



Disciplines and phenomena in knowledge organization systems

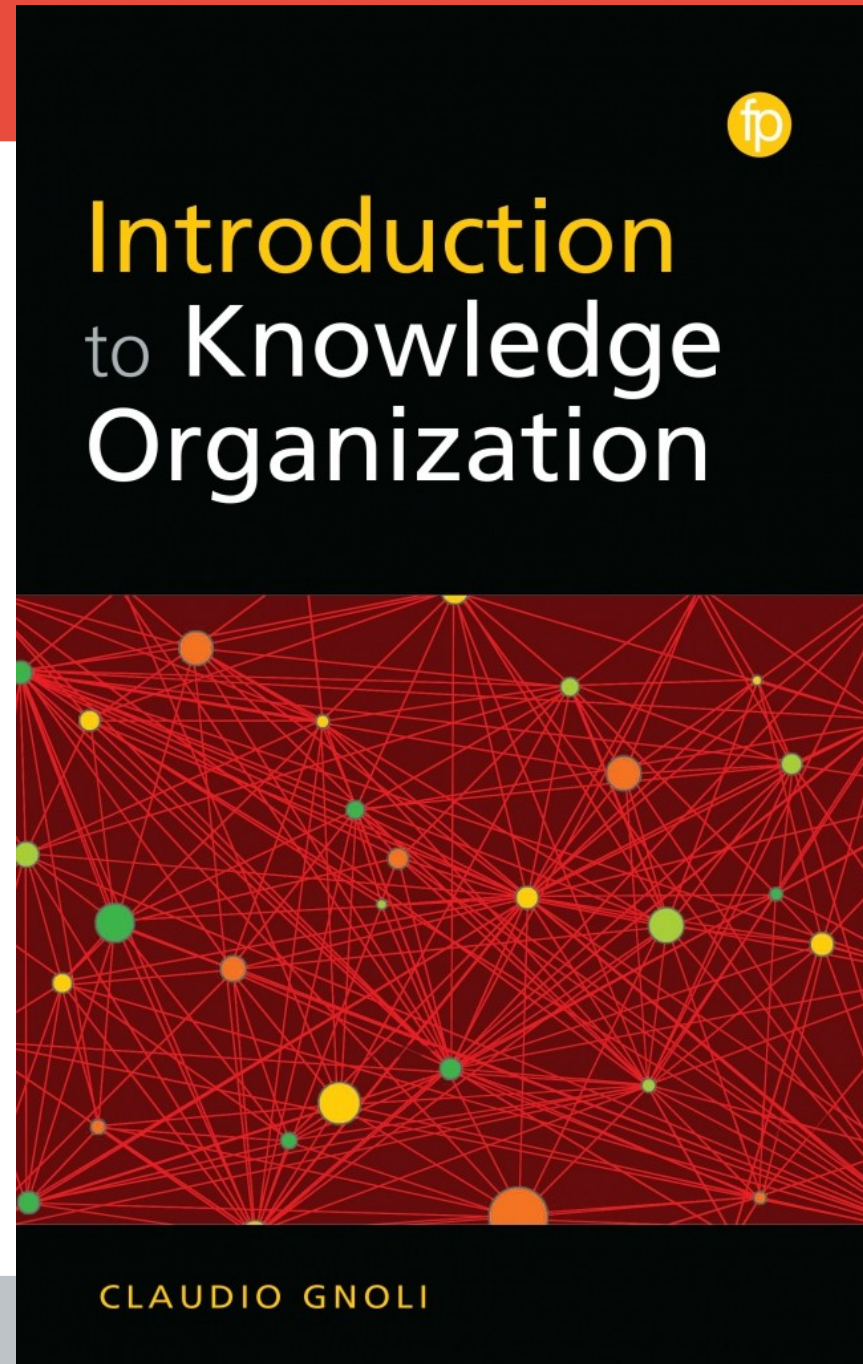
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source

**Facet Publishing
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Discipline

“A specific branch of knowledge, learning and practice”

(Wikipedia disambiguation page)

Physics

Cultural anthropology

Ophtalmology

Chiropterology

...

isko.org/cyclo/discipline

Aristotle (382-322 BCE)

