Interaction Structures Across Communities of Anticipation

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The Theme

- Different communities of knowledge have different ontologies
- The question:
  - The social world consists of many interdependent knowledge communities with their local presents, fully packed with collective memories and expectations. How do such multiple anticipatory communities interact and synchronize their ontological change?

Reason finds difference where it is not; imagination finds similarity where it is not.

Ibn 'Arabī

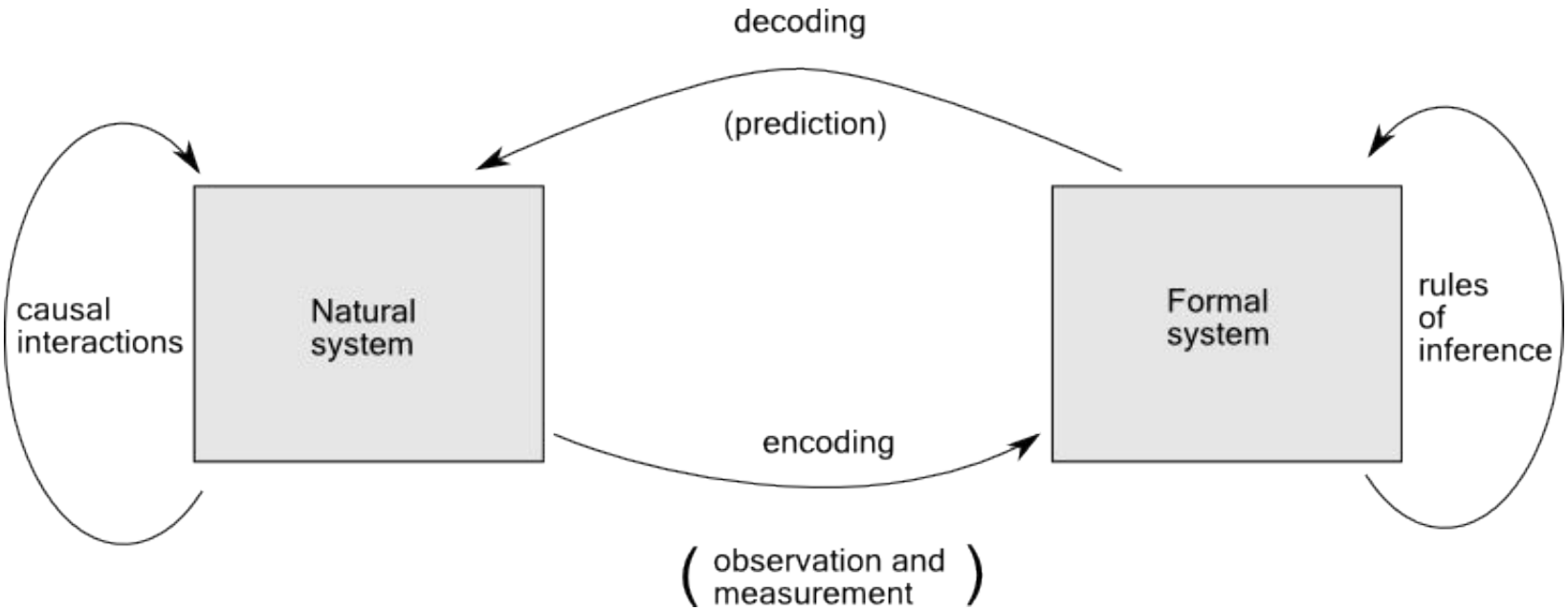
Western epistemology headed into a dead-end by following Aristotle in separating the subject and the object of knowing. That's why Western epistemology will never be able to understand the phenomenon of knowing. The objects of the world are in our mind, and we are in the world. We need a new logic of paradoxes.

