

DRAFT FOR DEVELOPMENT

UK lifelong learner information profile (UKLeaP)

Part 3: UKLeaP – Specification

ICS 03.180 ; 35.020

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It is being issued in the Draft for Development series of publications and is of a provisional nature so that information and experience of its practical application can be obtained.

A review of this Draft for Development will be carried out not later than 2 years after its publication.

Notification of the start of the review period, with a request for the submission of comments from users of this Draft for Development, will be made in an announcement in the appropriate issue of Update Standards.

According to the replies received, the responsible BSI Committee will judge whether the Draft for Development can be converted into a British Standard or what other action should be taken.

Observations which it is felt should receive attention before the official call for comments will be welcomed.

These should be sent to the Secretary of BSI Technical Committee IST/43 at British Standards House, 389 Chiswick High Road, London W4 4AL.

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ISBN 0 580 47932 3

The following BSI references relate to the work on this standard:
Committee reference IST/43

Draft for Public Comment DC04/30098156

Amendments issued since publication

Amd. No.	Date.	Text affected
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Foreword

Publishing information

This British Standards Draft for Development was published by BSI and came into effect on 1 February 2006. It was prepared by Technical Committee IST/43, *Information technology for learning, education and training*. A list of organizations represented on this committee can be obtained on request to its secretary.

Information about this document

The draft for development is issued in three parts:

- *Part 1: UK Lifelong Learner Information Profile (UKLeaP) — Guide.*
- *Part 2: Representation and terminology in implementing the UK Lifelong Learner Information Profile (UKLeaP) – Code of practice.*
- *Part 3: UK Lifelong Learner Information Profile (UKLeaP) – Specification.*

Further details are to be found in the Introduction.

This publication does not purport to include all the necessary provisions of a contract. Users of a British Standard are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to vi, pages 1 to 145 and a back cover.

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Introduction

Within the United Kingdom and Europe there has been widespread use of ICT by organizations to develop records of learners and their learning. A priority for each of the governments within the UK is to join up the separate records about learners held by separate organizations in order to create lifelong learner records to form a lifelong learner profile.

DD 8788 is intended to be used to facilitate the exchange of learner information among learning management systems, human resource systems, student information systems, enterprise e-learning systems, knowledge management systems, Curriculum Vitae (CV)/résumé repositories, and other systems used in the learning process. In this Draft for Development such systems are referred to as “learner information systems” regardless of any other functionality they possess or roles they fulfil.

The activities DD 8788 is intended to support and enable include:

- recording and managing learning-related history, goals, and accomplishments;
- engaging a learner in a learning experience;
- discovering learning opportunities for learners;
- developing lifelong learner profiles.

DD 8788 is intended for practitioners who establish and maintain records of learning and profiles of learners (including, but not limited to):

- those who develop and implement e-learning systems, especially systems supporting the personal and educational development of learners and transitions between different periods of learning, including work based learning and training;
- those who develop and implement e-learning content;
- managers, HR professionals, employers, government departments, vendors and developers of administrative and record systems and managed learning environments.

The three separately published Parts of DD 8788 have different purposes and degrees

Part 1: UK Lifelong Learner Information Profile (UKLeaP) — Guide, contains guidance material which explains the relevance of UKLeaP, relates it to wider issues, and sets Parts 2 and 3 of the standard in context. It is primarily for use by decision-makers, who do not necessarily have a fluent understanding of the technicalities of software systems, and who, for example, are:

- responsible for the procurement or development of software which processes information about learners;

- considering whether or not to adopt or apply UKLeaP in their business or organization.

Part 1 references Parts 2 and 3, but it can be used as a stand-alone document by people who are not conversant technically with the contents of Parts 2 and 3. It might also be of general interest to the developers, programmers, and analysts who are the intended users of Parts 2 and 3.

Part 2: Representation and terminology in implementing the UK Lifelong Learner Information Profile (UKLeaP) – Code of practice, is for use by programmers, analysts and others involved in designing, specifying, and implementing records and systems that are to conform to Part 3. Part 2 is closely dependent on Part 3, and references it extensively. It contains:

- recommendations about how to apply Part 3;
- informative annexes concerning the practical application of Part 3, and the relationship between UKLeaP and specifications issued by the IMS Global Consortium, including the IMS LIP 1.0 specification upon which DD 8788 is based.

Part 3: UK Lifelong Learner Information Profile (UKLeaP) – Specification, is primarily for use by programmers who create systems for processing information about learners, and by developers who define the detailed structure of records about learners. It contains:

- the detailed structures, data definitions, and vocabularies against which conformity to the specification can be proven;
- XML schemas for use by developers who choose to represent a learner record using XML.

Other relevant international and national frameworks and emerging standards pertaining to metadata and interoperability include:

- ISO standards, in particular those produced by SC36;
- industry standards and specifications such as those issued by the Institute of Electrical and Electronics Engineers (IEEE), or the Dublin Core Metadata Initiative (DCMI);
- relevant CEN Workshop Agreements;
- public sector standards and specifications, such as the e-Government Metadata Standard (e-GMS) [1] embraced within the UK Government's e-Government Interoperability Framework (e-GIF) [2].

1 Scope

This Draft for Development specifies the development of learner information packages used to join up separate records of learning in order to establish lifelong learner profiles within the UK centred upon the needs of the learner.

The standard meets a new requirement for Lifelong Learning. While it offers a specification on which developers can build, it does not attempt to cover all possible scenarios.

The standard specifies the extensions that are used in developing a lifelong learner profile.

The standard establishes the basis for interoperability in the exchange of learner information between communicating systems. It makes no comment on how the data might be stored in the communicating systems once the exchange has occurred.

The standard describes the information model for the learner information. It does not address behavioural models for the learner information nor does it describe the mechanisms used for the electronic exchange of the information.

The standard contains an information model, which is incomplete. It is not a definitive model of all the possible information that could be exchanged between systems that conform to with this standard. Instead it describes many of the common data structures and provides several extension features to be used to tailor the standard for a particular implementation.

The standard does not address requests for learner information or the exchange transaction mechanism.

While this Draft for Development defines structures that could be used to assist mechanisms for maintaining privacy and protecting the integrity of the data that comprises learner information, it does not specify the form, format, or type of these mechanisms or policies for their use.

This Draft for Development provides a structured information model. While it includes an XML binding, this does not exclude the use of other bindings. The information model contains both data and metadata about that data. The model defines fields for the data and the type of data that can be put into these fields.

This Draft for Development does not address means to achieve interoperability with learner information systems beyond the UK within the European Education Area, but has taken account of the need for interoperability beyond the UK in the future.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

BS 8419, *Interoperability between metadata systems used for learning, education and training*.

BS ISO 639-1, *Codes for the representation of the names of languages – Alpha-2 code*.

BS ISO 639-2, *Codes for the representation of the names of languages – Alpha-3 code*.

BS ISO 3166-1, *Codes for the representation of names of countries and their subdivisions – Country codes*.

BS ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*.

BS ISO/IEC 11404:1996, *Information technology — Programming languages, their environments and system software interfaces — Language-independent datatypes*

3 Terms and definitions

For the purposes of this part of DD 8788, the terms and definitions given in BS 8419 and the following apply.

3.1 accessibility

extent to which the functionality of a system can be accessed by people from across the range of differing abilities characteristic of the population as a whole

NOTE In the context of DD 8788 this applies particularly to e-learning systems.

3.2 attribute

characteristic of an object or entity

3.3 binding

formal method of representing a metadata record using a particular technology

3.4 competency

specific, identifiable, definable, and measurable knowledge, skill, ability and/or other activity-related characteristic (e.g. attitude, behaviour, physical ability) which a person can possess and which is necessary for, or material to, the performance of an activity within a specific context

3.5

document schema

control document that describes the structures, data types, and data relationships in structured information resources, used for validating instances

3.6

e-learning

learning which takes place through exchange between a combination of learning resources, tasks, and support-systems (human or otherwise) where the exchange is mediated through information and communication technologies

3.7

e-learning system

information technology system used to enable the provision of learning materials and support processes to learners, to help learners, tutors and administrators track the learners' progress, and to facilitate the convenient updating of learning materials

NOTE This definition includes IT products known as Learning Management Systems or Virtual Learning Environments but is not necessarily coterminous with them.

3.8

extension

set of data defined externally to a standard or specification to extend the kind of information that can be represented within conformant instances

NOTE This term applies equally to data the within an instance that conforms to an extension, and to the external definition of the extension itself.

3.9

instance

individual object of a particular class

NOTE Each instance is a variation on a general theme; one which is defined by the parent class. In XML technologies, an instance usually refers to a single XML document "instantiated" from an XML schema, but also applies to an XML element within a document derived from a definition within an XML schema

3.10

interoperability

systems interconnectivity, data integration, e-services access and distributed content management

3.11

learner

any individual person; but especially, any person consciously and voluntarily engaged in learning or the management of their own learning

3.12 lifelong learner profile

record of information about a particular individual typically made up of personal learner information and a competency/skill map

NOTE A lifelong learner profile can contain two kinds of record:

- records about learners that are created and maintained by an organization;
- records that learners develop and maintain about themselves.

3.13 lifelong learning

learning seen as a continuing set of processes extending throughout a person's life, and not bounded by any particular context

3.14 schema

set of semantic units (e.g. data elements) along with their attributes, such as name, identifier, definition, or relationship to other semantic units

3.15 specification

precise description of the intended operations and attributes of a system

NOTE 1 An interoperability specification can include schemas defining information relevant to the compatible operation of the intended systems and to the services they provide or accept.

