

Facets in UDC: a review of current situation

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Abstract: The author explains some general principles in structuring classifications, in particular the facet as a basic building element of the scheme. The paper provides an overview of structural and presentational elements of facets and how these can be expressed through notational system. The author also analyses the way some broad fundamental facets of concepts are presented in UDC tables, when these are represented by special auxiliaries, and proposes a way of normalising facet presentation so that it becomes consistent and easy to recognize in UDC.

1. Facet elements

Facets are attributes that typically occur within a class: although “cats” can have any number of attributes, such as “living with a painter” or “liking to chew electric cables”, some are more typically useful to describe cat instances, like “tabby” or “sterilized”. In more technical terms, they are subdivisions of a class by mutually exclusive criteria, each generating an array (Vickery, 1960; Ranganathan, 1967). Any phenomena can be organized into facets according to certain attributes; however, traditional bibliographic classifications are usually concerned with the facets of a discipline, such as “methods” or “operations” besides those of the objects of study, like “fur colour”.

In UDC, facets are often expressed as special auxiliaries, that is auxiliaries that can be attached only to specific classes, as opposed to common auxiliaries that can be attached to any class. This is consistent with the illustration above of what a facet is: while anything can be “in 1979” (common auxiliary), only cats can be “tabby” (special auxiliary).

The relationship between a class and its facet actually consists of a set of structural sub-elements (Gnoli, 2006; Gnoli et al., 2011). It is important to acknowledge their existence, be it explicit or not in its particular realizations:

- the **basic class**, e.g. “cats”;
- the **facet introducer**: a sign meaning that what follows is a facet, as opposed to a subclass or any other structural element (this term is not found in existing literature, and should not be confused with *facet indicator* — see below);
- the **fundamental category** to which the facet belongs, e.g. “properties” as opposed to “processes” or “agents” etc.;
- the **principle of subdivision** of the facet, e.g. “fur colour”. This can be given as the result of the combination of the basic class with the fundamental category (e.g. the fundamental category “processes” in the context of the astronomy class can take the meaning “celestial mechanics”). In several systems, this is notationally expressed together with the two previous sub-elements by a facet indicator (e.g. a punctuation mark in Colon);
- the **source** in the system from where the facet values can be taken (place of definition of foci). There seems to be three logical options for this:
 - foci have to be taken from a special list only defined for the facet itself (context-defined foci): the value for the “gender” facet of animals can only be either “male” or “female”;
 - foci have to be taken from the subclasses of another class (special extra-defined foci, a special case of parallel division): values for the facet “in season” will be taken from the class of seasons. This includes the solution, frequent in UDC, that they are taken from the facets of another class;

- o foci can be taken from any class in the schedules (general extra-defined foci): values for the facet “special topic” in librarianship will be taken from anywhere;
- the value taken in the present classified item by the facet, called its **focus**, e.g. “tabby”;
- a facet closer, marking the end of a facet, to which another facet or sometimes a subclass of the faceted class (a subclass of tabby cats, not just of cats) can follow. Notice that this is only a theoretical sub-element, not implemented in many systems including UDC;

Each of these elements can either be expressed in notation or not. An element can be expressed in a special character, or in a character sequence, or even in just the transition from a character set to another (e.g. the transition from numbers to punctuation marks works as facet introducer in Colon, while the transition from a later-filing to an earlier-filing letter works as facet introducer in BC2).

Expressivity in itself is clearly a benefit, but it conflicts with other requirements like simplicity and brevity: therefore, different classifications adopt different compromises. A non-expressive classification like BC2, although being fully structured into facets, does not express most of these elements in notation.

UDC is generally set as a very expressive classification, with a notation that lends itself for easy use in digital information retrieval. Therefore, it seems highly desirable that UDC follows more consistently the principle of notational expressivity when it comes to facet presentation. This objective has not been fully realised yet, primarily because different classes have been analysed into facets differently and there is a need for clear guidelines on this specific point. This review attempts to provide a contribution in this direction.

