

# Progress in synthetic classification:

towards unique definition  
of concepts

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# Helpful sequence

- A Iceland
- B Norway
- C Sweden
- D Denmark
- E Ireland
- F United Kingdom
- G Netherlands
- H Belgium
- I Luxembourg
- J France
- ...

# Hierarchy

A America

E Europe

EA Iceland

EB Norway

EC Sweden

ED Denmark

EE Ireland

EF United Kingdom

...

I Africa

O Asia

U Oceania

Y Antarctica

**futility point  $\approx 30$**

# Hierarchy

(4) Europe

(41) British Isles

(410) United Kingdom

(410.1) England

(410.3) Wales

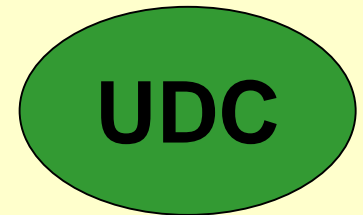
(410.5) Scotland

(410.521) Orkney Islands

(410.522) Shetland Islands

(410.523) Western Isles

(410.7) Northern Ireland



# Common subdivisions

## EA Norway

EBC Norway in the 17th century

EBD Norway in the 18th century

EBE Norway in the 19th century

EBF Norway in the 20th century

## EI France

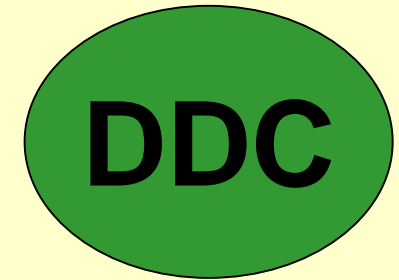
EJL France in the 15th century

EJM France in the 16th century

EJN France in the 17th century

EJO France in the 18th century

# Common subdivisions



633.18      rice cultivation  
-05          serials

633.1805    serials on rice cultivation

633.180945 rice cultivation in Italy  
(serials??)

# Common subdivisions

**DDC**

*“common subdivisions”*

emphasizing top-down hierarchy

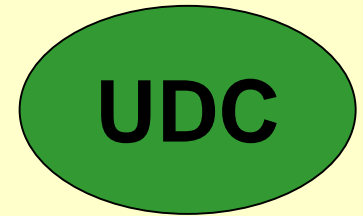
**UDC**

**BC2**

*“common auxiliaries”*

emphasizing combination of concepts  
*synthetic classmarks*

# Facets



( 410 . 5 )

Scotland

( 410 . 5 - 15 )

rural Scotland

( 410 . 5 - 22 )

western Scotland

( 410 . 5 - 15 - 22 )

rural western Scotland

# Phases

## *phase relationships*

(general, bias, comparison, difference, influencing, others)

[Ranganathan 1967]

338.48

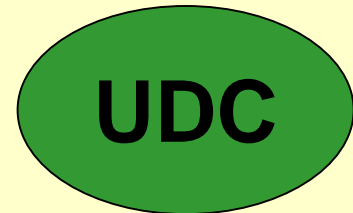
tourism

599.5

marine mammals

338.48:599.5

tourism related to marine mammals



# Phases

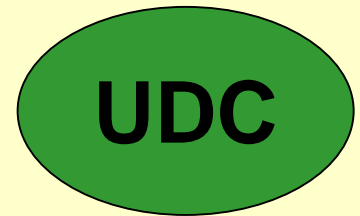
more specific phase relationships

(410.5-15-22) rural western Scotland

502.172 wildlife conservation

338.48:599.5(410.5-15-22)-042.3:502.172

tourism **related with** marine mammals  
in rural western Scotland  
**influenced by** wildlife conservation

