planning-type (wicked) problems (#6 - #10)

	Tame (benign) problems	*Wicked (malignant) problems*
6.	There are **criteria** which enable **proof** that **all solutions** have been **identified and considered**.	Wicked problems **do not have an enumerable** (or an exhaustively describable) **set of potential solutions**, nor is there a well-described.
7.	There might be **important classes** to know which type of solution to apply.	Every wicked problem is **essentially unique**.
8.	Small steps lead to overall improvement, through **incrementalism**.	Every wicked problem can be considered to be a **symptom of another problem**.
9.	Rules or procedures can determine the **"correct" explanation** or combination of them.	The existence of a **discrepancy** representing a wicked problem **can be explained in numerous ways**. The choice of explanation determines the nature of the problem's resolution.
10.	Science does **not blame** for postulating hypotheses that are later **refuted**.	The social planner has **no right to be wrong** (i.e., planners are liable for the consequences of the actions they generate)

Rittel's approach was IBIS: Issues-Based Information Systems

Issue-Based Information Systems (IBIS) are meant to support coordination and planning of political decision processes.

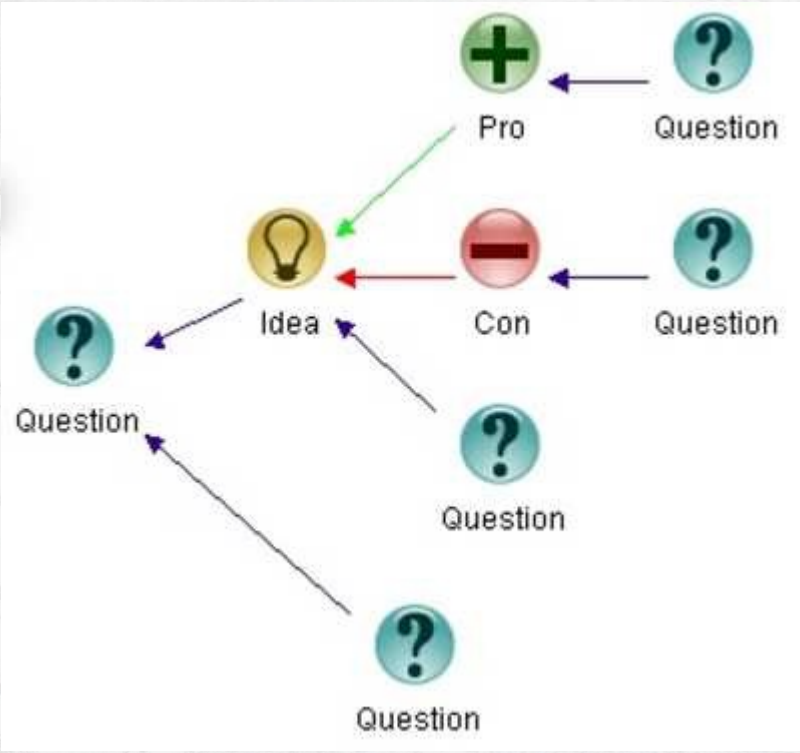
•IBIS guides the …

- **identification**,
- **structuring** and
- **settling** of issues

raised by problem-solving groups, and provides information pertinent to the discourse.