Nishida Kitarō

The Starting Point(s)

- We need to talk about learning
  - Anticipation is learning from an imagined portfolio of futures
- We need to talk about knowledge and knowledge creation
  - Knowledge is not about representation: it is capability for effective action. Cognition splices the world into pieces that we can grasp and operate upon (and in the process it produces the mechanical time, says Bergson).
  - It is founded on sedimented meaning structures that link material conditions with cognition and action
  - Material conditions include the affordances of the body, concrete physical infrastructures, and social practices embodied and reflected in artifacts
  - All these evolve, at different time-scales
  - Knowledge is a self-referential collective phenomenon.
  - New personal knowledge emerges at the most dynamic layer of meaning; it becomes social when it starts to organize collective action
- We need to talk about the social infrastructure of knowing

The Modeling Relation



Rosen, R. (1985) Anticipatory Systems. Oxford: Pergamon Press, p. 74.

The Unarticulated Foundation of Knowing

Michael Polanyi:

- "... the functional structure of from-to knowing includes jointly a subsidiary 'from' and the focal 'to'. But this pair is not linked together on their own accord. The relation of a subsidiary to a focus is formed by the *act of a person* who integrated one to the other. The from-to relation lasts only so long as a person, the knower, sustains this integration."
- ..."Such integration cannot be replaced by any explicit mechanical procedure...It can only be lived, can only be dwelt in."

» Polanyi, M. & H. Prosch (1975) Meaning.The University of Chicago Press, pp.38-41.

So, Polanyi accepts the "strong thesis of tacit knowledge." All knowledge rests on tacit foundation. But what, exactly, motivates the person to sustain the from-to relation??

The Social Foundation of Knowing

Deliver us, oh Allah, from the sea of names –Ibn 'Arabī

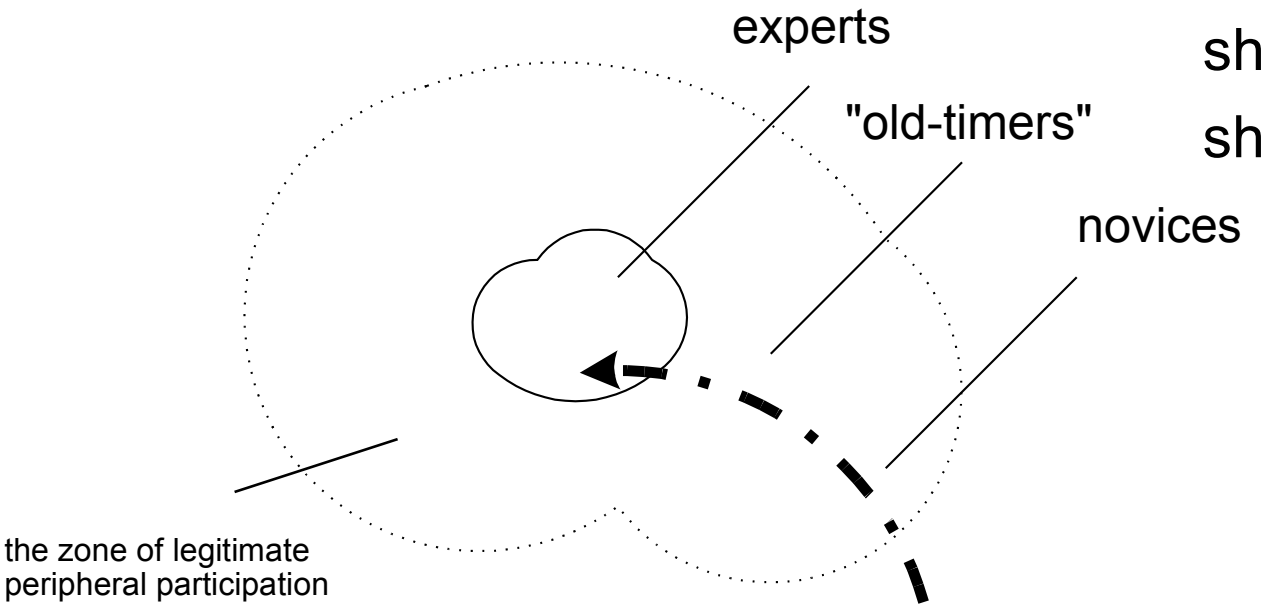
- M. Bakhtin (1930's): linguistic "genres" and "chronotopes"
- L. Fleck (1935): "thought communities"
- D. Schön (1983): "communities of reflective practitioners"
- E. Constant (1980, 1984, 1987): "communities of practice"
- A.N. Leont'ev (1975), Y. Engeström (1987): "activity systems"
- Lave & Wenger (1991): "communities of practice"
- Brown & Duguid (1991, 2000): "communities of practice," "networks of practice"
- Nonaka et al. (1995, 2008) "socialization and "Ba"