2. Presentation of special auxiliaries in UDC

Let us have a short review of faceted classes in UDC, in the light of the structural sub-elements listed above. We will consider here the classes that have some facets presented as special auxiliary tables (symbol | before notation in the schedules) in the English Pocket edition (BSI, 2003), though completing their presentation by some additional notation from the Master Reference File; captions will be shortened for the sake of simplicity of presentation in the present context, so please refer to the schedules for the exact meaning and scope of each class.

It turns out that the elements above have been modelled differently in the facetization of different UDC classes. Facet introducer is sometimes the single character - and sometimes the two-character sequence .0. Although these are by far the most widespread introducers, others are used, such as ` (back quote).

The first digit following the facet introducer usually expresses the principle of subdivision. However, in some cases the facet introducer consists of two digits. No category indicator is usually expressed; this is a quite deliberate choice, as it is believed to have no special use in application of classification, while being primarily important in the process of building the system. (Tentative category schemes are only discussed in FID 1990 guideline, with an example for astronomy, and in Philosophy revision Report 1 about the cases of philosophy and religion (Gnoli, 2009). Further digits after the facet indicator usually express focus. Source notation is mostly internal to the facet itself (context-defined foci), except for some facets with notation parallel to that of others (special extra-defined foci) and rare cases of notation taken from anywhere in the scheme (general extra-defined foci).

2.1 Facets introduced by - (hyphen)

A common situation in UDC is to have a hyphen - as the facet introducer, followed by one digit for the principle of *subdivision*, and the subsequent digits for *context-defined foci*:

Philosophy

A proposal for a new faceted schedule of philosophy is in preparation and is expected to adopt the following model:

- 1-2 Philosophy sources
- 1-3 Philosophers
- 1-4 Applications of philosophy
- 1-5 Practice of philosophy
- 1-8 Viewpoints
- 1-9 Philosophical systems

Example of combination:

17-949 Ethics, in Epicureanism

basic class: 17 Ethics

facet introducer: -

category indicator and principle of subdivision: 9 Philosophical systems

source notation: context-defined

focus: 49 Epicureanism

Religion

- 2-1 Theory and philosophy of religion
- 2-2 Evidences of religion
- 2-3 Persons in religion
- 2-4 Religious activities
- 2-5 Worship
- 2-6 Processes in religion
- 2-7 Religious organization and administration
- 2-8 Religions characterised by various properties
- 2-9 History of the faith, religion, denomination or church

Example of combination:

24-788 Buddhism, monastic orders

basic class: 24 Buddhism

facet introducer: -

category indicator and principle of subdivision: 7 Organization and administration

source notation: context-defined

focus: 88 Monastic orders

Social welfare

- 364-1/-7 Special auxiliary subdivision for social welfare
- 364-1 Theories of social welfare
- 364-2 Principles of assistance
- 364-3 Social welfare agencies
- 364-4 People as providers of assistance
- 364-5 Social welfare facilities
- 364-54 Homes**

364-6 Contributions and payments

364-7 Social welfare operations

Example of combination:

364.662-54 Welfare homes, almshouses

basic class: 364.662 Poverty

facet introducer: -

category indicator: lacking

principle of subdivision: 5

source notation: context-defined

focus: 4 Homes

Astronomy

51-1/-8 Special auxiliary subdivision for astronomy

52-1 Mode of treatment

52-3 Properties and phenomena, especially geometrical

52-4 Processes of bodies and systems

52-5 Stages in development of bodies and systems

52-6 Processes of radiation

52-7 Character of radiation

52-8 Parts and features of individual systems

52-87 Satellites. Companions

Example of combination

523.4-87 Solar System planets satellites

basic class: 523.4 Solar System planets

facet introducer: -

category indicator and principle of subdivision: 8 Parts and features of systems

source notation: context-defined

focus: 7 Satellites

Engineering

62-1/-9 Special auxiliary subdivision for technology in general

62-1 General characteristics of machines

62-2 Fixed and movable parts, components of machines

62-3 Fluid control parts and drives

62-4 State, condition and form of materials

62-5 Operation and control of machines and processes

62-51 General operation and control of machines and processes

62-6 Fuel and other heat-source characteristics of machinery and installations

62-7 Servicing, maintenance, protection of machines

62-8 Machines according to motive power

62-9 Variables, conditions and characteristics of production processes, plant and equipment

Example of combination:

