

Implementation of ENV 41510 : 1990

**Information Systems
Interconnection — Office
Document Architecture (ODA)
— Document Application
Profile — Processable and
Formatted Documents —
Extended Mixed Mode**

National foreword

This Draft for Development is identical with the European Prestandard ENV 41510 : 1990 'Information Systems Interconnection — Office Document Architecture (ODA) — Document Application Profile — Processable and Formatted Documents — Extended Mixed Mode', prepared by CEN/CENELEC whose members have committed themselves to making it available in an appropriate form. In the UK the Draft for Development is the form now chosen for ENVs in the information technology area.

This Draft for Development is published under the direction of the Information Systems Technology Standards Policy Committee whose Technical Committee IST/18 has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on interpretation, or proposals for change, and to keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

NOTE. International and European Standards, as well as overseas standards, are available from BSI Sales Department, BSI, Linford Wood, Milton Keynes MK14 6LE.

After two years this ENV will be reviewed by CEN/CENELEC members with a view to its:

- conversion into a European Standard (which would be implemented in the UK as a British Standard);
- extension once for a further two years;
- replacement by a revised ENV (which would be published in the UK, probably as a revised Draft for Development);
- withdrawal.

The future of this Draft for Development is therefore dependent on that of the ENV.

This publication is not to be regarded as a British Standard.



Amendment No. 1
published and effective from 15 August 1992
to DD ENV 41510 : 1991

Information Systems Interconnection – Office
Document Architecture (ODA) – Document
Application Profile – Processable and
Formatted Documents – Extended Mixed
Mode

NOTE. This amendment has been issued to implement Amendment 1, published in October 1991, to the English version of ENV 41510 : 1990. A consequent change to the national foreword has also been made.

AMD 7225
August 1992

National foreword

In paragraph 1, line 4, after '-Extended Mixed Mode', insert 'including Amendment 1'.

AMD 7225
August 1992

EN title page

Delete the EN title page and substitute the attached EN title page.

AMD 7225
August 1992

Text of ENV 41510

Amend the text of ENV 41510 in accordance with the details given on the attached pages.

NOTE. The amendment is presented in the form in which it was approved by CEN/CENELEC. This format assumes that the person making the changes is familiar with the formal syntax notation that is used; consequently the accompanying notes are included for guidance and easier implementation.

UDC: 681.327.8:651.2:002

Descriptors: Data Processing, Information, Interchange, Data Transmission,
Documents, Dimension, Logical Structure

English Version

Information Systems Interconnection - Office
Document Architecture (ODA) - Document Application
Profile - Processable and Formatted documents -
Extended Mixed Mode

Interconnexion des systèmes
d'information - ODA - Profil
d'application de documents - Documents
retraitables et formatés - Mode mixte
étendu

Kommunikation von Informationssystemen
- ODA - Anwendungsprofil für Dokumente
- Weiterbearbeitbare und formatierte
Dokumente - Erweiterte gemischte Form

This European Prestandard (ENV) was approved by CEN/CENELEC on 1991-06-25 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CEN/CENELEC will be requested to submit their comments, particularly on the question whether the ENV can be converted into an EN.

CEN/CENELEC members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

CEN/CENELEC members are the national standards bodies and national committees, respectively, of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN/CENELEC

The joint European Standards Organization
Organisation Commune Européenne de Normalisation
Die Gemeinsame Europäische Normungsorganisation

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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a) Editorial and typographical errors:

Clause 7.4.1

DEFINE LAYOUTOBJECTCLASS

unmatched brace after "Pageset" (3rd line): append additional ")"

DEFINE SAMELAYOUTOBJECT

unmatched curly brace: insert additional "(" before #to (twice) and after {Page}

Clauses 7.4.3.1/7.4.3.2 replace "RERM" with "PERM"

Clause 7.4.3.2 L-Style2

Remove Redundant brace after Indivisibility

Reference to "structured paragraph" : remove "structured"

Clause 7.4.3.3 L-Style3 (comment)

This is also used for fnoterreference: add footnoterreference to comment

Clause 7.2.1 Use of SUP_OBJ

SUP_OBJ should be replaced by SUP in macros which define binding references (for example USENNUMBERSTRINGS) for alignment with the base standard.

b) technical errors:

Clause 7.1.1 (page 25): "DEFINE (BasicCharSet.." should be extended with the shift code "LS0" specified as the hex code 0/0F.

