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Information processing — Text and office systems — Office Document Architecture (ODA) and interchange format —

Part 10: Formal specifications

AMENDMENT 1: Formal specification of the document profile

*Traitement de l'information — Bureautique — Architecture des documents de
bureau (ODA) et format d'échange —*

Partie 10: Spécifications formelles

AMENDEMENT 1: Spécification formelle du profil de document



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Foreword

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Amendment 1 to International Standard ISO/IEC 8613-10 : 1991 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

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Annex B

(normative)

Formal specification of the document profile

B.1 Introduction

This annex gives a formal specification of the document profile as described in part 4 of ISO 8613. This annex is composed of 4 clauses:

Clause B.1 provides a general introduction, including a list of all definitions which are given in clauses B.2 and B.3.

Clauses B.2 and B.3 give all the definitions related to the document profile. Clause B.2 contains the definition for the structure of the document profile; clause B.3 contains the definitions for the attributes which appear in the document profile.

Clause B.4 is an index to the terms (definitions, operators, attribute names) used in clauses B.2 and B.3.

Any time a clause number is specified in the semi-formal descriptions this refers to a clause number in ISO 8613-4.

What follows is the outline of the formula which specifies the document profile. The dots indicate formal text fragments which have been left out for the sake of readability. The full formula can be obtained by replacing each line (apart from the and) with the definition which is referenced by the superscript of the predicate symbol or operator symbol, respectively. The variables used in the definition of the predicate have to be replaced by those appearing in the outline (if they are different).

NOTE — A definition is a formula, hence it may never yield an undefined result, whatever value has been inserted for the variable.

... IsDocumentProfile^{4.1}(*cst*) ...

and ... IsProfileAttributeSet^{4.2}(*as*) ...

and ... IsSetOfProfCharSeq^{4.3}(*v*) ...

and ... IsProfCharSeq^{4.4}(*v*) ...

and ... IsProfileCharacter^{4.5}(*v*) ...

and ... IsExternalReferenceValue^{4.6}(*v*) ...

and ... IsASN1ObjectIdentifier^{4.7}(*v*) ...

and ... IsResourcesValue^{4.8}(*v*) ...

and ... IsDocumentApplicationProfileValue^{4.9}(*v*) ...

and ... IsDocumentApplicationProfileDefaultsValue^{4.10}(*v*) ...

and ... IsProfileDefaultableCharacterContentArchitectureAttribute^{4.11}(*v*) ...

and ... IsProfileDefaultableRasterGraphicsContentArchitectureAttribute^{4.12}(*v*) ...

and ... IsProfileDefaultableGeometricGraphicsContentArchitectureAttribute^{4.13}(*v*) ...

and ... IsContentArchitectureClassesValue^{4.14}(*v*) ...

and ... IsODAVersionValue^{4.15}(*v*) ...

and ... IsCharacterSetsValue^{4.16}(*v*) ...

and ... IsPageDimensionsValue^{4.17}(*v*) ...

and ... IsMediumTypesValue^{4.18}(*v*) ...

and ... IsLayoutPathsValue^{4.19}(*v*) ...

and ... IsProtectionsValue^{4.20}(*v*) ...

and ... IsBlockAlignmentsValue^{4.21}(*v*) ...

and ... IsFillOrdersValue^{4.22}(*v*) ...

and ... IsTransparenciesValue^{4.23}(*v*) ...

and ... IsColoursValue^{4.24}(*v*) ...

and ... IsBordersValue^{4.25}(*v*) ...

and ... IsPagePositionsValue^{4.26}(*v*) ...

and ... IsTypesOfCodingValue^{4.27}(*v*) ...

- and ... IsProfileCodingAttributesValue^{4.28}(v) ...
- and ... IsProfileCharacterCodingSpecification^{4.29}(v) ...
- and ... IsProfileRasterGraphicsCodingSpecification^{4.30}(v) ...
- and ... IsProfileGeometricGraphicsCodingSpecification^{4.31}(v) ...
- and ... IsPresentationFeaturesValue^{4.32}(v) ...
- and ... IsProfileCharacterPresentationFeature^{4.33}(v) ...
- and ... IsProfileRasterGraphicsPresentationFeature^{4.34}(v) ...
- and ... IsProfileGeometricGraphicsPresentationFeature^{4.35}(v) ...
- and ... IsFontsListValue^{4.36}(v) ...
- and ... IsFontReference^{4.37}(v) ...
- and ... IsSetOfReferenceProperties^{4.38}(v) ...
- and ... IsReferencePropertiesValue^{4.39}(v) ...
- and ... IsISO9541Part2AttributeSet^{4.40}(v) ...
- and ... IsDateAndTimeValue^{4.41}(v) ...
- and ... IsRevisionHistoryValue^{4.42}(v) ...
- and ... IsRevisionValue^{4.43}(v) ...
- and ... IsPreparersValue^{4.44}(v) ...
- and ... IsOwnersValue^{4.45}(v) ...
- and ... IsAuthorsValue^{4.46}(v) ...
- and ... IsCopyrightValue^{4.47}(v) ...
- and ... IsSetOfDatesValue^{4.48}(v) ...
- and ... IsDateAndTimeSeq^{4.49}(v) ...
- and ... IsDateValue^{4.50}(v) ...
- and ... IsDistributionListValue^{4.51}(v) ...
- and ... IsAdditionalInformationValue^{4.52}(v) ...
- and ... IsSetOfExternalReferences^{4.53}(v) ...
- and ... IsLocalFileReferenceValue^{4.54}(v) ...
- and ... IsAuthorizationValue^{4.55}(v) ...
- and ... IsSetOfPersonalNames^{4.56}(v) ...
- and ... IsPersonalName^{4.57}(v) ...
- and ... IsAlternativeFeaturesSetsValue^{4.58}(v) ...
- and ... IsASN1ObjectIdentifierSet^{4.59}(v) ...
- and ... IsEncipheredDocumentProfilesValue^{4.60}(v) ...
- and ... IsPrivilegedRecipientInformationValue^{4.61}(v) ...
- and ... IsKeyInformationValue^{4.62}(v) ...
- and ... IsMethodInformationValue^{4.63}(v) ...
- and ... IsKeyAdditionalInformationValue^{4.64}(v) ...
- and ... IsKeyMethodValue^{4.65}(v) ...
- and ... IsEncipheredDocumentProfileId^{4.66}(v) ...
- and ... IsODASecurityLabelValue^{4.67}(v) ...
- and ... IsPreEncipheredDocumentBodyPartsValue^{4.68}(v) ...
- and ... IsPreEncipheredDocumentBodyPartId^{4.69}(v) ...
- and ... IsPostEncipheredDocumentBodyPartsValue^{4.70}(v) ...
- and ... IsPostEncipheredDocumentBodyPartId^{4.71}(v) ...
- and ... IsSealedDocumentBodyPartsValue^{4.72}(v) ...
- and ... IsDocumentSealValue^{4.73}(v) ...
- and ... IsSeqOfConstituentIds^{4.74}(v) ...
- and ... IsConstituentId^{4.75}(v) ...
- and ... IsSealMethodValue^{4.76}(v) ...
- and ... IsSealedInformationValue^{4.77}(v) ...
- and ... IsLocationValue^{4.78}(v) ...
- and ... IsSealedDocumentProfilesValue^{4.79}(v) ...
- and ... IsSealedDocumentProfileId^{4.80}(v) ...

NOTE — Other predicates or operators which are used here, but are defined in clause 6, are not listed here.

B.2 The Document Profile

Semiformal Description 4.1

Predicate "is a document profile"

A document profile is a set of profile attributes. The attributes 'content architecture classes', 'document architecture class', 'document reference', 'interchange format class' and 'ODA version' are mandatory, the other ones are optional.