629-51 Transport vehicle engineering, steering controls

basic class: 629 Transport vehicle engineering

facet introducer: -

category indicator: lacking

principle of subdivision: 5 Operation and control of machines and processes

source notation: context-defined (special extra-defined only for 62-9)

focus: 1 General operation and control, incl. steering controls

Place and space

(1-0/-9) Boundaries and spatial forms of various kinds

(1-0) Zones

(1-04) Limiting zones. Boundaries

(1-1) Orientation

(1-5) Dependent or semi-dependent territories

(1-6) States or groupings of states from various points of view

(1-7) Places and areas according to privacy

(1-8) Location. Source. Transit. Destination

Example of combination:

(430-04) The boundaries of Germany

basic class: (430) Germany

facet introducer: -

category indicator: lacking

principle of subdivision: 0 Zones

source notation: context-defined

focus: 4 Boundaries

2.2 Facets introduced by .0 (point naught)

The same model is also frequent with .0 as the facet introducer, again with context-defined foci:

Writing systems

003.01/09 Special auxiliary subdivision for writing systems and scripts

003.01 Origins, precursors of scripts

003.02 Emergence of writing

003.03 Graphic expression of language

003.07 Uses and styles

003.072 Palaeography. Palaeographic writing

003.08 Characteristics of writing

003.09 Techniques and methods of deciphering scripts

Example of combination:

003.344.072 Latin script, palaeography

basic class: 003.344 Latin script
facet introducer: .0
category indicator: lacking
principle of subdivision: 7 Uses and styles [of writing]
source notation: context-defined
focus: 2 Palaeography

Computer science

004.01/08 Special auxiliary subdivision for computing
004.01 Documentation
004.02 Problem-solving methods
004.03 System types and characteristics
004.031 **System types**
004.031.2 **Offline. Including: Batch**
004.04 Processing orientation
004.05 System and software quality
004.07 Memory characteristics
004.08 Input, output and storage media

Example of combination:

004.55.031.2 Hypertexts, offline

basic class: 004.55 Hypertexts
facet introducer: .0
category indicator: lacking
principle of subdivision: 31 System types
source notation: context-defined
focus: 2 Offline

Social sciences in general

3.07/08 Special auxiliary subdivision for social sciences in general
3.07 Administrative arrangements
3.08 Personnel of authorities

facet introducer: .0
category indicator: lacking
principle of subdivision: 7/8
source notation: context-defined

Demography

314.01/04 Special auxiliary subdivision for demography
314.01 Subject, scope and aims of demography
314.02 Sources of demographic data
314.04 Types and features of populations

facet introducer: .0
category indicator: lacking though implicit in facet captions

principle of subdivision: 1/8
 source notation: context-defined

Law

- 34.01/09 Special auxiliary subdivision for law, jurisprudence
- 34.01 Nature of law
 - 34.02 Conditions of existence of law
 - 34.03 Operation, workings of law
 - 34.04 Reformation of law
 - 34.05 Comparison
 - 34.06 Questions of legal method and technique
 - 34.07 External organization of law
 - 34.08 Legal personnel
 - 34.09 Individual cases, issues, points of law

facet introducer: .0
 category indicator and principle of subdivision: 1/8
 source notation: context-defined

Military affairs

- 355.01/09 Special auxiliary subdivision for military affairs
- 355.01 Sociology of war. Philosophy of war
- 355.02 Military policy
- 355.08 Military, naval, and other service personnel
- 355.09 Military, naval, and other service personnel

facet introducer: .0
 category indicator and principle of subdivision: 1/8
 source notation: context-defined

Education

- 37.01/09 Special auxiliary subdivision for theory, principles, methods and organization of education
- 37.01 Fundamentals of education
 - 37.02 General questions of didactics and method
 - 37.04 Education in relation to the educand, pupil
 - 37.06 Social problems
 - 37.07 Management aspects of educational institutions
 - 37.09 Organization of instruction

facet introducer: .0
 category indicator and principle of subdivision: 1/8
 source notation: context-defined

Physics in general

- 53.01/09 Special auxiliary subdivision for physics
- 53.02 General laws of phenomena