Clauses 7.1.1/7.5.3.1/7.5.3.4 Line spacing

The correct values are {100,150,200,300,400} as basic (to be specified in 7.5.3.1 and 7.5.3.4) and (ANY_EXCEPT 100 150 200 300 400) as non-basic (clause 7.1.1).

Clauses 7.2.3.17/7.2.3.16 Raster and Geometric

Raster-2/Geometric-2: Application comments should be REQUIRED on GENERIC

Clause 7.2.1 MACRO HeaderFooterRootGFS

Generator-for-subordinates of HeaderFooterRoot should not contain OPT, REP, OPTREP or CHO elements as there is no way to determine the instantiation of such choices and this is not permitted by the base standard. These lines are removed from the macro definition.

Clause 7.3.3.22 Block1

Object class identifier is missing: this must be REQ
Position and dimension should be PERM for SPECIFIC_AND_GENERIC.

Clause 7.6.3.1 Character-content-portion

SVS should allow 0, for consistency with the line spacing basic value 200.

Clause 7.6.3.2 Number of pels/number of lines

Q112 currently specifies the permitted values for these attributes as >0. In order to permit the encoding of empty raster objects the following amendments must be made:

Number of lines becomes PERM
Number of pels per line permitted value becomes >=0

Clause 7.6.3.2 and clause 8 Raster bit encoding order

the last paragraph of clause 8 must be removed and the text in clause 7.6.3.2 must be amended as follows :

Replace second and third sentences of the Note with

'The encoding of the code words in the Group 4 and Group 4 facsimile encoding schemes is such that the first or only bit of the first code word shall be placed in the least significant bit of the first octet. Subsequent bits of the first and following code words are placed in the direction of most significant bits in the first and following octets.'

Accompanying notes for guidance on incorporating Amendment 1 to DD ENV 41510

NOTE. The following notes are presented in the same order as the instructions in the amendment.

In 7.4.1, in the macro 'LAYOUTOBJECTCLASSES', insert the closing bracket ')' after '(Pageset'.

In 7.4.1, in the macro 'SAMELAYOUTOBJECT', insert the opening curly bracket '{' before '#to' (in both places) and the closing curly bracket '}' after '{Page}'. (Note that the amendment, as published, would insert an opening curly bracket after '{Page}'.)

In 7.4.3.1, line 3, delete 'RERM' and substitute 'PERM'.

In 7.4.3.2, line 4, delete 'RERM' and substitute 'PERM'.

In 7.4.3.2, line 2, delete 'structured'.

In 7.4.3.2, line 3, delete the second closing curly bracket.

In 7.4.3.3, line 2, insert 'and 'footnotereference' ' after ' 'number' '.

In 7.2.1, delete 'SUP_OBJ' and substitute 'SUP' in all six places where it occurs (four on page 32, two on page 33).

In 7.1.1, the change should be made on page 26, line 16 of 7.1.1, to insert '00/15' after '04/02'. (The contents of an octet should be represented using a decimal, not hexadecimal, notation.)

In 7.1.3, for 'PERM #Line-spacing', delete '{<200}' and substitute '{ANY_EXCEPT 100 150 200 300 400}' (note that this change should be made in 7.1.3, not in 7.1.1).

In 7.5.3.1 and 7.5.3.4, for 'PERM Line-spacing' delete '{100 150 >=200}' and substitute ' {100 150 200 300 400}'.

In 7.2.3.16 and 7.2.3.17, for 'Application-comments' delete 'PERM' and substitute 'REQ'.

In 7.2.1, in the definition of 'HeaderFooterRootGFS', the four lines beginning 'OPT', 'REP', 'OPTREP' and 'CHO' are to be deleted. In order to preserve correct punctuation, insert a semicolon at the end of the line that begins with '<construction-term>' and at the end of the line that begins with '<construction-type>'.

In 7.3.3.22, after 'GENERIC:', insert the following new line:
'REQ Object-class-identifier {ANY-VALUE};'.

In 7.3.3.22, after the line beginning 'PERM User-visible-name', insert the following new line:
'SPECIFIC_AND_GENERIC:'

In 7.3.3.22, delete 'REQ' before 'Position' and 'Dimension' and substitute 'PERM'.

