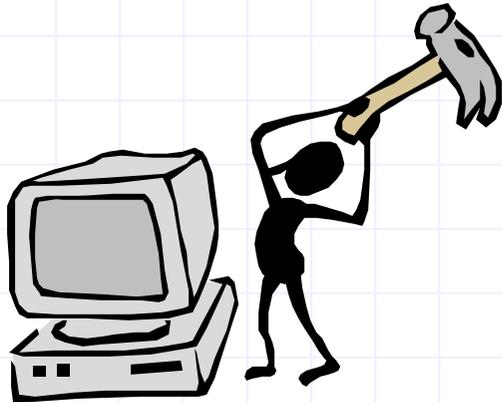


11-PO-13

26th ICIM Kyoto, JAPAN, May 27th, 2002

The philosophical basis of EBM

beyond operationalism



Takeo SAIO, M.D.
saio@ppp.bekkoame.ne.jp

Genshin TEI
Kayoko MATSUMOTO
Chieko SAIO

11-PO-13:

**THE PHILOSOPHICAL BASIS OF EVIDENCE-BASED MEDICINE:
BEYOND OPERATIONALISM**

<http://www.knt-ec.com/event/icim/abstract/11-PO-3.html>

T. Saio¹, C. Saio², G. Tei³, K. Matsumoto⁴

¹ Dept. of Internal medicine, Fuji-Toranomon Orthopedics Hospital, Tokyo, ² Controller Committee, ³ Dept. of Pharmacy, Osaka Prefectural General Hospital, ⁴ Div. of Social Pharmacy, Kyoritsu Pharmaceutical College, Japan

PURPOSE: To evaluate the principles of evidence-based medicine (EBM) from the viewpoint of philosophy of science and to describe the merit and limitation of EBM.

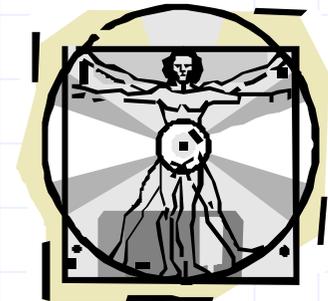
DESIGN and METHOD: narrative, non-systematic review of literature including both medical and social sciences with regard to the concept of EBM.

RESULTS: The philosophical basis of EBM belongs to both utilitarianism and positivism, and now extends to neo-pragmatism and logical positivism including operationalism. From viewpoint of philosophy of science, both logical positivism and operationalism had already criticized and almost been denied about 50 years ago.

CONCLUSION: EBM has basic limitations from the principles which it stands on. To overcome the limits of EBM, the method of social constructionism as narrative based medicine ought to be dug throughly for medical practices.

Summary

1. “Evidence” does NOT tell impregnable truth.
2. EBM refers its methodology to operationalism.
3. All scientific knowledge are socially constructed and relatively “true”.
4. To overcome limitations of EBM, NBM will work because it weaves sociological perspective of clinical practice into EBM.(But NBM shorts its methodology.)
5. Social epistemology has an insight into political dimension of EBM.



metaphors of EBM

(or principles in it)

1. *Customer satisfaction (patient-centredness)*

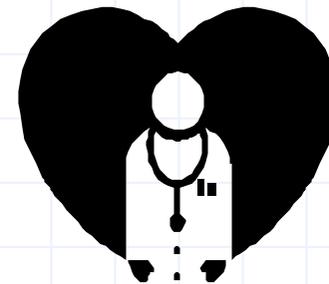
- First, do no harm (primum non nocere)
- Transparency and accountability (fairness)

2. *Recognition of the uncertainty of medical practice*

- From laboratory to library
- Human body as a black box (Only God knows)

3. *Deprofessionalization*

- Anti-authoritarian, scientific objectivity oriented
- Relativism in value judgement



Non EBM principle in modern medicine

1. *Diagnosis-centred, disease-oriented*

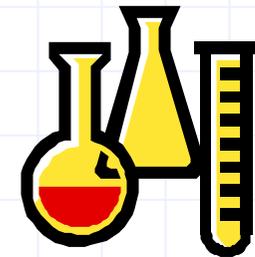
- To cure patients, collateral damage of treatment should be endured.
- Disease must be overwhelmed at any cost.