Learning in Communities of Knowing

- How to become an expert

Community of practice:

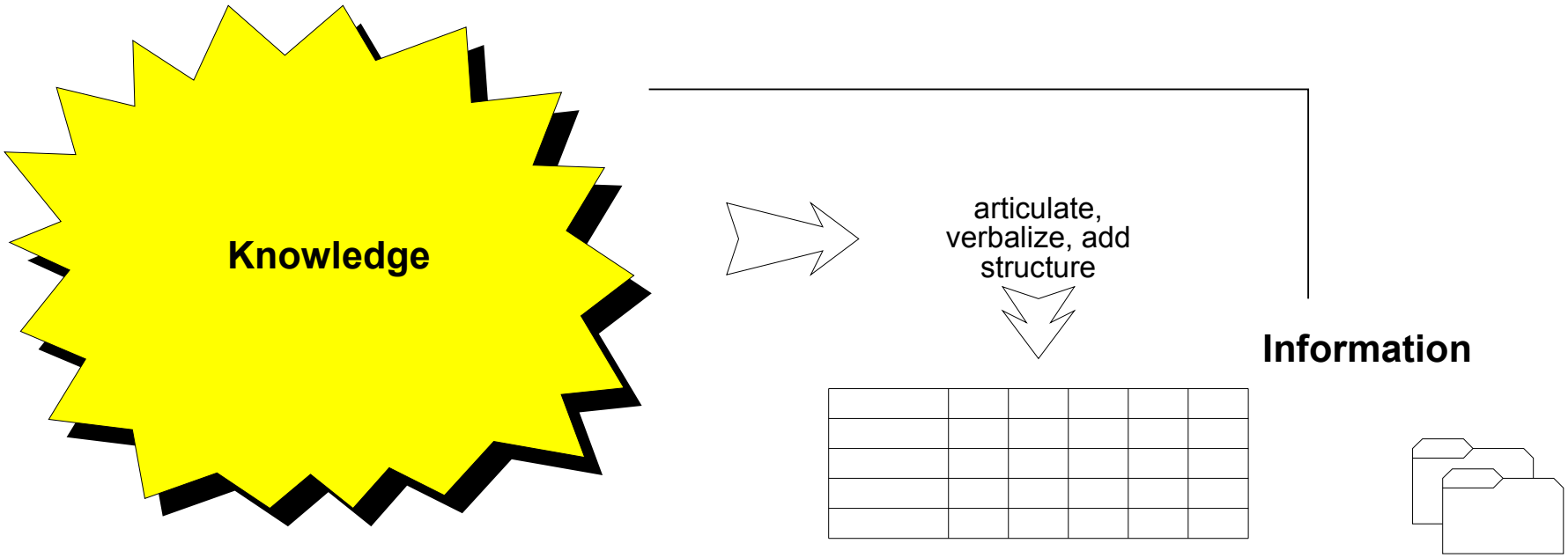
- shared knowledge
- same well-known experts
- shared tools
- shared practices
- shared identity



