

Information Science in International Perspective

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Scope for Information Science

FACILITATING the
EFFECTIVE COMMUNICATION of
DESIRED INFORMATION between
HUMAN GENERATOR and
HUMAN USER

Belkin, 1978

EMERGENCE → 1958

- | Institute of Information Scientists, 1958

- | LABORATORY scientists (Chem., Math., Med.)

→ INFORMATION scientists

- | Management and Retrieval of
SCIENTIFIC & TECHNICAL information

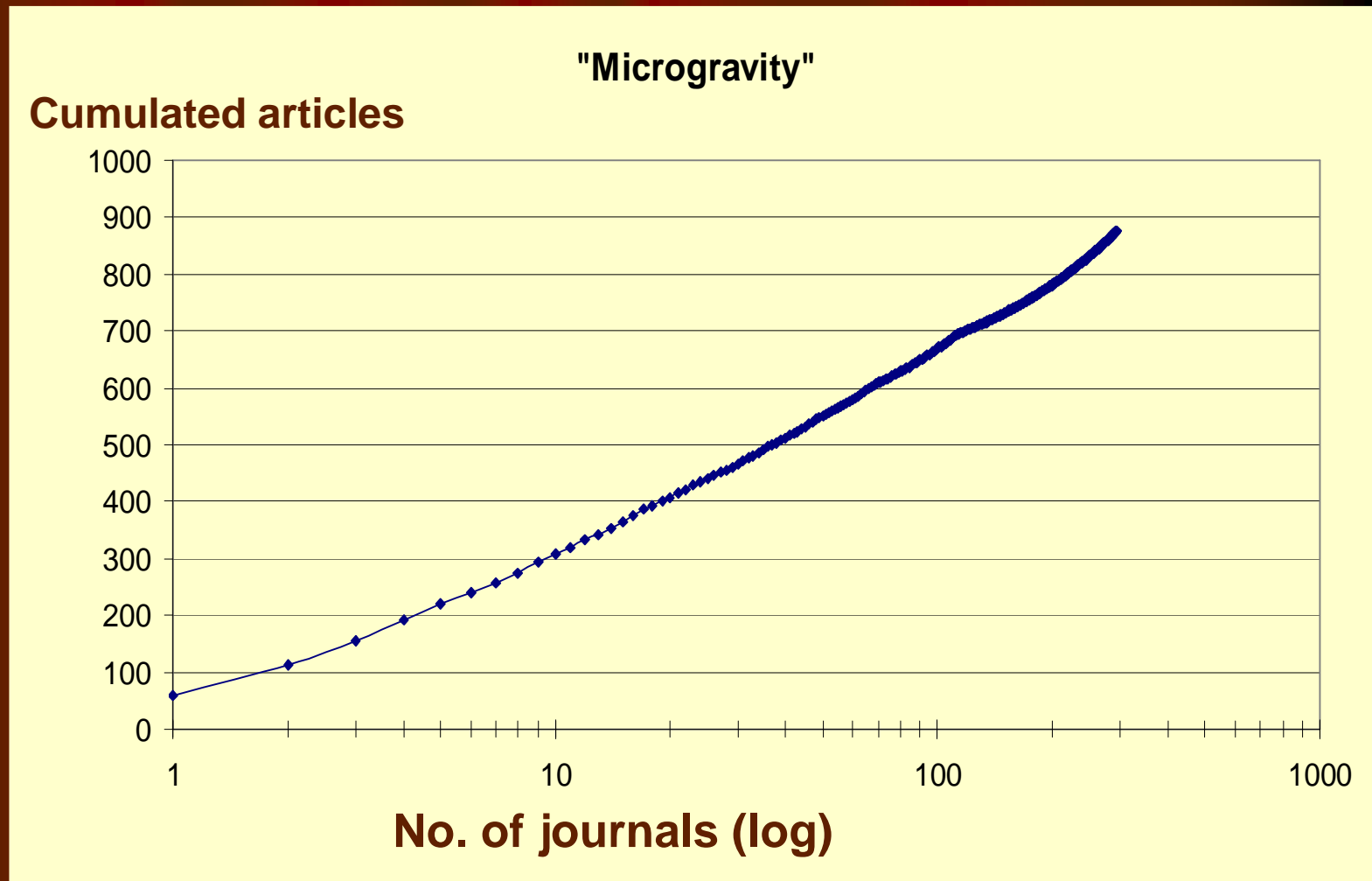
- | Impact of IT

- | SCIENTIFIC COMMUNICATION

Scientific Communication

- | Lotka: Scientific PRODUCTIVITY - 1926
- | Zipf: TERM FREQUENCY constants in texts – 1932 – leading to automatic indexing
- | Bradford: Bibliographic distribution – 1934
 - | *Always skewed distributions!*