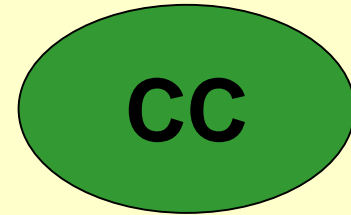


# Phases



- 590+420 education **in addition** to religion
- 420/590 **from** education **to** religion
- 590:420 religion **and** education
- 590=420 **comparison between** religion and ed.
- 590»420 **influence** of religion **on** education
- 420«590 religion **for** educational **purposes**
- 590-420 religion **as viewed by** education
- 590<420 education **as part of** religion

# Subject device



C physics  
G biology  
G:(C) biophysics

O-,2J64,51:g criticism of *Hamlet*  
S psychology  
O-,2J64,51:g(S) psychology of *Hamlet*

# Subject device

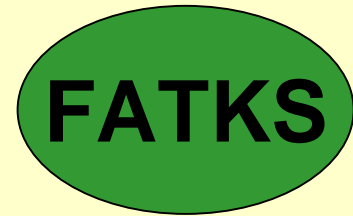
A green oval containing the text "UDC" in bold black letters.

table -029

*properties derived from other main classes*

- 029:001 scientific properties
- 029:1 philosophical properties
- 029:133 occult properties
- 029:51 mathematical properties

# Subject device



110 science of science  
(M9:110) scientific properties

120 philosophy  
(M9:120) philosophical properties

# Same concept with different notation

- 03 common auxiliaries of materials
  - 034.1 ferrous metals, **iron** and steel
- 546 inorganic chemistry
  - 546.72 **iron**
- 553 economic geology, mineral deposits
  - 553.3 ore deposits, **iron** and manganese ores
- 669 metallurgy
  - 669.1 **ferrous** metallurgy
- 67 various industries, trades and crafts
  - 672 articles of **iron** and steel
- 68 industries, crafts and trades for finished articles
  - 682 smithery, blacksmithery, farriery,  
hand-forged **ironwork**



UDC

# Same concept with different notation

However,

“A new idea or a new discovery may not yet have appeared in that part of the schedules we happen to need, even though it appears somewhere else.

For example, although 'iron' may appear in the chemistry tables, we might have to wait while the editor establishes the right number for iron in, say, a schedule of drugs” .

[Austin (CRG) 1969]

# Same concept with different notation

Have users always a preferred disciplinary perspective?

Interdisciplinary search should be served better...

[\[León manifesto 2007\]](#)

# Place of unique definition

“Each entity has, as its primary place, the one where [...] all characteristics essential to the definition, and no more, are available. [...]

A *horse* is only **sometimes**  
a sporting animal, or  
a draft animal,  
but is **always**  
a perissodactyl mammal.”

[Foskett (CRG) 1970]

# Place of unique definition

“Each isolate will have **a constant symbol** in whatever aspect or context it is used, and no symbol will represent more than one isolate”

[Farradane (CRG) 1952]

Edi = *iron*



**ILC**

(in chemistry, or metallurgy, or arts, or...)

# Interdisciplinary subjects

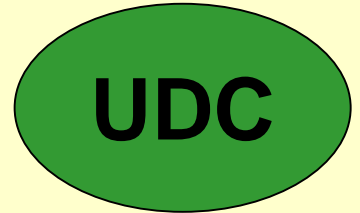
ILC: Integrative Level Classification  
research project (ISKO Italy)

including the [BioAcoustic Reference Database](#)

e.g.

“The value of conserving whales:  
**the impact of** cetacean-**related** tourism  
on the economy **of** rural West Scotland”

# Interdisciplinary subjects



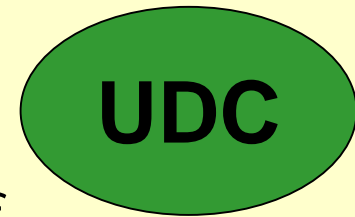
338.48:599.5(410.5-15-22)-042.3:502.172  
tourism **related with** marine mammals  
in rural western Scotland  
**influenced by** wildlife conservation

“The value of conserving whales:  
**the impact of** cetacean-**related** tourism  
on the economy **of** rural West Scotland”

# Interdisciplinary subjects

Still,

338.48 tourism



implies that tourism is a subclass of

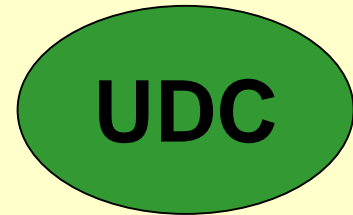
33 economy

rather than

geography, culture, entertainment...