Definition 4.1

1 $\forall cst$
 2 $(\text{IsDocumentProfile}(cst) \text{ iff}$
 3 $\text{IsProfileAttributeSet}^{4.2}(cst) \text{ and}$
 4 $\text{NAMS}^{1.18}(cst) \supseteq [$ 'content architecture classes'; 'document architecture class';
 5 'document reference'; 'interchange format class';
 6 'ODA version'] and
 7 $\text{NAMS}^{1.18}(cst) \subseteq [$ 'abstract'; 'access rights';
 8 'additional information'; 'alternative feature sets';
 9 'alternative representation character sets'; 'authorization';
 10 'authors'; 'block alignments';
 11 'borders'; 'coding attributes';
 12 'colours'; 'comments character sets';
 13 'content architecture classes'; 'copyright';
 14 'creation date and time'; 'distribution list';
 15 'document application profile'; 'document application profile defaults';
 16 'document architecture class'; 'document date and time';
 17 'document reference'; 'document size';
 18 'document type'; 'enciphered document profiles';
 19 'enciphered profiles'; 'expiry date and time';
 20 'external-document class'; 'fill orders';
 21 'fonts list'; 'generic layout structure';
 22 'generic logical structure'; 'interchange format class';
 23 'keywords'; 'languages';
 24 'layout paths'; 'layout styles';
 25 'local file references'; 'local filing date and time';
 26 'medium types'; 'number of objects per page';
 27 'number of pages'; 'ODA security label';
 28 'ODA version'; 'organizations';
 29 'owners'; 'page dimensions';
 30 'page positions'; 'post-enciphered body parts';
 31 'post-enciphered document body parts'; 'post-sealed document body parts';
 32 'pre-enciphered body parts'; 'pre-enciphered document body parts';
 33 'preparers'; 'pre-sealed document body parts';
 34 'presentation features'; 'presentation styles';
 35 'profile character sets'; 'protections';
 36 'purge date and time'; 'references to other documents';
 37 'release date and time'; 'resource-document';
 38 'resources'; 'revision history';
 39 'sealed document profiles'; 'sealed profiles';
 40 'security classification'; 'specific layout structure';
 41 'specific logical structure'; 'start date and time';
 42 'status'; 'subject';
 43 'superseded documents'; 'title';
 44 'transparencies'; 'types of coding';

45 'unit scaling'; 'user-specific codes'] and
 46 (₁ 'document application profile defaults' ∈ NAMS^{1.18}(*cst*) impl
 47 'document application profile' ∈ NAMS^{1.18}(*cst*)₁)₀

B.3 Attributes of the document profile

Semiformal Description 4.2

Predicate "is a profile attribute set" (clause 5.2, table B.1)

In this definition the attribute names are linked with the ranges of the attribute values.

Definition 4.2

1 $\forall as$
 2 (₀ IsProfileAttributeSet(*as*) iff
 3 (₁ IsNeNom^{1.2}(*as*) and
 4 $\forall a \in \sim as.$
 5 (₂ *Na* = 'abstract' impl IsProfCharSeq^{4.4}(*Ca*)₂) and
 6 (₃ *Na* = 'access rights' impl IsSetOfProfCharSeq^{4.3}(*Ca*)₃) and
 7 (₄ *Na* = 'additional information' impl IsAdditionalInformationValue^{4.52}(*Ca*)₄) and
 8 (₅ *Na* = 'alternative feature sets' impl IsAlternativeFeaturesSetsValue^{4.58}(*Ca*)₅) and
 9 (₆ *Na* = 'alternative representation character sets' impl IsCharacterSetsValue^{4.16}(*Ca*)₆) and
 10 (₇ *Na* = 'authorization' impl IsAuthorizationValue^{4.55}(*Ca*)₇) and
 11 (₈ *Na* = 'authors' impl IsAuthorsValue^{4.46}(*Ca*)₈) and
 12 (₉ *Na* = 'block alignments' impl IsBlockAlignmentsValue^{4.21}(*Ca*)₉) and
 13 (₁₀ *Na* = 'borders' impl IsBordersValue^{4.25}(*Ca*)₁₀) and
 14 (₁₁ *Na* = 'coding attributes' impl IsProfileCodingAttributesValue^{4.28}(*Ca*)₁₁) and
 15 (₁₂ *Na* = 'colours' impl IsColoursValue^{4.24}(*Ca*)₁₂) and
 16 (₁₃ *Na* = 'comments character sets' impl IsCharacterSetsValue^{4.16}(*Ca*)₁₃) and
 17 (₁₄ *Na* = 'content architecture classes' impl IsContentArchitectureClassesValue^{4.14}(*Ca*)₁₄) and
 18 (₁₅ *Na* = 'copyright' impl IsCopyrightValue^{4.47}(*Ca*)₁₅) and
 19 (₁₆ *Na* = 'creation date and time' impl IsDateAndTimeValue^{4.41}(*Ca*)₁₆) and
 20 (₁₇ *Na* = 'distribution list' impl IsDistributionListValue^{4.51}(*Ca*)₁₇) and
 21 (₁₈ *Na* = 'document application profile' impl IsDocumentApplicationProfileValue^{4.9}(*Ca*)₁₈) and
 22 (₁₉ *Na* = 'document application profile defaults' impl
 23 IsDocumentApplicationProfileDefaultsValue^{4.10}(*Ca*)₁₉) and
 24 (₂₀ *Na* = 'document architecture class' impl
 25 *Ca* ∈ ['formatted'; 'processable'; 'formatted processable']₂₀) and
 26 (₂₁ *Na* = 'document date and time' impl IsDateAndTimeValue^{4.41}(*Ca*)₂₁) and
 27 (₂₂ *Na* = 'document reference' impl IsExternalReferenceValue^{4.6}(*Ca*)₂₂) and
 28 (₂₃ *Na* = 'document size' impl IsNat(*Ca*)₂₃) and
 29 (₂₄ *Na* = 'document type' impl IsProfCharSeq^{4.4}(*Ca*)₂₄) and
 30 (₂₅ *Na* = 'enciphered document profiles' impl IsEncipheredDocumentProfilesValue^{4.60}(*Ca*)₂₅) and
 31 (₂₆ *Na* = 'enciphered profiles' impl *Ca* = 'present'₂₆) and
 32 (₂₇ *Na* = 'expiry date and time' impl IsDateAndTimeValue^{4.41}(*Ca*)₂₇) and
 33 (₂₈ *Na* = 'external-document class' impl IsExternalReferenceValue^{4.6}(*Ca*)₂₈) and
 34 (₂₉ *Na* = 'fill orders' impl IsFillOrdersValue^{4.22}(*Ca*)₂₉) and
 35 (₃₀ *Na* = 'fonts list' impl IsFontsListValue^{4.36}(*Ca*)₃₀) and
 36 (₃₁ *Na* = 'generic layout structure' impl
 37 *Ca* ∈ ['factor set'; 'partial generator set'; 'complete generator set']₃₁) and
 38 (₃₂ *Na* = 'generic logical structure' impl
 39 *Ca* ∈ ['factor set'; 'partial generator set'; 'complete generator set']₃₂) and
 40 (₃₃ *Na* = 'interchange format class' impl *Ca* ∈ ['A'; 'B']₃₃) and

- 41 (₃₄ N a = 'keywords' impl IsSetOfProfCharSeq^{4.3}(C a)₃₄) and
 42 (₃₅ N a = 'languages' impl IsSetOfProfCharSeq^{4.3}(C a)₃₅) and
 43 (₃₆ N a = 'layout paths' impl IsLayoutPathsValue^{4.19}(C a)₃₆) and
 44 (₃₇ N a = 'layout styles' impl C a = 'present'₃₇) and
 45 (₃₈ N a = 'local file references' impl IsLocalFileReferenceValue^{4.54}(C a)₃₈) and
 46 (₃₉ N a = 'local filing date and time' impl IsDateAndTimeSeq^{4.49}(C a)₃₉) and
 47 (₄₀ N a = 'medium types' impl IsMediumTypesValue^{4.18}(C a)₄₀) and
 48 (₄₁ N a = 'number of objects per page' impl IsNat(C a)₄₁) and
 49 (₄₂ N a = 'number of pages' impl IsNnInt^{1.7}(C a)₄₂) and
 50 (₄₃ N a = 'ODA security label' impl IsODASecurityLabelValue^{4.67}(C a)₄₃) and
 51 (₄₄ N a = 'ODA version' impl IsODAVersionValue^{4.15}(C a)₄₄) and
 52 (₄₅ N a = 'organizations' impl IsSetOfProfCharSeq^{4.3}(C a)₄₅) and
 53 (₄₆ N a = 'owners' impl IsOwnersValue^{4.45}(C a)₄₆) and
 54 (₄₇ N a = 'page dimensions' impl IsPageDimensionsValue^{4.17}(C a)₄₇) and
 55 (₄₈ N a = 'page positions' impl IsPagePositionsValue^{4.26}(C a)₄₈) and
 56 (₄₉ N a = 'post-enciphered body parts' impl C a = 'present'₄₉) and
 57 (₅₀ N a = 'post-enciphered document body parts' impl
 58 IsPostEncipheredDocumentBodyPartsValue^{4.70}(C a)₅₀) and
 59 (₅₁ N a = 'post-sealed document body parts' impl IsSealedDocumentBodyPartsValue^{4.72}(C a)₅₁) and
 60 (₅₂ N a = 'pre-enciphered body parts' impl C a = 'present'₅₂) and
 61 (₅₃ N a = 'pre-enciphered document body parts' impl
 62 IsPreEncipheredDocumentBodyPartsValue^{4.68}(C a)₅₃) and
 63 (₅₄ N a = 'preparers' impl IsPreparersValue^{4.44}(C a)₅₄) and
 64 (₅₅ N a = 'pre-sealed document body parts' impl IsSealedDocumentBodyPartsValue^{4.72}(C a)₅₅) and
 65 (₅₆ N a = 'presentation features' impl IsPresentationFeaturesValue^{4.32}(C a)₅₆) and
 66 (₅₇ N a = 'presentation styles' impl C a = 'present'₅₇) and
 67 (₅₈ N a = 'profile character sets' impl IsCharacterSetsValue^{4.16}(C a)₅₈) and
 68 (₅₉ N a = 'protections' impl IsProtectionsValue^{4.20}(C a)₅₉) and
 69 (₆₀ N a = 'purge date and time' impl IsDateAndTimeValue^{4.41}(C a)₆₀) and
 70 (₆₁ N a = 'references to other documents' impl IsSetOfExternalReferences^{4.53}(C a)₆₁) and
 71 (₆₂ N a = 'release date and time' impl IsDateAndTimeValue^{4.41}(C a)₆₂) and
 72 (₆₃ N a = 'resource-document' impl IsExternalReferenceValue^{4.6}(C a)₆₃) and
 73 (₆₄ N a = 'resources' impl IsResourcesValue^{4.8}(C a)₆₄) and
 74 (₆₅ N a = 'revision history' impl IsRevisionHistoryValue^{4.42}(C a)₆₅) and
 75 (₆₆ N a = 'sealed document profiles' impl IsSealedDocumentProfilesValue^{4.79}(C a)₆₆) and
 76 (₆₇ N a = 'sealed profiles' impl C a = 'present'₆₇) and
 77 (₆₈ N a = 'security classification' impl IsProfCharSeq^{4.4}(C a)₆₈) and
 78 (₆₉ N a = 'specific layout structure' impl C a = 'present'₆₉) and
 79 (₇₀ N a = 'specific logical structure' impl C a = 'present'₇₀) and
 80 (₇₁ N a = 'start date and time' impl IsDateAndTimeValue^{4.41}(C a)₇₁) and
 81 (₇₂ N a = 'status' impl IsProfCharSeq^{4.4}(C a)₇₂) and
 82 (₇₃ N a = 'subject' impl IsProfCharSeq^{4.4}(C a)₇₃) and
 83 (₇₄ N a = 'superseded documents' impl IsSetOfExternalReferences^{4.53}(C a)₇₄) and
 84 (₇₅ N a = 'title' impl IsProfCharSeq^{4.4}(C a)₇₅) and
 85 (₇₆ N a = 'transparencies' impl IsTransparenciesValue^{4.23}(C a)₇₆) and
 86 (₇₇ N a = 'types of coding' impl IsTypesOfCodingValue^{4.27}(C a)₇₇) and
 87 (₇₈ N a = 'unit scaling' impl IsPairOfPosInt^{1.9}(C a)₇₈) and
 88 (₇₉ N a = 'user-specific codes' impl IsSetOfProfCharSeq^{4.3}(C a)₇₉)₁)₀)