NOTE 2 A specification can be a candidate for adoption as a standard, but which has not yet been both established by consensus and approved by a recognized body.

3.16 string

character string data structure as defined in BS ISO/IEC 11404:1996

3.17 tuple

finite function that maps field names to a certain value

3.18 UML

Unified Modeling Language [2], an open method used to specify, visualise, construct and document the artifacts of systems

3.19 vocabulary

dictionary of words related to a particular subject field

3.20 vocabulary extensions

extensions that allow the basic vocabularies to be extended

NOTE These vocabularies are used to define the type of information being contained by an object. The vocabulary extensions can be included in a string list or referenced using a URI.

3.21 extensible mark-up language, (XML)

widely used syntax for document and data mark-up

3.22 XML Schema

W3C specification designed for describing, parsing and validating the tag structure of a class of XML documents

NOTE XML schemas are, themselves, represented in XML.

4 Verification of conformity

4.1 Conformity of systems

The following methods shall be used to determine whether an e-learning system conforms to this specification:

- a) inspection of code to determine whether instances it outputs conform to this specification;
- b) inspection of specimen data instances produced by the system (see 4.2);
- c) inspection and analysis of visible system behaviour in response to the import of data instances that have been determined to be valid (see 4.2).

Reports of the results of the methods shall state which elements of the specification the e-learning system can process.

4.2 Conformity of data

The following methods shall be used to determine whether a data instance conforms to this specification:

- a) validation of instances against a suitable control document, for example, by validating an XML instance against the informative XML schema for DD 8788;
- b) inspection of data;
- c) validation of instances against a suitable set of class definitions, for example, by validating an instance against classes implemented in a programming language using this specification;

- d) validation of instances against a rule-based processing system encoded with the models and constraints of the specification, such as the Schematron pattern assertion language [3] or the OMG Object Constraint Language [4].

The results of applying the methods shall state whether the data conforms to this specification.

5 Information model overview

The primary parts of the learner information shall be as shown in Figure 1.

All data instances shall be structured according to the model in Figure 1.

All of the parts of any data instance shall be expressed using the appropriate definitions as defined in this standard.

NOTE 1 It is not necessary for systems to implement all of the structures defined by this standard to be able to generate conformant data instances. However, where such structures are implemented, the data instances generated should conform to the definitions provided in this standard.

NOTE 2 The definitions of all of the structures are presented in alphabetical order within Clauses 5 and 6. The order of the presentation of definitions within this document does not correspond with their order of appearance within a data instance.

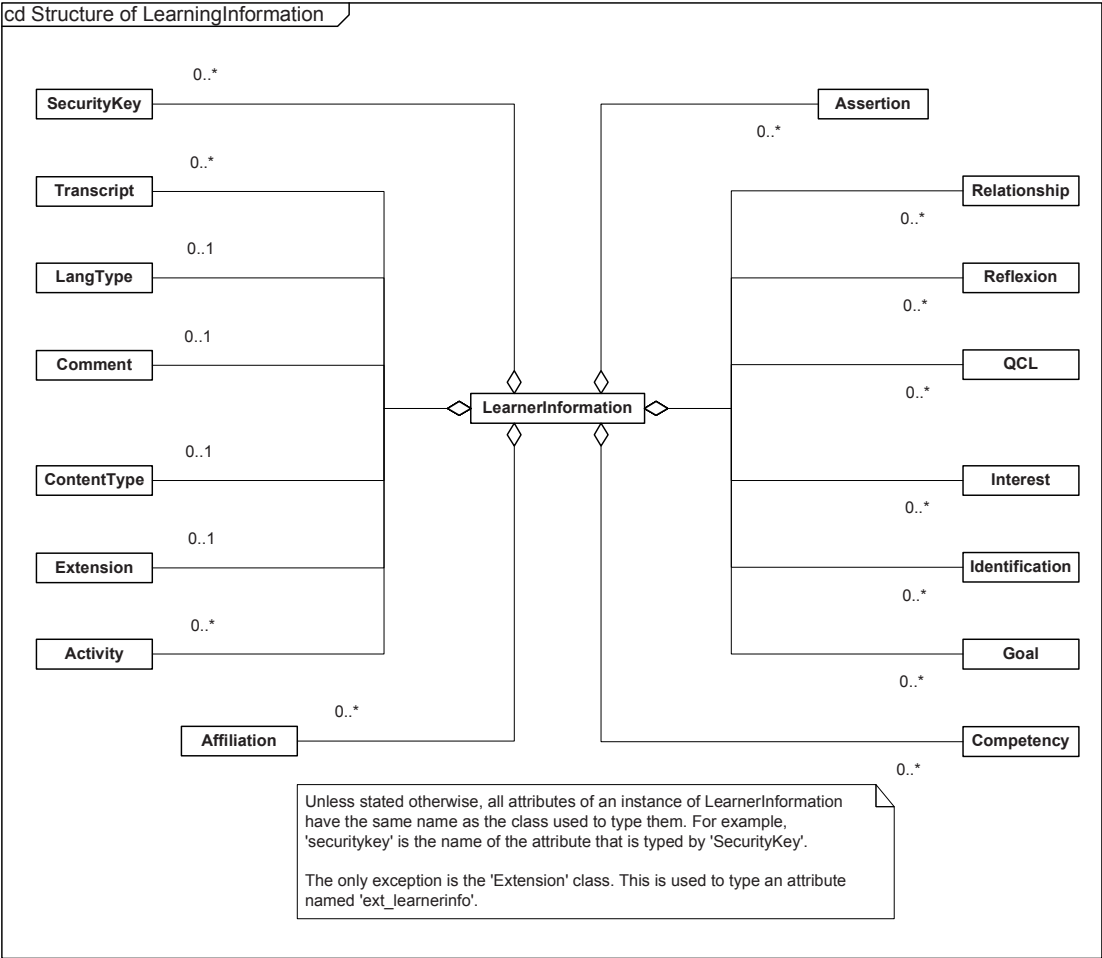


Figure 1 — The primary parts of the DD 8788 structures

6 Core structures

6.1 Learner information

6.1.1 *Composition*

The “LearnerInformation” shall consist of any selection from, or the whole of, the lifelong learner profile.

Each “LearnerInformation” shall only be composed of the following parts (see also Figure 1):

- a) langtype (see 6.1.2);
- b) comment (see 6.1.3);
- c) contentype (see 6.1.4);
- d) activity (see 6.1.5);
- e) affiliation (see 6.1.6);
- f) assertion (see 6.1.7);
- g) competency (see 6.1.8);
- h) goal (see 6.1.9);
- i) identification (see 6.1.10);
- j) interest (see 6.1.11);
- k) qcl (see 6.1.12);
- l) reflexion (see 6.1.13)
- m) relationship (see 6.1.14);
- n) securitykey (see 6.1.15);
- o) transcript (see 6.1.16);
- p) ext_learnerinfo (see 6.1.17).

6.1.2 *langtype*

The “langtype” shall represent the default language used in the “LearnerInformation” instance.

There shall be no more than one occurrence of “langtype” in any “LearnerInformation” instance.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

6.1.3 *comment*

The “comment” shall contain the comments that are relevant to the “LearnerInformation” instance.

There shall be no more than one occurrence of “comment” in any “LearnerInformation” instance.

The “comment” shall be expressed using the “Comment” structure described in 7.2.

6.1.4 contentype

The “contentype” shall contain the content metadata concerning the index, access rights and time-stamps for the “LearnerInformation” instance.

There shall be no more than one occurrence of “contentype” in any “LearnerInformation” instance.

The “contentype” shall be expressed using the “ContentType” structure described in 7.3.

NOTE The “sourcedid” attribute within the “contentype” of “LearnerInformation” will typically be used to contain the system-level identifier for the complete data instance.

6.1.5 activity

The “activity” shall contain information relevant to the activities of the learner.

NOTE There can be any number of occurrences of “activity” within a “LearnerInformation” instance, including zero.

The “activity” shall be expressed using the “Activity” structure described in 6.2.

6.1.6 affiliation

The “affiliation” shall contain information relevant to the affiliations of the learner to organizations.

NOTE There can be any number of occurrences of “affiliation” within a “LearnerInformation” instance, including zero.

The “affiliation” shall be expressed using the “Affiliation” structure described in 6.4.

6.1.7 assertion

The “assertion” shall contain texts, but not reflections, relevant either to the learner, or to the other parts of the learner information, or to other things signified by the learner information.

NOTE There can be any number of occurrences of “assertion” within a “LearnerInformation” instance, including zero.

The “assertion” shall be expressed using the “Assertion” structure described in 6.6.

6.1.8 competency

The “competency” shall contain information relevant to the skills and competencies of the learner.

NOTE There can be any number of occurrences of “competency” within a “LearnerInformation” instance, including zero.

The “competency” shall be expressed using the “Competency” structure described in 6.7.

6.1.9 goal

The “goal” shall contain information relevant to the goals of the learner.

NOTE There can be any number of occurrences of “goal” within a “LearnerInformation” instance, including zero.

The “goal” shall be expressed using the “Goal” structure described in 6.20.

6.1.10 *identification*

The “identification” shall contain information that can be used to identify the learner.

NOTE There can be any number of occurrences of “identification” within a “LearnerInformation” instance, including zero.