But what about e.g. free camping?

# Common auxiliaries and main classes



(410.5) Scotland  
(common auxiliary of place)

913 regional geography

913(410.5) geography of Scotland

# Common auxiliaries and main classes



“creating a semantic network  
that links the whole of knowledge with humanities,  
and both of these with the common auxiliaries [...]

each concept must have a permanent notation [...]  
no matter to which syntax combination it engages”

[Broughton & Slavic 2007]

# Common auxiliaries and main classes

Why not reversing the definition:  
auxiliaries defined in terms of main classes

K99`eec` Scotland (main class)  
2 [K99] in place (common facet)  
2`eec` in Scotland

Xy2`eec` tourism in Scotland



**ILC**

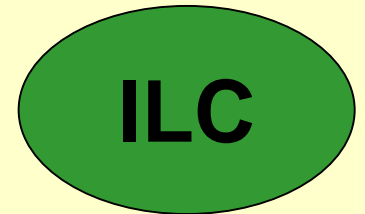
# Common auxiliaries and main classes

Ny<sup>w</sup> rural environments  
25 [Ny] in environment (common facet)  
Xy2eec25<sup>w</sup> tourism in rural Scotland

M<sup>q</sup>vtn cetaceans  
S3<sup>w</sup> wildlife conservation  
S4<sup>q</sup>vtn3<sup>w</sup> conservation of cetaceans

S4<sup>q</sup>vtn3<sup>w</sup>) 86 (Xy2<sup>ee</sup>c (4s) 25<sup>w</sup>)

conservation of cetaceans affecting  
tourism in rural western Scotland



# Dependence

sculptures

made of iron

made of atoms

made of quarks

⇒ sculptures see quarks ☹️

iron

elasticity

quarks

elasticity ☹️

# Dependence

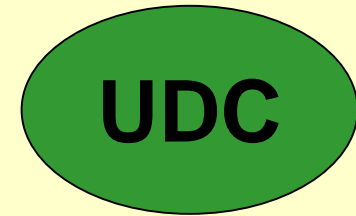
iron

*see also* iron ores ☺

*see also* iron sculptures ☹

*see also* iron age ☹

# Dependence



(410.1)

England

811

languages

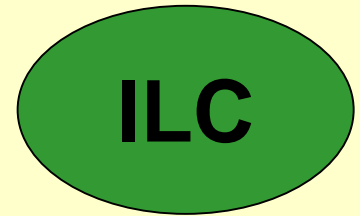
811(410.1)

English language ☹️

811.111

English language 😊

# Dependence



K99eey

England

Quyemi

English language « K99eey

K99oa

Australia

Quys

Australian aboriginal languages

« K99oa

# A one-table scheme

1 abstract relations

13 quantity

14 order

15 number

16 time

18 causation

2 space

22 dimensions

23 form

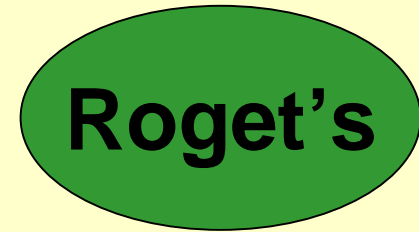
24 motion

3 matter

4 intellectual faculties

5 voluntary powers

6 sentient and moral powers



# conclusion

- common auxiliaries = common facets
- facets
- phases
- subject device
- dependence
- discipline-phenomenon rel.

# conclusion

All these devices  
should be connected to  
the **place of unique definition**  
of related concepts