- An expert is a person who defines what counts as knowledge

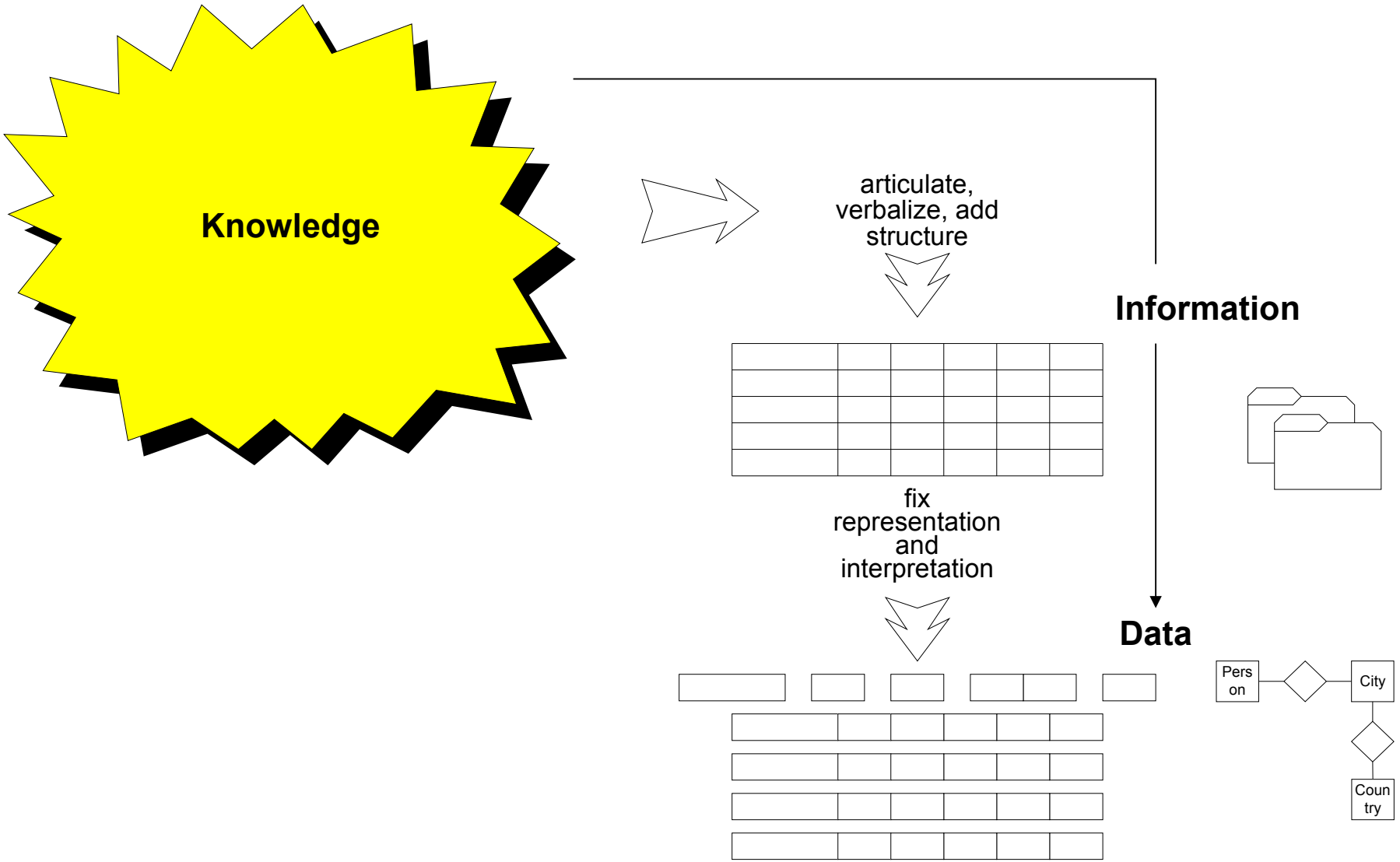
Tuomi, I. (1999) Inside innovation clusters: collective knowledge creation in networks and communities. In: Schienstock & Kuusi (eds.) Transformation Towards a Learning Economy. Helsinki, Sitra, pp.143-57.

