Science Too!
The Science II Team:

A Report from the
2012 IFSR Conversation
Sankt Magdalena, Linz, Austria

The Team

Stuart Umpleby	umpleby@gmail.com
Jerry Chandler	jerry_lr_chandler@mac.com
Allenna Leonard	allenna_leonard@yahoo.com
Michael Lissack	michael.lissack@gmail.com
Helmut Loeckenhoff	loeckenhoff.hellk@t-online.de
Tatiana Medvedeva	tmedvedeva@mail.ru
Leonie Solomons	leonie.solomons@gmail.com

We Began by Raising Issues

- Social Science practitioners express frustrations/limitations with Science I
- General needs of a philosophy/epistemology of Science
- Specific needs for a hypothetical Science II
- What would that Science II include?

Frustrations and limitations regarding Science I (as expressed by individual members of the team)

- Methodological misfits
- Reliable prediction is not always possible
- Our ability to “see” and “express” certain phenomena is restricted by Science I in use
- The experience of “x” is not the same as the label “x”
- Ceteris paribus is nonsense


THIS NEW SYSTEM IS TOO COMPLEX..... PASS IT ON.
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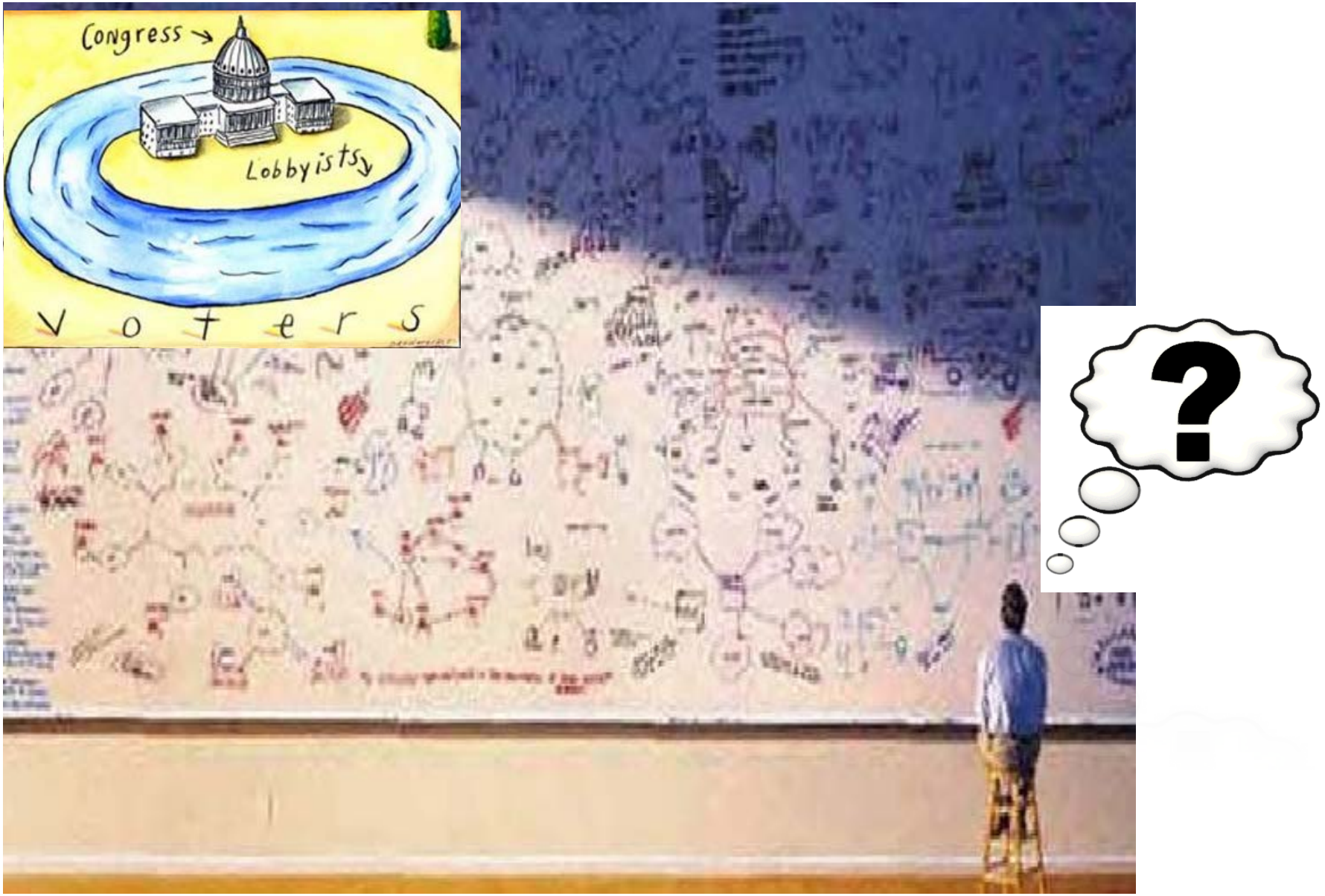
Philosophy of Science As Used

- Articulations of examples are most commonly physics based
- Despite the claims by physicists, other sciences cannot be reduced to physics or its equivalents without raising issues of both epistemology and ontology
- Other sciences have unique requirements demanding exact articulations
- Systems composed of thinking elements should not be described using methods developed for systems with non-thinking elements


Congress
Lobbyists
voters
?