Semiformal Description 4.3

Predicate “is a set of profile character sequences”

A set of profile character sequences is a set where each element is a profile character sequence.

Definition 4.3

- 1 $\forall v$
- 2 $(\text{IsSetOfProfCharSeq}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and } \forall m \in v (\text{IsProfCharSeq}^{4.4}(m)) \text{)}_0$

Semiformal Description 4.4

Predicate “is a profile character sequence” (e.g., clause 5.2.7)

A profile character sequence is a catenation of characters from the document profile character set.

Definition 4.4

- 1 $\forall v$
- 2 $(\text{IsProfCharSeq}(v) \text{ iff}$
- 3 $\text{IsNeCat}^{1.3}(v) \text{ and } \forall m \in v \cdot (\text{IsProfileCharacter}^{4.5}(C m)) \text{)}_0$

Semiformal Description 4.5

Predicate “is a profile character” (e.g., clause 5.2.7)

A profile character is considered an atomic construct in the formal specification.

Definition 4.5

- 1 $\forall v$
- 2 $(\text{IsProfileCharacter}(v) \text{ iff}$
- 3 $\text{IsAtom}(v)_0$

Semiformal Description 4.6

Predicate “is an external reference value” (e.g., clause 5.2.7)

An external reference value is either an ASN.1 object identifier or a sequence of characters from the document profile character set.

Definition 4.6

- 1 $\forall v$
- 2 $(\text{IsExternalReferenceValue}(v) \text{ iff}$
- 3 $(\text{IsASN1ObjectIdentifier}^{4.7}(v) \text{ or } \text{IsProfCharSeq}^{4.4}(v)_1)_0$

Semiformal Description 4.7

Predicate "is an ASN.1 object identifier" (e.g., clause 5.2.7)

An ASN.1 object identifier is considered an atomic construct in the formal specification.

Definition 4.7

- 1 $\forall v$
- 2 $(\text{IsASN1ObjectIdentifier}(v) \text{ iff}$
- 3 $\text{IsAtom}(v))$

Semiformal Description 4.8

Predicate "is a resources value" (clause 5.2.9)

The value of the attribute 'resources' is a set where each element consists of a pair, the first part being a sequence of characters from the minimum subreertoire of ISO 6937-2, the second part being an object class identifier.

Definition 4.8

- 1 $\forall v$
- 2 $(\text{IsResourcesValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v \exists l, r$
- 5 $(a = [\rightarrow l \rightarrow r \rightarrow] \text{ and}$
- 6 $\text{IsISO6937MSString}^{1.20}(l) \text{ and } \text{IsObjectClassId}^{2.83}(r))$

Semiformal Description 4.9

Predicate "is a document application profile value" (clause 5.3.1)

The value of the attribute 'document application profile' is either an ASN.1 object identifier or the integer 2.

Definition 4.9

- 1 $\forall v$
- 2 $(\text{IsDocumentApplicationProfileValue}(v) \text{ iff}$
- 3 $(\text{IsASN1ObjectIdentifier}^{4.7}(v) \text{ or } v = 2))$

Semiformal Description 4.10

Predicate "is a document application profile defaults value" (clause 5.3.2)

A document application profile defaults value is either a non-empty nomination, where the names are 'content architecture class', 'dimensions', 'transparency', 'colour', 'border', 'layout path', 'page position', 'medium type', 'block alignment' and/or 'type of coding' and the component is a value of the corresponding attribute as defined in ISO 8613-2, or it is a defaultable attribute from the character content architecture, the raster graphics architecture or the geometric graphics architecture.

Definition 4.10

1 $\forall v$
 2 $(\text{IsDocumentApplicationProfileDefaultsValue}(v) \text{ iff}$
 3 $(\text{IsNeNom}^{1.2}(v) \text{ and}$
 4 $\text{NAMS}^{1.18}(v) \subseteq [\text{'content architecture class'; 'dimensions'; 'colour'; 'border'; 'layout path';}$
 5 $\text{'page position'; 'transparency'; 'medium type'; 'block alignment';}$
 6 $\text{'type of coding'}] \text{ and}$
 7 $\forall a \in \sim v.$
 8 $(\text{N } a = \text{'content architecture class' } \text{impl IsContentArchitectureClassValue}^{2.88}(C a) \text{) } \text{ and}$
 9 $(\text{N } a = \text{'dimensions' } \text{impl IsDimensionsValue}^{2.99}(C a) \text{) } \text{ and}$
 10 $(\text{N } a = \text{'transparency' } \text{impl IsTransparencyValue}^{2.103}(C a) \text{) } \text{ and}$
 11 $(\text{N } a = \text{'colour' } \text{impl IsColourValue}^{2.104}(C a) \text{) } \text{ and}$
 12 $(\text{N } a = \text{'border' } \text{impl IsBorderValue}^{2.100}(C a) \text{) } \text{ and}$
 13 $(\text{N } a = \text{'layout path' } \text{impl IsLayoutPathValue}^{2.102}(C a) \text{) } \text{ and}$
 14 $(\text{N } a = \text{'page position' } \text{impl IsPairOfNnInt}^{1.8}(C a) \text{) } \text{ and}$
 15 $(\text{N } a = \text{'medium type' } \text{impl IsMediumTypeValue}^{2.105}(C a) \text{) } \text{ and}$
 16 $(\text{N } a = \text{'block alignment' } \text{impl IsBlockAlignmentValue}^{2.108}(C a) \text{) } \text{ and}$
 17 $(\text{N } a = \text{'type of coding' } \text{impl IsTypeOfCodingValue}^{2.120}(C a) \text{) } \text{ or}$
 18 $\text{IsProfileDefaultableCharacterContentArchitectureAttribute}^{4.11}(v) \text{ or}$
 19 $\text{IsProfileDefaultableRasterGraphicsContentArchitectureAttribute}^{4.12}(v) \text{ or}$
 20 $\text{IsProfileDefaultableGeometricGraphicsContentArchitectureAttribute}^{4.13}(v) \text{)}$

Semiformal Description 4.11

Predicate "is a profile defaultable character content architecture value" (clause 5.3.2)

A profile defaultable character content architecture value is one of the attributes (name and value) which is classified as defaultable in ISO 8613-6. It is considered an atomic construct in the formal specification of the document profile. This predicate is formally defined in annex C, definition 6.1.

Definition 4.11

1 $\forall v$
 2 $(\text{IsProfileDefaultableCharacterContentArchitectureAttribute}(v) \text{ iff}$
 3 $\text{IsAtom}(v) \text{)}$

Semiformal Description 4.12

Predicate “is a profile defaultable raster graphics content architecture value” (clause 5.3.2)

A profile defaultable raster graphics content architecture value is one of the attributes (name and value) which is classified as defaultable in ISO 8613-7. It is considered an atomic construct in the formal specification of the document profile. This predicate is formally defined in annex D, definition 7.1.