- | INFORMETRICS - BIBLIOMETRICS – SCIENTOMETRICS – WEBOMETRICS – (Network analyses: Citations & Links)
→
- | Derek De Solla Price - Eugene Garfield - Ranganathan(1935-60)
- | Librarianship: 5 laws - Documentation: 5 FACETS (EPMST)
- | Bliss: Organisation of knowledge - 1929

Bradford's 'Law', graphic version



Professor Peter Ingwersen

Alliances * Identity * Exageration

I Identity Crisis:

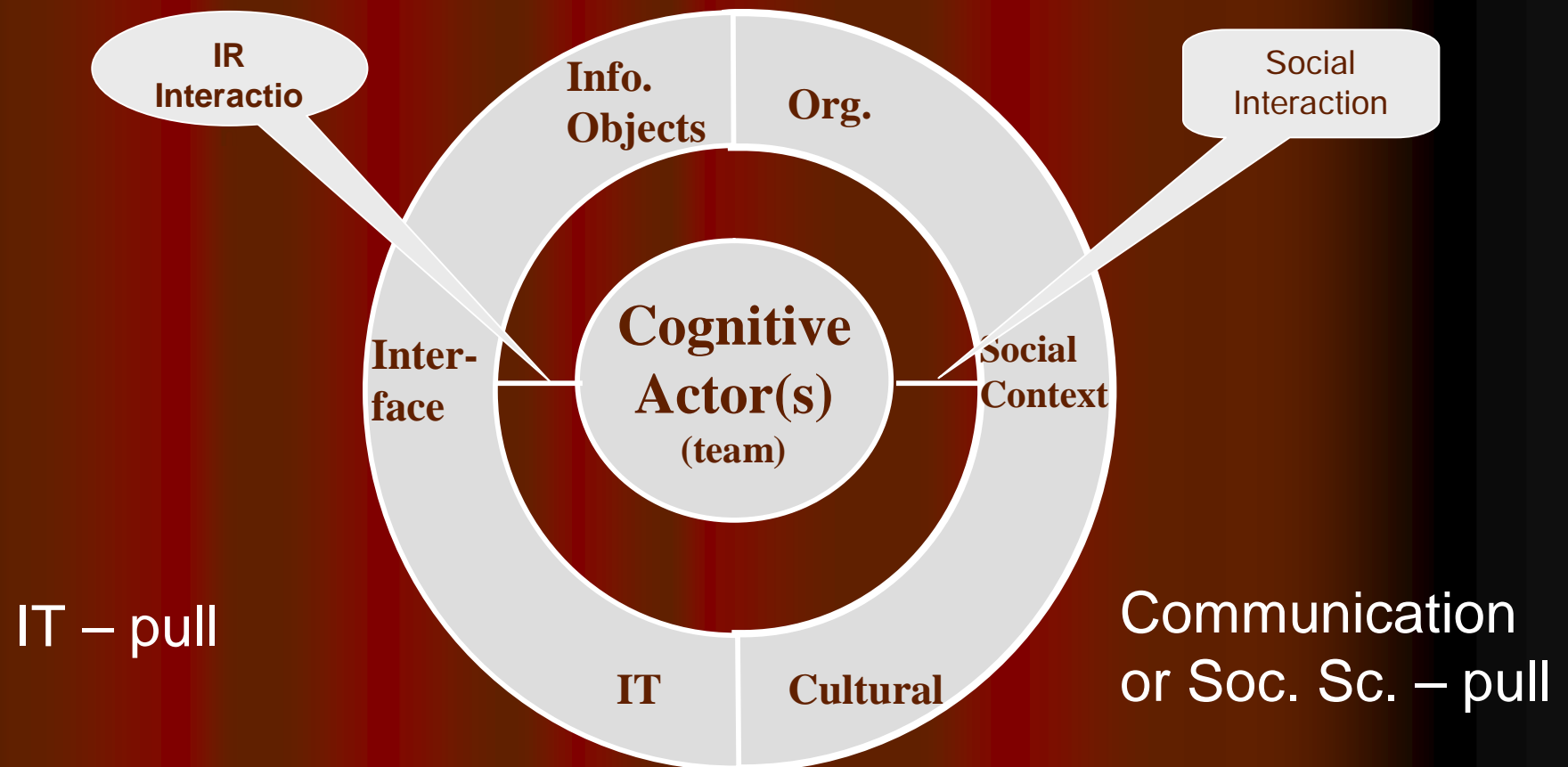
- I Information Science: Discipline or disappearance (Goffman, 1970)
- I Information Science: Search for identity (Debons, 1974)
- I The Fundamental Problem of Information Science (Brookes, 1975)
- I Information: One label, several bottles (Fairthorne, 1975)
- I Towards a True Information Science (Farradane, 1976)
- I *Library Science/Librarianship* (Shera)
vs. *Information Science* (Kochen)