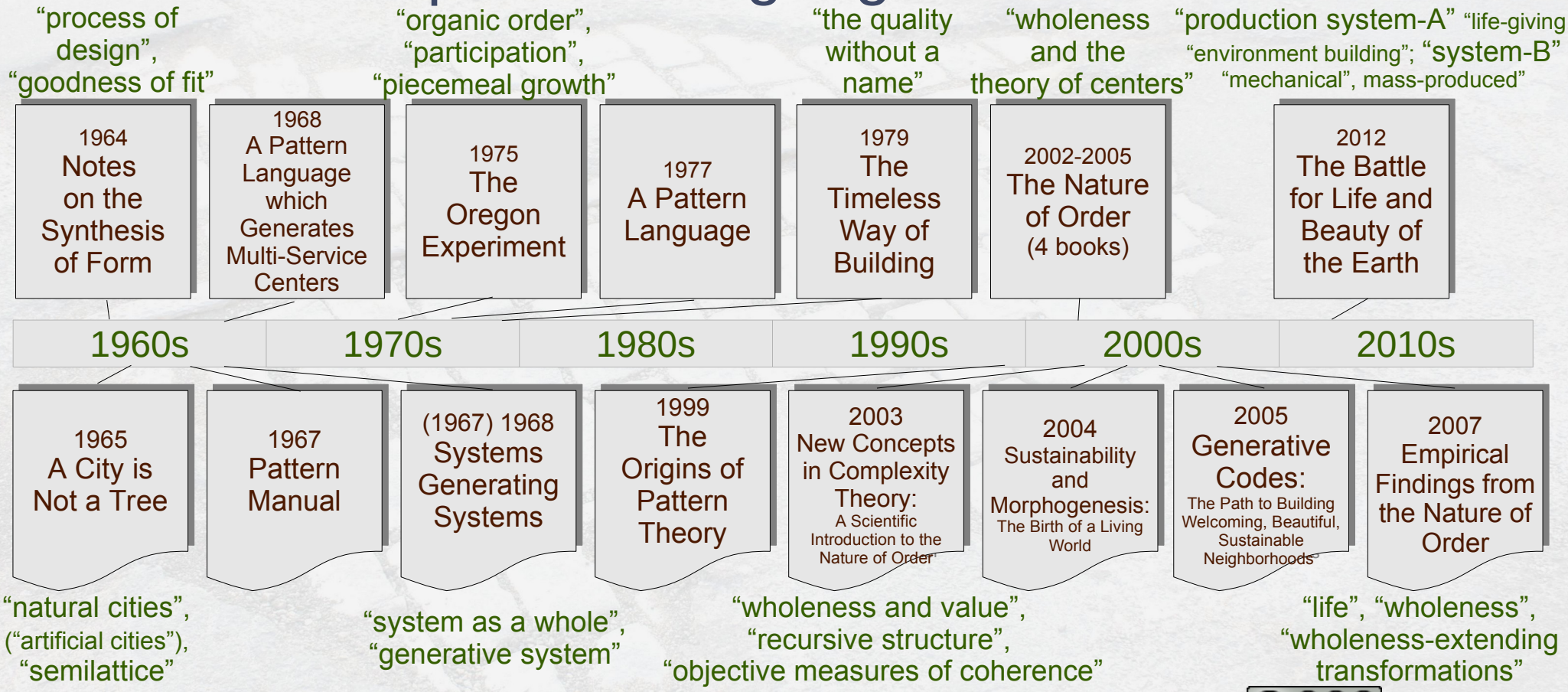
Elements of the system are

- **topics**,
- **issues**,
- **questions of fact**,
- **positions**,
- **arguments**, and
- **model problems**.



Werner Kunz and Horst WJ Rittel. 1970. *Issues as Elements of Information Systems*. Vol. 131. Institute of Urban and Regional Development, University of California, Berkeley.

Over 50 years, Christopher Alexander and coauthors evolved concepts and language in built environments



The outline of a pattern format was described at the chartering of the *Center for Environment Structure* in 1967