Theoretical arts

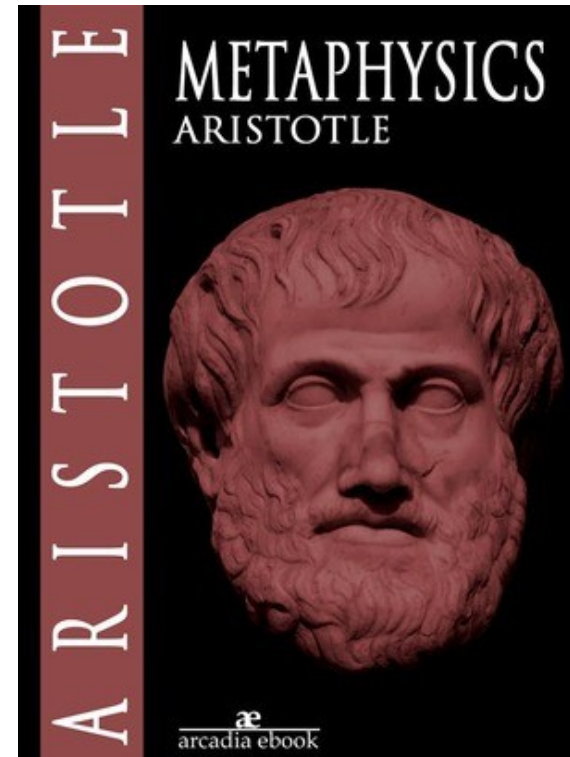
logic, mathematics, physics, *meta*-physics...

Practical arts

ethics, politics, economics...

Productive arts

applied sciences, fine arts...

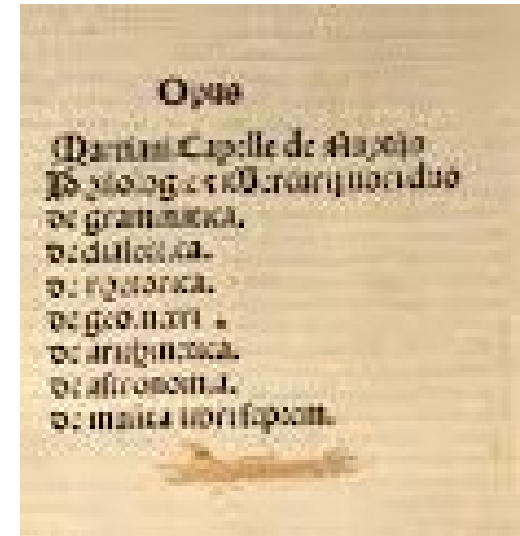


Martianus Capella (400 CE) and scholars

Marriage of Philology and Mercury

The seven liberal arts:

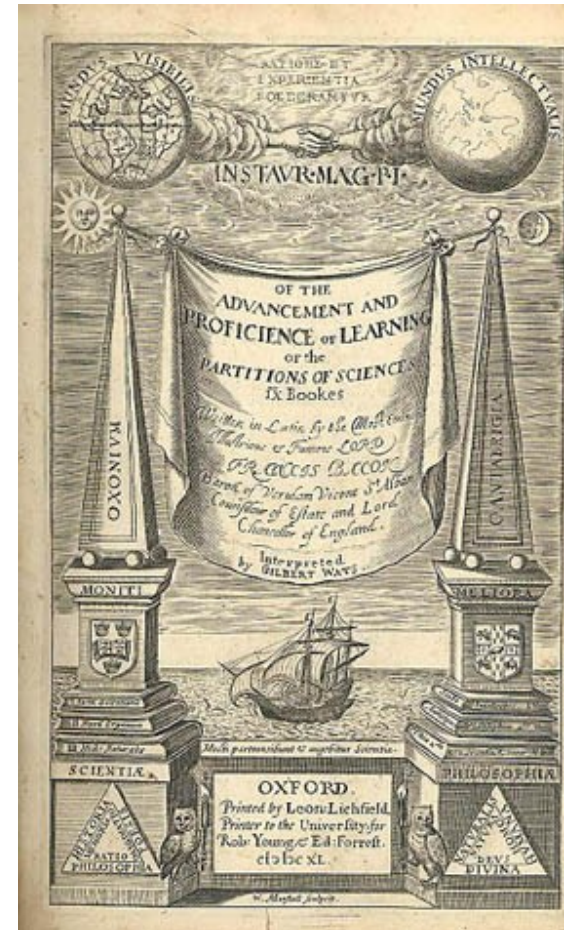
- grammar, dialectic, rhetoric (-> Trivium)
 - geometry, arithmetic, astronomy, harmony (-> Quadrivium)
- + architecture, medicine (silent attenders)



Francis Bacon (1561-1626)

The parts of human learning:

- sciences of memory (→ DDC 900)
- sciences of imagination (→ DDC 700/800)
- sciences of reason (→ DDC 100/600)