Deficiencies in the Philosophy of Physics Generate Frustrations

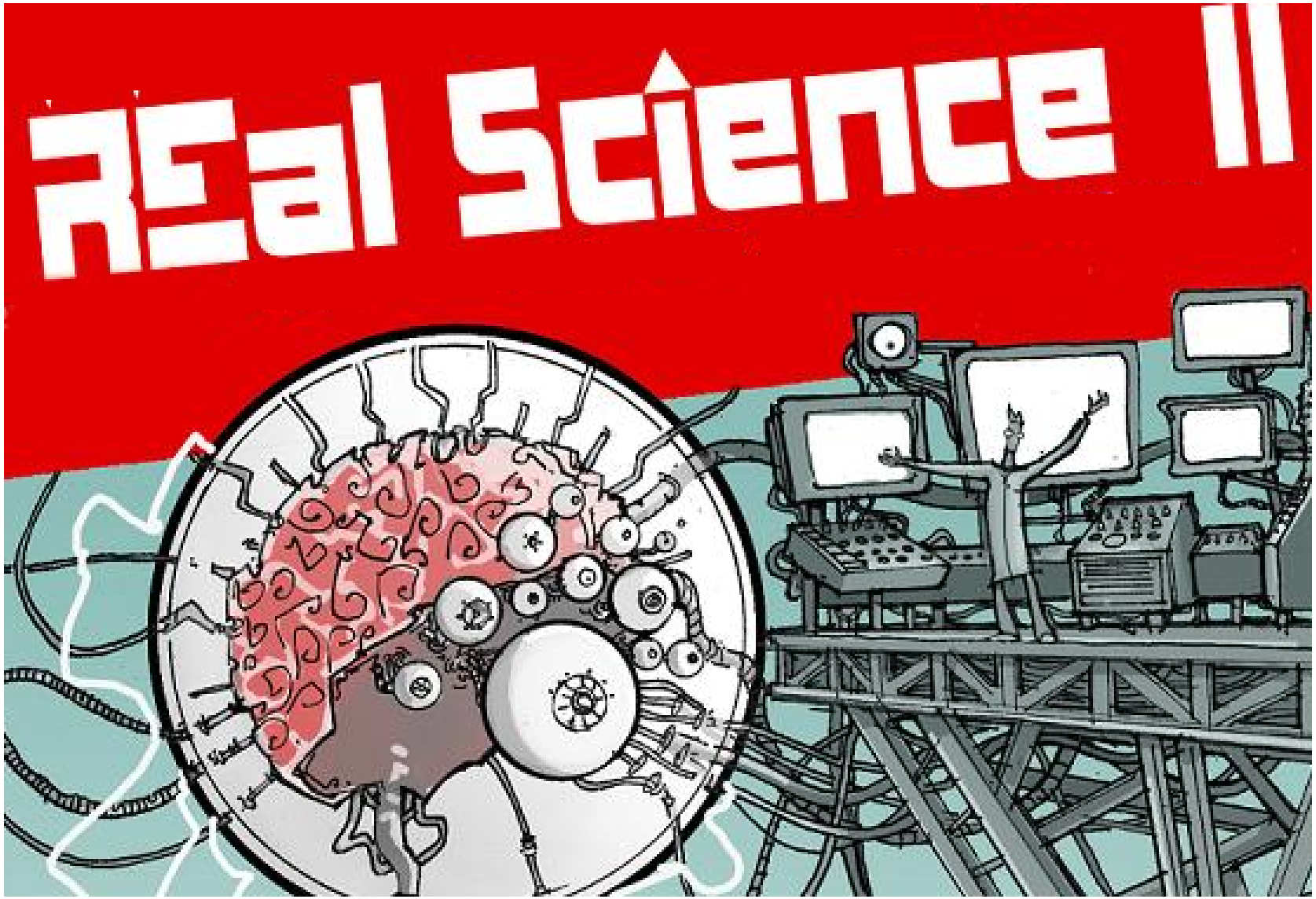
- Role of Observer
- Role of Emergence
- Role of Habitus – the social, cultural, cognitive, historical, contextual milieu
- Ambiguity of Number Symbols (Whole versus Continuous)
- No Place for Reflexivity
- “Physics envy” not appropriate for many other fields (e.g. chemistry, biology, social sciences…..)

General needs

- Basis for social sciences and design (pragmatic assumptions)
- Need to deal with ideas and communication in social systems
- Philosophy of Science needs expansion
- Paths to potential logics of social sciences
- What is the basic unit (individual, group, set, dynamic, environment, etc.?)
- To separate biomedical concepts from social science concepts (e.g. the patient-physician relationship)

General needs

- Science II will require different languages than are commonly used in Science I
- Science II will require different frameworks of thinking
- Meta-level thinking as an opportunity
- Need for new strategies of simplification so as to meet requisite variety