Definition 4.12

- 1 $\forall v$
- 2 $(\circ \text{IsProfileDefaultableRasterGraphicsContentArchitectureAttribute}(v) \text{ iff}$
- 3 $\text{IsAtom}(v) \circ)$

Semiformal Description 4.13

Predicate “is a profile defaultable geometric graphics content architecture value” (clause 5.3.2)

A profile defaultable geometric graphics content architecture value is one of the attributes (name and value) which is classified as defaultable in ISO 8613-8. It is considered an atomic construct in the formal specification of the document profile. This predicate is formally defined in annex E, definition 8.1.

Definition 4.13

- 1 $\forall v$
- 2 $(\circ \text{IsProfileDefaultableGeometricGraphicsContentArchitectureAttribute}(v) \text{ iff}$
- 3 $\text{IsAtom}(v) \circ)$

Semiformal Description 4.14

Predicate “is a content architecture classes value” (clause 5.3.4)

The value of the attribute ‘content architecture classes’ is a non-empty set where each element is a content architecture class value.

Definition 4.14

- 1 $\forall v$
- 2 $(\circ \text{IsContentArchitectureClassesValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v (\text{IsContentArchitectureClassValue}^{2.88}(a) \circ)$

Semiformal Description 4.15

Predicate “is an ODA version value” (clause 5.3.6)

An ODA version value is a catenation of two elements. The first element is a sequence of characters from the document profile character set, the second element is a date value in accordance with ISO 8601.

Definition 4.15

- 1 $\forall v$
- 2 $(\circ \text{IsODAVersionValue}(v) \text{ iff}$
- 3 $\exists l, r$
- 4 $(\text{ }_1 v = [\rightarrow l \rightarrow r \rightarrow] \text{ and}$
- 5 $\text{IsProfCharSeq}^{4.4}(l) \text{ and } \text{IsDateValue}^{4.50}(r) \text{ }_1 \circ)$

Semiformal Description 4.16

Predicate “is a character sets value” (e.g., clause 5.3.7.1)

This value consists of escape sequences in accordance with ISO 2022 and ISO 2375. It is considered an atomic construct in the formal specification.

Definition 4.16

- 1 $\forall v$
- 2 $(\text{IsCharacterSetsValue}(v) \text{ iff}$
- 3 $\text{IsAtom}(v)_o)$

Semiformal Description 4.17

Predicate “is a page dimensions value” (clause 5.3.7.4.1)

The value of the attribute 'page dimensions' is a set of pairs of positive integers.

Definition 4.17

- 1 $\forall v$
- 2 $(\text{IsPageDimensionsValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v (\text{IsPairOfPosInt}^{1.9}(a))_o)$

Semiformal Description 4.18

Predicate “is a medium types value” (clause 5.3.7.4.2)

The value of the attribute 'medium types' is a set where each element is a medium type value.

Definition 4.18

- 1 $\forall v$
- 2 $(\text{IsMediumTypesValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v (\text{IsMediumTypeValue}^{2.105}(a))_o)$

Semiformal Description 4.19

Predicate “is a layout paths value” (clause 5.3.7.4.3)

The value of the attribute 'layout paths' is a set where each element is a layout path value.

Definition 4.19

- 1 $\forall v$
- 2 $(\text{IsLayoutPathsValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v (\text{IsLayoutPathValue}^{2.102}(a))_o)$

Semiformal Description 4.20

Predicate "is a protections value" (clause 5.3.7.4.4)

The value of the attribute 'protections' is a set where each element is a protection value.

Definition 4.20

- 1 $\forall v$
- 2 ($\text{IsProtectionsValue}(v)$ iff
- 3 $\text{IsNeCol}^{1.1}(v)$ and
- 4 $\forall a \in v (\text{IsProtectionValue}^{2.106}(a))$)

Semiformal Description 4.21

Predicate "is a block alignments value" (clause 5.3.7.4.5)

The value of the attribute 'block alignments' is a set where each element is a block alignment value.

Definition 4.21

- 1 $\forall v$
- 2 ($\text{IsBlockAlignmentsValue}(v)$ iff
- 3 $\text{IsNeCol}^{1.1}(v)$ and
- 4 $\forall a \in v (\text{IsBlockAlignmentValue}^{2.108}(a))$)

Semiformal Description 4.22

Predicate "is a fill orders value" (clause 5.3.7.4.6)

The value of the attribute 'fill orders' is a set where each element is a fill order value.

Definition 4.22

- 1 $\forall v$
- 2 ($\text{IsFillOrdersValue}(v)$ iff
- 3 $\text{IsNeCol}^{1.1}(v)$ and
- 4 $\forall a \in v (\text{IsFillOrderValue}^{2.110}(a))$)

Semiformal Description 4.23

Predicate "is a transparencies value" (clause 5.3.7.4.7)

The value of the attribute 'transparencies' is a set where each element is a transparency value.

Definition 4.23

- 1 $\forall v$
- 2 ($\text{IsTransparenciesValue}(v)$ iff
- 3 $\text{IsNeCol}^{1.1}(v)$ and
- 4 $\forall a \in v (\text{IsTransparencyValue}^{2.163}(a))$)

Semiformal Description 4.24

Predicate "is a colours value" (clause 5.3.7.4.8)

The value of the attribute 'colours' is a set where each element is a colour value.

Definition 4.24

- 1 $\forall v$
- 2 $(\text{IsColoursValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v (\text{IsColourValue}^{2.104}(a)) \text{)}$

Semiformal Description 4.25

Predicate "is a borders value" (clause 5.3.7.4.9)

The value of the attribute 'borders' is a set where each element is a border value.

Definition 4.25

- 1 $\forall v$
- 2 $(\text{IsBordersValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v (\text{IsBorderValue}^{2.100}(a)) \text{)}$

Semiformal Description 4.26

Predicate "is a page positions value" (clause 5.3.7.4.10)

The value of the attribute 'page positions' is a set where each element is a pair of non-negative integers.

Definition 4.26

- 1 $\forall v$
- 2 $(\text{IsPagePositionsValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v (\text{IsPairOfNnInt}^{1.8}(a)) \text{)}$

Semiformal Description 4.27

Predicate "is a types of coding value" (clause 5.3.7.4.11)

The value of the attribute 'types of coding' is a set where each element is a type of coding value.

Definition 4.27

- 1 $\forall v$
- 2 $(\text{IsTypesOfCodingValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v (\text{IsTypeOfCodingValue}^{2.120}(a)) \text{)}$

Semiformal Description 4.28

Predicate “is a profile coding attributes value” (clause 5.3.7.5)

The value of the attribute 'coding attributes' is a nomination where the name is 'character coding attributes', 'raster-graphics coding attributes' and/or 'geometric-graphics coding attributes'. The corresponding component is a character coding specification, raster graphics coding specification or geometric graphics coding specification.

Definition 4.28

- 1 $\forall v$
- 2 $(\text{IsProfileCodingAttributesValue}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) \subseteq [\text{'character coding attributes'; 'raster-graphics coding attributes';}$
- 5 $\text{'geometric-graphics coding attributes'}] \text{ and}$
- 6 $\forall b \in \sim v .$
- 7 $(\text{N } b = \text{'character coding attributes'} \text{ impl}$
- 8 $\text{IsProfileCharacterCodingSpecification}^{4.29}(C b) \text{) and}$
- 9 $(\text{N } b = \text{'raster-graphics coding attributes'} \text{ impl}$
- 10 $\text{IsProfileRasterGraphicsCodingSpecification}^{4.30}(C b) \text{) and}$
- 11 $(\text{N } b = \text{'geometric-graphics coding attributes'} \text{ impl}$
- 12 $\text{IsProfileGeometricGraphicsCodingSpecification}^{4.31}(C b) \text{)}_{1,0}$

Semiformal Description 4.29

Predicate “is a profile character coding specification” (clause 5.3.7.5)

A profile character coding specification is considered an atomic construct in the formal specification of the document profile. The formal specification of a character coding specification is given in annex C, definition 6.2.

Definition 4.29

- 1 $\forall v$
- 2 $(\text{IsProfileCharacterCodingSpecification}(v) \text{ iff}$
- 3 $\text{IsAtom}(v) \text{)}_0$

Semiformal Description 4.30

Predicate “is a profile raster graphics coding specification” (clause 5.3.7.5)

A profile raster graphics coding specification is considered an atomic construct in the formal specification of the document profile. The formal specification of a raster graphics coding specification is given in annex D, definition 7.2.

Definition 4.30

- 1 $\forall v$
- 2 $(\text{IsProfileRasterGraphicsCodingSpecification}(v) \text{ iff}$
- 3 $\text{IsAtom}(v) \text{)}_0$

Semiformal Description 4.31

Predicate "is a profile geometric graphics coding specification" (clause 5.3.7.5)

A profile geometric graphics coding specification is considered an atomic construct in the formal specification of the document profile. The formal specification of a geometric graphics coding specification is given in annex E, definition 8.2.