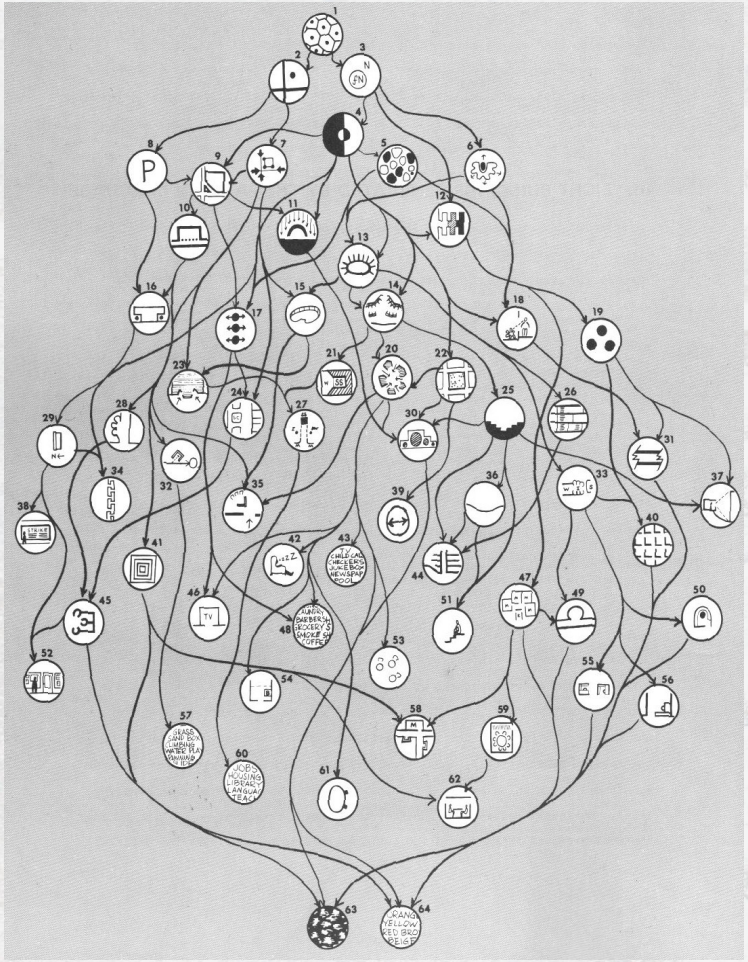
Every time a designer creates a pattern (or, for that matter, entertains any idea about the physical environment), he essentially goes through a three-step process.

He considers a PROBLEM, invents a PATTERN to solve the problem, and makes mental note of the range of CONTEXTS where the pattern will solve the problem. [….]

The format says that whenever a certain **CONTEXT** exists, a certain **PROBLEM** will arise; the stated **PATTERN** will solve the **PROBLEM** and there should be provided in the **CONTEXT**.

While it is not claimed that the PATTERN specified is the only solution to the PROBLEM, it is implied that unless the PATTERN or an equivalent is provided, the PROBLEM will go unsolved (Alexander, Ishikawa, & Silverstein, 1967, pp. 1–4).

Pattern language intends to give 3 types of help



1. It gives him the opportunity to use the patterns in the way which pays full respect to the **unique features** of each special building: the local peculiarities of the community, its special needs …

2. It tells him which patterns to consider **first,** and which ones to consider **later**. Obviously he wants to consider the **biggest ones** … before he considers the **details**.

3. It tells him which patterns "**go together**" … so that he knows which ones to think about at the same time, and which ones separately (Alexander et al., 1968, pp. 17–19).

Try who+what, how+why, where+when, containing, contained

(i) Pattern label	Tapping into the grapevine	Signing in for services	Minding children
	◊ ◊ ◊	◊ ◊ ◊	◊ ◊ ◊
(ii) Voices on issues (who and what)	(a) For a client, what jobs and training are available? (b) For a neighbour, in what ways can we share and update community news?	(a) For a client, what services are available to me, now and on appointment? (b) For a parent, what do I do with my kids while I'm busy? (c) For a child, what can I do while my parent is at the MSC?	
(iii) Affording value(s) (how and why)	Displaying up-to-date news and local information, so that individuals can know ways to independently act. Adding, revising and moderating community contributions so that individual and authoritative viewpoints are balanced.	Matching client needs with MSC resources, so that holistic treatments are received. Triaging and scheduling so that urgent cases are prioritized, and wait times are tolerable	Leaving a child at a supervised play area so that whereabouts are known. Availing distractions for toddlers through teens, so that coming with parents is less of a chore
(iv) Spatio-temporal frames (where and when)	Access to information onsite MSC for clients who don't have devices, and on the open Internet for the public	On demand lookups of trending and prior MSC busy and slow periods transparently visibie onsite and on the Internet, enabling clients to adjust and/or rebook	Facilities and programs are known both to children and parents in advance of appointments
	◊ ◊ ◊	◊ ◊ ◊	◊ ◊ ◊
(v) Containing systems (slower and larger)	For municipal, regional and national agencies, are community health and social services in their jurisdictions well provide?		For extended family, schools and community workers, what personal responsibilities inhibit service engagement?
vi) Contained systems (faster and smaller)	For neighbours in mutual support, friends and family ties, who should know about news?	For friends or assistants speaking on behalf or interpreting for a client, is the situation understood?	For other parents at the MSC at the same time, would you look after my kids like I look after yours?