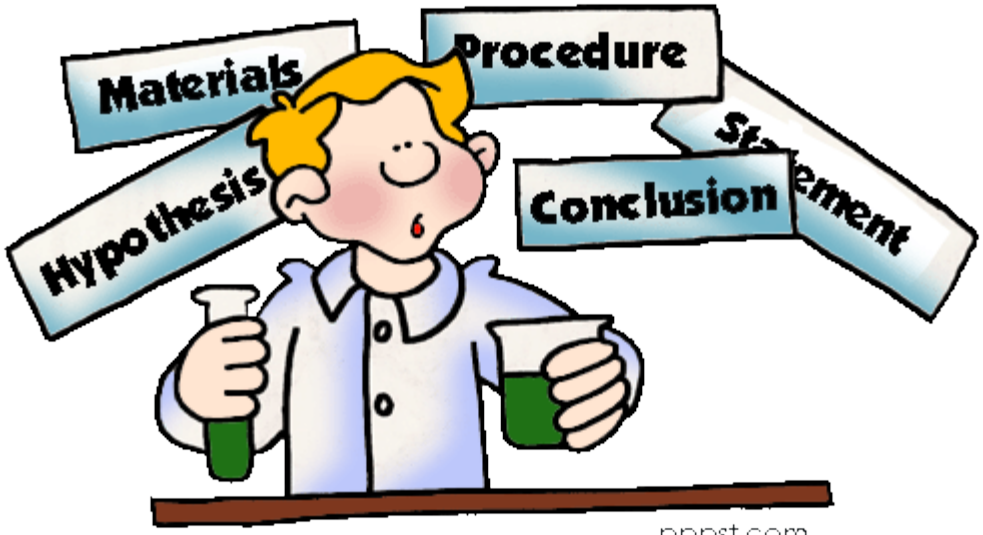

Real Science

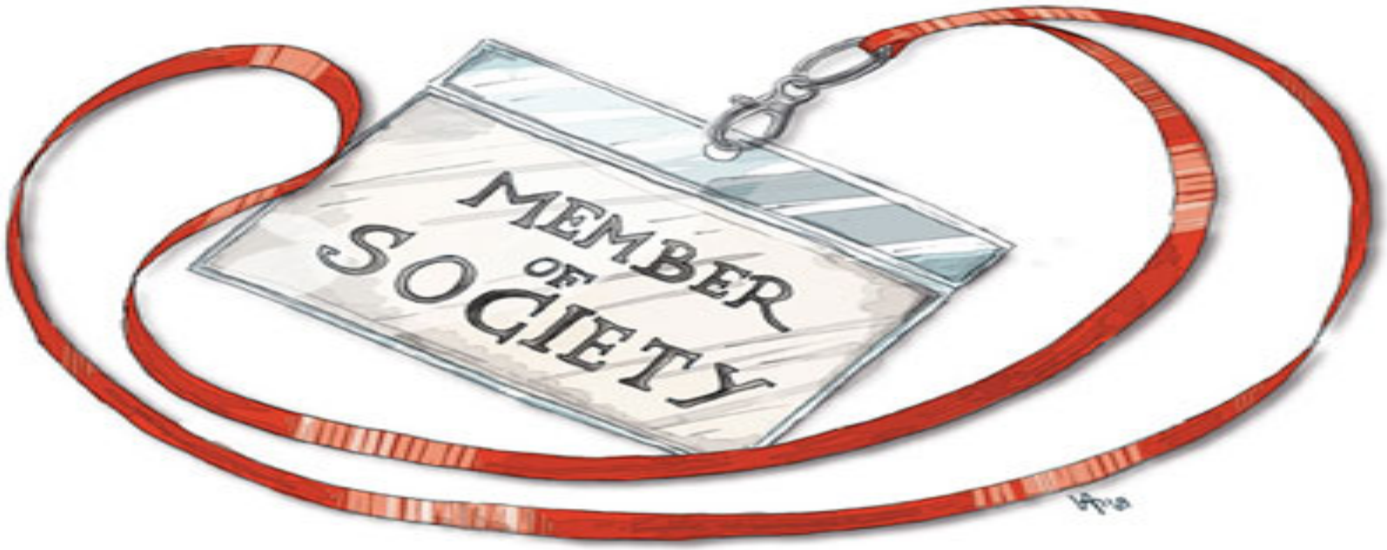
Science II needs

- Science needs to change as the world changes
- New ontology and epistemology
- More transparency (to open the action and option space)
- Trans-disciplinarity as a shared basis for cross disciplinary conversations
- Formulate knowledge as methods as well as theories (include the observer)

What Does This Imply for Science II?

- Enrich the systems approach
- Reconcile the Eastern and Western approaches
- Science II demands narratives
- Example of Medical Heuristics (e.g. narratives told by physicians to patients)
- Reflexive Anticipation
- Notion of “Best Practices” needs to be re-examined
- More variety in describing homeostats and balance relationships
- Ways to express circular causality


Materials
Procedure
Hypothesis
Conclusion
pppst.com

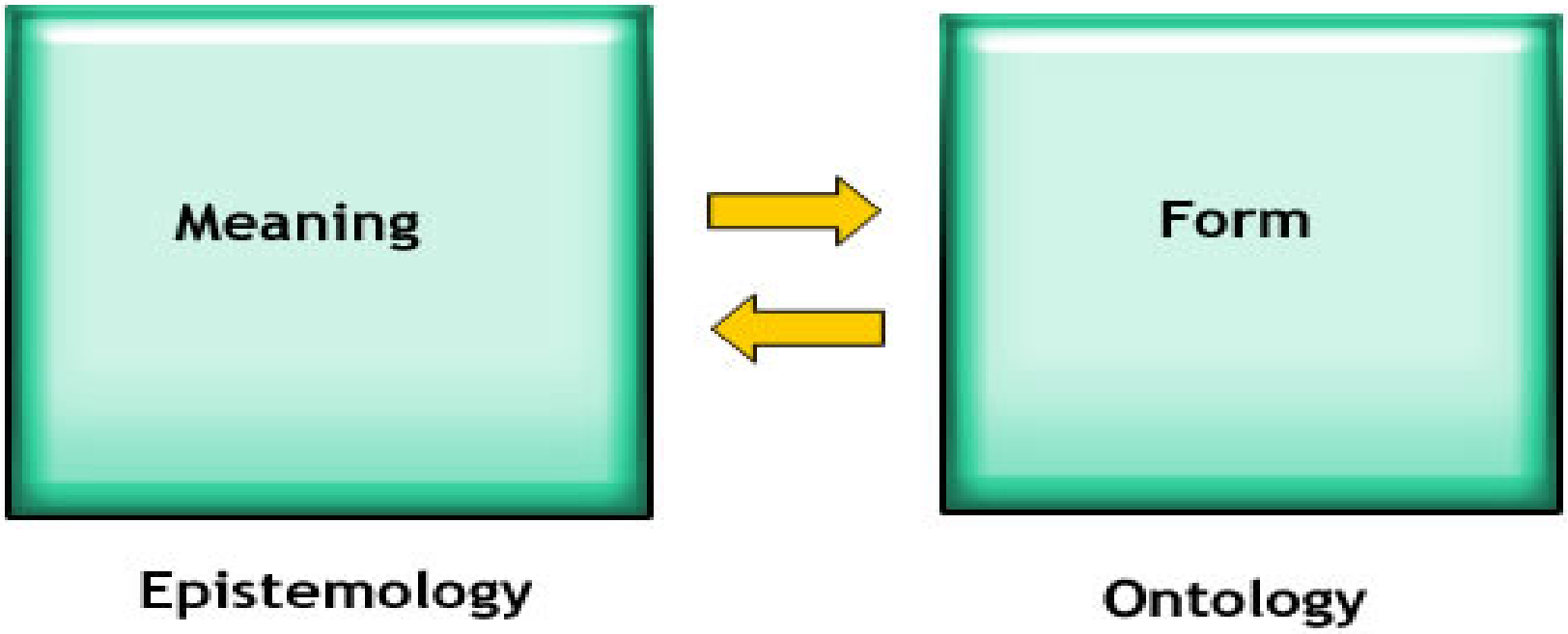

MEMBER
OF
SOCIETY

Social Implications of Science II

- Inclusion of actors
- Inclusion of descriptive social factors (habitus)
- Explicit acknowledgement of conflicts of interests
- Acknowledges the potential for interference through politics and power relationships
- Need ways to discuss/cope with incommensurability