I Alliances:

- I Communication Theory vs. Computer Science./ Informatics

- I Exageration: *Informatology* (Debons, 1970-80)
Popper's 3. World (Brookes, 1977-80)

The Circle of Systemic/Social Contexts in Information Science – actor as centre



The TURNING POINT 1977-1980

- | The NEW GENERATION fostered by old PIONEERS:
 - | Wersig - Neveling, 1975
 - | Belkin - Robertson, 1976, et al....
- | The SCOPE of Information Science:
 - | FACILITATING the EFFECTIVE COMMUNICATION of DESIRED INFORMATION between HUMAN GENERATOR and HUMAN USER

Belkin, 1978

Five CORE STUDY AREAS:

- | Information in *human, cognitive communication systems*
- | The idea of *desired information*
- | The *effectiveness of information & information transfer*
- | The relationship between *information and generator*
- | The relationship between *information & user*

LIS sub-disciplines

- | Information Retrieval research
 - | Interactive IR – mainstream Lab. IR
 - | IR Evaluation methods – experimental scenarios
 - | Performance & Utility measures
 - | Knowledge organization & Information architecture – indexing, representation, ontology
- | Information (Seeking) Behavioral studies
- | Informetrics/Bibliometrics
 - | Scientometrics - Webometrics
- | (Digital) Library Research
 - | Information Service Development
 - | Knowledge Management
 - | Role of Information / Knowledge in Society