Definition 4.31

- 1 $\forall v$
- 2 $(\text{IsProfileGeometricGraphicsCodingSpecification}(v) \text{ iff}$
- 3 $\text{IsAtom}(v))$

Semiformal Description 4.32

Predicate "is a presentation features value" (clause 5.3.7.6)

The value of the attribute 'presentation features' is a nomination where the name is 'character presentation features', 'raster-graphics presentation features' and/or 'geometric-graphics presentation features'. The corresponding component is a character presentation feature, a raster graphics presentation feature or a geometric graphics presentation feature.

Definition 4.32

- 1 $\forall v$
- 2 $(\text{IsPresentationFeaturesValue}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) \subseteq [\text{'character presentation features' ; 'raster-graphics presentation features' ;}$
- 5 $\text{'geometric-graphics presentation features'}] \text{ and}$
- 6 $\forall b \in \sim v .$
- 7 $(\text{N } b = \text{'character presentation features' } \text{impl } \text{IsProfileCharacterPresentationFeature}^{4.33}(\text{C } b)) \text{ and}$
- 8 $(\text{N } b = \text{'raster-graphics presentation features' } \text{impl}$
- 9 $\text{IsProfileRasterGraphicsPresentationFeature}^{4.34}(\text{C } b)) \text{ and}$
- 10 $(\text{N } b = \text{'geometric-graphics presentation features' } \text{impl}$
- 11 $\text{IsProfileGeometricGraphicsPresentationFeature}^{4.35}(\text{C } b))$

Semiformal Description 4.33

Predicate "is a profile character presentation feature" (clause 5.3.7.6)

A profile character presentation feature is considered an atomic construct in the formal specification of the document profile. The formal specification of a character presentation feature is given in annex C, definition 6.3.

Definition 4.33

- 1 $\forall v$
- 2 $(\text{IsProfileCharacterPresentationFeature}(v) \text{ iff}$
- 3 $\text{IsAtom}(v))$

Semiformal Description 4.34

Predicate "is a profile raster graphics presentation feature" (clause 5.3.7.6)

A profile raster graphics presentation feature is considered an atomic construct in the formal specification of the document profile. The formal specification of a raster graphics presentation feature is given in annex D, definition 7.3.

Definition 4.34

- 1 $\forall v$
- 2 $(\text{IsProfileRasterGraphicsPresentationFeature}(v) \text{ iff}$
- 3 $\text{IsAtom}(v)_o)$

Semiformal Description 4.35

Predicate "is a profile geometric graphics presentation feature" (clause 5.3.7.6)

A profile geometric graphics presentation feature is considered an atomic construct in the formal specification of the document profile. The formal specification of a geometric graphics presentation feature is given in annex E, definition 8.3.

Definition 4.35

- 1 $\forall v$
- 2 $(\text{IsProfileGeometricGraphicsPresentationFeature}(v) \text{ iff}$
- 3 $\text{IsAtom}(v)_o)$

Semiformal Description 4.36

Predicate "is a fonts list value" (clause 5.3.9.2)

The value of the attribute 'fonts list' is a set of one or more pairs, where the first element of the pair is an integer and the second element is a font reference.

Definition 4.36

- 1 $\forall v$
- 2 $(\text{IsFontsListValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall b \in v \exists l, r$
- 5 $(b = [\rightarrow l \rightarrow r \rightarrow] \text{ and}$
- 6 $\text{IsInt}(l) \text{ and } \text{IsFontReference}^{4.37}(r)_o)$

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Semiformal Description 4.37

Predicate "is a font reference" (clause 5.3.9.2)

A font reference is a non-empty nomination where the name is 'reference properties', 'user-readable comments' and/or 'user-visible name'. At least the name 'reference properties' must be specified. For the name 'reference properties' the component is a set of reference properties. For the names 'user-readable comments' and 'user-visible name' the components are character sequences.

Definition 4.37

- 1 $\forall v$
- 2 $(\text{IsFontReference}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) \supseteq [\text{'reference properties'; 'user-readable comments'; 'user-visible name'}] \text{ and}$
- 5 $\text{'reference properties'} \in \text{NAMS}^{1.18}(v) \text{ and}$
- 6 $\forall a \in \sim v.$
- 7 $(\text{N } a = \text{'reference properties'} \text{ impl } \text{IsSetOfReferenceProperties}^{4.38}(C a)_2)$
- 8 $(\text{N } a = \text{'user-readable comments'} \text{ impl } \text{IsCharSeq}^{2.133}(C a)_3)$
- 9 $(\text{N } a = \text{'user-visible name'} \text{ impl } \text{IsCharSeq}^{2.133}(C a)_4) \text{)}_0$

Semiformal Description 4.38

Predicate "is a set of reference properties" (clause 5.3.9.2)

A set of reference properties is a non-empty collection whose elements are reference properties values.

Definition 4.38

- 1 $\forall v$
- 2 $(\text{IsSetOfReferenceProperties}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v \text{ IsReferencePropertiesValue}^{4.39}(a)_0)$

Semiformal Description 4.39

Predicate "is a reference properties value" (clause 5.3.9.2)

A reference properties value is a non-empty nomination where the name is 'precedence number', 'properties' and/or 'user-readable comments'. At least the name 'properties' must be specified. For the name 'precedence number' the component is a non-negative integer. For the name 'properties' the value is an ISO 9541, Part2, attribute set. For the name 'user-readable comments' the component is a character sequences.

Definition 4.39

- 1 $\forall v$
- 2 $(\text{IsReferencePropertiesValue}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) \supseteq [\text{'precedence number'; 'properties'; 'user-readable comments'}] \text{ and}$
- 5 $\text{'properties'} \in \text{NAMS}^{1.18}(v) \text{ and}$
- 6 $\forall a \in \sim v.$
- 7 $(\text{N } a = \text{'precedence number'} \text{ impl } \text{IsNnInt}^{1.7}(C a)_2)$
- 8 $(\text{N } a = \text{'properties'} \text{ impl } \text{IsISO9541Part2AttributeSet}^{4.40}(C a)_3)$
- 9 $(\text{N } a = \text{'user-readable comments'} \text{ impl } \text{IsCharSeq}^{2.133}(C a)_4) \text{)}_0$

Semiformal Description 4.40

Predicate "is an ISO 9541, Part 2, attribute set" (clause 5.3.9.2)

An ISO 9541, Part 2, attribute set is considered an atomic construct in the formal specification of the document profile.

Definition 4.40

- 1 $\forall v$
- 2 $(\circ \text{IsISO9541Part2AttributeSet}(v) \text{ iff}$
- 3 $\text{IsAtom}(v) \circ)$

Semiformal Description 4.41

Predicate "is a date and time value" (e.g., clause 5.4.2.1)

A date and time value is a date character string and, optionally, a time of day character string, in accordance with ISO 8601. It is considered an atomic construct in the formal specification.

Definition 4.41

- 1 $\forall v$
- 2 $(\circ \text{IsDateAndTimeValue}(v) \text{ iff}$
- 3 $\text{IsAtom}(v) \circ)$

Semiformal Description 4.42

Predicate "is a revision history value" (clause 5.4.2.8)

The value of the attribute 'revision history' is a non-empty sequence of revision values.

Definition 4.42

- 1 $\forall v$
- 2 $(\circ \text{IsRevisionHistoryValue}(v) \text{ iff}$
- 3 $\text{IsNeCat}^{1.3}(v) \text{ and}$
- 4 $\forall a \in \sim v \bullet (\text{IsRevisionValue}^{4.43}(\text{C } a)) \circ)$

Semiformal Description 4.43

Predicate "is an revision value" (e.g., clause 5.4.2.8)

A revision value is a nomination where the name is either 'revision date and time' (the corresponding component is a data and time value), 'version number' (the component is an integer), 'version reference' (the component is an external reference value), 'user comments' (the component is a sequence of characters from the document profile character set) or 'revisers'. For the last case, the component is a nomination again, where the (nomination) name is 'names' (the component is a set of personal names), 'position' and/or 'organization' (the corresponding components are sequences of characters from the document profile character set). At least one of these three sub-parameters must be specified.