New
Ideas

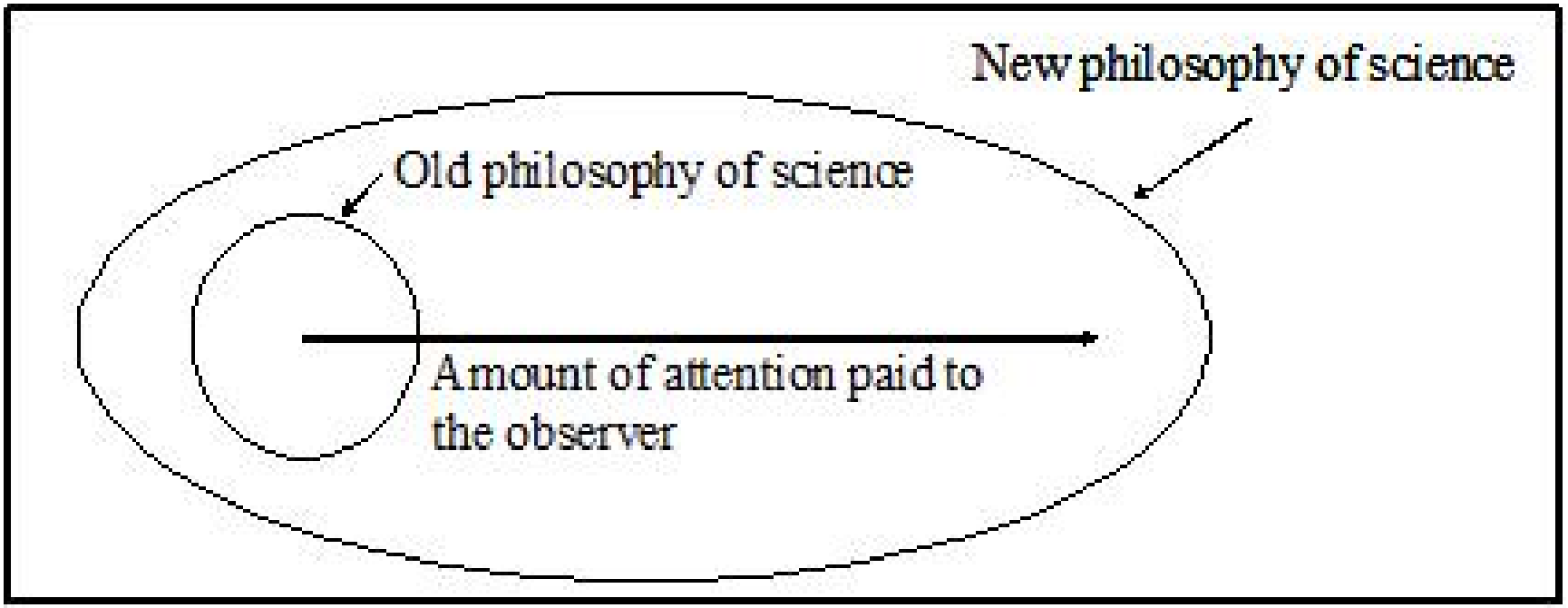
EPISTEMOLOGY


Meaning
Form
Epistemology
Ontology

Sciences of and About Humans

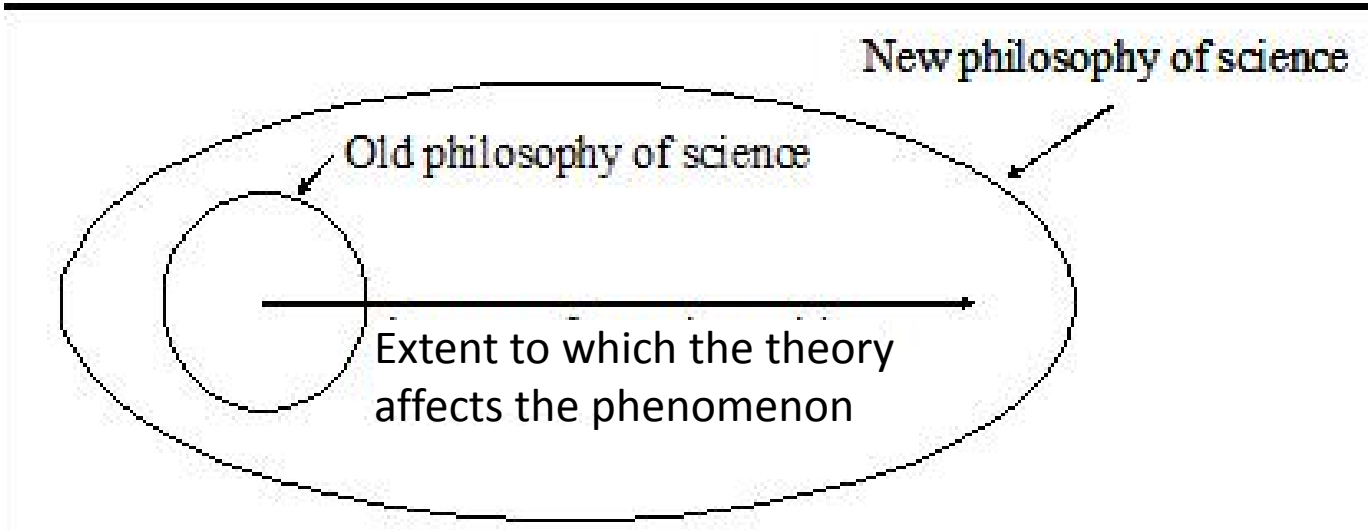