Discussion and questions

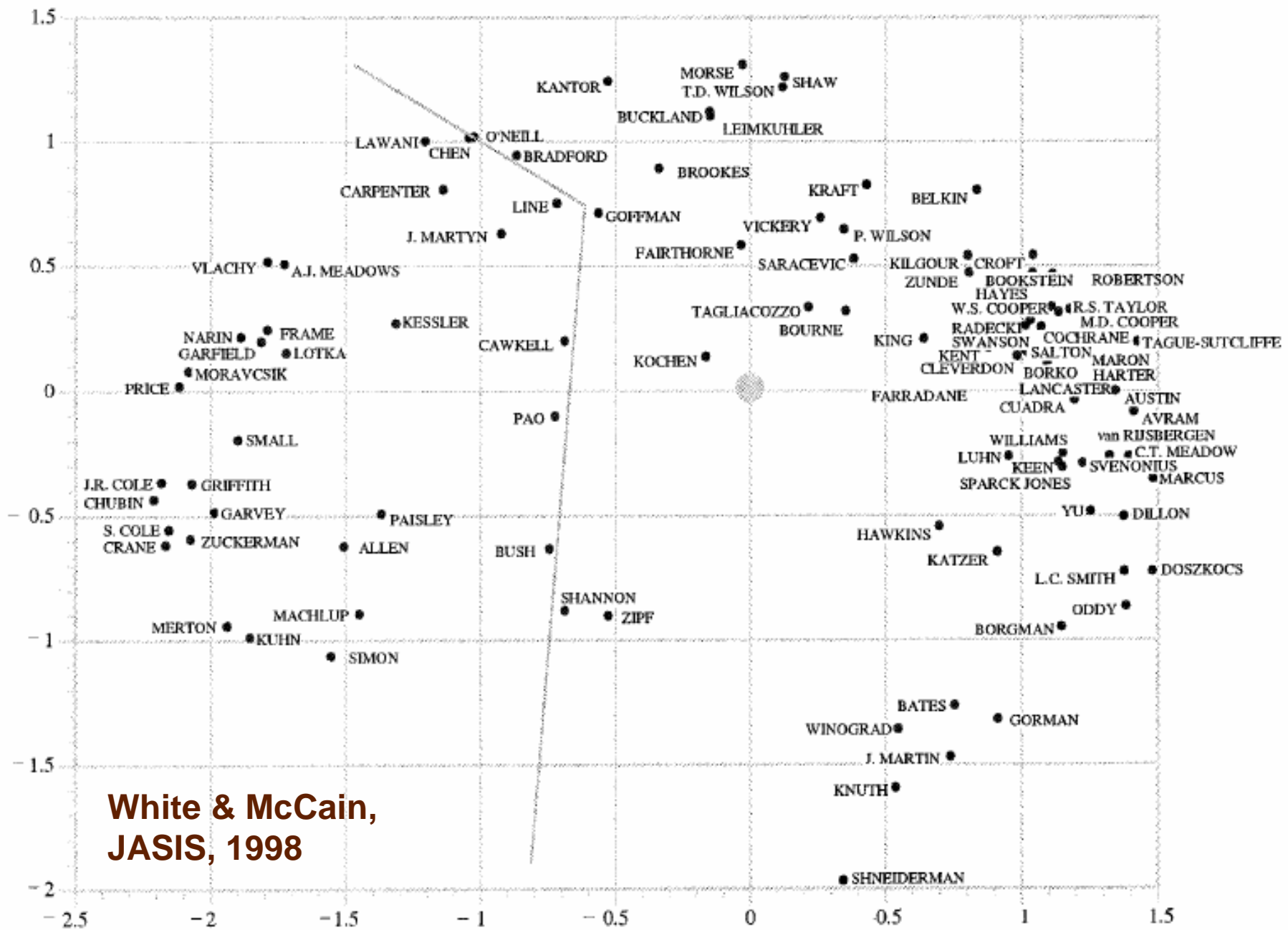
- | How do you regard IS?
- | – as a IT-driven computer science-related field, a social science field, a communication science-associated discipline, or something different – seen in European-Anglo-American perspective?

Some Central LIS Concepts

- | Information & Knowledge
- | Information need: formation & development
- | Anomalous State of Knowledge: ASK
- | Work Tasks / Daily-life tasks & interests
- | Search Tasks (seeking/search strategies; tactics)
- | Information Sources:
 - | Information Objects – Documents - People
- | Interaction – Communication – Context
- | Relevance