In 7.6.3.1, in the line beginning '#SVS' insert '0' before '1'.

In 7.6.3.2, in line 1, delete 'REQ' and substitute 'PERM' and in line 2, delete '{>0}' and substitute '{>=0}'.

In 7.6.3.2, delete sentences 2 and 3 of the note and substitute the following.

"The encoding of the code words in the Group 4 and Group 4 facsimile encoding schemes is such that the first or only bit of the first code word shall be placed in the least significant bit of the first octet. Subsequent bits of the first and following code words are placed in the direction of most significant bits in the first and following octets'.

In clause 8, delete the last paragraph entirely.

UDC: 681.327.8:651.2:002

Key words: Data Processing, Information, Interchange, Data Transmission, Documents, Dimension, Logical Structure

English Version

Information Systems Interconnection - Office Document Architecture
(ODA) - Document Application Profile - Processable and Formatted
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The joint European Standards Institution
Organisation Commune Européenne de Normalisation
Die Gemeinsame Europäische Normeninstitution

Central Secretariat: rue Bréderode 2, B-1000 Brussels

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Ref. No. ENV 41 510:1990 E

BRIEF HISTORY

This European Prestandard (ENV) was elaborated by the EWOS Expert Group ODA and submitted by the CEN/CENELEC Central Secretariat to the members for Formal Vote on 29 March 1989. It was approved with a number of technical and editorial comments, which were discussed by the Expert Group on 19 October 1989. The resulting amended version was adopted at a CEN/CENELEC voting meeting on the same day, where the following member countries voted for its acceptance: Belgium, France, Germany, Greece, Italy, United Kingdom.

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0 Introduction

This is the definition of an ODA document application profile named Q112, suitable for interchanging a document in formatted form, processable form or formatted processable form. This document application profile which has been prepared by EWOS, is defined in accordance with ISO 8613-1 and CCITT Recommendation T.411 and follows the standardised proforma and notation defined in Draft Addendum ISO 8613-1 Annex F (to be published).

1 Scope and field of application

This document application profile specifies interchange formats for the transfer of structured documents between word processing equipment incorporating graphics. Such documents may contain characters, raster graphics and geometric graphics.

The documents supported by this profile range from simple documents to highly structured technical reports, articles and typeset documents such as brochures. This profile provides a comprehensive level of features for the transfer of documents between these systems.

This document application profile describes documents which can be interchanged in the following form, as defined in ISO 8613:

- formatted form
- processable form
- formatted processable form.

The architecture levels have matching functionalities so that the interchange formats of a document are convertible from a processable form into any other form.

This document application profile is independent of the processes carried out in an end system to create, edit or reproduce documents. It is also independent of the means to transfer documents which, for example, may be by means of communication links or storage media.

2 References

ISO 2022 Information Processing - ISO 7-bit and 8-bit coded character sets - Code extension techniques

ISO 6937-1 Information Processing Coded Character sets for text communication - Part 1: General introduction

ISO 6937-2 Information Processing Coded Character sets for text communication - Part 2: Latin Alphabetic and non-Alphabetic Graphic Characters

ISO 8613-1 Information processing: Text and Office Systems;
Office Document Architecture (ODA) and Interchange Format Part 1:
Introduction and General Principles

ISO 8613-2 Information processing: Text and Office Systems;
Office Document Architecture (ODA) and Interchange Format Part 2:
Document Structures

ISO 8613-4 Information processing: Text and Office Systems;
Office Document Architecture (ODA) and Interchange Format Part 4:
Document Profile

ISO 8613-5 Information processing: Text and Office Systems;
Office Document Architecture (ODA) and Interchange Format Part 5:
Office Document Interchange Format

ISO 8613-6 Information processing: Text and Office Systems;
Office Document Architecture (ODA) and Interchange Format Part 6:
Character Content Architectures

ISO 8613-7 Information processing: Text and Office Systems;
Office Document Architecture (ODA) and Interchange Format Part 7:
Raster Graphics Content Architectures

ISO 8613-8 Information processing: Text and Office Systems;
Office Document Architecture (ODA) and Interchange Format Part 8:
Geometric Graphics Content Architectures

ISO 8613-1 Information processing: Text and Office Systems;
Office Document Architecture (ODA) and Interchange Format Part 1:
Annex F:DAD "A Document Application Profile proforma and notation" (to be
published).