Involve Observers

Including the Observer Adds a Dimension to Science



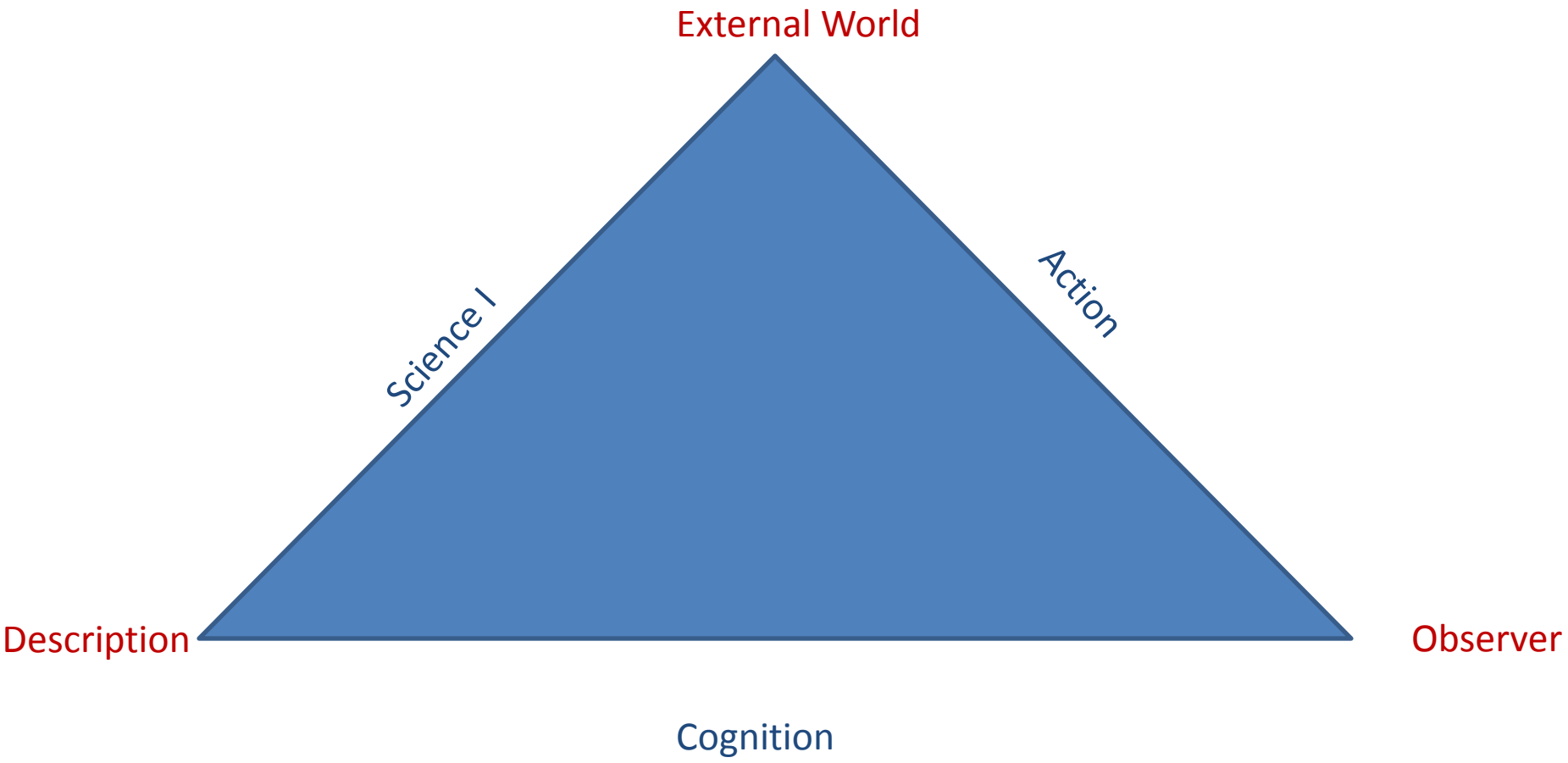
"All statements made are made by an observer." (Maturana)