Definition 4.43

1 $\forall v$
 2 $(\text{IsRevisionValue}(v) \text{ iff}$
 3 $\text{IsNom}(v) \text{ and}$
 4 $\text{NAMS}^{1.18}(v) \subseteq [\text{'revisers'}; \text{'revision date and time'}; \text{'user comments'};$
 5 $\text{'version number'}; \text{'version reference'}] \text{ and}$
 6 $\forall a \in \sim v \bullet$
 7 $(\text{N } a = \text{'revisers'} \text{ impl}$
 8 $(\text{IsNeNom}^{1.2}(C a) \text{ and}$
 9 $\text{NAMS}^{1.18}(C a) \subseteq [\text{'names'}; \text{'position'}; \text{'organization'}] \text{ and}$
 10 $\forall b \in \sim(C a) \bullet$
 11 $(\text{N } b = \text{'names'} \text{ impl IsSetOfPersonalNames}^{4.56}(C b) \text{) and}$
 12 $(\text{N } b \in [\text{'position'}; \text{'organization'}] \text{ impl IsProfCharSeq}^{4.4}(C b) \text{) and}$
 13 $(\text{N } a = \text{'revision date and time'} \text{ impl IsDateAndTimeValue}^{4.41}(C a) \text{) and}$
 14 $(\text{N } a = \text{'user comments'} \text{ impl IsProfCharSeq}^{4.4}(C a) \text{) and}$
 15 $(\text{N } a = \text{'version number'} \text{ impl IsProfCharSeq}^{4.4}(C a) \text{) and}$
 16 $(\text{N } a = \text{'version reference'} \text{ impl IsExternalReferenceValue}^{4.6}(C a) \text{))$

Semiformal Description 4.44

Predicate "is a preparers value" (clause 5.4.3.2)

The value of the attribute 'preparers' is a set of nominations. For each nomination, the (nomination) name is 'personal name of preparer' (the corresponding component is a personal name) and/or 'preparers organization' (the corresponding component is a sequence of characters from the document profile character set). At least one of these parameters must be specified.

Definition 4.44

1 $\forall v$
 2 $(\text{IsPreparersValue}(v) \text{ iff}$
 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
 4 $\forall b \in v$
 5 $(\text{IsNeNom}^{1.2}(b) \text{ and}$
 6 $\text{NAMS}^{1.18}(b) \subseteq [\text{'personal name of preparer'}; \text{'preparers organization'}] \text{ and}$
 7 $\forall a \in \sim b \bullet$
 8 $(\text{N } a = \text{'personal name of preparer'} \text{ impl IsPersonalName}^{4.57}(C a) \text{) and}$
 9 $(\text{N } a = \text{'preparers organization'} \text{ impl IsProfCharSeq}^{4.4}(C a) \text{))$

Semiformal Description 4.45

Predicate "is an owners value" (clause 5.4.3.3)

The value of the attribute 'owners' is a set of nominations. For each nomination, the (nomination) name is 'personal name of owner' (the corresponding component is a personal name) and/or 'owners organization' (the corresponding component is a sequence of characters from the document profile character set). At least one of these parameters must be specified.

Definition 4.45

- 1 $\forall v$
- 2 $({}_0 \text{IsOwnersValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall b \in v$
- 5 $({}_1 \text{IsNeNom}^{1.2}(b) \text{ and}$
- 6 $\text{NAMS}^{1.18}(b) \subseteq [\text{'personal name of owner' ; 'owners organization' }] \text{ and}$
- 7 $\forall a \in \sim b.$
- 8 $({}_2 ({}_3 N a = \text{'personal name of owner' } \text{impl IsPersonalName}^{4.57}(C a) {}_3) \text{ and}$
- 9 $({}_4 N a = \text{'owners organization' } \text{impl IsProfCharSeq}^{4.4}(C a) {}_4) {}_2) {}_1) {}_0$

Semiformal Description 4.46

Predicate "is an authors value" (clause 5.4.3.4)

The value of the attribute 'authors' is a set of nominations. For each nomination, the (nomination) name is 'personal name of author' (the corresponding component is a personal name) and/or 'authors organization' (the corresponding component is a sequence of characters from the document profile character set). At least one of these parameters must be specified.

Definition 4.46

- 1 $\forall v$
- 2 $({}_0 \text{IsAuthorsValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall b \in v$
- 5 $({}_1 \text{IsNeNom}^{1.2}(b) \text{ and}$
- 6 $\text{NAMS}^{1.18}(b) \subseteq [\text{'personal name of author' ; 'authors organization' }] \text{ and}$
- 7 $\forall a \in \sim b.$
- 8 $({}_2 ({}_3 N a = \text{'personal name of author' } \text{impl IsPersonalName}^{4.57}(C a) {}_3) \text{ and}$
- 9 $({}_4 N a = \text{'authors organization' } \text{impl IsProfCharSeq}^{4.4}(C a) {}_4) {}_2) {}_1) {}_0$

Semiformal Description 4.47

Predicate "is a copyright value" (clause 5.4.4.1)

The value of the attribute 'copyright' is a set of nominations. For each nomination, the name is 'copyright information' (the corresponding component is a set of sequences of characters from the document profile character set) and/or 'copyright dates' (the corresponding component is a date value).

Definition 4.47

- 1 $\forall v$
- 2 $(\text{IsCopyrightValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall b \in v$
- 5 $(\text{IsNeNom}^{1.2}(b) \text{ and}$
- 6 $\text{NAMS}^{1.18}(b) \subseteq [\text{'copyright information'; 'copyright dates'}] \text{ and}$
- 7 $\forall a \in \cdot b \bullet$
- 8 $(\text{N } a = \text{'copyright information' } \text{impl IsSetOfProfCharSeq}^{4.3}(C a) \text{) and}$
- 9 $(\text{N } a = \text{'copyright dates' } \text{impl IsSetOfDatesValue}^{4.48}(C a) \text{)})$

Semiformal Description 4.48

Predicate "is a set of dates value" (clause 5.4.4.1)

A set of dates value is a set where each element of the set is a date value.

Definition 4.48

- 1 $\forall v$
- 2 $(\text{IsSetOfDatesValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall b \in v (\text{IsDateValue}^{4.50}(b))$

Semiformal Description 4.49

Predicate "is a date and time sequence" (clause 5.4.2)

A date and time sequence is a catenation where each element is a date and time value.

Definition 4.49

- 1 $\forall v$
- 2 $(\text{IsDateAndTimeSeq}(v) \text{ iff}$
- 3 $\text{IsNeCat}^{1.3}(v) \text{ and}$
- 4 $\forall b \in \cdot v \bullet (\text{IsDateAndTimeValue}^{4.41}(C b))$

Semiformal Description 4.50

Predicate "is a date value" (clause 5.4.2)

A date value is a date character string in accordance with ISO 8601. It is considered an atomic construct in the formal specification.

Definition 4.50

- 1 $\forall v$
- 2 $(\text{IsDateValue}(v) \text{ iff}$
- 3 $\text{IsAtom}(v)$

Semiformal Description 4.51

Predicate "is a distribution list value" (clause 5.4.4.4)

The value of the attribute 'distribution list' is a set of nominations. For each nomination, the (nomination) name is 'personal name of recipient' (the corresponding component is a personal name) and/or 'recipients organization' (the corresponding component is a sequence of characters from the document profile character set). Both parameters are optional.

Definition 4.51

- 1 $\forall v$
- 2 $(\text{IsDistributionListValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall b \in v$
- 5 $(\text{IsNeNom}^{1.2}(b) \text{ and}$
- 6 $\text{NAMS}^{1.18}(b) \subseteq [\text{'personal name of recipient'}; \text{'recipients organization'}] \text{ and}$
- 7 $\forall a \in \sim b.$
- 8 $(\text{N } a = \text{'personal name of recipient'} \text{ impl } \text{IsPersonalName}^{4.57}(C a) \text{) and}$
- 9 $(\text{N } a = \text{'recipients organization'} \text{ impl } \text{IsProfCharSeq}^{4.4}(C a) \text{)})$

Semiformal Description 4.52

Predicate "is an additional information value" (clause 5.4.4.5)

The value of the attribute 'additional information' can have any value. It is considered an atomic construct in the formal specification.

Definition 4.52

- 1 $\forall v$
- 2 $(\text{IsAdditionalInformationValue}(v) \text{ iff}$
- 3 $\text{IsAtom}(v))$

Semiformal Description 4.53

Predicate "is a set of external references" (clause 5.4.5.1)

A set of external references is a set where each element of the set is an external reference.

Definition 4.53

- 1 $\forall v$
- 2 $(\text{IsSetOfExternalReferences}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall b \in v (\text{IsExternalReferenceValue}^{4.6}(b))$

Semiformal Description 4.54

Predicate “is a local file reference value” (clause 5.4.6)

The value of the attribute 'local file references' is a set of nominations. For each nomination, the (nomination) name is 'file name', 'location of the document' and/or 'user comments'. Each component is a sequence of characters from the document profile character set.

Definition 4.54

- 1 $\forall v$
- 2 $(\text{IsLocalFileReferenceValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall b \in v$
- 5 $(\text{IsNeNom}^{1.2}(b) \text{ and}$
- 6 $\text{NAMS}^{1.18}(b) \subseteq [\text{'file name'}; \text{'location of the document'}; \text{'user comments'}] \text{ and}$
- 7 $\forall a \in \sim b. (\text{IsProfCharSeq}^{4.4}(C a)))$

Semiformal Description 4.55

Predicate “is an authorization value” (clause 5.4.8.1)

An authorization value is either a personal name or a sequence of characters from the document profile character set.

Definition 4.55

- 1 $\forall v$
- 2 $(\text{IsAuthorizationValue}(v) \text{ iff}$
- 3 $(\text{IsPersonalName}^{4.57}(v) \text{ or } \text{IsProfCharSeq}^{4.4}(v))$

Semiformal Description 4.56

Predicate “is a set of personal names”

A set of personal names consists of elements which are personal names.