Minding children: who+what, how+why, where+when, containing, contained

(i) Pattern label	Minding children
	◊ ◊ ◊
(ii) Voices on issues (who and what)	(a) For a client, what services are available to me, now and on appointment? (b) For a parent, what do I do with my kids while I'm busy? (c) For a child, what can I do while my parent is at the MSC?
(iii) Affording value(s) (how and why)	Leaving a child at a supervised play area so that whereabouts are known. Availing distractions for toddlers through teens, so that coming with parents is less of a chore
(iv) Spatio-temporal frames (where and when)	Facilities and programs are known both to children and parents in advance of appointments
	◊ ◊ ◊
(v) Containing systems (slower and larger)	For extended family, schools and community workers, what personal responsibilities inhibit service engagement?
(vi) Contained systems (faster and smaller)	For other parents at the MSC at the same time, would you look after my kids like I look after yours?

Alexandrian format mapped to proposed service systems thinking

Format for service systems thinking	
(i) Pattern label	An interaction phrased as a present participle
(ii) Voices on issues (who and what)	Archetypal roles of stakeholders, with concerns and interests posed as questions
(iii) Affording value(s) (how and why)	Objects and/or events that enable modes of practised capacities for independent or mutual action
(iv) Spatio-temporal frames (where and when)	Occasions at which dwelling in issues and affordances are salient and at hand
(v) Containing systems (slower and larger)	Constraining conditions in which the pattern operates, potentially where multi-issue messes are dissolved
(vi) Contained systems (faster and smaller)	Opportunistic conditions which the pattern contains, potentially allowing ad hoc resolving of a specific issue at hand

All architecture is design, but not all design is architecture

Architectural thinking as
shaping the structure of the environment ...

Living systems are *autopoietic*,
self-organizing and self-generating;

assembly lines are *allopoietic*,
externally-organizing and externally-generating.

Design thinking as
divergent steps (i.e. creating choices) and
convergent steps (i.e. making choices)

Architecting and designing? Landscape and taskscape?

As a **noun**, **design** is the named (although sometimes unnamable) **structure or behavior** of an system whose presence resolves or contributes to the **resolution** of a force or **forces** on that system. […]

As a **verb**, **design** is the activity of **making such decisions**. Given a large set of **forces**, a relatively malleable set of **materials**, and a large **landscape** upon which to play, the resulting **decision space** may be large and complex. […]

All architecture is design but not all design is architecture.

Booch, Grady. 2006. "On Design." *Software Architecture, Software Engineering, and Renaissance Jazz* (blog). March 2, 2006. https://web.archive.org/web/20160213001803/https://www.ibm.com/developerworks/community/blogs/gradybooch/entry/on_design.

Architectural thinking as shaping the structure of the environment ...

The landscape is **not 'space'**.

… the **landscape** is the **world** as it is known to those who **dwell therein**, who **inhabit** its places and **journey** along the paths connecting them.

[**Temporality**] is **not chronology** ... and it is **not history** ….
I shall adopt the term **'task'**, defined as **any practical operation**, carried out by a **skilled agent in an environment**, as part of his or her **normal business of life**.

It is to the entire **ensemble of tasks**, in their **mutual interlocking**, that I refer by the concept of ***taskscape***.

Design thinking as divergent steps (i.e. creating choices) and convergent steps (i.e. making choices)

Ingold, Tim. 2000. "The Temporality of the Landscape." In *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*, 189–208. Routledge.

A *mess* (or *problématique*) is a system of problems

The **optimal solution** of a model is not an optimal solution of a problem unless the model is a **perfect representation** of the problem. Therefore, in testing a model and evaluating solutions derived from it, the model itself should not be used to determine the relevant comparative performance measures.

All **models** are **simplifications of reality**. If this were not the case, their **usefulness** would be diminished. Therefore, it is critical to determine how well they represent reality.

… what the French call a ***problématique*** and I call a ***mess*** … is a **complex** and highly **dynamic system of interacting problems**.