The “identification” shall be expressed using the “Identification” structure described in **6.22**.

6.1.11 *interest*

The “interest” shall contain information about the interests of the learner.

NOTE 1 This can include hobbies, recreational activities, and motivating values.

NOTE 2 There can be any number of occurrences of “interest” within a “LearnerInformation” instance, including zero.

The “interest” shall be expressed using the “Interest” structure described in **6.23**.

6.1.12 *qcl*

The “qcl” shall contain information relevant to the qualifications, certificates, licences and other achievements of the learner.

NOTE There can be any number of occurrences of “qcl” within a “LearnerInformation” instance, including zero.

The “qcl” shall be expressed using the “QCL” structure described in **6.32**.

6.1.13 *reflexion*

The “reflexion” shall contain texts expressing reflections of the learner.

NOTE There can be any number of occurrences of “reflexion” within a “LearnerInformation” instance, including zero.

The “reflexion” shall be expressed using the “Reflexion” structure described in **6.33**.

6.1.14 *relationship*

The “relationship” shall express the relationships between the other data structures in the lifelong learner profile.

NOTE There can be any number of occurrences of “relationship” within a “LearnerInformation” instance, including zero.

The “relationship” shall be expressed using the “Relationship” structure described in **6.34**.

6.1.15 *securitykey*

The “securitykey” shall contain the passwords and security codes used when communicating with the learner or which are authorized/validated by the learner.

NOTE There can be any number of occurrences of “securitykey” within a “LearnerInformation” instance, including zero.

The “securitykey” shall be expressed using the “SecurityKey” structure described in **6.38**.

6.1.16 *transcript*

The “transcript” shall contain the summary records of the academic performance at an institution.

NOTE There can be any number of occurrences of “transcript” within a “LearnerInformation” instance, including zero.

The “transcript” shall be expressed using the “Transcript” structure described in 6.44.

6.1.17 *ext_learnerinfo*

The “ext_learnerinfo” shall contain proprietary extensions to the “LearnerInformation” structure.

There shall be no more than one occurrence of “ext_learnerinfo” in any “LearnerInformation” instance.

The “ext_learnerinfo” shall be expressed using the “Extension” structure described in 7.18.

6.2 Activity

6.2.1 *Composition*

The “Activity” shall consist of information connected with an activity of the learner.

NOTE 1 This includes education/training, work and service (military, community, voluntary, etc.) record and products (excluding formal awards). This information might include the descriptions of the courses undertaken and the records of the corresponding assessment.

A separate “Activity” instance shall be used for each entry.

Each “Activity” shall only be composed of the following parts:

- a) typename (see 6.2.2);
- b) comment (see 6.2.3);
- c) contenttype (see 6.2.4);
- d) date (see 6.2.5);
- e) status (see 6.2.6);
- f) units (see 6.2.7);
- g) learningactivityref (see 6.2.8);
- h) definition (see 6.2.9);
- i) product (see 6.2.10);
- j) testimonial (see 6.2.11);
- k) evaluation (see 6.2.12);
- l) description (see 6.2.13);
- m) ext_activity (see 6.2.14);
- n) any number of sub-activities, including zero, each of which shall also be structured as an “Activity”.

NOTE 2 Figure 2 represents this composition diagrammatically as a UML class model.

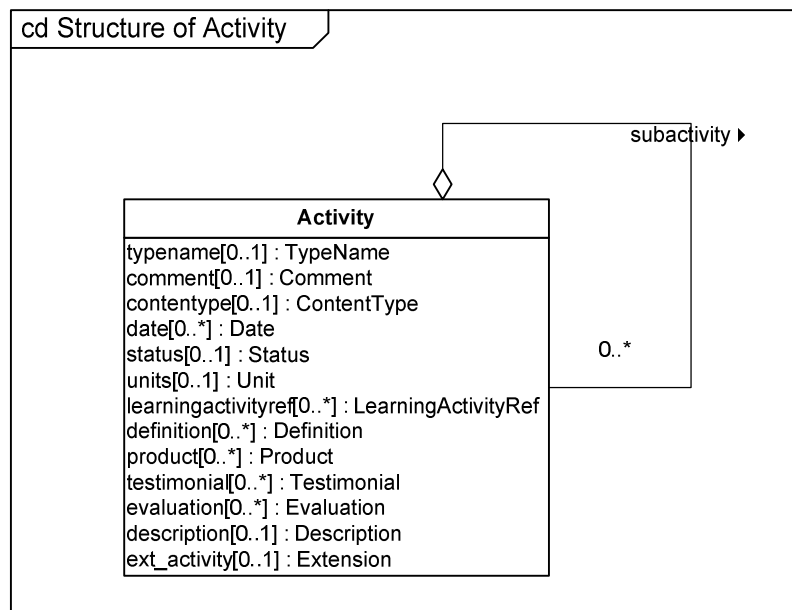


Figure 2 — “Activity” expressed as UML

EXAMPLE

The following code is an example of an “Activity” using the informative XML binding provided in Annex A.

```

<activity>
  <typename>
    <tysource sourcetype="standard">UKLeaP</tysource>
    <tyvalue>Education</tyvalue>
  </typename>
  <contenttype>
    <referential>
      <indexid>activity_01</indexid>
    </referential>
  </contenttype>
  <date>
    <typename>
      <tysource
sourcetype="standard">UKLeaP</tysource>
      <tyvalue>Finish</tyvalue>
    </typename>
    <datetime>2000-11-06T00:00:00</datetime>
  </date>

```

```

<status>
  <typename>
    <tysource
sourcetype="standard">UKLeaP</tysource>
    <tyvalue>Complete</tyvalue>
  </typename>
</status>
<units>
  <unitsfield>
    <fieldlabel>

    <typename> <tyvalue>credits</tyvalue> </typename>
    </fieldlabel>
    <fielddata>2</fielddata>
  </unitsfield>
</units>
<description>
  <short>Credit assignment for the course</short>
</description>
</activity>

```

6.2.2 *typename*

The “typename” shall contain the type of “activity”.

The “typename” shall be expressed using the “TypeName” structure defined in 7.6.

The “typename” shall present the default vocabulary that is made available to identify the type of “Activity” information. If the standard vocabulary is insufficient, an alternative entry shall be specified, identified using the “tysource” part of the “TypeName” structure.

There shall be no more than one occurrence of “typename” in any “Activity” instance.

6.2.3 *comment*

The “comment” shall contain the comments that are relevant to the “Activity” instance.

There shall be no more than one occurrence of “comment” in any “Activity” instance.

The “comment” shall be expressed using the “Comment” structure described in 7.2.

6.2.4 *contenttype*

The “contenttype” shall contain the content metadata concerning the index, access rights and time-stamps for the “Activity” instance.

There shall be no more than one occurrence of “contenttype” in any “Activity” instance.

The “contenttype” shall be expressed using the “ContentType” structure described in 7.3.

6.2.5 *date*

The “date” shall store significant dates relevant to the activity, such as the starting or finishing dates.

NOTE There can be any number of occurrences of “date” within an “Activity” instance, including zero.

The “date” shall be expressed using the “Date” structure described in 7.8.

6.2.6 *status*

The “status” shall contain the recorded status of the activity, such as active or complete.

There shall be no more than one occurrence of “status” in any “Activity” instance.

The “status” shall be expressed using the “Status” structure described in 7.10.

6.2.7 *units*

The “units” shall contain the credits or other equivalent measures that are assigned to the activity.

There shall be no more than one occurrence of “units” in any “Activity” instance.

The “units” shall be expressed using the “Units” structure described in 6.49.

6.2.8 *learningactivityref*

The “learningactivityref” shall contain an external reference to the learning activity being detailed.

NOTE There can be any number of occurrences of “learningactivityref” within an “Activity” instance, including zero.

The “learningactivityref” shall be expressed using the “LearningActivityRef” structure described in 6.25.

6.2.9 *definition*

The “definition” shall contain a description of the materials that are studied during the activity.

NOTE 1 A recursive structure is used. Therefore complex course descriptions can be supported based upon an arbitrary number of sub-course structures.

NOTE 2 There can be any number of occurrences of “definition” within an “Activity” instance, including zero.

The “definition” shall be expressed using the “Definition” structure described in **6.9**.

6.2.10 product

The “product” shall contain the materials produced by the learner as a result of undertaking the activity.

NOTE 1 These materials can consist of any electronic storable information. The material stored should be that related to the activity only.

NOTE 2 There can be any number of occurrences of “product” within an “Activity” instance, including zero.

The “product” shall be expressed using the “Product” structure described in **7.11**.

6.2.11 testimonial

The “testimonial” shall contain the informal and formal comments made concerning the capabilities of the learner in the context of the respective activity.

NOTE There can be any number of occurrences of “testimonial” within an “Activity” instance, including zero.

The “testimonial” shall be expressed using the “Testimonial” structure described in **6.43**.

6.2.12 evaluation

The “evaluation” shall contain the summary results information produced by an evaluation of the learner’s activity.

NOTE 1 This evaluation can take the form of a viva, a written examination, etc. This structure might be used to support the summary results obtained from an examination based upon the IMS QTI specification [5].

NOTE 2 There can be any number of occurrences of “evaluation” within an “Activity” instance, including zero.

The “evaluation” shall be expressed using the “Evaluation” structure described in **6.15**.

6.2.13 description

The “description” shall contain the materials that are used to describe the activity listed in the associated data.