Definition 4.56

- 1 $\forall v$
- 2 $(\text{IsSetOfPersonalNames}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v (\text{IsPersonalName}^{4.57}(a))$

Semiformal Description 4.57

Predicate “is a personal name” (Annex A of ISO 8613-4)

A personal name is a nomination where the (nomination) name is 'surname' (must be present), 'givenname', 'initials', 'title' (optional). The components are sequences of characters from the document profile character set.

Definition 4.57

- 1 $\forall v$
- 2 $(\text{IsPersonalName}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and 'surname'} \in \text{NAMS}^{1.18}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) \subseteq [\text{'surname'}; \text{'givenname'}; \text{'initials'}; \text{'title'}] \text{ and}$
- 5 $\forall a \in \sim v. (\text{IsProfCharSeq}^{4.4}(C a))$

Semiformal Description 4.58

Predicate "is an alternative features sets value" (clause 5.3.6a)

An alternative features sets value is a non-empty sets whose elements are ASN.1 object identifier sets.

Definition 4.58

- 1 $\forall v$
- 2 $(\text{IsAlternativeFeaturesSetsValue}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v \text{ IsASN1ObjectIdentifierSet}^{4.59}(a)_o)$

Semiformal Description 4.59

Predicate "is an ASN.1 object identifier set" (clause 5.3.6a)

An ASN.1 object identifier set is a non-empty sets whose elements are ASN.1 object identifier

Definition 4.59

- 1 $\forall v$
- 2 $(\text{IsASN1ObjectIdentifierSet}(v) \text{ iff}$
- 3 $\text{IsNeCol}^{1.1}(v) \text{ and}$
- 4 $\forall a \in v \text{ IsASN1ObjectIdentifier}^{4.7}(a)_o)$

Semiformal Description 4.60

Predicate "is an enciphered document profiles value" (clause 5.5.5)

An enciphered document profiles value is a non-empty nomination with the names 'privileged recipient information' and 'protected document part identifier'. For the name 'privileged recipient information' the value is a privileged recipient information value. For the name 'protected document part identifier' the value is an enciphered document profile identifier.

Definition 4.60

- 1 $\forall v$
- 2 $(\text{IsEncipheredDocumentProfilesValue}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) = [\text{'privileged recipient information'}; \text{'protected document part identifier'}] \text{ and}$
- 5 $\forall a \in \sim v.$
- 6 $(\text{ }_1 \text{ }_2 N a = \text{'privileged recipient information'} \text{ impl IsPrivilegedRecipientInformationValue}^{4.61}(C a) \text{ }_2)$
- 7 $(\text{ }_3 N a = \text{'protected document part identifier'} \text{ impl IsEncipheredDocumentProfileId}^{4.66}(C a) \text{ }_3 \text{ }_1)_o)$

Semiformal Description 4.61

Predicate "is a privileged recipient information value" (clause 5.5.5)

A privileged recipient information value is a non-empty nomination with the names 'key information', 'method information' and 'privileged recipients'. For the name 'key information' the value is a key information value. For the name 'method information' the value is a method information value. For the name 'privileged recipients' the value is a set of personal names.

Definition 4.61

- 1 $\forall v$
- 2 $(\text{IsPrivilegedRecipientInformationValue}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) = [\text{'key information'}; \text{'method information'}; \text{'privileged recipients'}] \text{ and}$
- 5 $\forall a \in \sim v.$
- 6 $(\text{N } a = \text{'key information'} \text{ impl } \text{IsKeyInformationValue}^{4.62}(C a) \text{)}$
- 7 $(\text{N } a = \text{'method information'} \text{ impl } \text{IsMethodInformationValue}^{4.63}(C a) \text{)}$
- 8 $(\text{N } a = \text{'privileged recipients'} \text{ impl } \text{IsSetOfPersonalNames}^{4.56}(C a) \text{)}$

Semiformal Description 4.62

Predicate "is a key information value" (clause 5.5.5)

A key information value is a non-empty nomination with the names 'additional information' and 'key method'. For the name 'additional information' the value is a key additional information value. For the name 'key method' the value is a key method value.

Definition 4.62

- 1 $\forall v$
- 2 $(\text{IsKeyInformationValue}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) = [\text{'additional information'}; \text{'key method'}] \text{ and}$
- 5 $\forall a \in \sim v.$
- 6 $(\text{N } a = \text{'additional information'} \text{ impl } \text{IsKeyAdditionalInformationValue}^{4.64}(C a) \text{)}$
- 7 $(\text{N } a = \text{'key method'} \text{ impl } \text{IsKeyMethodValue}^{4.65}(C a) \text{)}$

Semiformal Description 4.63

Predicate "is a method information value" (clause 5.5.5)

A method information value is a sequence of two elements where the first one is an ASN.1 object identifier and the second one a character sequence.

Definition 4.63

- 1 $\forall v$
- 2 $(\text{IsMethodInformationValue}(v) \text{ iff}$
- 3 $\exists a, b$
- 4 $(v = [\rightarrow a \rightarrow b \rightarrow] \text{ and}$
- 5 $\text{IsASN1ObjectIdentifier}^{4.7}(a) \text{ and } \text{IsCharSeq}^{2.133}(b) \text{)}$

Semiformal Description 4.64

Predicate "is a key additional information value" (clause 5.5.5)

A key additional information value is a sequence of two elements where the first one is a character sequence and the second one an octet string.

Definition 4.64

- 1 $\forall v$
- 2 $(\text{IsKeyAdditionalInformationValue}(v) \text{ iff}$
- 3 $\exists a, b$
- 4 $(v = [\rightarrow a \rightarrow b \rightarrow] \text{ and}$
- 5 $\text{IsCharSeq}^{2.133}(a) \text{ and } \text{IsOctetString}^{1.10}(b))$

Semiformal Description 4.65

Predicate "is a key method value" (clause 5.5.5)

A key method value is a sequence of two elements where the first one is an ASN.1 object identifier and the second one a character sequence.

Definition 4.65

- 1 $\forall v$
- 2 $(\text{IsKeyMethodValue}(v) \text{ iff}$
- 3 $\exists a, b$
- 4 $(v = [\rightarrow a \rightarrow b \rightarrow] \text{ and}$
- 5 $\text{IsASN1ObjectIdentifier}^{4.7}(a) \text{ and } \text{IsCharSeq}^{2.133}(b))$

Semiformal Description 4.66

Predicate "is an enciphered document profile identifier" (clause 5.5.5)

An enciphered document profile identifier is a sequence of two non-negative integers where the first one is 7.

Definition 4.66

- 1 $\forall v$
- 2 $(\text{IsEncipheredDocumentProfileId}(v) \text{ iff}$
- 3 $\text{IsPairOfNnInt}^{1.8}(v) \text{ and } \text{HEAD}^{1.13}(v) = 7)$

Semiformal Description 4.67

Predicate “is an ODA security label value” (clause 5.5.1)

An ODA security label value is a non-empty nomination with the names 'ODA label data' and 'ODA label text'. For the name 'ODA label data' the value is an octet string. For the name 'ODA label text' the value is a character sequence.

Definition 4.67

- 1 $\forall v$
- 2 $(\text{IsODASecurityLabelValue}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) = [\text{'ODA label data'}; \text{'ODA label text'}] \text{ and}$
- 5 $\forall a \in \sim v.$
- 6 $(\text{Is} N a = \text{'ODA label data'} \text{ impl } \text{IsOctetString}^{1.10}(C a) \text{)}$
- 7 $(\text{Is} N a = \text{'ODA label text'} \text{ impl } \text{IsCharSeq}^{2.133}(C a) \text{)}$

Semiformal Description 4.68

Predicate “is a pre-enciphered document body parts value” (clause 5.5.6)

A pre-enciphered document body parts value is a non-empty nomination with the names 'privileged recipient information' and 'protected document part identifier'. For the name 'privileged recipient information' the value is a privileged recipient information value. For the name 'protected document part identifier' the value is a pre-enciphered document body part identifier.

Definition 4.68

- 1 $\forall v$
- 2 $(\text{IsPreEncipheredDocumentBodyPartsValue}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) = [\text{'privileged recipient information'}; \text{'protected document part identifier'}] \text{ and}$
- 5 $\forall a \in \sim v.$
- 6 $(\text{Is} N a = \text{'privileged recipient information'} \text{ impl } \text{IsPrivilegedRecipientInformationValue}^{4.61}(C a) \text{)}$
- 7 $(\text{Is} N a = \text{'protected document part identifier'} \text{ impl } \text{IsPreEncipheredDocumentBodyPartId}^{4.69}(C a) \text{)}$

Semiformal Description 4.69

Predicate “is a pre-enciphered document body part identifier” (clause 5.5.6)

A pre-enciphered document body part identifier is a sequence of two non-negative integers where the first one is 8.