- 53.05 Observation and recording of phenomena
- 53.07 Apparatus for production and study of phenomena
- 53.08 General principles and theory of measurement

facet introducer: .0
category indicator: lacking
principle of subdivision: 2/8
source notation: context-defined

Biological sciences

- 57.01/08 Special auxiliary subdivision for theoretical aspects, characteristics, factors etc. in biology
- 57.01 General laws
- 57.02 Biological and ethological processes
- 57.03 Pattern of property variations
- 57.04 Factors. Influences
- 57.06 Nomenclature and classification
- 57.07 Analytical palaeontology
- 57.08 Biological techniques

facet introducer: .0
category indicator and principle of subdivision: 1/8
source notation: context-defined

Botany

- 582.091/099 Special auxiliary subdivisions for classification of plants according to size and form

facet introducer: .0
principle of subdivision: 9
source notation: context-defined

Home economics

- 64.01/08 Special auxiliary subdivision for domestic science
- 64.01 Household management
- 64.048 Study of work and working methods in the household
- 64.05 Home economics for particular kinds of person
- 64.06 Household appliances and machines
- 64.08 Moving house. Removals

facet introducer: .0
category indicator: lacking
principle of subdivision: 1/8
source notation: context-defined

Chemical technology

- 66.01/09 Special auxiliary subdivision for chemical engineering
- 66.02 Chemical processing operations and equipment
- 66.04 Heat treatment operations and equipment
- 66.06 Chemical technology of liquids
- 66.07 Chemical technology of gases
- 66.08 Physical and physicochemical operations and equipment
- 66.09 Chemical technical reactions

facet introducer: .0

category indicator: lacking

principle of subdivision: 2/9

source notation: context-defined

Rubber and plastic industry

- 678.02 Manufacturing processes and operations
- 678.03 Raw materials
- 678.04 Auxiliary materials. Additives
- 678.05 Plant. Machinery. Equipment
- 678.06 Applications of macromolecular materials. Finished products
- 678.07 Classification according to special characteristics
- 678.09 Materials resulting from particular processes

facet introducer: .0

category indicator: lacking

principle of subdivision: 2/7

source notation: context-defined

Arts in general

- 7.01/09 Special auxiliary subdivision for the arts
- 7.01 Theory and philosophy of art
- 7.02 Technique. Craftsmanship
- 7.03 Artistic periods and phases
- 7.04 Subjects for artistic representation
- 7.05 Applications of art
- 7.06 Various questions concerning art
- 7.07 Occupations and activities
- 7.079 Arts festivals**
- 7.08 Characteristic features, forms, combinations etc.
- 7.09 Kind of performances and presentations

Example of combination:

791.65.079 Film festivals

basic class: 791.65 Film exhibition

facet introducer: .0

category indicator: lacking
principle of subdivision: 7 Occupations and activities
source notation: context-defined
focus: 9 Arts festivals

Photography

77.01/09 Special auxiliary subdivision for photography
77.01 Theory, principles and nature of photographic phenomena
77.02 Photographic operations
77.03 Documentary photography
77.04 Pictorial, artistic photography
77.05 Photography and exposures according to ambient conditions
77.06 Photographs, pictures or prints according to appearance, form or size
77.07 Photographs according to support or base material
77.08 Photographs according to intermediate stages

facet introducer: .0
category indicator: lacking (except for .01)
principle of subdivision: 1/8
source notation: context-defined

2.3 Classes with two kinds of facet introducers

Some UDC classes have special auxiliaries presented with more than one type of notation. Occasionally -1/-9 is used to present concepts that are applicable in all areas of the main class, while .0 and `1/9 are normally used to present more specific concepts.

Chemistry

54-1/-4 Special auxiliary subdivision for state of substance, chemicals
54-1 State of substance
54-16 Solid phase
54-162 Crystalline state
54-3 Particular kinds of compound
54-4 Chemicals. Reagents

Example of combination:
546.26-162 Graphite. Diamond

basic class: 546.26 Carbon
facet introducer: -
category indicator: lacking
principle of subdivision: 1 State of substance
source notation: context-defined
focus: 62 Crystalline state

54.01/08 Special auxiliary subdivision for composition, production, preparation and analysis