ISO 8632 Information Processing Systems - Computer Graphics - Metafile for the
Storage and Transfer of Picture Description Information - Part 1: Functional
Specification

ISO 8632 Information Processing Systems - Computer Graphics - Metafile for the
Storage and Transfer of Picture Description Information - Part 2: Character
Encoding

ISO 8632 Information Processing Systems - Computer Graphics - Metafile for the
Storage and Transfer of Picture Description Information - Part 3: Binary Encoding

ISO 8632 Information Processing Systems - Computer Graphics - Metafile for the
Storage and Transfer of Picture Description Information - Part 4: Clear Text
encoding

ISO 8859 Information Processing - 8-bit single byte coded graphic character sets
- Part 1: Latin Alphabet No. 1

ISO 8859 Information Processing - 8-bit single byte coded graphic character sets
- Part 7: Latin/Greek Alphabet

ISO 8824 Information Processing Systems - Open Systems Interconnection -
Specification of Abstract Syntax Notation 1 (ASN.1)

ISO 8825 Information Processing Systems - Open Systems Interconnection -
Specification of Basic Encoding Rules for Abstract Syntax Notation 1 (ASN.1)

CCITT T.6 - Facsimile coding schemes and coding control functions for Group 4
Facsimile Apparatus 1984

CCITT T.411 Open Document Architecture (ODA) and Interchange format -
Introduction and general principles 1988

CCITT T.412 Open Document Architecture (ODA) and Interchange format -
Document structures 1988

CCITT T.414 Open Document Architecture (ODA) and Interchange format - Document profile 1988

CCITT T.415 Open Document Architecture (ODA) and Interchange format - Open document interchange format 1988

CCITT T.416 Open Document Architecture (ODA) and Interchange format - Character content architecture 1988

CCITT T.417 Open Document Architecture (ODA) and Interchange format - Raster graphics content architecture 1988

CCITT T.418 Open Document Architecture (ODA) and Interchange format - Geometric graphics content architecture 1988

CCITT T.502 Document Application Profile PM.1 for the interchange of Processable form documents

ENV 41201 Private Message Handling System: User Agent and Message Transfer Agent: Private Management Domain to Private Management Domain (1988)

ENV 41202 Information Systems Interconnection: Message Handling Systems: User Agent (UA) plus Message Transfer Agent (MTA): Access to an Administrative Management Domain (1987)

prENV 41 509 Q111 ODA document application profile - processable and formattable documents - basic character content

PrENV ... Q113 ODA document application profile - processable and formattable documents - Extended Mixed Mode (to be published)

PrENV 41 511 Q121 ODA document application profile - layout independent documents - Simple Messaging Profile

3 Definitions and Abbreviations

The definitions given in ISO 8613-1 are applicable to this document.

4 Relationships to other document application profiles

This EWOS document defines a document application profile in accordance with ISO 8613.

This profile is referred to as Q112 and forms one of a set of hierarchically related profiles Q111, Q112, and Q113, whose features are summarised below. Each of these profiles provides for the interchange of documents in three forms, as defined in ISO 8613. The related profile Q121 which provides for the interchange of documents in processable mode only, is also briefly described.

Q111, Q112, and Q121 are currently defined, whereas Q113 is not defined and is under study.

Q111, Q112, and Q113 are defined such that Q111 has the lowest level of functionality and Q113 the highest. All the functions provided by Q111 are provided by Q112 and it is intended that all the functions provided by Q112 are to be provided by Q113. Further details concerning the relationship between Q111 and Q112 are described in Annex C.

4.1 Q111

This profile provides for the interchange of documents containing character content between basic word processing systems.

From the logical point of view, the document content is represented in the form of a sequence of 'paragraphs'. These can be arranged into groups of one or more paragraphs to allow different layout and presentation features to be specified for each group.

From the layout point of view, the document content can be laid out into pages in the form of a single column of text. A part of the page can be reserved for header or footer content. Within the scope of these constraints, the page layout can be altered, as required, throughout the document.