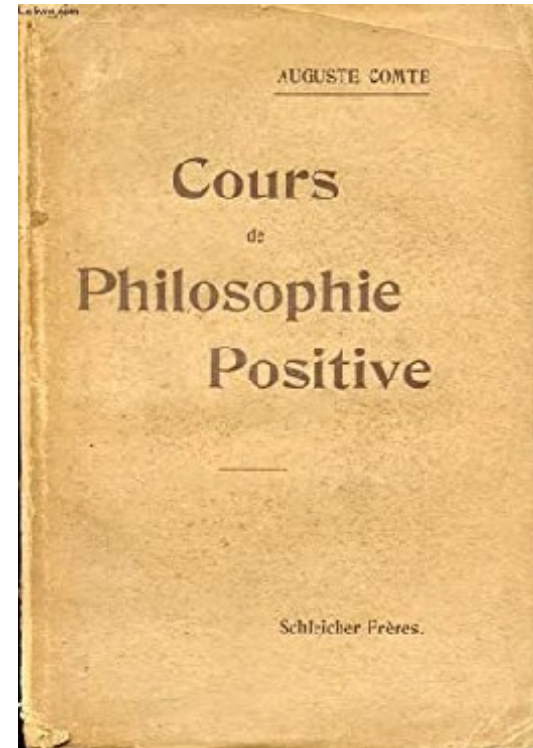


Auguste Comte (1798-1857)

Encyclopedia of the sciences (increasing complexity):

- astronomy
- physics
- chemistry
- biology
- sociology

→ Bliss Bibliographic Classification



Genealogy of disciplines

Often historically different from Comte's "evolutionary" order

E.g.

epic poetry → history

philosophy → natural history → biology

alchemy → chemistry

philosophy → psychology ← physiology

isko.org/cyclo/genealogical

Derek Langridge (CRG)

Topics (phenomena):

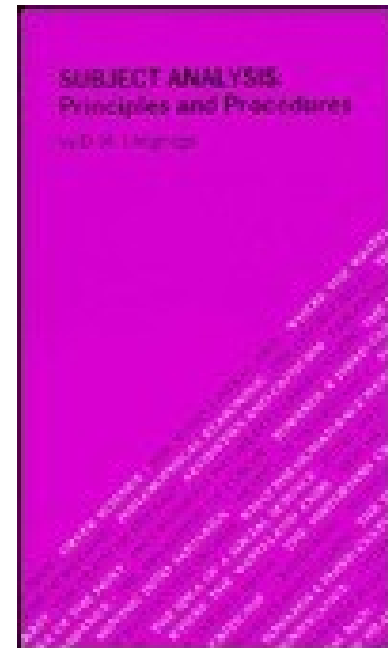
matter, chemical compounds, life, minds, societies...

Forms of knowledge:

*philosophy, natural science, technology,
social practice, history, religion, art...*

Main classes are combinations of the two!

biology = natural science of life



Phenomena in KOSs

Thesauri and subject headings mostly list phenomena:

stars NT white dwarves

In most classifications, phenomena are scattered in disciplines although listed as “topics” in relative indexes

Stars 133.5 [astrology]

523.8 [astronomy]

BC2 and BSO have little sections for phenomena

Phenomena in disciplinary classifications

No rule about where discipline ends and phenomenon starts

5|84.925 science of corn

(systematic botany of panicoideae)

633.2|7 agriculture of corn

(field cultivation of crops: panicoideae)

León Manifesto (2007)

- Interdisciplinarity requires new KOSs;
- they are feasible,
- must be phenomenon-based,
- must allow to shift between perspectives (theories, methods)
- through analytico-synthetic techniques.

iskoi.org/ilc/leon.php



Phenomenon-based classifications

- **Subject Classification / James Duff Brown (1900s)**
- **NATO draft classification / Classification Research Group(1960s)**
- **...**
- **Integrative Levels Classification / Claudio Gnoli et al. (2000s)**
- **Basic Concepts Classification / Rick Szostak (2000s)**

Integrative Levels Classification (ILC)

Information: *a* forms, *b* spacetime...

Matter: *d* particles, *e* elements, *f* molecules, *i* rocks...

Life: *k* genes, *l* bacteria, *m* organisms, *n* populations

Agency: *o* instincts, *p* consciousness

Culture: *q* languages, *r* rituals, *s* communities, *t* polities...

Heritage: *w* artifacts, *x* art works, *y* recorded knowledge

isko.org/cyclo/ilc

ILC facets

Free facets:

w90r artifacts, for rituals

Special facets:

w73d artifacts, wooden

Common facets:

w1px artifacts, in 20th century

(ILC3 developing notation)

Dimensions of KO

α (reality in itself)

β phenomena

γ perspectives (disciplines, approaches, theories, methods...)

δ documents

ϵ collections

ζ information needs

η people

θ cognition

Dimensional facets in ILC

w07sd artifacts, studied in physics

w07su artifacts, **studied in economics**

kv07su viruses, **studied in economics**

kv07te viruses, studied in medicine

Constructivism

β phenomena

|

γ perspectives

...But can they be separated?

N.R. Hanson (1958): phenomena are *theory-laden*

→ T.S. Kuhn

in KO: Hjørland, Kleineberg (iskoi.org/ilc/elephant.php)



Concepts of phenomena and perspectives evolve



Consolidated concepts: *stars, buildings...*

Hypothesized concepts: *strings, gravitational waves...*

Discarded concepts: *ether, human races...*

...Many thanks
for your attention :-)



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