- 54.01 Chemical substances and systems. Origin. Occurrence. Phases
- 54.02 Composition. Structure. Isotopes
- 54.05 Production. Preparation. Isolation. Purification etc.
- 54.06 Analysis, investigation and handling in general
- 54.07 Apparatus and equipment for preparation, investigation and analysis
- 54.08 Measurement principles, methods, techniques. Instrumentation

facet introducer: .0

category indicator: lacking

principle of subdivision: 1/8

source notation: context-defined

Linguistics

- 81-11 Schools and trends in linguistics
- 81-2 Characteristic features of language

Example of combination:

811.11-112 Historical linguistics of Germanic languages

basic class: 811.11 Germanic languages

facet introducer: -

category indicator: lacking

principle of subdivision: 11

source notation: context-defined

focus: 2 Diachronic linguistics

81'01/'08 Special auxiliary numbers for origins and periods of languages

81'01 Old period. Archaic period

81'02 Classical period

81'04 Middle period

81'06 Modern period

81'08 Revived language

81'1/4 Special auxiliary subdivision for subject fields and facets of linguistics and languages

81'1 General linguistics

81'2 Theory of signs. Theory of translation. Standardization. Usage. Geographical linguistics

81'3 Mathematical and applied linguistics. Phonetics. Graphemics. Grammar. Semantics. Stylistics

81'4 Text linguistics, Discourse analysis. Typological linguistics

Literature

82-1/-9 Literary forms. Genres

82-1 Poetry. Poems. Verse

82-2 Drama. Plays

82-3 Fiction. Prose narrative

82-4	Essays
82-5	Oratory. Speeches
82-6	Letters. Art of letter-writing. Correspondence
82-7	Prose satire. Humour, epigram, parody etc.
82-8	Miscellanea. Polygraphies. Selections
82-9	Various other literary forms
82.02/09	Special auxiliary subdivision for theory, study and technique of literature
82.02	Literary schools, trends and movements
82.09	Literary criticism. Literary studies
82`01/`06	Special auxiliary numbers for periods (phases and developments) of literature
82`01	Old or early periods. Earliest forms
82`04	Middle period. Mediaeval
82`06	Modern period

Example of combination:

821.112.2-2 German drama

basic class: 821.112.2 German literature

facet introducer and principle of subdivision: -

category indicator: lacking source notation:

context-defined focus: 2 Drama

Prehistory

903-4 Shape and form of remains (special auxiliary re-introduced from 62-1/-9)

facet introducer: -

principle of subdivision: 4

category indicator: lacking

source notation: special extra-defined

903'1 Prehistoric culture forms

facet introducer: '

principle of subdivision: 1

category indicator: lacking

source notation: context-defined

2.4 Two-digit facets

From this point onwards we are going to consider facets with any introducer together, as discussion is focused on other elements.

Some classes use two or even more digits for the principle of subdivision; therefore, their foci will start from the third (or later) digit after the introducer, instead that from the second digit as usual. Sometimes

this is a way to express a subfacet, that is a more specific principle of subdivision. While in Linguistics the two digits are used to obtain more than ten facets, in Chemical technology this is not the case, so that in a future revision of the class they could easily be changed to one-digit facets. Pathology has an even more complex situation that could be partly simplified in the occasion of the planned revision of medicine:

Pathology (medicine)

616-001/-009	Special auxiliary subdivision for morbid processes
616-001	Traumata. Injuries. Wounds
616-002	Inflammation. Irritation. Engorgement (hyperaemia). Mucous congestion
616-003	Regressive and reparative processes
616-004	Sclerosis. Hardening (induration). Cirrhosis
616-005	Local circulatory disorders
616-006	Tumours. Neoplasms. Blastomata. Choristomata. Hamartomata. Oncology
616-007	Defective structural development. Physiological deformities. Malformations. Abnormalities
616-008	Functional and metabolic disorders
616-009	Neural (nervous) disorders
616-01/-099	Special auxiliary subdivision for general aspects of pathology
616-01	Various aspects of disease, patients and medical intervention
616-02	Aetiology. Causes of disease
616-03	Various forms of disease, of treatment
616-05	Persons and personal characteristics
616-06	Complications. Consequences. Repercussions. Concurrence
616-07	Semeiology. Symptomatology
616-08	Treatment
616-091	Pathological anatomy. Morbid anatomy
616-092	Pathological physiology
616-093	Microbial techniques
616-094	Microbial morphology
616-095	Microbial physiology
616-097	Immunogenicity
616-098	Microbial physics, chemistry, metabolism, catabolism
616-099	Poisoning. Intoxication
616-71/-78	Special auxiliary subdivision for medical and surgical instrumentation and equipment
616-71	Medical instruments and equipment in general
616-72	Surgical and therapeutic instruments
616-74	Reinforcement and reparative materials and equipment
616-76	Corrective and protective appliances, aids etc.
616-77	Prosthetic materials and parts. Artificial organs etc.
616-78	Machines and mechanical apparatus