Also, various layout and presentation parameters can be applied to each paragraph within the document. These include various forms of emphasis, tabulation, indentation, itemisation of paragraphs, alignment, the specification of various values of line and character spacings, widow and orphan sizes and the specification of margins. Automatic page numbering is also provided.

This document application profile is identical to CCITT Recommendation T.502. Clarifications to T.502 which are currently subject to ratification by CCITT are given in Annex D of Q111.

4.2 Q112

This profile provides for the interchange of multi-media documents between advanced document processing systems within an integrated office environment. Documents may contain character, raster graphics and geometric graphics content.

Q112 provides all the features supported by Q111 and the following additions. From the logical point of view, the document may be divided into a hierarchical tree of segments which may be used to represent the chapters, sections and nested sub-sections in a document. Automatic numbering of the chapters, sections etc. is provided. Footnotes can also be specified and these can be automatically numbered and referred to in the document content.

From the layout point of view, Q112 allows the document content to be laid out in multi-columns. The number of columns specified can vary within a page and from page to page. Footnotes are automatically laid out at the bottom of each page. Content within adjacent columns can be synchronized which, for example, can provide for multi-lingual documents.

Diagrams and other forms of illustrations may be provided by means of raster graphics or geometric content.

Q112 is a superset of Q111 apart from the exceptions described in Annex C.

4.3 Q113

This profile provides for the interchange of document between enhanced office systems.

This profile provides all the features supported by Q111 and Q112 but, in general, Q113 supports more complex logical and layout structures.

From the logical point of view, Q113 provides a greater degree of recursion within the logical structure and provides for a greater freedom for specifying different layout requirements for different parts of a document. Figures are provided and may contain one or parts, including the figure itself, a number, caption and associated text and footnotes. A general referencing mechanism is provided so that, for example, automatic references can be made to chapters, sections and figures from within the document content.

Q113 provides a wider range of layout options than Q112, for example, it provides for the automatic flow of text around figures and text and figures can be placed at fixed positions anywhere within a designated page.

With the exception of the document profile attributes Document Application Profile, Document application profile defaults, and non-basic-document characteristics, Q113 is intended to be a strict superset of Q112.

It is intended that Q113 will be aligned with the level 3 ISP (see clause 4.5).

4.4 Q121

This DAP provides for the interchange of documents containing only character content in processable form only. This allows such documents to be interchanged and presented irrespective of differences between the processing and display capabilities of the sending and receiving systems.

From the logical point of view, the document is divided into a sequence of paragraphs.

There is no layout information included in the document and the formatting of the document is the responsibility of the recipient.

Q121 does not strictly form part of the hierarchy referred to above, as it does not support all three document architectures.

4.5 Core profiles

At the time of writing, PAGODA (Profile Alignment Group for ODA) is defining a set of internationally harmonised profiles known as the CORE profiles. These are intended to be progressed as ISPs (International Standardised Profiles). It is intended that Q111 and Q112 will, if necessary, be revised to be fully compatible with CORE-11 and CORE-26 respectively when these are finalised. Q113, when defined, will be aligned with CORE-36.

5 Conformance

The following requirements apply to the encoding of data streams which conform to this document application profile:

- the data stream shall be encoded according to the encoding rules defined in ISO 8825; ASN.1
- the data stream shall be encoded according to the document interchange format defined in clause 8 in this DAP;

The document, as represented by the data stream after resolution of any external references, shall be structured in accordance with one of the document architecture classes specified in this DAP and shall contain all mandatory constituents specified for that class: other constituents may be included, provided that they are permitted for that class, as specified in clause 7;

The following requirements also apply to the document:

- each constituent shall contain all those attributes specified as required for that constituent in this document: other attributes may be specified provided that they are permitted for that constituent;
- the attribute values specified shall be within the range of permissible values specified in this document;
- the encoded document shall be structured according to the abstract document architecture defined in ISO 8613;
- the document shall be structured in accordance with the characteristics defined in clause 6 of this document and shall contain only those features defined in clause 6.

6 Characteristics supported by this document application profile

6.1 Overview

Documents derived from this document application profile can contain any combination of character text, geometric graphics or raster graphics contents, and may be in processable, formatted or formatted processable architectures.

Logically, Q112 documents may consist of passages, structured paragraphs, automatically numbered segments, graphics and footnotes. Segments may be nested to any depth.