2. *Human body as a machine*

- Well-being of the human shall be established by the complete body.
- Broken body shall be fixed by some means or other.

3. *Professionalism*

- Lay person cannot tell the truth of human body.
- Paternalism.



The philosophical basis of EBM

◆ *utilitarianism*

Theory that the right or wrong of an action is determined by its usefulness in bringing about the most happiness of all those affected by it.

◆ *positivism*

Theory that denies any validity of metaphysical ideas because metaphysical questions have unanswerable nature and that the only we can say “knowledge” is scientific knowledge.

Aspects in modern thought

◆ *neo-pragmatism*

Theory that contains radical forms of social and practical contextualism that denies the possibility of universal conceptions of truth or reality.

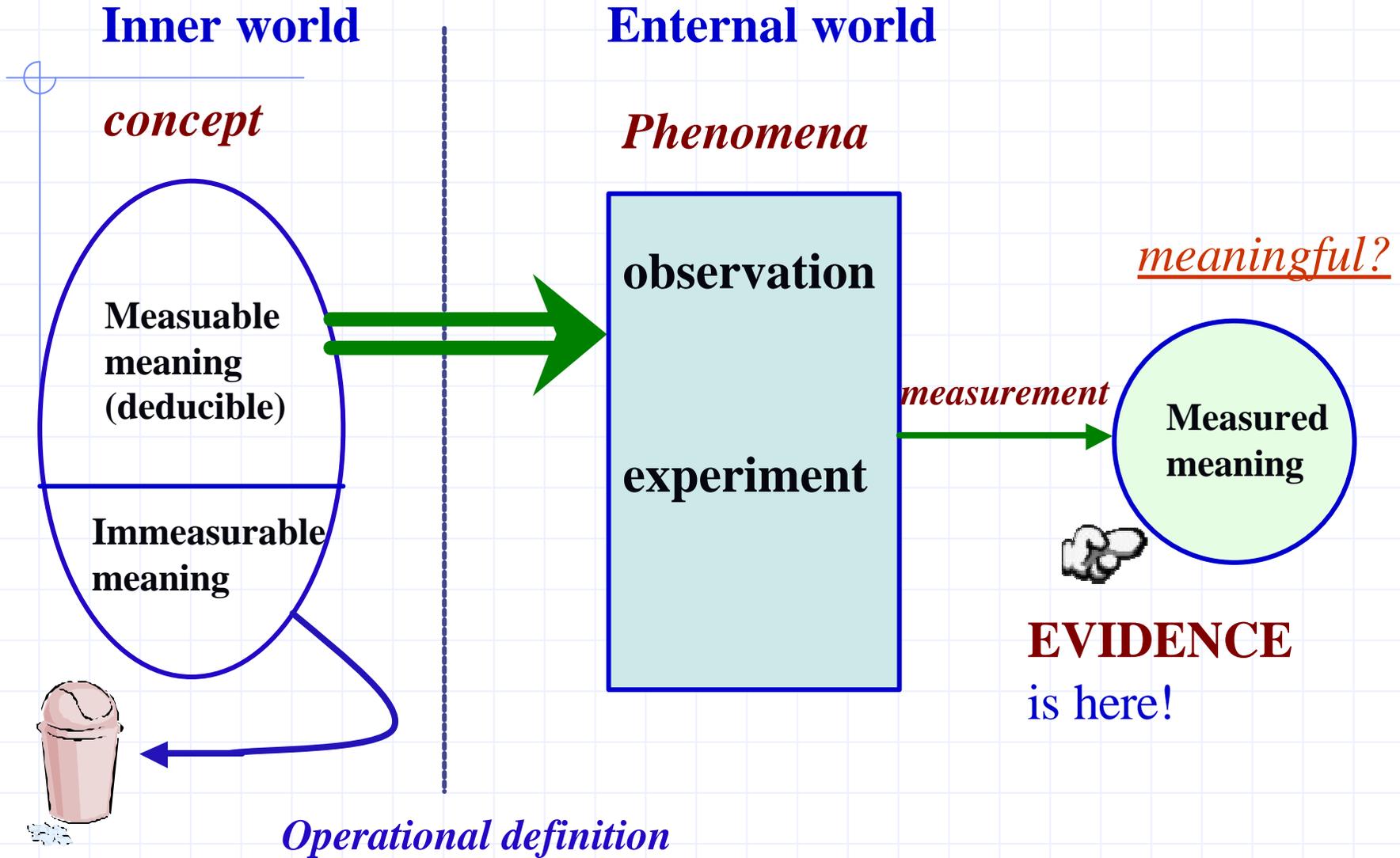
◆ *logical positivism*

Theory that promotes to introduce the methodology and precision of mathematics and the natural sciences into philosophy.