Considering the Effect of Theory on Phenomenon adds another Dimension to Science

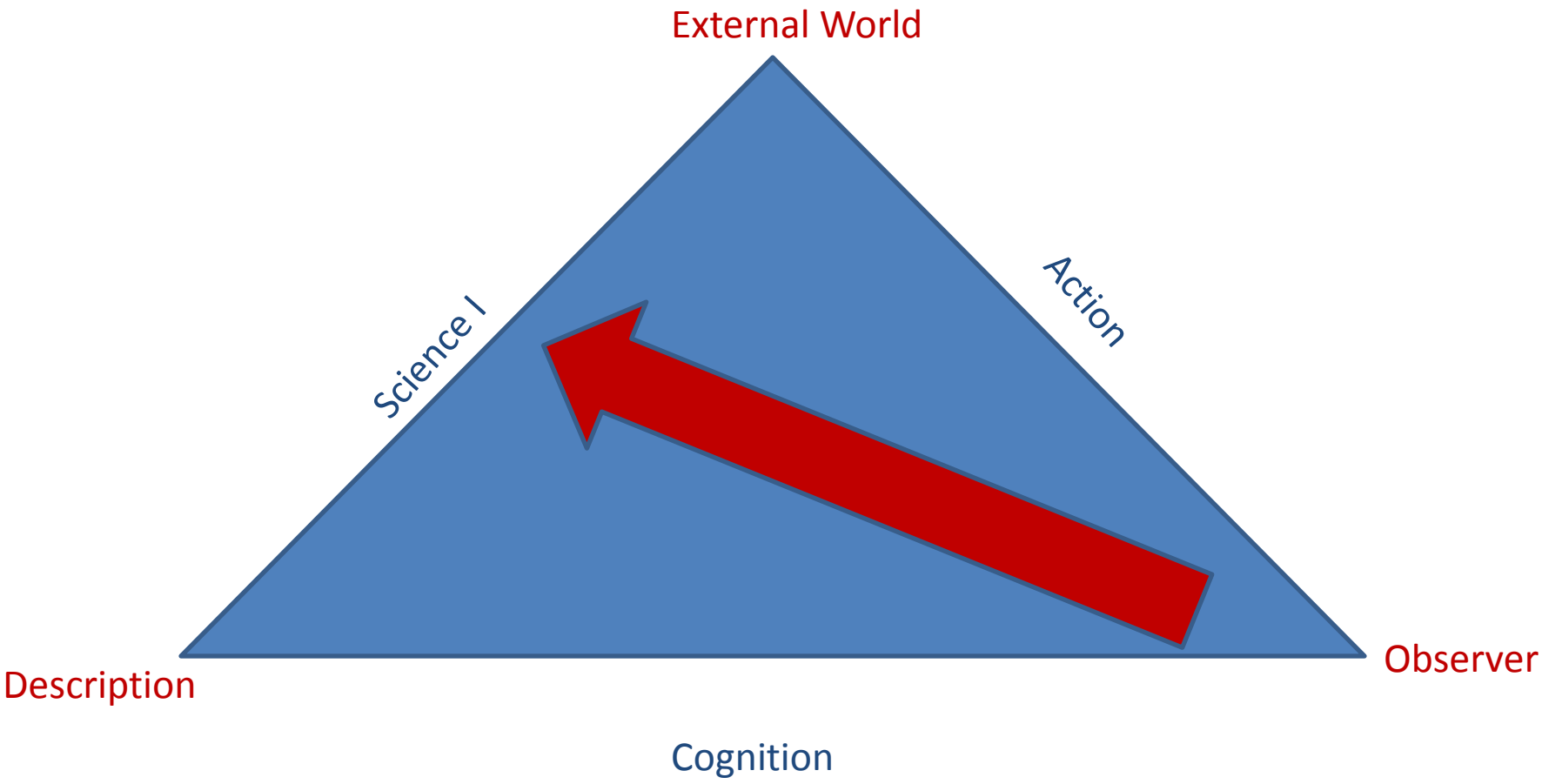


"Social science theories are created in the hope of changing social systems" (Umpleby)
"Physical science theories have no such purpose" (Chandler)

Popper's Three Worlds



What Happens When We Add the Observer to Science?



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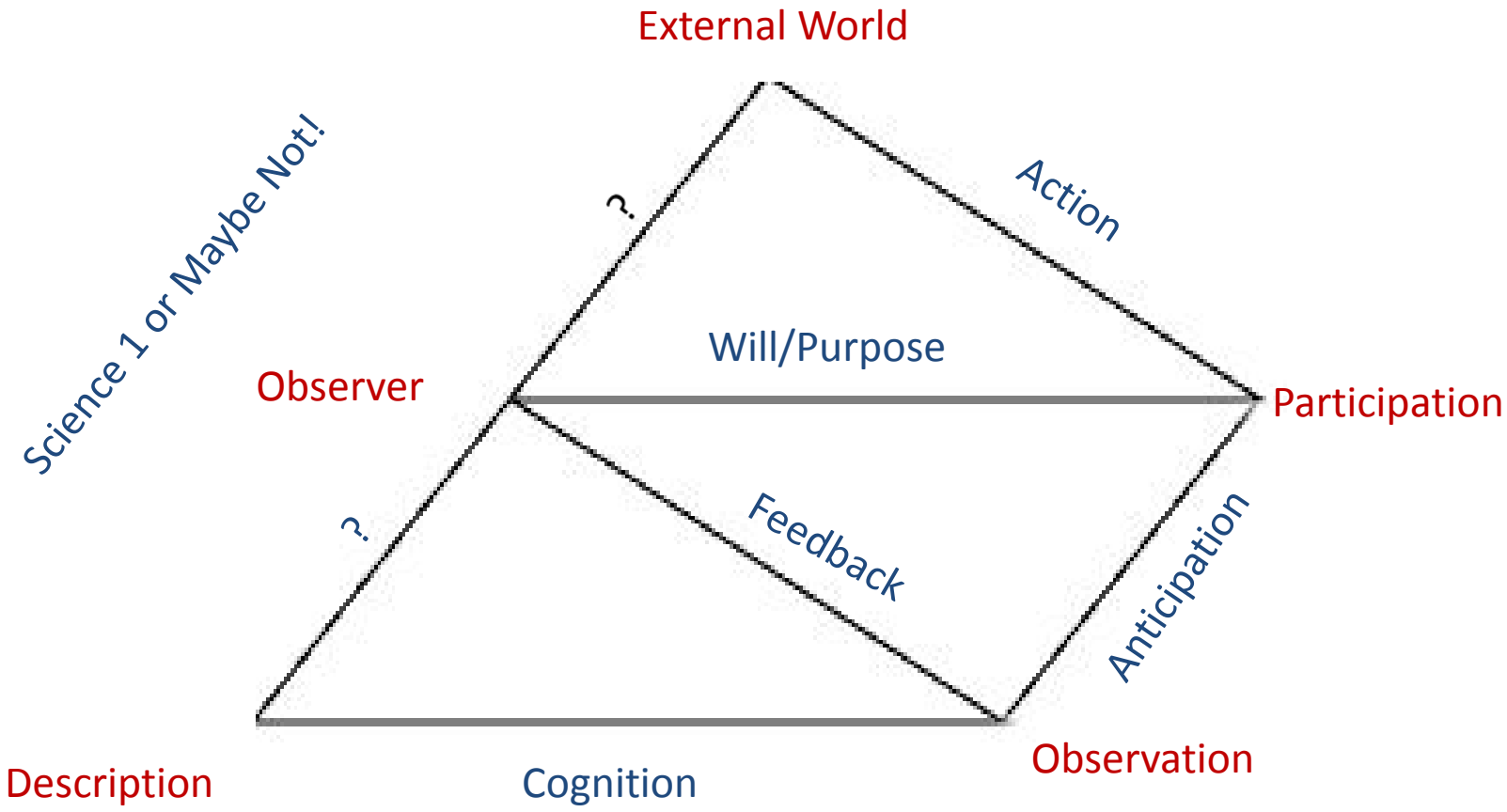



Right Way
Wrong Way

What Happens When We Add the Observer to Science?