The layout structure of Q112 allows for several pagesets (for example, for introductory material and annexes in addition to the main text body, which may be in chapters). Pagesets allow for title pages, and repeated single or recto/verso pages. The body area of a page may contain multiple columns, and areas for graphics. Header and footer contents can also include graphics.

NOTE: The description of document features in this clause outlines the capabilities for processing and presentation which may be indicated as the originator's intentions. This document application profile only defines the data stream comprising the ODA constituents necessary to represent such documents. The effect perceived by the user of a receiving implementation depends on the characteristics of such implementation.

6.2 Logical characteristics

6.2.1 Document logical structure

The logical structure of a document represented in accordance with this document application profile consists of logical structure elements that are hierarchically ordered. The hierarchic relationship of the possible document elements is illustrated in clause 6.8.1.

6.2.2 Document structure elements

6.2.2.1 Document

A document is composed of a sequence of passages. (These are subordinates of the document Logical Root).

For example, the initial passage may include the contents to be placed on the title page of a report and the final passage may include the contents to be placed in appendices.

6.2.2.2 Passage

A passage represents the first level of logical subdivision of the document. This subdivision may support a number of functions represented by attributes of a passage, or simply be used to indicate a logical grouping.

The attributes of a passage may indicate layout requirements, which are described in 6.3.2.7, or may set the initial value of automatic numbering schemes for numbered segments or footnotes. (See clause 6.6)

Each passage can be further subdivided into any combination of five components: the structured (composite) objects Structured Paragraph and Numbered Segment, and basic objects containing document content in any of the three content architectures (objects "Text" "Raster-1" "Geometric-1").

The document originator may define different classes of passage which have common features such as allowed subordinates or layout features. For example, the document originator may define a class of passages which always begin on a particular new pageset.

This constituent corresponds to "GroupofParagraphs" in T.502.

The layout of passages is described in 6.3.2.7.

6.2.2.3 Numbered Segment

A numbered segment begins with an automatically generated number which precedes any other contents and serves to identify the segment for human comprehension. The remainder of the numbered segment may consist of any combination of Structured Paragraphs and basic objects containing document content in any of the three content architectures (objects "Text" "Raster-1" "Geometric-1"), which may in turn be followed by a sequence of numbered segments which are logically enclosed within this numbered segment. This provides for nested levels of clause numbering.

Components of the numbered segment such as Text or Structured Paragraph may be used to represent a segment title starting on the same line as the segment number.

Attributes of Numbered Segments may be used to control the layout of the segment or to reset the value of the automatic segment number at this level, or to initialise the segment numbering for any lower level.

The document originator may define different classes of numbered segments which contain different choices of subordinate object amongst those mentioned above, or have in common some layout features. For example, the document originator may define a class of numbered segments which always begin on a new page.

The layout of numbered segments is described in 6.3.2.8.

6.2.2.4 Automatic segment numbering ("Number")

The object Number contains an automatic segment number which uniquely identifies the segment. This number is composed of a sequential index number for this segment, optionally preceded by a series of numbers separated by an arbitrary character string which forms the automatic segment number of the enclosing segment (if any). The string of characters comprising the number may also include arbitrary prefix and suffix strings.

Index numbers are generated sequentially within any segment.

The method of numbering may be any of :

- a) Arabic decimal numerals 0-9;
- b) either upper or lower case alphabetic characters;
- c) either upper or lower case Roman numerals.

The method of numbering, and the construction of the character string, for each level (e.g. the 4th number) must be the same throughout the passage.

Numbers at any level may be reset at any passage or any numbered segment. However numbers may not "skip" levels (e.g. the sequence [1, 2, 3, 7, 7.6, 7.8.3] is supported, but the sequence [1, 2, 4.5.1, 7.8.6.1.3] is not). (See clause 6.6.1 for a description of the binding mechanism used for automatic numbers).

6.2.2.5 Structured Paragraph

A structured paragraph is a composite object constructed from any combination of basic objects containing document content in any of the three content architectures (objects "Text" "Raster-1" "Geometric-1"), together with embedded footnotes.