Problems are elements abstracted from messes; therefore, problems are to messes what atoms are to planets. There is an important systems principle, familiar to all of you, that applies to messes and problems: that **the sum of the optimal solutions to each component problem considered separately is not an optimal solution to the mess**. This follows from the fact that the behavior of the mess depends more on how the solutions to its component problems interact than on how they act independently of each other.

The treatment of messes requires **more than problem solving**; it requires planning. Planning should consist of the design of a desirable future and invention or selection of ways of getting there. Therefore, it is **more** a matter of **synthesis**, of **design** and **invention** than it is of analysis, of programming and budgeting.

Ackoff, Russell L. 1977. “Optimization + Objectivity = Optout.” *European Journal of Operational Research* 1 (1): 1–7. https://doi.org/10.1016/S0377-2217(77)81003-5.

Dealing with the mess by (i) resolving, (ii) solving; (iii) dissolving; or (iv) absolving?

Resolving to a prior

Resolution is an experientially based (clinical) process based on qualitative judgments and common sense.

It looks for ‘‘satisficing’’ outcomes, ones that are good enough, not necessarily optimal.

Problem resolving has been and still is the principal method used by managers to deal with problems.

Solving for the optimal

Problem solution involves analysis, research employing quantitative methods seeking optimal outcomes.

Unfortunately, as conditions change, problems frequently do not remain solved or resolved but reappear, and usually in more complex forms.

Furthermore, every solution and resolution generates new problems, ones that tend to be more complex than the ones solved or resolved.

Dissolving to eliminate

Problem dissolution consists of redesign of the system that has the problem or its environment in such a way as to eliminate the problem, precluding the possibility of its reappearance.

Design is to synthetic thinking what scientific research is to analytic thinking.

Absolving (to nature?)

Absolution occurs when a problem is ignored with the hope that it will solve itself or fade away.

Problem resolution always absolves itself from some aspects of problems in order to ‘‘cut it down to size’’, to simplify it.

Problem solution always involves resolving and absolving some aspects of the problem that do not lend themselves to quantification.

Ackoff, Russell L. 2001. “OR: After the Post Mortem.” *System Dynamics Review* 17 (4): 341–46. https://doi.org/10.1002/sdr.222.

Complicated systems are rare; complex systems are the norm

The following is possibly the golden rule for distinguishing 'complex' from 'complicated' problems and systems.

Complicated problems
originate from **causes** that can be **individually distinguished**;
they can be **addressed piece-by-piece**;
for **each input** to the system there is a **proportionate output**;
the relevant systems can be **controlled** and
the problems they present admit **permanent solutions**.

… **complex problems and systems**
result from networks of **multiple interacting causes** that cannot be individually distinguished;
must be **addressed as entire systems**,
that is they cannot be addressed in a piecemeal way;
they are such that **small inputs** may result in **disproportionate effects**;
the problems they present **cannot be solved once and for ever**,
but require to be systematically managed and typically **any intervention merges into new problems** as a result of the interventions dealing with them; and
the **relevant systems cannot be controlled** ...

... decision-makers ask their consultants ... to **treat complex problems as if they were complicated** ones. Complexity and the nature of contemporary science show that the claim to 'solve' (complex) problems is often ungrounded. **'Learning to dance**' with a complex system is definitely **different from 'solving' the problems** arising from it.

Poli, Roberto. 2013. "A Note on the Difference Between Complicated and Complex Social Systems." *Cadmus Journal* 2 (1). http://www.cadmusjournal.org/node/362.

Agenda

A. Situated Learning + History-making
- Legitimate Peripheral Participation + Practices (Lave, Wenger)
- Skill Acquisition + Disclosing New Worlds (Dreyfus, Spinosa)