There shall be no more than one occurrence of “description” in any “Activity” instance.

The “description” shall be expressed using the “Description” structure described in **7.7**.

6.2.14 ext_activity

The “ext_activity” shall contain proprietary extensions to the “Activity” structure.

There shall be no more than one occurrence of “ext_activity” in any “Activity” instance.

The “ext_activity” shall be expressed using the “Extension” structure described in **7.18**.

6.3 Address

6.3.1 Composition

The “Address” shall contain a postal address expressed as its constituent parts.

A different “Address” instance shall be used for each entry.

Each “Address” shall only be composed of the following parts:

- a) typename (see **6.3.2**);
- b) comment (see **6.3.3**);
- c) contentype (see **6.3.4**);
- d) pobox (see **6.3.5**);
- e) street (see **6.3.6**);
- f) locality (see **6.3.7**);
- g) city (see **6.3.8**);
- h) statepr (see **6.3.9**);
- i) region (see **6.3.10**);
- j) country (see **6.3.11**);
- k) postcode (see **6.3.12**);
- l) timezone (see **6.3.13**);
- m) geo (see **6.3.14**).

NOTE 2 Figure 3 represents this composition diagrammatically as a UML class model.

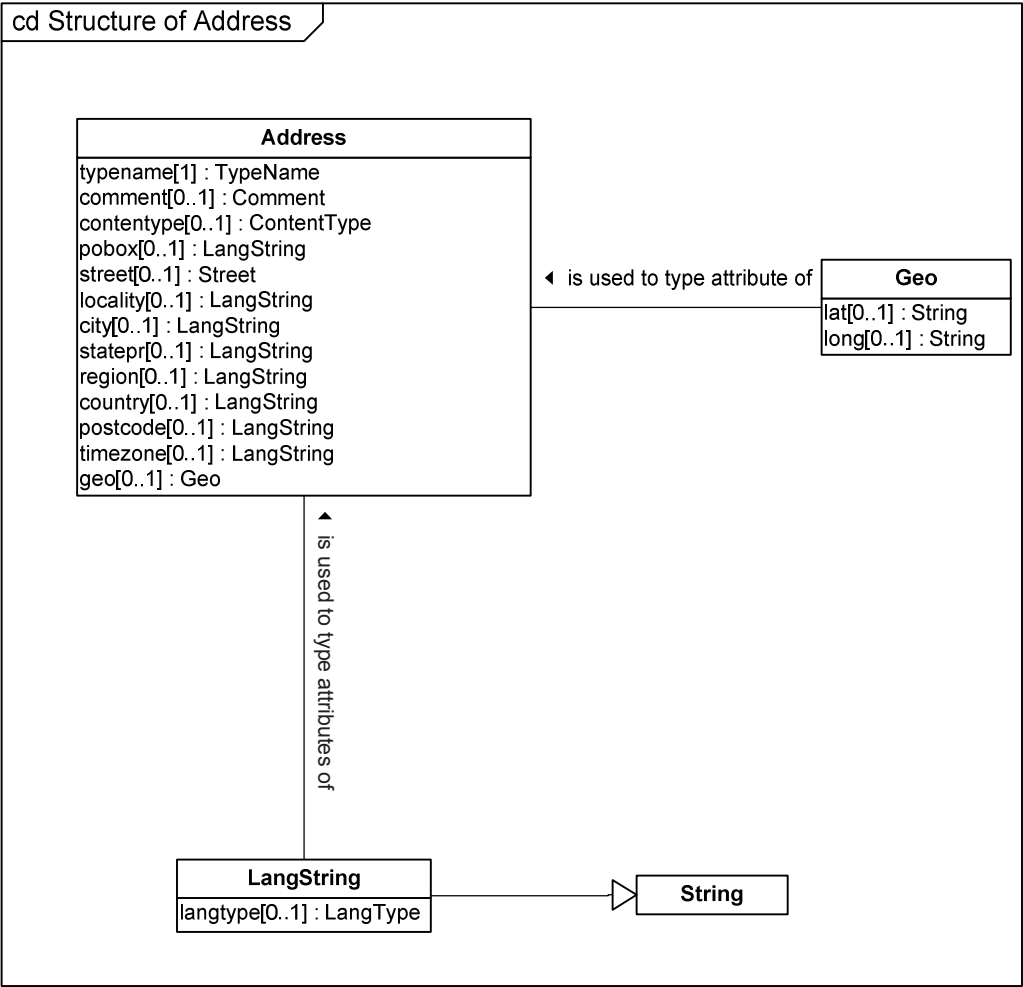


Figure 3 — “Address” expressed as UML

EXAMPLE

The following code is an example of an “Address” using the informative XML binding provided in Annex A.

```
<address>
  <typename>
    <tysource sourcetype="standard">UKLeaP</tysource>
    <tyvalue>Mailing</tyvalue>
  </typename>
  <contenttype>
    <referential>
      <indexid>address_01</indexid>
    </referential>
  </contenttype>
  <street>
    <nonfieldedstreetaddress>389 Chiswick High
Road</nonfieldedstreetaddress>
```

```

        <streetnumber>389</streetnumber>
        <streetname>Chiswick High</streetname>
        <streotype>Road</streotype>
    </street>
    <locality> Gunnersbury</locality>
    <city>London</city>
    <country>UK</country>
    <postcode> W4 4AL</postcode>
    <timezone>GMT</timezone>
    <geo> <lat>51.29.32 N</lat> <lon>000.16.30
W</lon> </geo>
</address>

```

6.3.2 *typename*

The “typename” shall contain the type of address.

There shall be exactly one occurrence of “typename” in any “Address” instance.

The “typename” shall be expressed using the “TypeName” structure defined in 7.6.

6.3.3 *comment*

The “comment” shall contain the comments that are relevant to the “Address” instance.

There shall be no more than one occurrence of “comment” in any “Address” instance.

The “comment” shall be expressed using the “Comment” structure described in 7.2.

6.3.4 *contenttype*

The “contenttype” shall contain the content metadata concerning the index for the data, access rights and time-stamps of the “Address” instance.

There shall be no more than one occurrence of “contenttype” in any “Address” instance.

The “contenttype” shall be expressed using the “ContentType” structure described in 7.3.

6.3.5 *pobox*

The “pobox” shall contain the Post Office Box number of the address.

There shall be no more than one occurrence of “pobox” in any “Address” instance.

The “pobox” shall be composed of the textual content of the “pobox” as a string, and no more than one occurrence of “langtype”.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

6.3.6 street

The “street” shall contain the detailed content of the street part of the address.

NOTE It is not required that every field is to be filled to produce a valid street address.

There shall be no more than one occurrence of “street” in any “Address” instance.

The “street” shall be expressed using the “Street” structure described in 6.40.

6.3.7 locality

The “locality” shall contain the community within the city.

There shall be no more than one occurrence of “locality” in any “Address” instance.

The “locality” shall be composed of the textual content of the “locality” as a string, and no more than one occurrence of “langtype”.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

6.3.8 city

The “city” shall contain the city name in the address.

There shall be no more than one occurrence of “city” in any “Address” instance.

The “city” shall be composed of the textual content of the “city” as a string, and no more than one occurrence of “langtype”.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

6.3.9 statepr

The “statepr” shall contain the name of the state or province in the address e.g. Yorkshire or California.

There shall be no more than one occurrence of “statepr” in any “Address” instance.

The “statepr” shall be composed of the textual content of the “statepr” as a string, and no more than one occurrence of “langtype”.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

6.3.10 region

The “region” shall contain the name of the geographical region of the address e.g. Europe.

There shall be no more than one occurrence of “region” in any “Address” instance.

The “region” shall be composed of the textual content of the “region” as a string, and no more than one occurrence of “langtype”.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

6.3.11 country

The “country” shall contain the name of the country of the address e.g. Japan.

There shall be no more than one occurrence of “country” in any “Address” instance.

The “country” shall be composed of the textual content of the “country” as a string, and no more than one occurrence of “langtype”.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

6.3.12 postcode

The “postcode” shall contain the post or zip code of the address.

There shall be no more than one occurrence of “postcode” in any “Address” instance.

The “postcode” shall be composed of the textual content of the “postcode” as a string, and no more than one occurrence of “langtype”.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

6.3.13 timezone

The “timezone” shall contain the time zone of the address e.g. GMT or EDT.

There shall be no more than one occurrence of “timezone” in any “Address” instance.

The “timezone” shall be composed of the textual content of the “timezone” as a string, and no more than one occurrence of “langtype”.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

6.3.14 geo

The “geo” shall contain the latitude and longitude of the address.

There shall be no more than one occurrence of “geo” in any “Address” instance.

The “geo” shall be expressed using the “Geo” structure described in 6.19.

6.4 Affiliation

6.4.1 Composition

The “Affiliation” shall contain descriptions of the organization affiliations associated with the learner.

A different “Affiliation” instance shall be used for each organization to which the learner is affiliated.

Each “Affiliation” shall only be composed of the following parts:

- a) typename (see **6.4.2**);
- b) comment (see **6.4.3**);
- c) contenttype (see **6.4.4**);
- d) classification (see **6.4.5**);
- e) affiliationid (see **6.4.6**);
- f) role (see **6.4.7**);
- g) organization (see **6.4.8**);
- h) date (see **6.4.9**);
- i) status (see **6.4.10**);
- j) description (see **6.4.11**);
- k) ext_affiliation (see **6.4.12**);
- l) any number of sub-affiliations, including zero, each of which shall also be structured as an “Affiliation”.