Text within a structured paragraph may be joined together ("concatenated") to form a single unit of text (optionally containing footnote references) for the purposes of word-wrapping, or may contain hard newline controls, causing text to appear as separate blocks. Vertical white space between objects may also be specified using "Separation" and "Offset". (See 6.3.2.10)

A structured paragraph may contain zero, one or more embedded footnote references. Multiple consecutive footnote references, without intervening text, are permitted.

Document elements may be grouped into structured paragraphs for the purpose of layout control. The layout of paragraphs is described in 6.3.2.8.

6.2.2.6 Text

Text objects are the basic objects which contain character text in a document. They may occur at any level in the hierarchic logical structure.

Generic content may be defined for Text objects and referred to at any point in the document.

Text corresponds to the object "Paragraph" in Q111 and T.502 document application profiles.

The layout of text objects is described in 6.3.2.10 and 6.3.2.11.

Controls for the presentation of character content are described in clause 6.4.1.

6.2.2.7 Graphics (objects Raster-1 and Geometric-1)

Documents may contain geometric graphics or raster graphics content constituents. These are constrained to occupy a rectangular area. Where graphic objects form part of the body of the document, they are linked to the logical order of the document content, rather than "anchored" to a particular position on the page. (The use of graphics in headers and footers is described in clause 6.2.2.10).

The layout of graphics is described in 6.3.2.10.

6.2.2.8 Footnote

A footnote consists of a footnote reference and a footnote body. The footnote body consists of the same footnote identifier as the footnote reference, followed by any text sequence. The footnote body is read out of sequence from the paragraph containing the reference to it and is constrained to be placed starting at the foot of the page on which the footnote reference appears.

The layout of footnotes is described in 6.3.2.12.

6.2.2.9 Footnote reference and footnote number

A footnote reference may have an automatically generated label or one supplied by the user. If the label is automatically generated then the label may be represented in one of either Arabic numerals, upper or lower case Roman numerals, or upper or lower case Alphabetic characters. Automatically generated footnote numbers are incremented sequentially from an initial value which may be set to any positive value at the beginning of the document and reset at any passage. (Note: footnote numbering cannot be re-started at the beginning of every page.) Within any passage only one style of automatically generated numbers may be used.

User supplied labels may consist of any character string, and may be freely mixed with automatically generated footnote numbers. (See clause 6.6.2 for a description of the binding mechanism used for footnote numbers).

6.2.2.10 Header and footer contents

The contents of headers and footers may be pre-formatted into blocks as part of the generic layout structure, or filled from processable generic logical content. In this latter case, any combination of basic objects containing document content in any of the three content architectures (objects "Text", "Raster-2", "Geometric-2") may be included.

Text within a header or footer may be joined together ("concatenated") to form a single unit of text for the purposes of word-wrapping, or may contain hard newline controls, causing text to appear as separate blocks.

One or more automatically generated page numbers may be included anywhere within header contents and/or footer contents. (See clause 6.6.3 for details of the binding mechanism).

Header contents or footer contents may not include any footnote or footnote reference or automatic segment numbers. (Apart from automatically generated page numbers, the contents of headers and or footers of any page class are fixed.)

6.2.2.11 Page numbering

Automatically generated page numbers may occur at any position within header contents or footer contents. Page numbers may be represented in one of either Arabic numerals, lower or upper case Roman numerals or lower or upper case alphabetic characters.

Page numbers are generated sequentially and the sequence can be restarted from any non-negative integer value at the beginning of any page set. (See 6.6.3).

6.3 Layout characteristics

6.3.1 Document layout structure overview

The document layout structure allows for several pagesets (e.g. for introductory material, and annexes in addition to the main text body). Each pageset consists of either repeated pages of a single class, or alternating pages, in each case optionally preceded by a single page which may for example be used for title material. The body area of a page may contain multiple columns and areas for footnotes. Header and footer areas may be divided into different areas for pre-formatted or logical contents in any of the three content architectures.

The hierarchic relationships of the possible layout structure elements is illustrated in clause 6.8.2.

6.3.2 Document layout structure elements

6.3.2.1 Document

A document consists of a sequence of one or more pagesets.

6.3.2.2 Pagesets

Each pageset may consist of a sequence of one or more pages, composed of either repeated pages having the same characteristics, or an alternating sequence intended to be presented on "recto" and "verso" sides of the presentation medium. In either case the sequence may begin with a single page of difference layout characteristics.