Main limitation of EBM principle

- ◆ Logical positivism (Viener Kreis) had already criticized thoroughly about 50 years ago.
- ◆ Operationalism is a part of logical positivism.
- ◆ Operationalism: (advocated by [P.W.Bridgman](#))
 - Theory in philosophy of science which insists experimentation as necessity to objectivity. Focusing on concepts, it requires precisely defined experimental operations to prevent them from meaninglessness .
 - But Baconian view toward nature underlies its background.

Schematic relationship between concept & measurement



How logical positivism declined?(1)

◆ **N.R. Hanson**: theory ladenness of observation

“seeing as”(conceptual filter,subjectivity) vs.

“seeing that”(universal existence,objectivity)

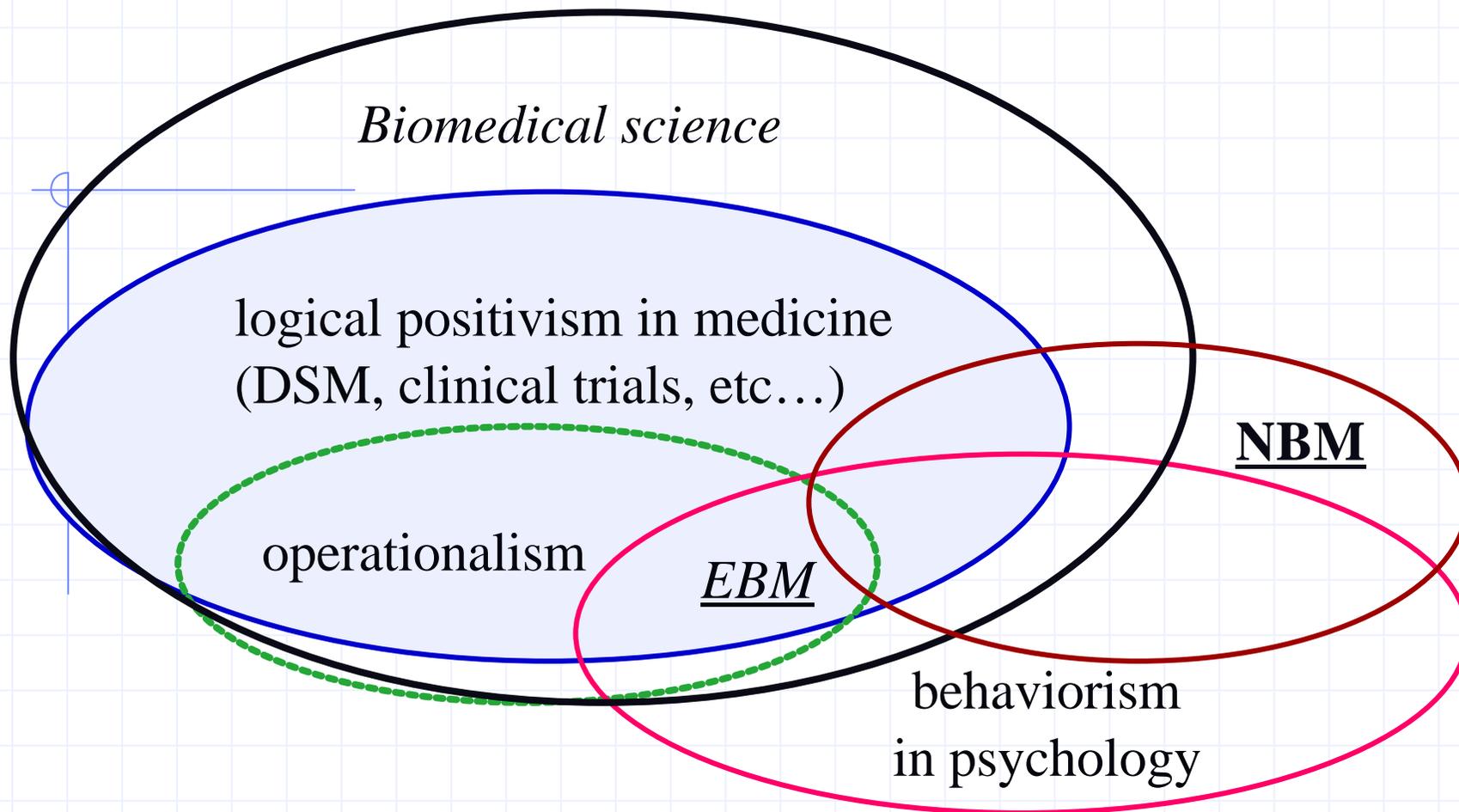
- But E. Kant already pointed out:objects are constructed by congnitional form of a subject.