Data Is More Than Knowledge



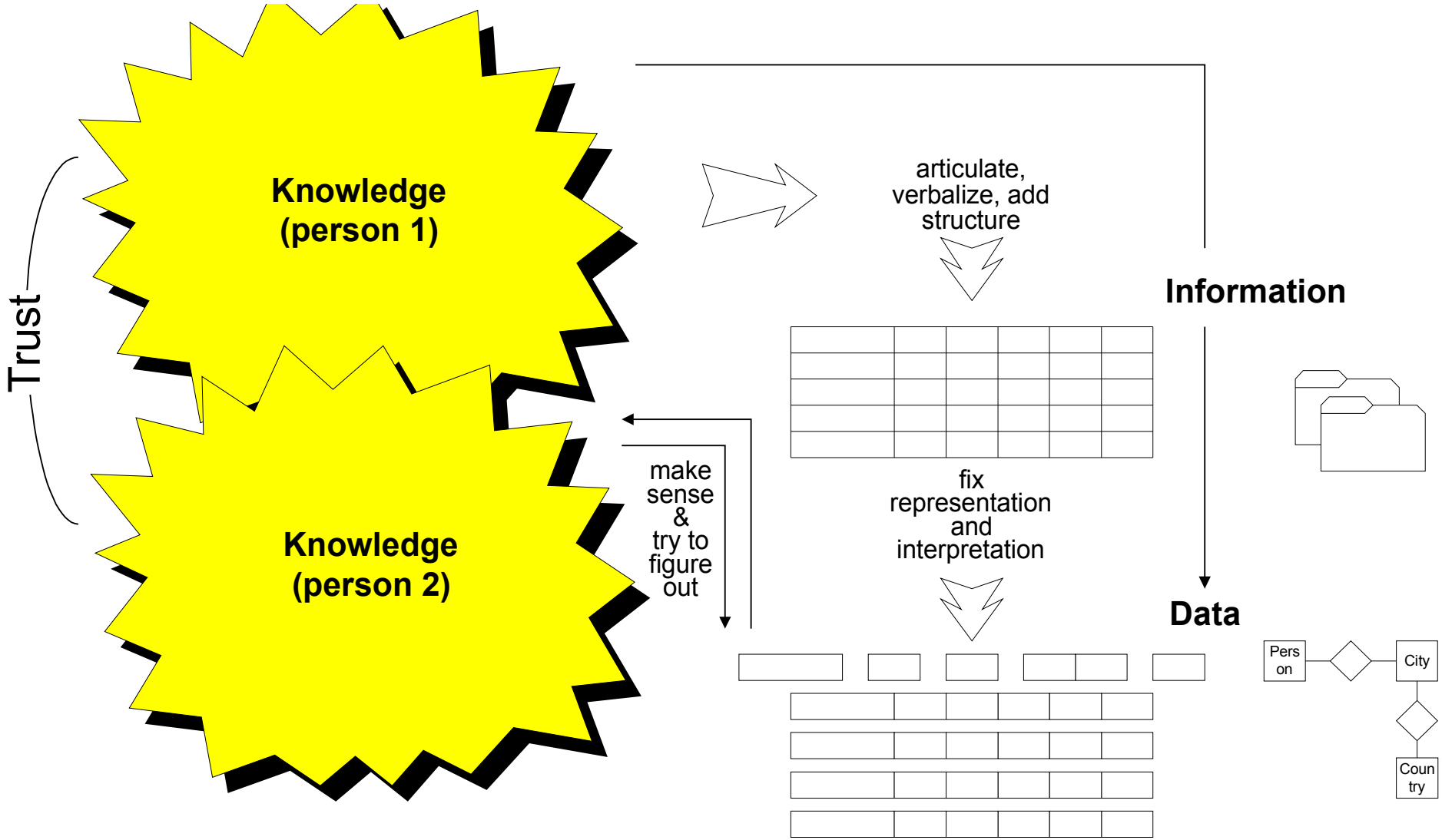
I. Tuomi: Data is more than knowledge: implications of the reversed knowledge hierarchy to knowledge management and organizational memory. *Journal of Management Information Systems* 6 (3):103-117, 2000.

Data Is More Than Knowledge



I. Tuomi: Data is more than knowledge: implications of the reversed knowledge hierarchy to knowledge management and organizational memory. *Journal of Management Information Systems* 6 (3):103-117, 2000.

Interpretation Requires Shared Knowledge



What Is This?

Genesis

- *1:24 And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so.*
- *1:25 And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that it was good.*

So, What Is This?

Knowledge Is Relational

… Not Universal
… Or Anarchistic


For this
the Semantic Web
will fail

Knowledge is Relational

- It is articulated in a social process, and learned through socialization,
- reflected in the conceptual systems that are used in interpreting the world,
- partially embedded in material and technical artifacts,
- and often not explicitly articulated

Knowledge can not emerge by studying the attributes of an object. There is no way you can distinguish beast from cattle by observing only the animal. Empiricism fails unless we are omniscient and have access to the great plan of God. Empiricism also fails if God learns.