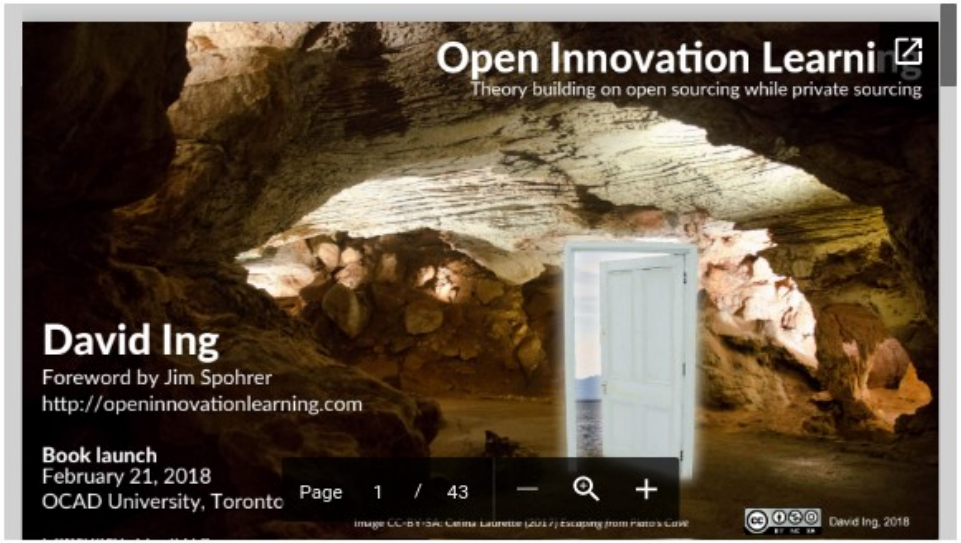
B. Commitment + Language-Action Perspective
- Conversations for Action (Flores)
- Deliverables, procedures, capacities, relationships

C. Argumentation + Pattern Language
- IBIS (Rittel), Timeless Way of Building (Alexander)
- Architectural Programming c.f. Designing

[postscript] (Open) Innovation Learning
- Quality-generating sequencing; Affordances wayfaring; Anticipatory appreciating
- Innovation learning for; Innovation learning by; Innovation learning alongside

View the book launch slides

The book launch on February 21, 2018, was coordinated with the monthly Systems Thinking Ontario meeting at OCAD University. The event was promoted on Eventbrite.



Get the book

Open Innovation Learning: Theory-building on open sourcing while private sourcing, CC-BY-SA 2017, 2018 David Ing; preface by Jim Spohrer.

Three *descriptive theory building* streams are alongside 3 *paradigms*

Paradigm:
Architectural problem seeking

Theory building:
Quality-generating sequencing

Paradigm:
Inhabiting disclosive spaces

Theory building:
Affordances wayfaring

Paradigm:
Governing subworlds

Theory building:
Anticipatory appreciating

With *architectural problem solving*, a theory of *quality-generating sequencing*

Theory building:

Quality-generating sequencing

- Generative codes (Christopher Alexander)
- Structural quality (elaboration of form as horizontal) vs. dynamical quality (elaboration of organization as vertical)
- Unfolding wholeness over time
- Cross-scale interactions (pacing layers)
- Patterns concerns entailed:
  - Program envisioning
  - Program realizing
  - Program elaborating

Paradigm:

Architectural problem seeking

- Morphogenesis
- Articulating space (dividing into parts, putting together by joints)
- Autopoietic (self-reproducing) or allopoietic (produced by something external to the self)
- Problem-seeking (wicked problems c.f. problem-solving)

With *inhabiting disclosive spaces*, a theory of *affordances wayfaring*

Theory building:

Affordances Wayfaring

- Affordances as complementarity of an animal and its environment, furnishing an invariant meaning
- Wayfaring as embodied experience of living through, around, to and from places
- Attentional in a labyrinth c.f. intentional in a maze)
- Material entities, recognized as boundary objects
- Patterns concerns entailed:
  - Enskilling
  - Equipping
  - Legitimating

Paradigm:

Inhabiting disclosive spaces

- An organized set of practices for dealing with oneself and the world
- Dwelling, dissolving distinctions between occupying and building
- Worlds not shared, as customary skills not appropriate everywhere
- Taskscapes in the temporality of work practices (c.f. dwelling on the land on landscapes)

With *governing subworlds*, a theory of *anticipatory appreciating*

Theory building:

Anticipatory appreciating

- Appreciating model as norm-seeking
  (c.f. rational model of goal-seeking)
- Anticipatory behaviour as changes in a system in the present, caused by events that have not yet happened, but entailed in the future
- Patterns concerns entailed:
  - Judging material reality
  - Judging formal value(s)
  - Judging efficient instrumentality