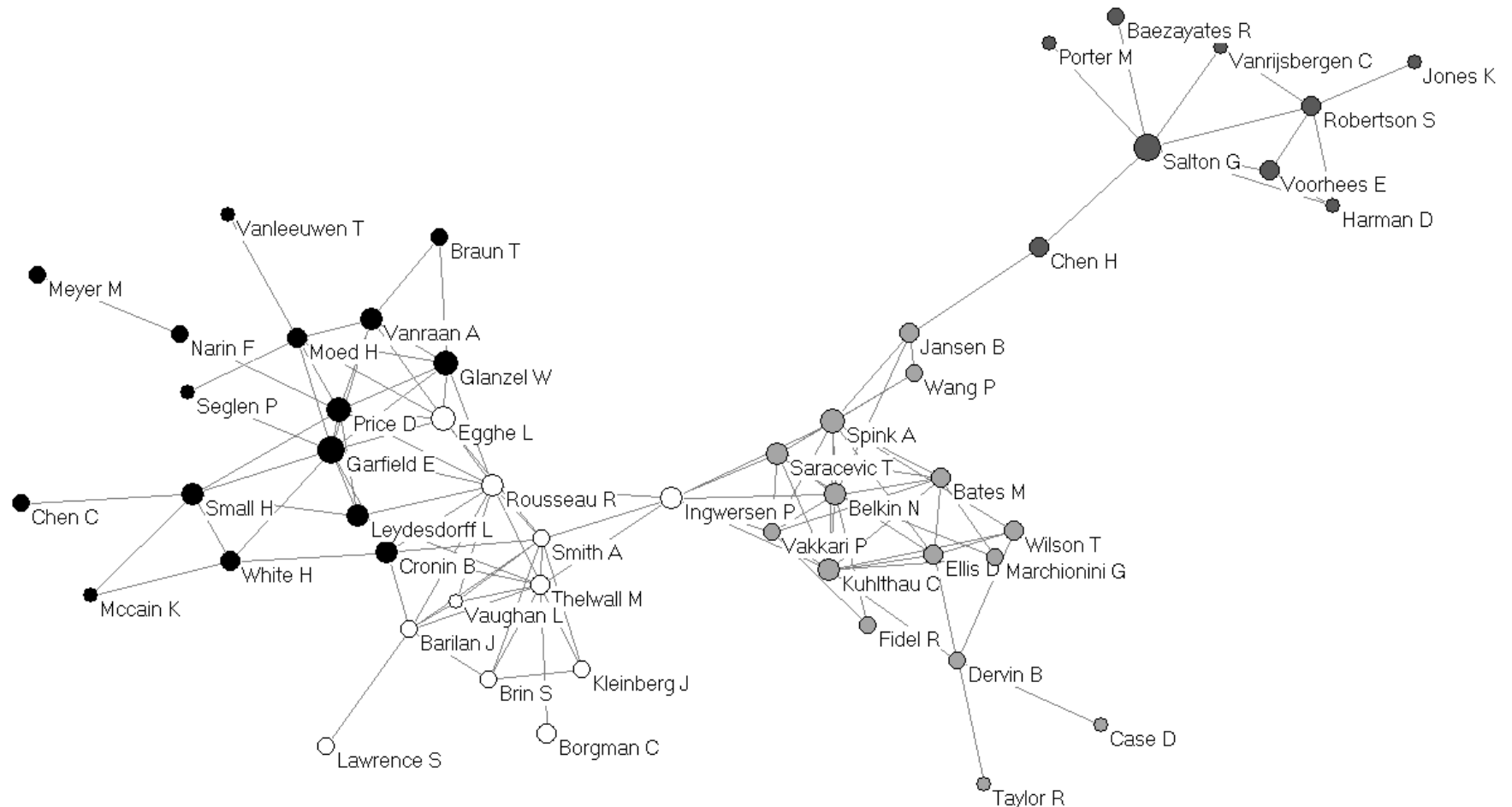
Some recent developments

- | The *i*-School construction (US & beyond)
- | Increased integration between disciplines
- | Changed R&D; publication patterns, e.g.
 - | Laboratory IR in conference papers, i.e. less visibility in journals (WoS >>> maps)
 - | Increased R&D: Web; media & archival/DL (IT-drive?)
 - | Difficulty for CoLIS; ISIC (ASIST) to attract many and good submissions