Knowing can not be purely “relativistic” or idiosyncratic, either. The world creates affordances and constraints that create a topology for action. Not all directions are equal. Idealism fails.

Knowledge is capability for effective action. It depends on the context, capabilities and objectives of the community of knowing.

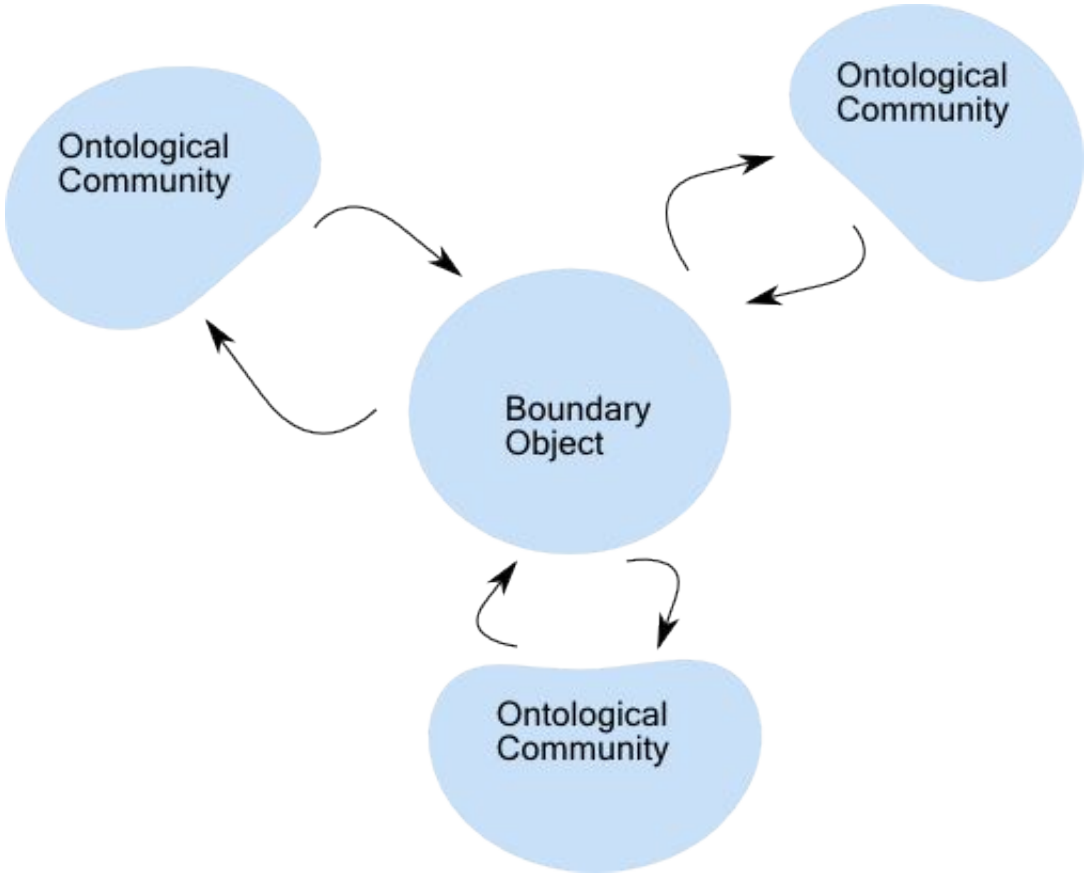
A Proposed Epistemological / Ontological Alternative

"Evolutionary socio-epistemic regionalism"

- "Evolutionary"
  - Knowing is an evolutionary process: New knowledge emerges when the space of action expands (learning) or when social practices change (innovation).
  - Knowledge creation implies expansion of the capabilities for efficient action

