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Information Technology — Taxonomy of Cultural and Linguistic Adaptability User Requirements

Technologies de l'information — Taxinomie des besoins des utilisateurs en matière d'adaptabilité culturelle et linguistique

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Foreword

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Introduction

In order to approach standardization in a systematic way, a common approach is to develop a way to classify the subject area, or a taxonomy. This helps in two ways:
- a taxonomy helps to identify all aspects of the domain in question which might be subject to standardization;

- a taxonomy helps to provide a logical structure for the standardization activity.

A taxonomy has been developed of relevant concepts in the domain of of cultural and linguistic adaptability, based on user requirements for functionality, as discussed in Clause 4 of Part I of the CEN/TC304/PT01 report on User requirements on IT.

This taxonomy builds on experiences in the field, including standards in ISO/IEC JTC1 subcommitees 2, 22 and 35, and much of the taxonomy has been implemented by standards from these subcommitees. In particular the main structure of the taxonomy with categorizations in locales and characters has been established as a workable model in the tools to produce IT products, such as the operating systems and progamming language standards of SC 22, and a model for the standardization has been specified in ISO/IEC TR 11017.

An example of application of the taxonomy is L/12111 Date and time, where a number of issues can be adressesd, such as for a given language what is the names of weekdays and months, what is the first day of the week, and what is week 1 of a year. Further examples and a short explanation of many of the items in the taxonomy can be found in ISO/IEC 15897 and CEN/TC304/PT01.

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1 Scope

2 A taxonomy of cultural and linguistic adaptability user requirements.

The present classification of the concepts was made through the identification of commonalties, such as characters, sets, fonts and rules relating to presentation. The analysis was based on a much wider view of "multi-cultural support", which attempts to map some of its concepts. Areas relevant to this taxonomy were chosen and developed into the full taxonomy, shown in clause 3.2. This latter choice comprises the technology which relates to methods for specifying, and rules governing, the creation of unique properties and codes which facilitate the presentation, storage and transmission of individual characters.
The taxonomy in clause 3.2 was based on references ISO/IEC TR 10000-1, ISO TR 12382 and IEC 824 and the activities of appropriate standardization bodies, but most notably the work of ISO/IEC JTC 1.

3 Description of classification

3.1 Description

User requirements may be summed up in the single phrase "multi-cultural support", being the need to accommodate all the requirements of different types of users, whether they are racial, national, typographical, occupational or individual. The primary choice was for text based topics, in line with the capability of computer technology to code, store and process individual characters.
The taxonomy in clause 3.2 takes the classic form of a tree structure, where two major classes are recognized; Locales and Characters. The former deals with the cultural environment of the user, the latter with the smallest divisible parts that make up the messages which are being electronically processed.

A taxonomy of whatever phenomena can be constructed in several ways, depending on its purpose and the aspects applied. (For instance, a number of persons may be grouped firstly according to age, then according to gender, then according to place of living -- or precisely the other way around, according to need.) A taxonomy for standardization purposes naturally has to take into account the most practical ways to group existing standards and standardization projects as well as the logical connections between them and any conceptual "holes" which may need to be filled in order to cover the full need for standardization.

The following taxonomy is thus intended to provide a map for almost all of the user requirements. Therefore the level of subordination in some cases go very deep -- this does not mean that the actual standardization projects need a taxonomy of the same complexity. When a sub-level is empty of

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existing or future standards, the entries in that sub-level are simply collapsed and only the level above remains.

3.2 The taxonomy

What follows is a specification of the taxonomy. There is no further information, eg. on where this work is going on, as this information changes quite frequently. That information may then be provided via web page that can be updated more frequently than a Technical Report.

Code	**Title**
/ (no id)	TAXONOMY
L/	**LOCALES**
L/1	**Specifications**
L/11	Languages
L/111	Natural languages
L/1111	Vocabulary
L/11111	Standard terminology
L/11112	Thesauri
L/11113	Standard phrases
L/11114	Translation
L/1112	Grammar
L/1113	Orthography
L/11131	Alphabet
L/11132	Spelling
L/11133	Use of special characters
L/11134	Capitalization
L/11135	Hyphenation
L/11136	Punctuation
L/11137	Transcription
L/11138	Ordering
L/11139	Personal names and titles

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L/1114	Speech
L/12	Cultural conventions
L/121	Cultural elements
L/1211	Orthography
L/12111	Date and time format
L/12112	Numeric separators
L/12113	Monetary format
L/12114	Telephone number format
L/12115	Payment number format
L/12116	Mail address format
L/12117	National places
L/1212	Measurement system
L/1213	Layout styles
L/1214	Paper sizes
L/1215	Use of graphical symbols
L/1216	Use of colours
L/13	Operating system dependency
L/131	POSIX
L/132	Other TOG
L/2	**Registration**
L/21	Procedures
L/211	Europe
L/2111	National
L/212	World-wide
L/3	**Implementation**
L/31	Fallback

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C/	**CHARACTERS**
C/1	**Character information**
C/11	Identification
C/111	Characters
C/1111	Identifiers
C/1112	Attributes
C/112	Repertoires
C/1121	Graphic characters
C/11211	Natural language alphabets
C/112111	Europe
C/1121111	General
C/1121112	Elderly/disabled
C/112112	World-wide
C/11212	Programming language alphabets
C/11213	Non-alphabetic symbols
C/112131	General
C/112132	Disabled/elderly
C/1122	Control functions
C/1123	Registration
C/113	Glyphs
C/1131	Registration
C/1132	Character correspondence
C/114	Glyph repertoires
C/1141	Registration
C/1142	Repertoire correspondence
C/12	Manipulation

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C/121	Transformation
C/1211	Case conversion
C/1212	Transliteration
C/1213	Fallback representation
C/2	**Input/output**
C/21	Input
C/211	Keyboard
C/212	Other means
C/22	Output
C/221	Character repertoires
C/222	Character attributes
C/3	**Electronic processing**
C/31	Processing of coding schemes
C/311	Encoding of graphic characters
C/312	Encoding of control functions
C/313	Code transformations
C/3131	UCS--UCS
C/3132	UCS--other coding schemes
C/32	Interchange/communication
C/321	7-bit method
C/322	8-bit method
C/323	Multiple-octet method
C/33	Internationalization support
C/331	Programming languages
C/3311	Language-dependent
C/3312	Language-independent

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C/332	Operating systems
C/333	Communications
C/3331	Directory services
C/3332	Telematics

4 Bibliography

CEN/TC304/PT01 User requirements on Information Technology.

ISO/IEC TR 11017:1998 Information technology -- Framework for internationalization

ISO/IEC 15897:1999 Information technology -- Procedures for registration of cultural elements

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