NOTE Figure 4 represents this composition diagrammatically as a UML class model.

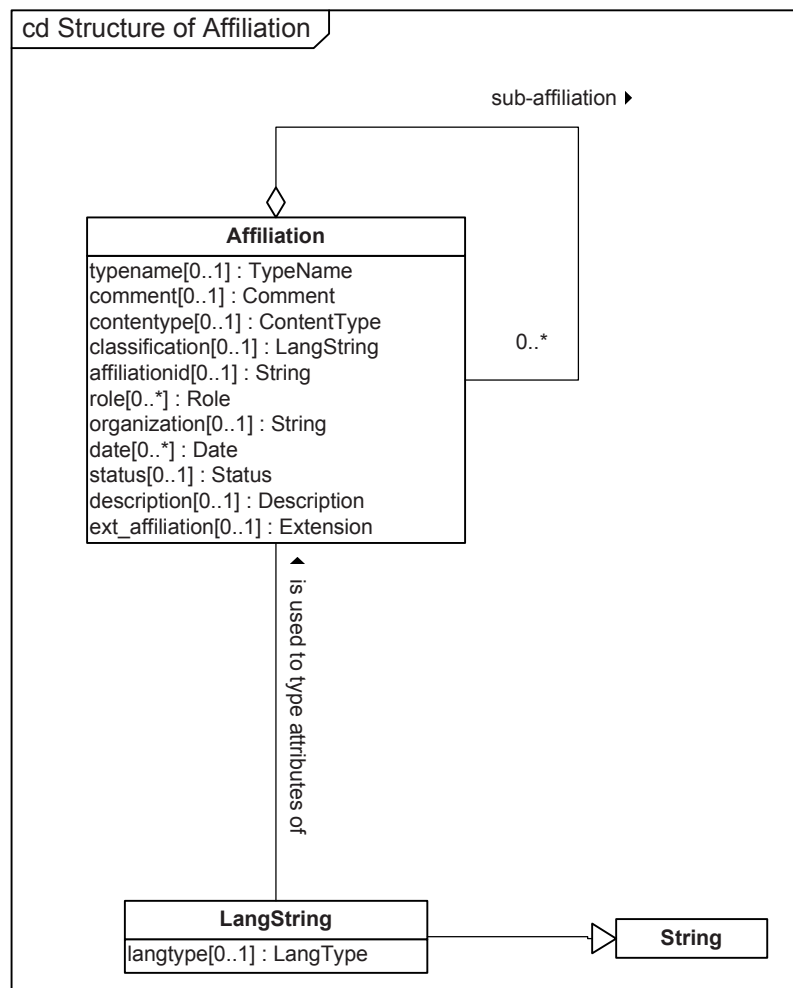


Figure 4 — “Affiliation” expressed as UML

EXAMPLE

The following code is an example of an “Affiliation” instance using the informative XML binding provided in Annex A.

```

<affiliation>
  <typename>
    <tysource sourcetype="standard">UKLeaP</tysource>
    <tyvalue>Professional</tyvalue>
  </typename>
  <contenttype>
    <referential>
      <indexid>affiliation_01</indexid>
    </referential>
  </contenttype>
  <affiliationid>2457923A</affiliationid>
  <role>

```

```

        <typename>
            <tysource
sourcetype="standard">UKLeaP</tysource>
            <tyvalue>Learner</tyvalue>
        </typename>
    </role>
    <role>
        <typename>
            <tyvalue>Facilitator</tyvalue>
        </typename>
    </role>
    <organization>
        <typename>
            <tysource
sourcetype="standard">UKLeaP</tysource>
            <tyvalue>Professional</tyvalue>
        </typename>
        <description>
            <short>Institute of Electronic & Electrical
Engineers</short>
        </description>
    </organization>
    <date>
        <typename>
            <tysource
sourcetype="standard">UKLeaP</tysource>
            <tyvalue>Join</tyvalue>
        </typename>
        <datetime>1998</datetime>
    </date>
    <status>
        <typename>
            <tysource
sourcetype="standard">UKLeaP</tysource>
            <tyvalue>Active</tyvalue>
        </typename>
    </status>
    <description>

```

<short>All fees paid</short>

</description>

</affiliation>

6.4.2 *typename*

The “typename” shall contain the type of the affiliation.

There shall be no more than one occurrence of “typename” in any “Affiliation” instance.

The “typename” shall be expressed using the “TypeName” structure defined in 7.6.

6.4.3 *comment*

The “comment” shall contain the comments that are relevant to the “Affiliation” instance.

There shall be no more than one occurrence of “comment” in any “Affiliation” instance.

The “comment” shall be expressed using the “Comment” structure described in 7.2.

6.4.4 *contenttype*

The “contenttype” shall contain the content metadata concerning the index for the data, access rights and time-stamps of the “Affiliation” instance.

There shall be no more than one occurrence of “contenttype” in any “Affiliation” instance.

The “contenttype” shall be expressed using the “ContentType” structure described in 7.3.

6.4.5 *classification*

The “classification” shall contain the class of the affiliation e.g. an executive or honorary.

There shall be no more than one occurrence of “classification” in any instance of “Affiliation”.

The “classification” shall be composed of the textual content of the “classification” as a string, and no more than one occurrence of “langtype”.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

6.4.6 *affiliationid*

The “affiliationid” shall contain the identification number of the affiliation e.g. the “affiliationid” could contain the membership number assigned to the learner for that particular organization.

NOTE This number can be assigned by the organization itself.

There shall be no more than one occurrence of “affiliationid” in any instance of “Affiliation”.

The “affiliationid” shall be expressed as a string.

6.4.7 role

The “role” shall contain the role of the learner within the organization relevant to the affiliation.

NOTE There can be any number of occurrences of “role” within an “Affiliation” instance, including zero.

The “role” shall be expressed using the “Role” structure described in **6.37**.

6.4.8 organization

The “organization” shall contain the name of the organization to which the learner is affiliated.

NOTE A separate “affiliation” shall be used for each organization to which the learner is affiliated.

There shall be no more than one occurrence of “organization” in any “Affiliation” instance.

The “organization” shall be expressed using the “Organization” structure described in **7.15**.

6.4.9 date

The “date” shall store significant dates relevant to the “Affiliation,” such as the joining date, date of expiry.

NOTE There can be any number of occurrences of “date” within an “Affiliation” instance, including zero.

The “date” shall be expressed using the “Date” structure described in **7.8**.

6.4.10 status

The “status” shall contain the recorded status of the affiliation e.g. active, pending or retired.

There shall be no more than one occurrence of “status” in any “Affiliation” instance.

The “status” shall be expressed using the “Status” structure described in **7.10**.

6.4.11 description

The “description” shall contain the content materials that are used to describe the affiliation listed in the associated data.

There shall be no more than one occurrence of the “description” in any “Affiliation” instance.

The “description” shall be expressed using the “Description” structure described in **7.7**.

6.4.12 ext_affiliation

The “ext_affiliation” shall contain proprietary extensions to the “Affiliation” structure.

There shall be no more than one occurrence of the “ext_affiliation” in any instance of “Affiliation”.

The “ext_affiliation” shall be expressed using the “Extension” structure described in **7.18**.

6.5 Agent

6.5.1 Composition

The “Agent” shall contain the information that describes the ways in which an individual or organization can act as representatives for the learner e.g. a parent or guardian acting as a representative of a young learner.

A different “Agent” instance shall be used for each entry.

Each “Agent” shall only be composed of the following parts:

- a) typename (see 6.5.2);
- b) comment (see 6.5.3);
- c) contenttype (see 6.5.4);
- d) agentid (see 6.5.5);
- e) agentdomain (see 6.5.6);
- f) description (see 6.5.7).

NOTE Figure 5 represents this composition diagrammatically as a UML class model.