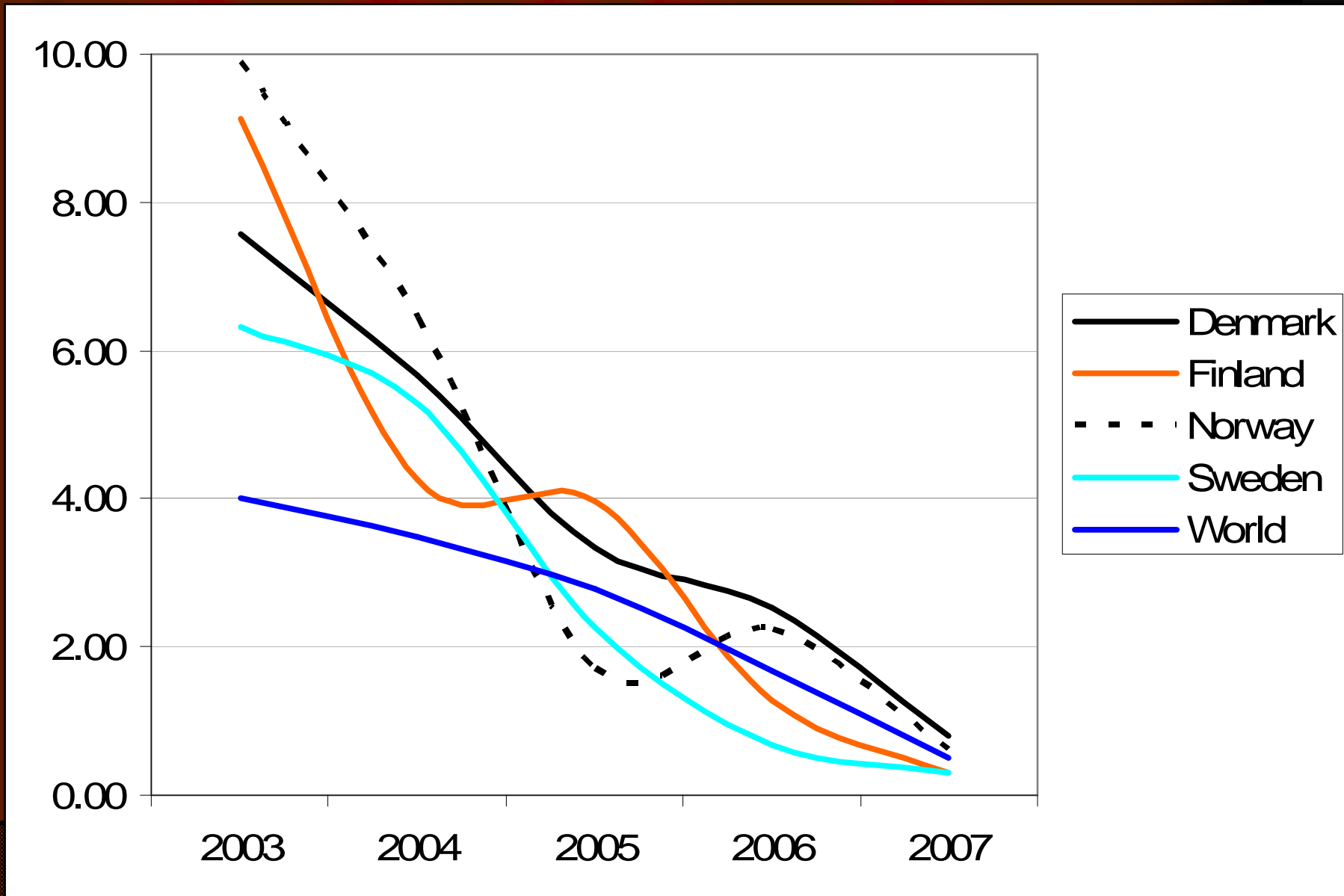
**White & McCain,
JASIS, 1998**

FIG. 2. Top 100 authors in information science, 1972–1979.