facet introducer: -
category indicator: lacking
principle of subdivision: 00/7
source notation: context-defined

Engineering

- 62-9 Variables, conditions and characteristics of production processes, plant and equipment
- 62-91 State of material: characteristics and variables
- 62-92 Reactions in terms of reagents
- 62-93 Processes, machines and equipment
- 62-94 Direction, velocity, rate, duration of processes etc.
- 62-95 Simple and multiple processes
- 62-96 Processes in terms of altering product properties
- 62-97 Thermal characteristics
- 62-98 Pressure

facet introducer: -
category indicator: lacking
principle of subdivision: 91/98
source notation: context-defined

Linguistics

- 81`01/`08 Origins and periods of languages
- 81`1 General linguistics
- 81`2 Theory of signs. Theory of translation. Standardization. Usage. Geographical linguistics
- 81`24 Practical knowledge of languages**
- 81`3 Mathematical and applied linguistics. Phonetics. Graphemics. Grammar. Semantics. Stylistics
- 81`4 Text linguistics, Discourse analysis. Typological linguistics

Example of combination:
811.134.2`24 Practical knowledge of Spanish
basic class: 811.134.2 Spanish language

facet introducer: '
category indicator: lacking
principle of subdivision: 24 Practical knowledge
source notation: not specified
focus: not specified

2.5 Parallel facets

Although context-defined foci are the most frequent, some faceted classes instead prescribe to take notation for both facets and foci from another class (special extra-defined foci), a special case of parallel

division as variously adopted in UDC. Special auxiliaries created by parallel division have now been systematically removed and replaced by an instruction to use special auxiliary table that was developed first:

Prehistory

903-4 Shape and form of remains (derived from 62-1/-9 Special auxiliary subdivision for technology in general)

facet introducer: -

principle of subdivision: 4

category indicator: lacking

source notation: special extra-defined

2.6 Colon combinations in facets

In some further cases, source notation for foci can be taken from anywhere in the schedules, and is then connected to the facet by a colon. A similar structure has been hypothesised for the facet of special philosophies 1-7: in the revision proposal of class 1. As observed in Report 1 of Philosophy revision (Gnoli, 2009), using colon to introduce foci generates a syntactical problem with parsing in case more facets have to follow.

Mathematics

51-3 Computation techniques

51-7 Mathematical studies and methods in other fields of knowledge

51-8 Mathematical games and recreations

Example of combination:

519.2-7:33 Statistical methods in economics

basic class: 519.2 Probability and statistics

facet introducer: -

category indicator: lacking

principle of subdivision: 7

source notation: general extra-defined (delimited with colon)

focus: 33 Economics

Foci without facet marker

Sometimes, foci are directly expressed by the first digit after the facet introducer. That is, the basic class has only one facet, so there is no need to express the principle of subdivision, which is squeezed together with the facet introducer:

Mechanics

531-1/-9 Special auxiliary subdivision for mechanics

531-1 One-dimensional

531-2 Two-dimensional

531-3 Three-dimensional

531-4 Hyperspace

531-9 Non-Euclidean spaces

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facet introducer and principle of subdivision: -
category indicator: lacking
source notation: context-defined
foci: 1/9

Optics

535-1/-3 Radiation according to wavelength
535-1 Long waves. Infrared
535-2 Visible light. Colours
535-3 Short waves. Ultraviolet
535-4 Polarized light
535-5 Natural light

facet introducer and principle of subdivision: -
category indicator: lacking
source notation: context-defined
foci: 1/5