- "Socio-epistemic"
  - The stability of knowledge rests on stable social division of labor (i.e., social practices). Knowledge evolves when social practice changes. Epistemology and ontology are, therefore, tightly coupled.
- "Regionalism"
  - Different social practices generate different communities of thought and practice: Different communities have different ontologies

Structural Drift in Innovation

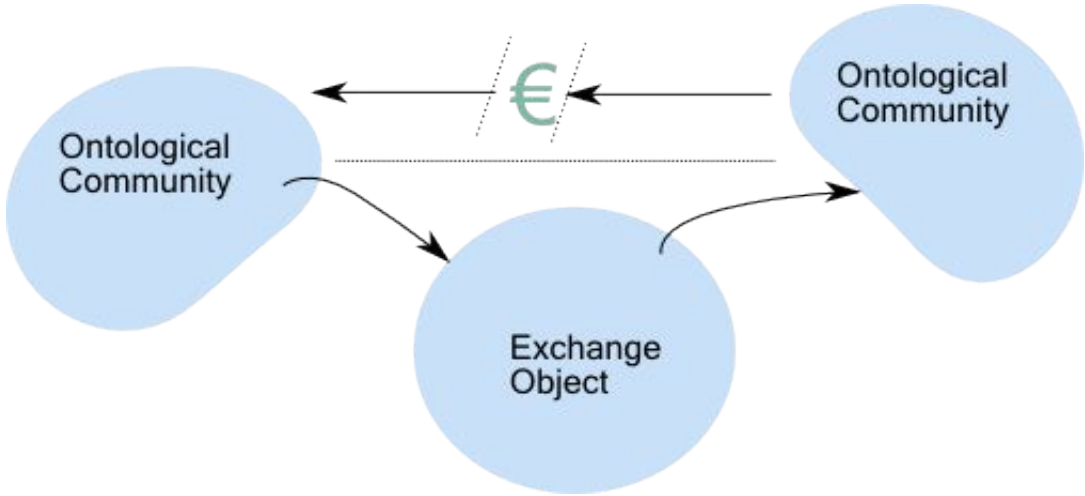


Tuomi, I. (2002) Networks of Innovation.

Four Types of Coordination Mechanisms

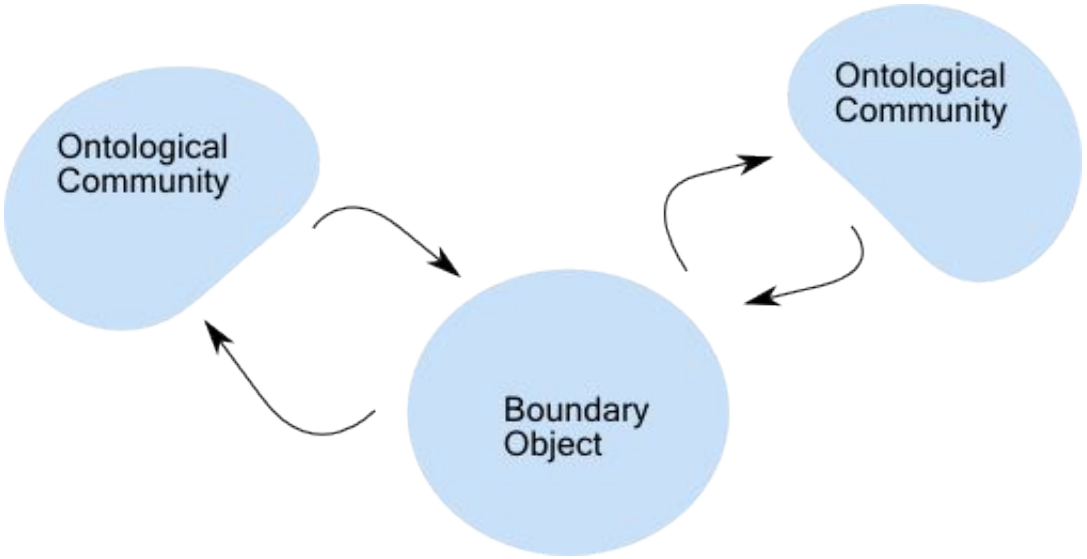
- 1. Pointwise memory-less transaction
  - Creates opaque boundaries between ontological communities and their value systems
  - Enables interdependent production systems across cultures and distant chronotopes
  - Generates modern capitalism and Durkheimian modernity
- 2. Object-mediated coordination
  - Traditional boundary objects (blueprints, standardized forms, enterprise data repositories...)
  - Loose coupling between ontological communities
  - “Cooperation without consensus” (Star, 1992)
- 3. Dialogue
  - Active generation of shared meaning
  - Requires memory and joint process
  - Makes history-dependent interaction possible (reputation, social capital, …)
- 4. Political process
  - Shared model of how to proceed under disagreement and incompatible value systems