- New Elements Emerge
  - Observation
  - Participation
  - Anticipation
  - Feed Forward and Feedback
  - Will and Purpose
  - Role of Assumptions (habitus)
- Not Present In Science I

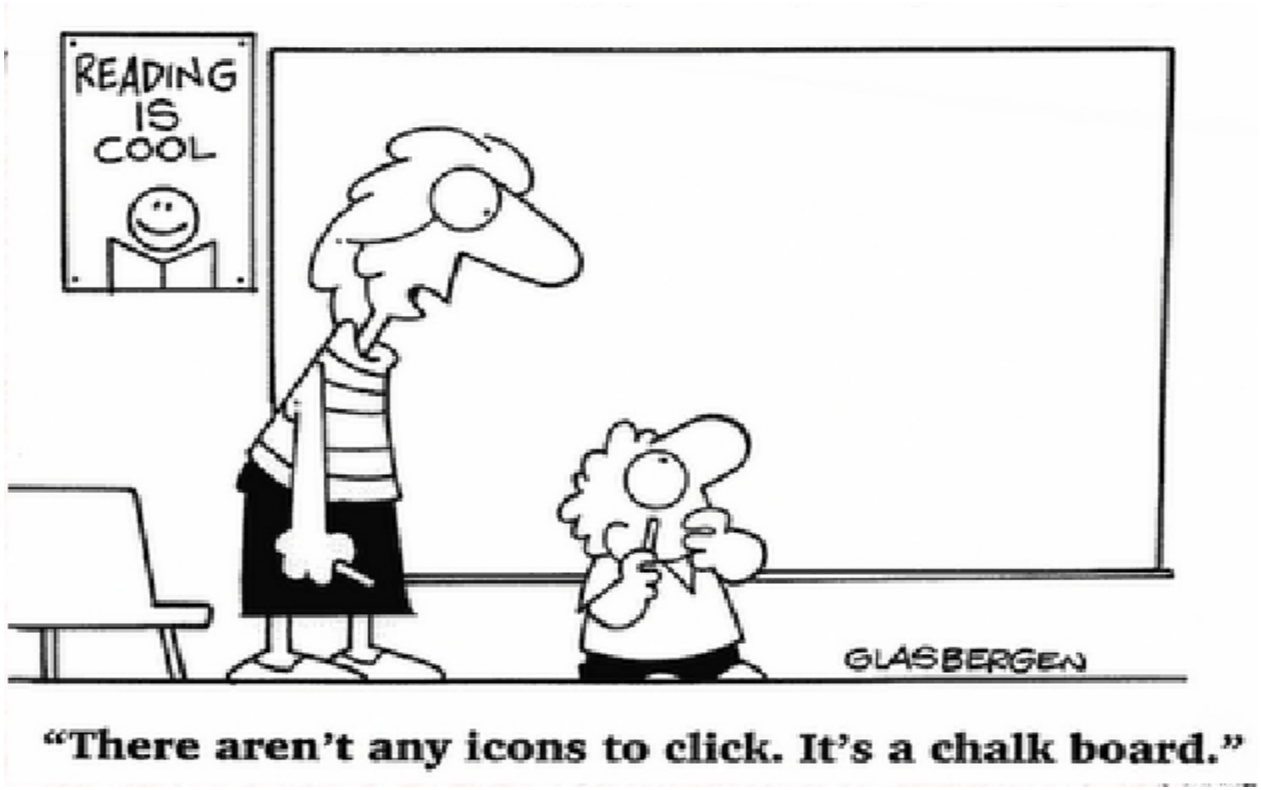
What Happens When We Add Feed-Forward Reasoning to Science?

- Language changes to include future tense
- Acting now in order to affect the future (telos, and why?)
- Spontaneity, Proactivity, and Anticipation play roles. All three act as circular inputs to goals. New learning cycles may emerge.
- Explanations cannot rest on labels but demand consideration of circular feed-forward-feedback effects
- New relations are introduced and new critical thresholds must be considered
- Knowledge is expressed more as methods (how) and less as theory (what)
- Recognize the role of implicit knowledge

What happens when we add Will/Purpose to Science?

- Final cause becomes a basis of reasoning
- Consideration of the combinations and permutations of the affordances available becomes important
- Actors/observers/systems can be combined in multiple ways which give rise to potential conflicts of will
- Politics then may rear its ugly head
- The possibility of such conflicts demands the articulation of habitus so as to enable the exploration of commonalities and differences