Here is a similar case, with the addition of a mix of two facets squeezed into one by telescopic notation:

Acoustics

534-1/-8 Special auxiliary subdivision for vibrations and acoustics
534-1 Vibrations according to material
534-13 Vibrations in gases
534-14 Vibrations in liquids
534-16 Vibrations in solids
534-18 Vibrations in heterogeneous, multiphase systems
534-6 Low-frequency vibrations
534-7 Audible-frequency vibrations
534-8 High-frequency vibrations

facet introducer and principle of subdivision: -
category indicator: lacking
source notation: context-defined
foci: 1/5

2.7 Subclasses of faceted classes

Sometimes the focus is followed by further digits, expressing a subclass of the whole faceted class. Although in UDC no facet closer is marked to separate the focus from the further subclass, for practical needs this works anyway: the combination of focus plus subclass is presented as a new special auxiliary under the class under which it is developed. More problems can be expected if there were a need to parse notation for automation purposes. This situation has been described as “the Genesis problem” (Gnoli et al., 2011) as it was identified in class Religion for expressing the subclasses of the faceted class “Bible”, to be further divided into “Genesis”, “Exodus” etc. (Broughton, 2010):

Transport vehicle engineering

629.01/08	Special auxiliary subdivision for transport vehicle engineering
629.01	Vehicle design principles: characteristics, capabilities, tests
629.02	Vehicle structure, construction principles, general layout and parts
629.03	Propulsion system
629.035	Propeller or screw propulsion systems
629.04	Interior layout
629.05	Guidance, control-initiation and navigation systems and instruments
629.06	Vehicle auxiliary systems and devices
629.07	Technical aspects of vehicular operations
629.08	Base equipment, installations and corresponding technical procedures

This table for transport vehicle engineering above was then used as a basis for developing the following differential facet of special auxiliaries for air/space vehicles under 629.7

629.7.01	Air/space vehicle design principles, characteristics and tests
629.7.02	Air/space vehicle structure. Construction principles. General layout and parts
629.7.03	Propulsion systems in air/space vehicles
629.7.035	Airscrew propulsion: propeller, rotor, fan
629.7.035.3	Turbine-engine airscrew propulsion
629.7.04	Interior layout of air/space vehicles. Accommodation. Installations. Equipment
629.7.05	Guidance, control-initiation and navigation systems and instruments (vehicle-borne)
629.7.06	Auxiliary systems and devices on air/space vehicles
629.7.07	Technical aspects of operations (operational techniques), including performance
629.7.08	Ground or base equipment, installations and techniques

Example of combination:

629.7.035.3 Turbine-engine airscrew propulsion

basic class: 629.7 Air and space transport engineering

facet introducer: .0

category indicator: lacking

principle of subdivision: 3 Propulsion systems

source notation: context-defined

focus: 5 Propeller or screw propulsion systems

subclass of the faceted class: 3 Turbine-engine

3. Conclusions and suggestions

It would of course be desirable that the expression of facet elements be standardized throughout UDC. However, the current situation shows a great variety as the result of the long history of the system and

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various revisions of individual classes. As both - and .0 are now common as facet introducers, it looks difficult to abolish either of them. However, guidelines could be developed about their use in future revisions. The easiest step would be to abolish the least frequent solutions, in order to reduce variations and improve notation predictability.

Two-digit facet indicators are also rare but would probably require a careful analysis in order to replace them with other solutions (e.g. a combination of - and .0-introduced facets, like already present elsewhere). Cases of facets without foci and vice-versa are not frequent, so they could be studied in order to define them in the schedules in ways avoiding ambiguities in automatic parsing.

Parallel facets (special extra-defined foci) are less common than context-defined ones, so it would be conceivable to mark them differently (e.g. by using a different facet introducer) in view of automatic parsing. Colon combinations in facets (general extra-defined foci) are very rare (Mathematics, Philosophy proposal) and generate syntactic problems. This could suggest to abolish them and convert them into simple colon combinations without using facets.

Fundamental categories are rarely defined and expressed with a distinctive notation in UDC, unlike Colon. Although it would be advisable to follow them within particular classes, envisaging a notational model for broad facet categories with some consistency throughout UDC seems to be hard at this stage.

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