Definition 4.69

- 1 $\forall v$
- 2 $(\text{IsPreEncipheredDocumentBodyPartId}(v) \text{ iff}$
- 3 $\text{IsPairOfNnInt}^{1.8}(v) \text{ and } \text{HEAD}^{1.13}(v) = 8_0$

Semiformal Description 4.70

Predicate "is a post-enciphered document body parts value" (clause 5.5.7)

A post-enciphered document body parts value is a non-empty nomination with the names 'privileged recipient information' and 'protected document part identifier'. For the name 'privileged recipient information' the value is a privileged recipient information value. For the name 'protected document part identifier' the value is a post-enciphered document body part identifier.

Definition 4.70

- 1 $\forall v$
- 2 $({}_0 \text{IsPostEncipheredDocumentBodyPartsValue}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) = [\text{'privileged recipient information'; 'protected document part identifier'}] \text{ and}$
- 5 $\forall a \in \sim v.$
- 6 $({}_1 ({}_2 N a = \text{'privileged recipient information'} \text{ impl } \text{IsPrivilegedRecipientInformationValue}^{4.61}(C a) {}_2)$
- 7 $({}_3 N a = \text{'protected document part identifier'} \text{ impl } \text{IsPostEncipheredDocumentBodyPartId}^{4.71}(C a) {}_3), {}_1)_0)$

Semiformal Description 4.71

Predicate "is a post-enciphered document body part identifier" (clause 5.5.7)

A post-enciphered document body part identifier is a sequence of two non-negative integers where the first one is 9.

Definition 4.71

- 1 $\forall v$
- 2 $({}_0 \text{IsPostEncipheredDocumentBodyPartId}(v) \text{ iff}$
- 3 $\text{IsPairOfNnInt}^{1.8}(v) \text{ and } \text{HEAD}^{1.13}(v) = 9_0)$

Semiformal Description 4.72

Predicate "is a sealed document body parts value" (clauses 5.5.3 and 5.5.4)

A sealed document body parts value is a nomination with the names 'document body part seal', 'privileged recipients', 'sealed constituents' and 'seal identifier'. For the name 'document body part seal' the value is a document seal value. For the name 'privileged recipients' the value is a set of personal names. For the name 'sealed constituents' the value is a sequence of constituent identifiers. For the name 'seal identifier' the value is an integer.

Definition 4.72

- 1 $\forall v$
- 2 $({}_0 \text{IsSealedDocumentBodyPartsValue}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) = [\text{'document body part seal'; 'privileged recipients';}$
- 5 $\text{'sealed constituents'; 'seal identifier'}] \text{ and}$
- 6 $\forall a \in \sim v.$
- 7 $({}_1 ({}_2 N a = \text{'document body part seal'} \text{ impl } \text{IsDocumentSealValue}^{4.73}(C a) {}_2)$
- 8 $({}_3 N a = \text{'privileged recipients'} \text{ impl } \text{IsSetOfPersonalNames}^{4.56}(C a) {}_3)$
- 9 $({}_4 N a = \text{'sealed constituents'} \text{ impl } \text{IsSeqOfConstituentIds}^{4.74}(C a) {}_4)$
- 10 $({}_5 N a = \text{'seal identifier'} \text{ impl } \text{IsInt}(C a) {}_5), {}_1)_0)$

Semiformal Description 4.73

Predicate “is a document seal value” (clauses 5.5.2, 5.5.3 and 5.5.4)

A document seal value is a nomination with the names 'seal', 'seal method' and 'sealed information'. For the name 'seal' the value is an octet string. For the name 'seal method' the value is a seal method value. For the name 'sealed information' the value is a sealed information value.

Definition 4.73

- 1 $\forall v$
- 2 $(\text{IsDocumentSealValue}(v) \text{ iff}$
- 3 $\text{IsNeNom}^{1.2}(v) \text{ and}$
- 4 $\text{NAMS}^{1.18}(v) = ['\text{seal}'; '\text{seal method}'; '\text{sealed information}'] \text{ and}$
- 5 $\forall a \in \sim v \bullet$
- 6 $(\text{N } a = '\text{seal}' \text{ impl } \text{IsOctetString}^{1.10}(C a) \text{)}$
- 7 $(\text{N } a = '\text{seal method}' \text{ impl } \text{IsSealMethodValue}^{4.76}(C a) \text{)}$
- 8 $(\text{N } a = '\text{sealed information}' \text{ impl } \text{IsSealedInformationValue}^{4.77}(C a) \text{)})_0$

Semiformal Description 4.74

Predicate “is a sequence of constituent identifiers” (clauses 5.5.3 and 5.5.4)

A sequence of constituent identifiers is a non-empty catenation whose components are constituent identifiers.

Definition 4.74

- 1 $\forall v$
- 2 $(\text{IsSeqOfConstituentIds}(v) \text{ iff}$
- 3 $\text{IsNeCat}^{1.3}(v) \text{ and}$
- 4 $\forall a \in \sim v \bullet \text{IsConstituentId}^{4.75}(C a) \text{)}$

Semiformal Description 4.75

Predicate “is a constituent identifier” (clauses 5.5.3 and 5.5.4)

A constituent identifier is either an object identifier, object class identifier, layout style identifier or presentation style identifier.

Definition 4.75

- 1 $\forall v$
- 2 $(\text{IsConstituentId}(v) \text{ iff}$
- 3 $\text{IsObjectId}^{2.80}(v) \text{ or } \text{IsObjectClassId}^{2.83}(v) \text{ or } \text{IsLayoutStyleId}^{2.107}(v) \text{ or } \text{IsPresentationStyleId}^{2.117}(v) \text{)}$

Semiformal Description 4.76

Predicate “is a seal method value” (clauses 5.5.3 and 5.5.4)

A seal method value is a nomination with the names 'fingerprint information', 'fingerprint method', 'sealing information' and 'sealing method'. For the names 'fingerprint information' and 'sealing information' the value is a key information value. For the names 'fingerprint method' and 'sealing method' the value is a method information value.

Definition 4.76

```

1   $\forall v$ 
2   $(\text{IsSealMethodValue}(v) \text{ iff}$ 
3     $\text{IsNeNom}^{1.2}(v) \text{ and}$ 
4     $\text{NAMS}^{1.18}(v) = [\text{'fingerprint information'}; \text{'fingerprint method'};$ 
5       $\text{'sealing information'}; \text{'sealing method'}] \text{ and}$ 
6     $\forall a \in \sim v.$ 
7     $(\text{ }_2\text{N } a = \text{'fingerprint information'} \text{ impl } \text{IsKeyInformationValue}^{4.62}(C a) \text{ }_2)$ 
8     $(\text{ }_3\text{N } a = \text{'fingerprint method'} \text{ impl } \text{IsMethodInformationValue}^{4.63}(C a) \text{ }_3)$ 
9     $(\text{ }_4\text{N } a = \text{'sealing information'} \text{ impl } \text{IsKeyInformationValue}^{4.62}(C a) \text{ }_4)$ 
10    $(\text{ }_5\text{N } a = \text{'sealing method'} \text{ impl } \text{IsMethodInformationValue}^{4.63}(C a) \text{ }_5)_1)_0$ 

```

Semiformal Description 4.77

Predicate “is a sealed information value” (clauses 5.5.3 and 5.5.4)

A sealed information value is a nomination with the names 'fingerprint', 'location', 'seal originator' and 'time'. For the name 'fingerprint' the value is an octet string. For the name 'location' the value is a location value. For the name 'seal originator' the value is a personal name. For the name 'time' the value is a date and time value.

Definition 4.77

```

1   $\forall v$ 
2   $(\text{IsSealedInformationValue}(v) \text{ iff}$ 
3     $\text{IsNeNom}^{1.2}(v) \text{ and}$ 
4     $\text{NAMS}^{1.18}(v) = [\text{'fingerprint'}; \text{'location'}; \text{'seal originator'}; \text{'time'}] \text{ and}$ 
5     $\forall a \in \sim v.$ 
6     $(\text{ }_2\text{N } a = \text{'fingerprint'} \text{ impl } \text{IsOctetString}^{1.10}(C a) \text{ }_2)$ 
7     $(\text{ }_3\text{N } a = \text{'location'} \text{ impl } \text{IsLocationValue}^{4.78}(C a) \text{ }_3)$ 
8     $(\text{ }_4\text{N } a = \text{'seal originator'} \text{ impl } \text{IsPersonalName}^{4.57}(C a) \text{ }_4)$ 
9     $(\text{ }_5\text{N } a = \text{'time'} \text{ impl } \text{IsDateAndTimeValue}^{4.41}(C a) \text{ }_5)_1)_0$ 

```

Semiformal Description 4.78

Predicate “is a location value” (clauses 5.5.3 and 5.5.4)

A location value is a sequence of two elements where the first one is an ASN.1 object identifier and the second one a character sequence.

Definition 4.78

```

1   $\forall v$ 
2   $(\text{IsLocationValue}(v) \text{ iff}$ 
3     $\exists a, b$ 
4     $(v = [\rightarrow a \rightarrow b \rightarrow] \text{ and}$ 
5     $\text{IsASN1ObjectIdentifier}^{4.7}(a) \text{ and } \text{IsCharSeq}^{2.133}(b) \text{ }_1)_0$ 

```