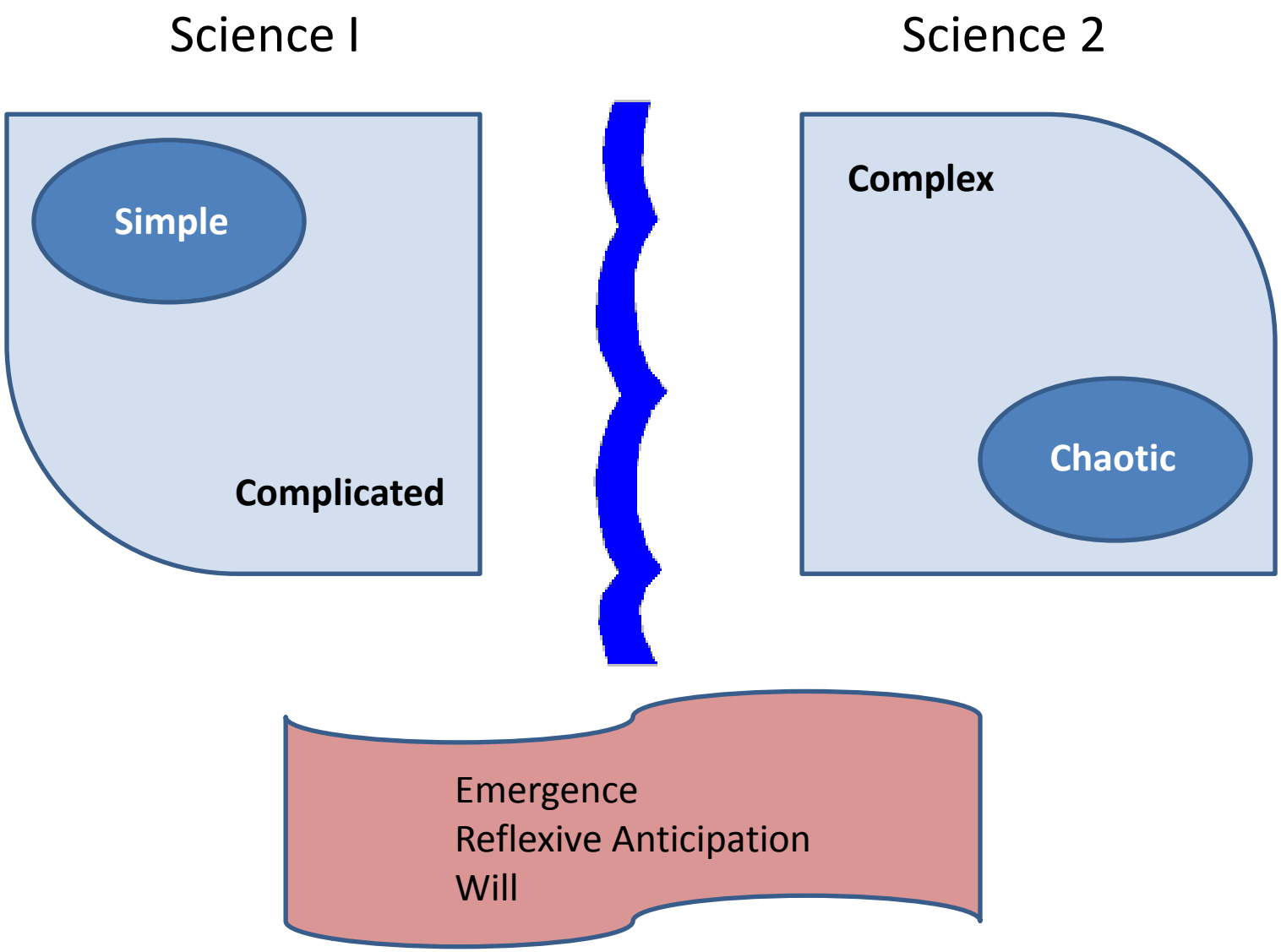
"That's where you're wrong!
It is rocket science."



"There aren't any icons to click. It's a chalk board."

ONTOLOGY

Ontology


Science I
Science 2
Simple
Complicated
Complex
Chaotic
Emergence
Reflexive Anticipation
Will

Science I

Simple

Complicated

Focus is on Description

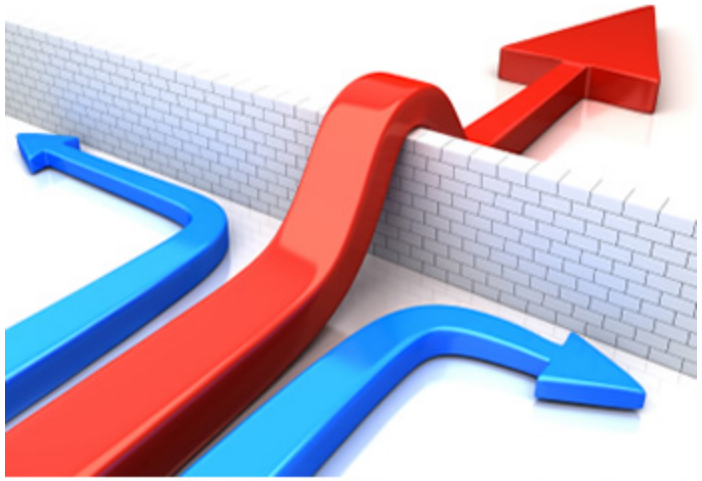
Focus is on Reliable Prediction

Deduction

Induction via Probabilistic Inference

Issues for Science I

- Emergence
- Reflexive Anticipation
- Will



Science II

Complex

Chaotic

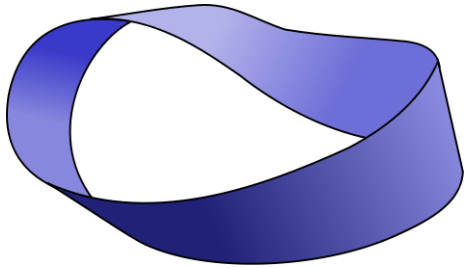
Focus is on Sagacity(Preparedness)/ Resilience/ Robustness

Focus is on Pattern Recognition/Identity Assertion

Abduction

Assert Identity

The Ontology Is Like A Mobius Strip



Science I			**Science II**
Deduction	Induction	Abduction	Assertion of Identity
Description	Probabilistic Inference	"What-If?" Narratives	Pattern Recognition
Labels	Category Inclusion	Action	Identity
Simple	Complicated	Complex	Chaotic

Science I and II are Ontologically Distinct

Science I

- Prediction
- Retrospective thinking
- Physics is Closed to Emergence (Chemistry/Biology Not)
- Excludes Observers
- Category Based
- Mathematics dominates Symbol Code

Science II

- Preparedness
- Anticipatory Proactive thinking
- Explicitly Embraces Emergence
- Includes Observers
- Based on “What-If?” Models
- Narrative Explanations


SHERRILL'S
EAT HERE
AND
GET GAS
BILL & ANN--OWNERS
Self Service
UNLEADED
297 9
UNLEADED PLUS
207 9

Highlights

Science I

- Retrospective
- Prediction
- Closed to Science II
- Positivist/Realist
- Code Based (labels)
- Context as Parameters
- Quantitatively Measurable

Science II

- Anticipatory
- Preparedness
- Open to Science I
- Constructivist/Pragmatic
- Cue Based (affordances)
- Context as Participatory Catalyst
- “Lossy” Descriptions

Science Too!
The Science II Team:

On-line at
Http://isce.edu/ifsr.pdf