Paradigm:

Governing subworlds

- Moral syndromes,
  commercial and guardian
- Order regulated by forces
  (within, as self organization;
  without as environmental constraints)
- Subworlds as local elaborations of a commonsense world we share
- Governing as setting and enforcing bounds
  (c.f. managing the conduct of an enterprise or organization)

Normative theory on *Innovation Learning* may guide emerging cases

Innovation Learning with the rise of:

Polycentric Governance

- Deglobalization, Brexit, Trump presidency
- International innovation as:
  - i) complete concentration; or
  - ii) core-periphery concentration; or
  - iii) sequential dispersal; or
  - iv) modularized dispersal; or
  - v) inclusive dispersal.

Innovation Learning with the rise of:

The Internet of Things (IoT)

- Physical world interweaved with actuators, sensors + computational elements through network connectivity
- Smart cities
- Smart homes
- Smart grid
- Smart buildings
- Smart transportation
- Smart health
- Smart industry

Innovation Learning with the rise of:

Cognitive Computing

(Intelligence Augmentation)

- An evolution from
  - mechanical tabulating era (1900s-1940s); to
  - digital programming era (1950s to present); to
  - cognitive era (2011, IBM Watson winning Jeopardy).
- Man-machine symbiosis in cooperative interaction
- Open AI
- Partnership on AI

Three *normative theory building* streams are alongside one *paradigm*

Paradigm:

Co-responsive movement

- Ecological anthropology: getting a grip on the larger world
- Material culture studies: artifacts with physicality + history with associated human beings

Theory building:

Innovation learning **for**

- Enskilling attentionality
- Episteme (know why)

Theory building:

Innovation learning **by**

- Weaving flows in form-giving
- Techne (know how)

Theory building:

Innovation learning **alongside**

- Agencing strands
- Phronesis (know whom, when, where)

Innovation learning for: *enskilling attentionality* as 3 types

Paradigm:

Co-responsive movement

Theory building:

Innovation learning **for**

- Enskilling attentionality
- Episteme (know why)

Type: Proto-learning
- Selecting an alternative in context

Type: Deutero-learning
- Changing the set or sequence of alternatives in contextual change

Type: Trito-learning
- Changing systems of alternatives in meta-contextual change

Innovation learning by: *weaving flows in form-giving* as 3 types

Paradigm:

Co-responsive movement

Theory building:

Innovation learning **by**

- Weaving flows in form-giving
- Techne (know how)

Type: **Learning-by-doing**

- Accumulating experience, in both organizational + personal senses

Type: **Learning-by-making**

- Constructing with sociomaterial creativity, in critical making

Type: **Learning-by-trying**

- Co-configuring architecturally + dialogically, social interaction + technology

Innovation learning alongside: agencing strands as 3 types

Paradigm:

Co-responsive movement

Theory building:

Innovation learning alongside

- Agencing strands
- Phronesis
  (know whom, when, where)

Type: **Polyrhythmia entangling eurhythmia**

- Experience in living beings

Type: **Regenerating entangling preserving**

- Continuity in living nature vs. form

Type: **Less-leading-to-more entangling more-leading-to-more**

- Increasing complicatedness or complexity

Teleonomy learns from teleology in a philosophy with alternative stable states

Teleology:
Goals, objectives, ideals

- Emphasis on *final cause*, of Aristotle's four causes:
  (i) material cause (that out of which);
  (ii) formal cause (the account of what it-is-to-be);
  (iii) efficient cause (the primary source of change or rest);
  (iv) **final cause** (the end, that for the sake of which a thing is done).

Teleonomy:
Environmental change, somatic (cellular) change, genotypic change

- A process or behaviour which owes its goal-directedness to the operation of a program
- Coded or prearranged information that controls a process (or behaviour) leading it toward a given end.

Alternative stable states:
Panarchy, resilience, regime shifts

- From community ecology, changes in state variables (e.g. population densities).
- From ecosystem ecology, changes to the parameters governing interactions within an ecosystem.

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Image CC-BY Mike Cassano (2009) *Most Interesting Pothole*