◆ logical positivism=empiricism+logicism

- Empiricism is against rationalism.
- Rationalism prefers logicism.
- Social constructivism of scientific facts(**B. Latour**)

How logical positivism declined?(2)

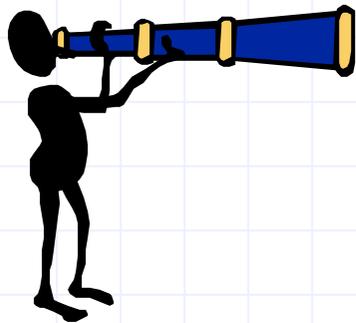
- ◆ **K. Popper**: logical positivism thinks verification by experimentation or observation is the origin of recognition of the truth. But verification has logical limitation. Only one exception can defeat a hypothesis. (falsificationism)
- ◆ **W. Quine**: crucial experiment cannot make sense. (holism; Duhem-Quine thesis)
- ◆ **T. Kuhn**: scientific revolutions, paradigm change
- ◆ **P. K. Feyerabend**: epistemological anarchism
- ◆ **D. Bloor**: strong program (contemporariness of scientific value)
- ◆ Trend of postmodern criticism (**G. Deleuze**, **J. Derrida** etc.)



Illustrated argument in this session

Operationalism

- ◆ Scientific ideas should not extend to philosophical context or metaphysics.(somewhat stoic attitude)
- ◆ Ironically, the “science wars” (or Sokal’s hoax) laughed at the easiness of postmodern criticism toward science.
- ◆ Operationalism despises theoretical consideration despite its importance.



Narrative based medicine (NBM)1

T.Greenhalgh, et al.



- Patient-centred approach
- Enhancement of history taking
- Narrative: constructing the meaning of things from life events of patients (lived experience of illness)
- Illnesses as reconstructor of the patient's life story.
- NBM compensates for the limit of EBM.
- Unique existence of every individual patient
- Understanding the whole person
- Qualitative methods can enhance EBM

Narrative based medicine (NBM)2

- Even at its scientific best, medicine is always a social act.
- NBM lacks somewhat methodological clarity compared with EBM.
- Application of social constructivism to medicine
 - There are many ways to structure the world and are many meanings for any events and concepts.
 - Denying absolutism, affirm relativism
 - Virtual reality
- Discourse analysis & Reflective thoughts



Social epistemology (Steve Fuller)

Among the STS, an intellectual movement of broad cross-disciplinary provenance that attempts to reconstruct the problems of epistemology once knowledge is regarded as intrinsically social.

1. Consensus conference with every player of medicine
: Does EBM improve medical outcome?
2. How should we estimate social/political aspect of EBM?
3. How should we deal with normativeness of medicine?
4. How should we deal with rare cases without strong evidence?

***STS: Science Technology Social study**

Lessons from the philosophy of EBM

- 1. Hippocratic aphorism (somewhat paternalistic)**
- 2. Piety to nature including the existence of human race**
- 3. Recognition of the limits of medical practice (From prejudice to prediction)**
- 4. Predict, foretell, forecast, forebode**
- 5. Shan't playing God, but pray for patients**