Pointwise Exchange



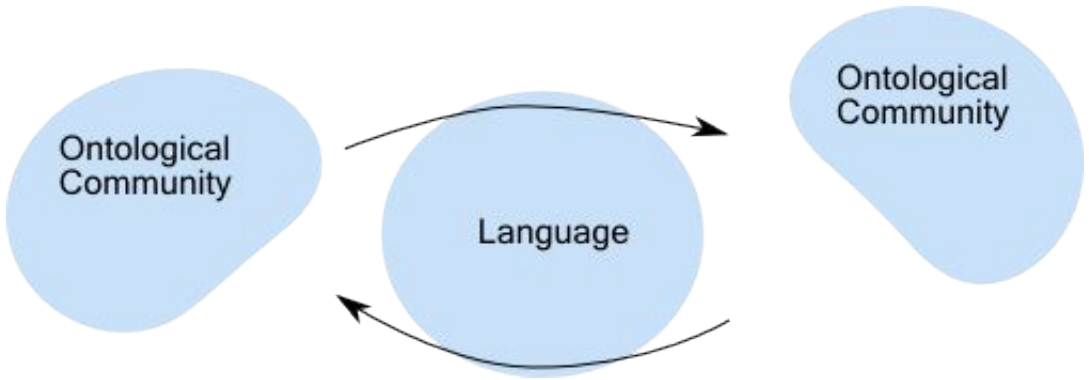
Example: market transaction

Object-Mediated Interaction



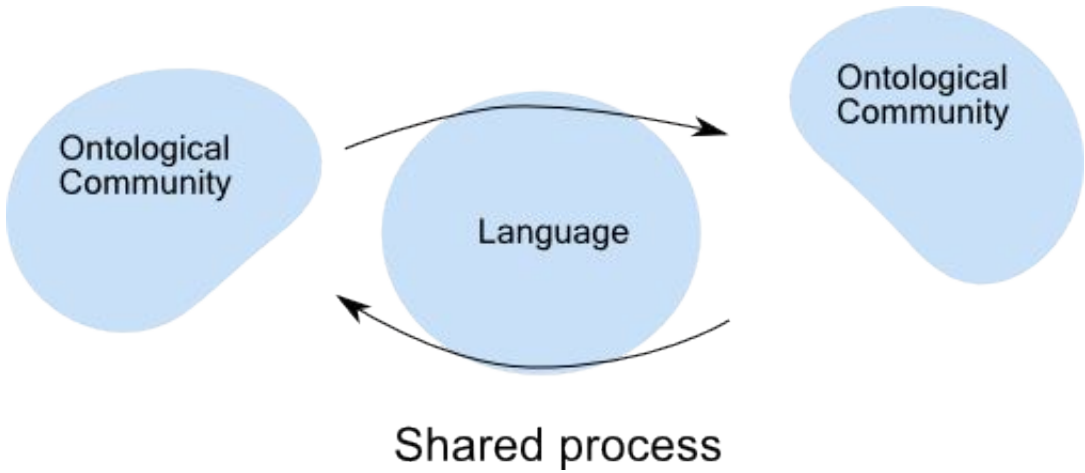
Example:user manual, construction blueprint

Dialogue



Example:negotiation, translation

Procedural Regulation



Example:parliamentary democracy

Interaction Structures Across Communities of Anticipation

- Different interaction structures generate different types of time.
- Market economy can be represented using real numbers
- Other interaction structures require different logics.

Work in Progress....

http://www.meaningprocessing.com/personalPages/tuomi/