The pages within a pageset all have the same dimensions and orientation but may differ in layout and/or content of the header and footer areas.

There may be a single initial page of one particular page layout and this may be followed by:

- a) repeated pages of a single class, or
- b) repeated alternating pages designed for recto and verso layout.

6.3.2.3 Page layout

This document application profile supports page dimensions equivalent to the assured reproduction areas of ISO A4, A3 and NAL, and the common reproduction area of A4 and NAL, in both portrait and landscape mode. The common assured reproduction area of A4 and NAL (portrait) is the default: A4 or the common assured reproduction area of A4 and NAL in either portrait or landscape orientations are basic: other dimensions up to the full page dimensions of ISO A3 (portrait and landscape) may also be used.

The nominal page sizes supported by this DAP are ISO A4, ISO A3, and NAL. A page layout consists of:

- a) an optional header area that is reserved for header contents;
- b) a single body area;
- c) an optional footer area that is reserved for footer contents.

Header, footer and body areas have fixed dimensions and positions which are pre-determined.

Each of these areas must be totally contained within the page dimensions specified and must not overlap with either of the other areas.

Particular header and footer contents are associated with each page layout, either directly as pre-formatted content, automatically generated page numbers, or as logical (processable) content which is to be laid out in the header/footer area. (See 6.2.2.10 and 6.3.2.5).

6.3.2.4 Body area layout

The body area may be a single frame or subdivided into non-overlapping rectangular frames. Thus the layout may consist of any sequence of combinations of:

- a) a single frame of fixed width, equal to or less than body area width, and height adjustable to fit contents;
- b) a set of multiple column frames of fixed (but not necessarily equal) widths per column and heights adjustable to fit contents.

The vertical positions of these frames are not fixed. Single frames of fixed width may not be positioned side by side.

(See figure 1 for illustration.)

Following these frames there may be a frame at the foot of the body area for the layout of footnotes.

Borders may be specified for any frame.

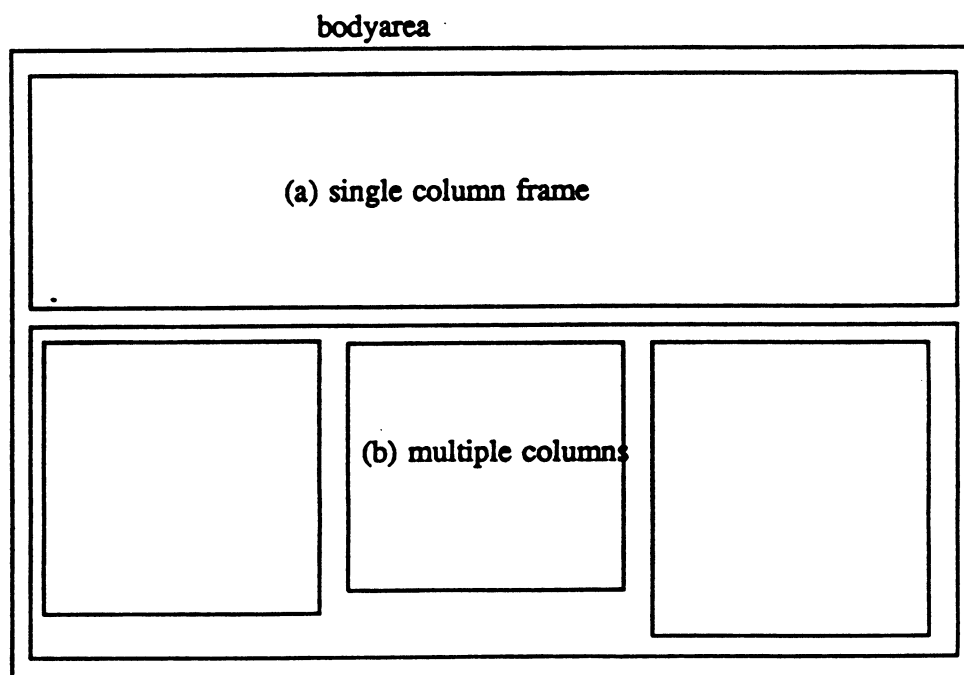


Fig 1. examples of layout within body area