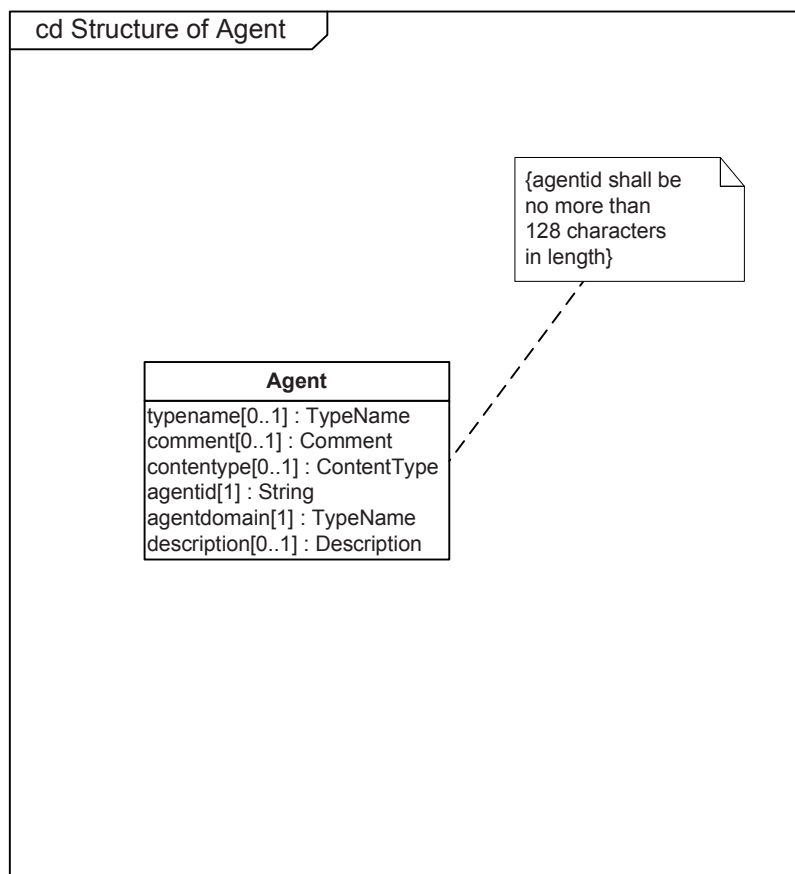


Figure 5 — “Agent” expressed as UML

EXAMPLE

The following code is an example of an “Agent” using the informative XML binding provided in Annex A.

```
<agent>
  <typename>
    <tysource sourcetype="standard">UKLeaP</tysource>
    <tyvalue>Tutor</tyvalue>
  </typename>
  <contenttype>
    <referential>
      <indexid>agent_01</indexid>
    </referential>
  </contenttype>
  <agentid>Dr.Wason</agentid>
  <agentdomain>
    <typename>
      <tysource
sourcetype="standard">UKLeaP</tysource>
      <tyvalue>Educational</tyvalue>
    </typename>
  </agentdomain>
  <description>
    <short>Course tutor</short>
  </description>
</agent>
```

6.5.2 *typename*

The “typename” shall contain the type of the agent.

There shall be no more than one occurrence of “typename” in any “Agent” instance.

The “typename” shall be expressed using the “TypeName” structure defined in **7.6**.

6.5.3 *comment*

The “comment” shall contain the comments that are relevant to the “Agent” instance.

There shall be no more than one occurrence of “comment” in any “Agent” instance.

The “comment” shall be expressed using the “Comment” structure described in **7.2**.

6.5.4 contentype

The “contentype” shall contain the content metadata concerning the index for the data, access rights and time-stamps of the “Agent” instance.

There shall be no more than one occurrence of “contentype” in any “Agent” instance.

The “contentype” shall be expressed using the “ContentType” structure described in 7.3.

6.5.5 agentid

The “agentid” shall contain an identifier for the agent.

There shall be exactly one occurrence of “agentid” in any “Agent” instance.

The “agentid” shall be expressed as a string and shall not exceed 256 characters in length.

6.5.6 agentdomain

The “agentdomain” shall contain the role that the agent undertakes on behalf of the learner e.g. aide, legal or medical.

There shall be exactly one occurrence of “agentdomain” in any “Agent” instance.

The “agentdomain” shall be comprised of not more than one occurrence of a “typename,” which shall be expressed using the “Typename” structure described in 7.6.

6.5.7 description

The “description” shall contain the content materials that are used to describe the agent and the role of the agent.

There shall be no more than one occurrence of “description” in any “Agent” instance.

The “description” shall be expressed using the “Description” structure described in 7.7.

6.6 Assertion**6.6.1 Composition**

The “Assertion” shall contain texts, but not reflections, relevant either to the learner, or to the other parts of the learner information, or to other things signified by the learner information.

NOTE 1 An “Assertion” can be authored by anyone, including the learner.

A different “Assertion” instance shall be used for each entry.

Each “Assertion” shall only be composed of the following parts:

- a) typename (see 6.6.2);
- b) comment (see 6.6.3);
- c) contentype (see 6.6.4);
- d) authorship (see 6.6.5);

- e) rationale (see 6.6.6);
- f) date (see 6.6.7);
- g) status (see 6.6.8);
- h) description (see 6.6.9);
- i) ext_assertion (see 6.6.10).

NOTE Figure 6 represents this composition diagrammatically as a UML class model.

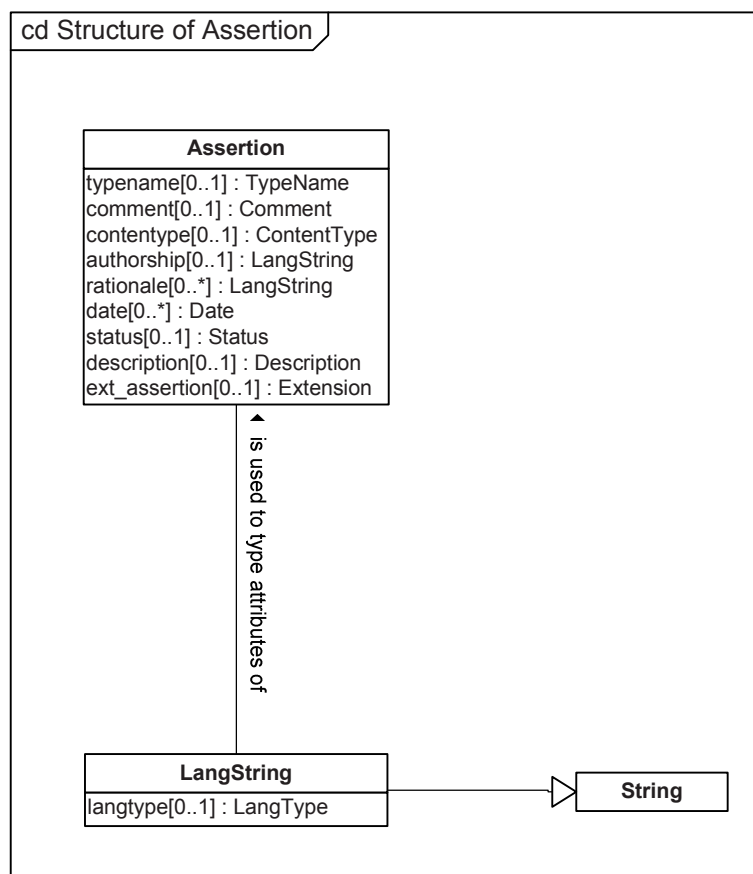


Figure 6 — “Assertion” expressed as UML

EXAMPLE

The following code is an example of “Assertion” using the informative XML binding provided in Annex A.

```

<assertion>
  <contenttype>
    <referential>
      <indexid>assertion_01</indexid>
    </referential>
  </contenttype>
  <authorship>Dr. A. Brown (tutor)</authorship>
  <rationale>A witness statement relating to group

```

```

assignment</rationale>
    <date>
        <typename>
            <tysource
sourcetype="standard">UKLeaP</tysource>
            <tyvalue>Create</tyvalue>
        </typename>
        <datetime>2004-05-31T12:25:43</datetime>
    </date>
    <description>
        <short>Michael Short's group work</short>
        <long>I supervised the group assignment on UML
modelling. Michael related well to the rest of his group,
displaying significant leadership potential. He initiated
task-oriented communications and played an active role
in conflict resolution.
Overall, I would rate his performance as above average.
The group demonstrated effective knowledge of UML.</long>
    </description>
</assertion>

```

6.6.2 *typename*

The “typename” shall contain the type of the text represented.

There shall be no more than one occurrence of “typename” in any “Assertion” instance.

The “typename” shall be expressed using the “TypeName” structure defined in 7.6.

6.6.3 *comment*

The “comment” shall contain the comments that are relevant to the “Assertion” instance.

There shall be no more than one occurrence of “comment” in any “Assertion” instance.

The “comment” shall be expressed using the “Comment” structure described in 7.2.

6.6.4 *contenttype*

The “contenttype” shall contain the content metadata concerning the index for the data, access rights and time-stamps for the “Assertion” instance.

There shall be no more than one occurrence of “contenttype” in any “Assertion” instance.

The “contenttype” shall be expressed using the “ContentType” structure described in 7.3.

6.6.5 authorship

The “authorship” shall describe the authorship of the represented text.

NOTE 1 This might include a description of the process of authorship.

There shall be no more than one occurrence of “authorship” in any “Assertion” instance.

The “authorship” shall be composed of the textual content of the “authorship” as a string, and no more than one occurrence of “langtype”.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

NOTE 2 Where no “authorship” is present, it is understood that the author is the subject of the collection of information.

6.6.6 rationale

The “rationale” shall contain a description of the reasons for composing, and intended audience for reading, the represented text.

There shall be any number of occurrences of “rationale” within an “Assertion” instance, including zero.

The “rationale” shall be composed of the textual content of the “rationale” as a string, and no more than one occurrence of “langtype”.

The “langtype” shall be expressed using the “LangType” structure described in 7.1.

6.6.7 date

The “date” shall store significant dates relevant to the represented text, or to the matters to which it refers.

There shall be any number of occurrences of “date” within an “Assertion” instance, including zero.

The “date” shall be expressed using the “Date” structure described in 7.8.

6.6.8 status

The “status” shall contain the recorded status of the represented text, such as draft or completed.

There shall be no more than one occurrence of “status” in any “Assertion” instance.

The “status” shall be expressed using the “Status” structure described in 7.10.

6.6.9 description

The “description” shall contain the text relevant to the “Assertion” instance.

There shall be no more than one occurrence of “description” in any “Assertion” instance.

The “description” shall be expressed using the “Description” structure described in 7.7.

6.6.10 *ext_assertion*

The “*ext_assertion*” shall contain proprietary extensions to the “Assertion” structure.

There shall be no more than one occurrence of “*ext_assertion*” in any “Assertion” instance.