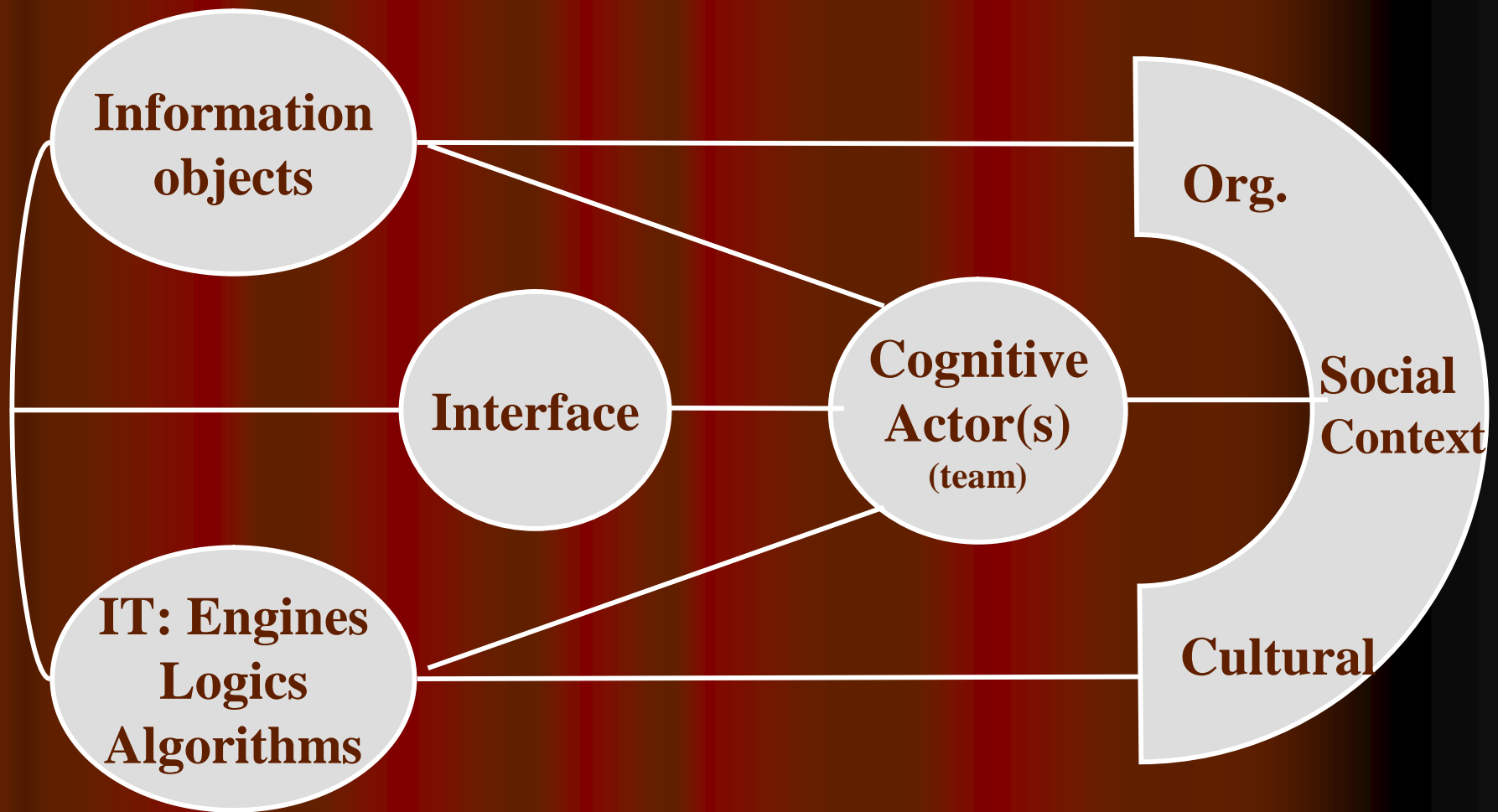


2003-2007 – 63 authors; 2542 LIS articles
 (=White/McCain, 1998). Persson, 2008

Citation Impact 2007 (-08)



Simplistic *general model* of cognitive Information Seeking & (I)IR (Puzzle Model)



Information Concepts - 1

- | Information is **Contents of Texts**, i.e. word representation, index terms (Salton, 1968)
 - | generator's meaning: information ~ meaning
- | **Information Measure**, i.e., probability of reception of signs in a message (Shannon, 49)
 - | generator's signs (not meaning) ~ information
- | **Information: the Meaning of a message and Reduction of uncertainty** (Artandi, 73)

Information Concepts - 2

- | Information associated with human perception:
 - | **Reduction of Uncertainty** (Wersig, 1971-73)
 - | Problematic Situation → State of Uncertainty
 - | **Knowledge Structures** (Brookes, 1978,80; Belkin, 78)
 - | *Brookes' Equation*, effects on an individual's knowledge state

Information Concepts - 3

Buckland's tripartite ontology (1990):

Information as

THING - PROCESS - KNOWLEDGE



The Consolidated Information Concept

The cognitive view: perception in context

Two conditions must be satisfied:

Information is

- I *the result of a transformation of generator's knowledge structures*
 - by Intentionality, model of recipients' states of knowledge, and in form of signs which
- I *when perceived, affects and transforms the recipient's state of knowledge (Ingwersen, 1992)*

Information (equals or) goes beyond meaning

A Central Question

Does information have to be NEW?