The “*ext_assertion*” shall be expressed using the “Extension” structure described in 7.18.

6.7 Competency

6.7.1 *Composition*

The “Competency” shall consist of the descriptions of the skills the learner has acquired.

NOTE 1 These skills might be associated with formal or informal training, education or work history (described in a related “activity”) and formal awards (described in the “qcl”). The corresponding level of “competency” might be defined.

A different “Competency” instance shall be used for each entry.

Each “Competency” shall only be composed of the following parts:

- a) comment (see 6.7.2);
- b) contenttype (see 6.7.3);
- c) exrefrecord (see 6.7.4);
- d) description (see 6.7.5);
- e) *ext_competency* (see 6.7.6).

NOTE Figure 7 represents this composition diagrammatically as a UML class model.

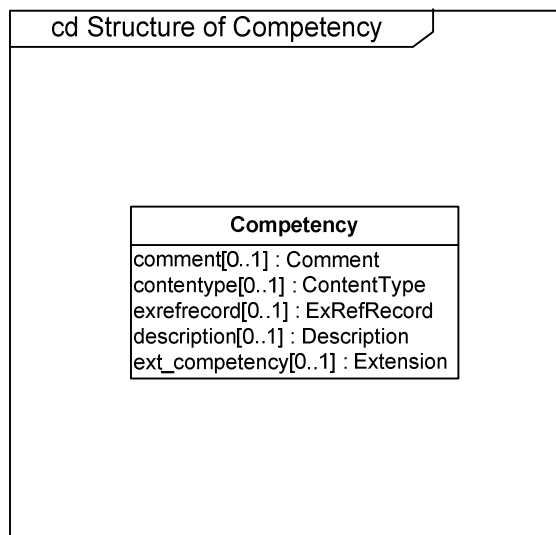


Figure 7 — “Competency” expressed as UML

EXAMPLE

The following code is an example of a “Competency” instance using the informative XML binding provided in Annex A.

```
<competency>
  <contenttype>
    <referential>
      <indexid>competency_01</indexid>
    </referential>
  </contenttype>
  <exrefrecord>
    <recformat uri="formats/pcsupport.doc"/>
    <recdata uri="studentname/competency.doc"/>
    <date>
      <typename>
        <tysource
sourcetype="standard">UKLeaP</tysource>
        <tyvalue>Awarded</tyvalue>
      </typename>
      <datetime>1999-10-31T00:00:00</datetime>
    </date>
  </exrefrecord>
  <description>
    <short>Level 1 Hardware Support for PCs</short>
  </description>
</competency>
```

6.7.2 comment

The “comment” shall contain the comments that are relevant to the “Competency” instance.

There shall be no more than one occurrence of “comment” in any “Competency” instance.

The “comment” shall be expressed using the “Comment” structure described in 7.2.

6.7.3 contenttype

The “contenttype” shall contain the content metadata concerning the index for the data, access rights and time-stamps of the “competency” instance.

There shall be no more than one occurrence of “contenttype” in any “Competency” instance.

The “contentype” shall be expressed using the “ContentType” structure described in **7.3**.

6.7.4 *exrefrecord*

The “exrefrecord” shall contain the actual competency information.

NOTE Either a reference to an external file is used or the content is supplied directly in a format appropriate to the competency description itself.

There shall be no more than one occurrence of “exrefrecord” in any “Competency” instance.

The “exrefrecord” shall be expressed using the “ExRefRecord” structure described in **7.17**.

6.7.5 *description*

The “description” shall contain the content materials that are used to describe the competencies listed.

There shall be no more than one occurrence of “description” in any “Competency” instance.

The “description” shall be expressed using the “Description” structure described in **7.7**.

6.7.6 *ext_competency*

The “ext_competency” shall contain proprietary extensions to the “Competency” structure.

There shall be no more than one occurrence of “ext_competency” in any “Competency” instance.

The “ext_competency” shall be expressed using the “Extension” structure described in **7.18**.

6.8 ContactInfo

6.8.1 *Composition*

The “ContactInfo” shall contain electronic addresses.

NOTE 1 These electronic addresses may include telephone, facsimile, pager and mobile numbers, plus the email address and web page reference.

A different “ContactInfo” instance shall be used for each entry.

Each “ContactInfo” shall only be composed of the following parts:

- a) typename (see **6.8.2**);
- b) comment (see **6.8.3**);
- c) contentype (see **6.8.4**);
- d) telephone (see **6.8.5**);
- e) facsimile (see **6.8.6**);
- f) mobile (see **6.8.7**);
- g) pager (see **6.8.8**);

h) email (see 6.8.9);

i) web (see 6.8.10).

NOTE 2 Figure 8 represents this composition diagrammatically as a UML class model.

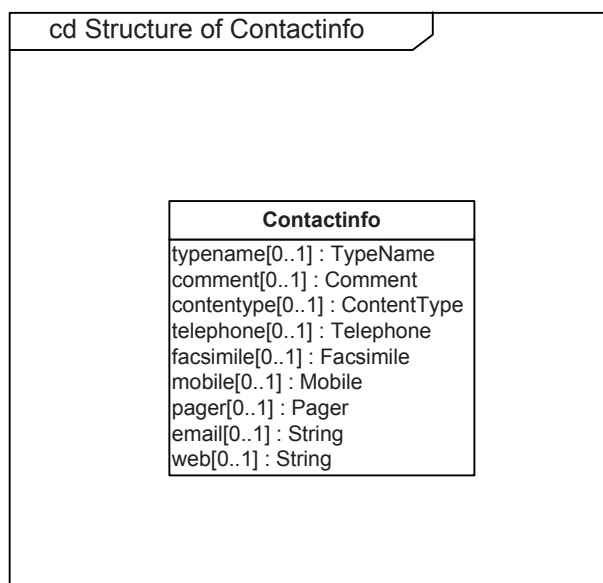


Figure 8 — “ContactInfo” expressed as UML

EXAMPLE

The following code is an example of “ContactInfo” using the informative XML binding provided in Annex A.

```

<contactinfo>
  <typename>
    <tysource sourcetype="standard">UKLeaP</tysource>
    <tyvalue>Private</tyvalue>
  </typename>
  <contenttype>
    <referential>
      <indexid>contactinfo_01</indexid>
    </referential>
  </contenttype>
  <telephone>
    <countrycode>44</countrycode>
    <areacode>020</areacode>
    <indnumber>86472239</indnumber>
  </telephone>
</contactinfo>
  
```

6.8.2 *typename*

The “typename” shall contain the type of the contact information.

There shall be no more than one occurrence of “typename” in any “ContactInfo” instance.

The “typename” shall be expressed using the “TypeName” structure defined in 7.6.

6.8.3 *comment*

The “comment” shall contain the comments that are relevant to the “ContactInfo” instance.

There shall be no more than one occurrence of “comment” in any “ContactInfo” instance.

The “comment” shall be expressed using the “Comment” structure described in 7.2.

6.8.4 *contentype*

The “contentype” shall contain the content metadata concerning the index for the data, access rights and time-stamps of the “ContactInfo” instance.

There shall be no more than one occurrence of “contentype” in any “ContactInfo” instance.

The “contentype” shall be expressed using the “ContentType” structure described in 7.3.

6.8.5 *telephone*

The “telephone” shall contain the telephone number.

There shall be no more than one occurrence of “telephone” in any “ContactInfo” instance.

The “telephone” shall be expressed using the “Telephone” structure described in 6.42.

6.8.6 *facsimile*

The “facsimile” shall contain the facsimile number.

There shall be no more than one occurrence of “facsimile” in any “ContactInfo” instance.

The “facsimile” shall be expressed using the “Facsimile” structure described in 6.16.

6.8.7 *mobile*

The “mobile” shall contain the mobile telephone number.

There shall be no more than one occurrence of “mobile” in any “ContactInfo” instance.

The “mobile” shall be expressed using the “Mobile” structure described in 6.27.

6.8.8 *pager*

The “pager” shall contain the pager number.

There shall be no more than one occurrence of “pager” in any “ContactInfo” instance.

The “pager” shall be expressed using the “Pager” structure described in **6.30**.

6.8.9 email

The “email” shall contain an e-mail address of the learner.

There shall be no more than one occurrence of “email” in any “ContactInfo” instance.

The “email” shall be composed of a string.

NOTE Attention is drawn to the specifications in IETF RFC 2822 [6].

6.8.10 web

The “web” shall contain a World Wide Web address for the learner.

There shall be no more than one occurrence of “web” in any “ContactInfo” instance.

The “web” shall be composed of a string.

6.9 Definition

6.9.1 Composition

The “Definition” shall describe course materials.

NOTE 1 The “Definition” structure is used to store the description of the course materials that have been studied as part of the activity. A recursive structure is used and so complex course descriptions can be supported based upon an arbitrary number of sub-course structures.

NOTE 2 Figure 9 represents this composition diagrammatically as a UML class model.