Creativity & daily-life information acquisition

Idea (presuppositions)

→ Hypothesis / Prediction (intention/action)

→ Test (sensory data interpretation)

→ Falsification / Verification

→ Information

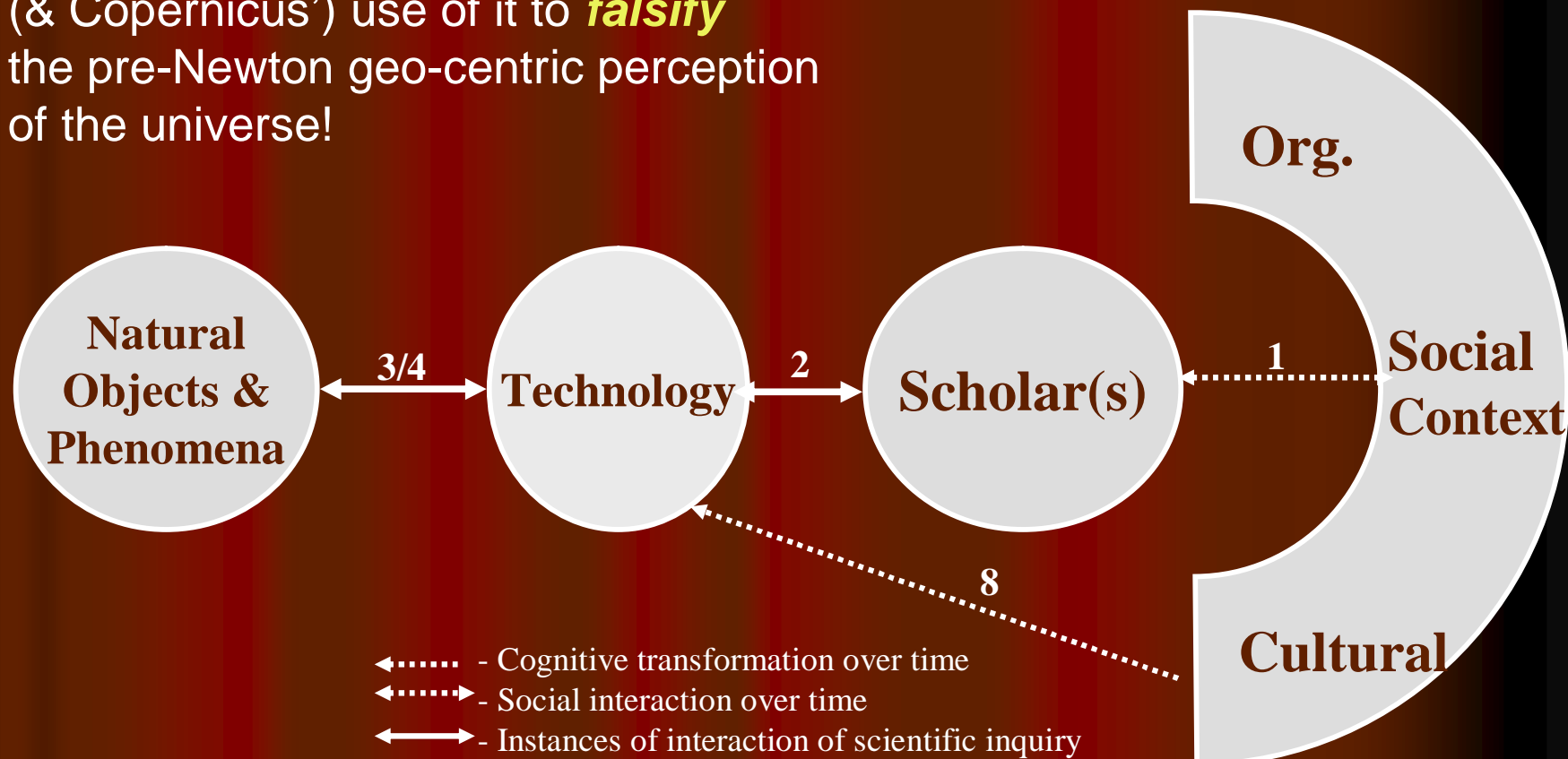
→ Cognition (context)

→ Knowledge

→ Theory..

Model of (scientific) information acquisition from Sensory Data from nature (The Turn, p. 273)

Remember Tycho Brahe's data set ... and Kepler's (& Copernicus') use of it to **falsify** the pre-Newton geo-centric perception of the universe!



Creativity & scientific information acquisition

Theory ... Model ... Idea (presuppositions)

→ Hypothesis / Prediction (intention)

→ Test (data interpretation)

→ Falsification / Verification

→ Information

→ Cognition (in context)

→ Knowledge

→ Theory..

Thank You!

Professor Peter Ingwersen

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