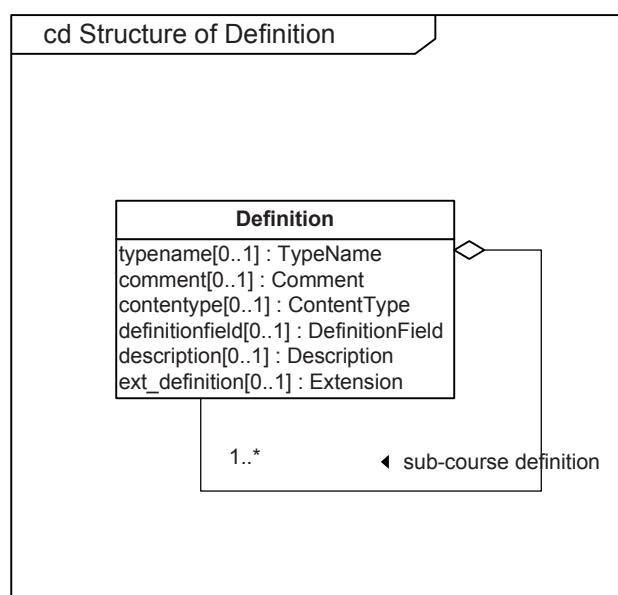


Figure 9 — “Definition” expressed as UML

Each “Definition” shall only be composed of the following parts:

- a) typename (see **6.9.2**);
- b) comment (see **6.9.3**);
- c) contenttype (see **6.9.4**);
- d) definitionfield (see **6.9.5**);
- e) description (see **6.9.6**);
- f) ext_definition (see **6.9.7**).

EXAMPLE

The following code is an example of a “Definition” using the informative XML binding provided in Annex A.

```
<definition>
  <typename>
    <tysource sourcetype="standard">UKLeaP</tysource>
    <tyvalue>Course</tyvalue>
  </typename>
  <contenttype>
    <referential>
      <indexid>definition_01</indexid>
    </referential>
  </contenttype>
  <definitionfield>
    <fieldlabel>

    <typename> <tyvalue>Lecture_1</tyvalue> </typename>
    </fieldlabel>
    <felddata>Plant Structure</felddata>
  </definitionfield>
  <definitionfield>
    <fieldlabel>

    <typename> <tyvalue>Lecture_2</tyvalue> </typename>
    </fieldlabel>
    <felddata>Photosynthesis</felddata>
  </definitionfield>
  <definitionfield>
    <fieldlabel>
```

```

    <typename> <tyvalue>Lecture_3</tyvalue> </typename>
    </fieldlabel>
    <fielddata>Plant Genetics</fielddata>
  </definitionfield>
  <description>
    <short>A course on plant biology</short>
  </description>
</definition>

```

6.9.2 *typename*

The “typename” shall contain the type of the definition.

There shall be no more than one occurrence of “typename” in any “Definition” instance.

The “typename” shall be expressed using the “Typename” structure described in 7.6.

6.9.3 *comment*

The “comment” shall contain the comments that are relevant to the “Definition” structure.

There shall be no more than one occurrence of “comment” in any “Definition” instance.

The “comment” shall be expressed using the “Comment” structure described in 7.2.

6.9.4 *contenttype*

The “contenttype” shall contain the content metadata concerning the index, access rights and time-stamps for the “Definition” instance.

There shall be no more than one occurrence of “contenttype” in any “Definition” instance.

The “contenttype” shall be expressed using the “ContentType” structure described in 7.3.

6.9.5 *definitionfield*

The “definitionfield” shall contain information for the “Definition” instance.

NOTE There can be any number of occurrences of “definitionfield” within a “Definition” instance, including zero.

The “definitionfield” shall be expressed using the “DefinitionField” structure described in 6.10.

6.9.6 *description*

The “description” shall contain the content materials that are used to describe the definition.

There shall be no more than one occurrence of “description” in any “Definition” instance.

The “description” shall be expressed using the “Description” structure described in 7.7.

6.9.7 *ext_definition*

The “ext_definition” shall contain proprietary extensions to the “Definition”.

There shall be no more than one occurrence of “ext_definition” in any “Definition” instance.

The “ext_definition” shall be expressed using the “Extension” structure described in 7.18.

6.10 DefinitionField

6.10.1 *Composition*

The “DefinitionField” shall contain information relevant to a “Definition” instance.

Each “DefinitionField” shall only be composed of the following parts:

- a) fieldlabel (see 6.10.2);
- b) fielddata (see 6.10.3).

NOTE Figure 10 represents this composition diagrammatically as a UML class model.

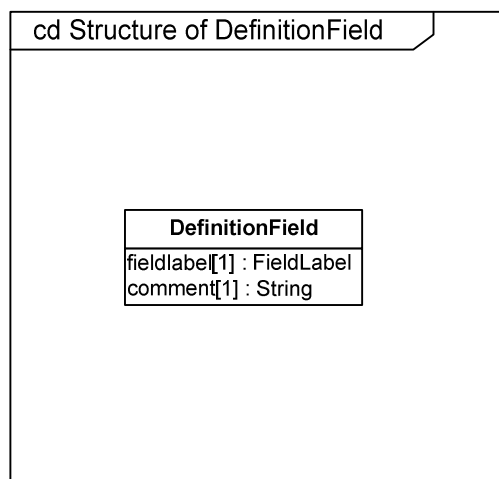


Figure 10 — “DefinitionField” expressed as UML

6.10.2 *fieldlabel*

The “fieldlabel” shall contain the type of the “DefinitionField” instance.

There shall be exactly one occurrence of “fieldlabel” in any “DefinitionField” instance.

The “fieldlabel” shall be expressed using the “FieldLabel” structure described in 7.12.

6.10.3 *felddata*

The “felddata” shall contain the actual value of the “DefinitionField” instance.

There shall be exactly one occurrence of “felddata” in any “DefinitionField” instance.

The “felddata” shall be expressed as a string.

6.11 Demographics

6.11.1 *Composition*

The “Demographics” shall contain the information that is used to describe the type of learner.

A different “Demographics” instance shall be used for each entry.

Each “Demographics” shall only be composed of the following parts:

- a) typename (see 6.11.2);
- b) comment (see 6.11.3);
- c) contenttype (see 6.11.4);
- d) representation (see 6.11.5);
- e) gender (see 6.11.6);
- f) date (see 6.11.7);
- g) placeofbirth (see 6.11.8);
- h) uid (see 6.11.9).

NOTE Figure 11 represents this composition diagrammatically as a UML class model.

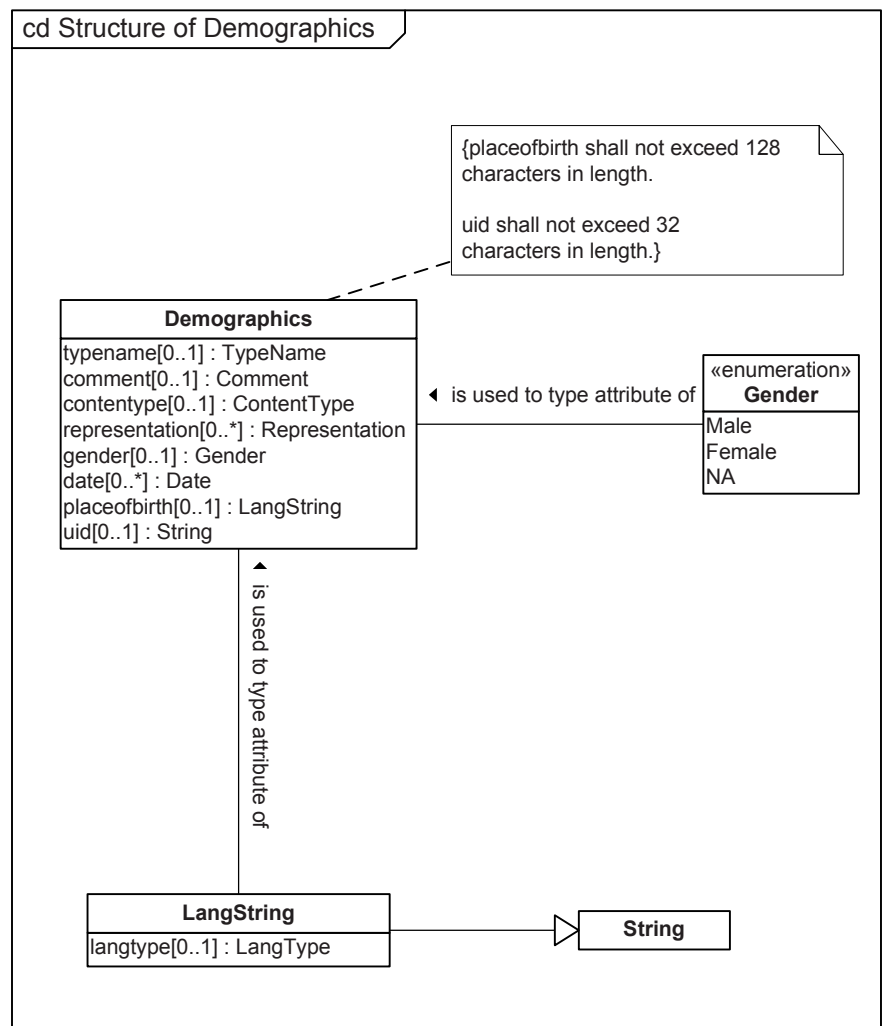


Figure 11 — “Demographics” expressed as UML

EXAMPLE

The following code is an example of “Demographics” using the informative XML binding provided in Annex A.

```

<demographics>
  <typename>
    <tysource sourcetype="standard">UKLeaP</tysource>
    <tyvalue>Adult</tyvalue>
  </typename>
  <contenttype>
    <referential>
      <indexid>demographics_01</indexid>
    </referential>
  </contenttype>
  <representation>

```