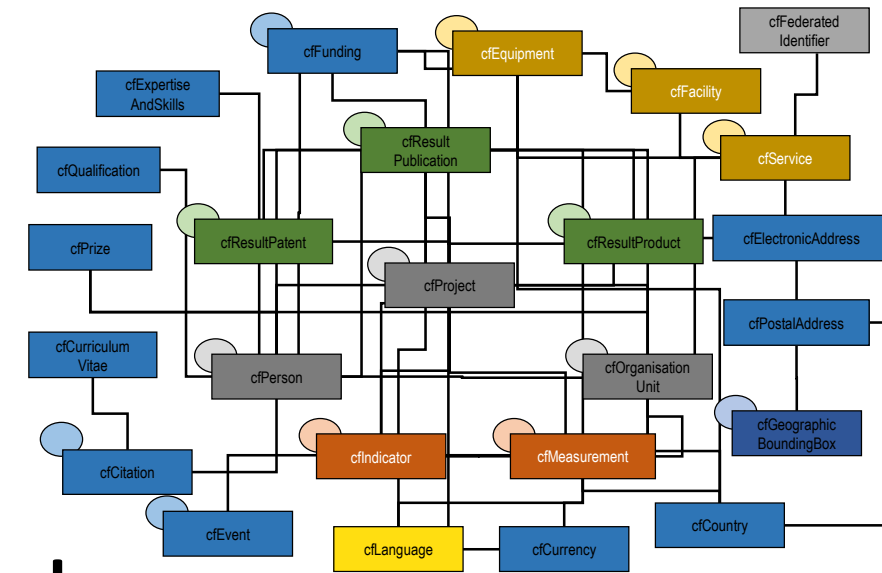




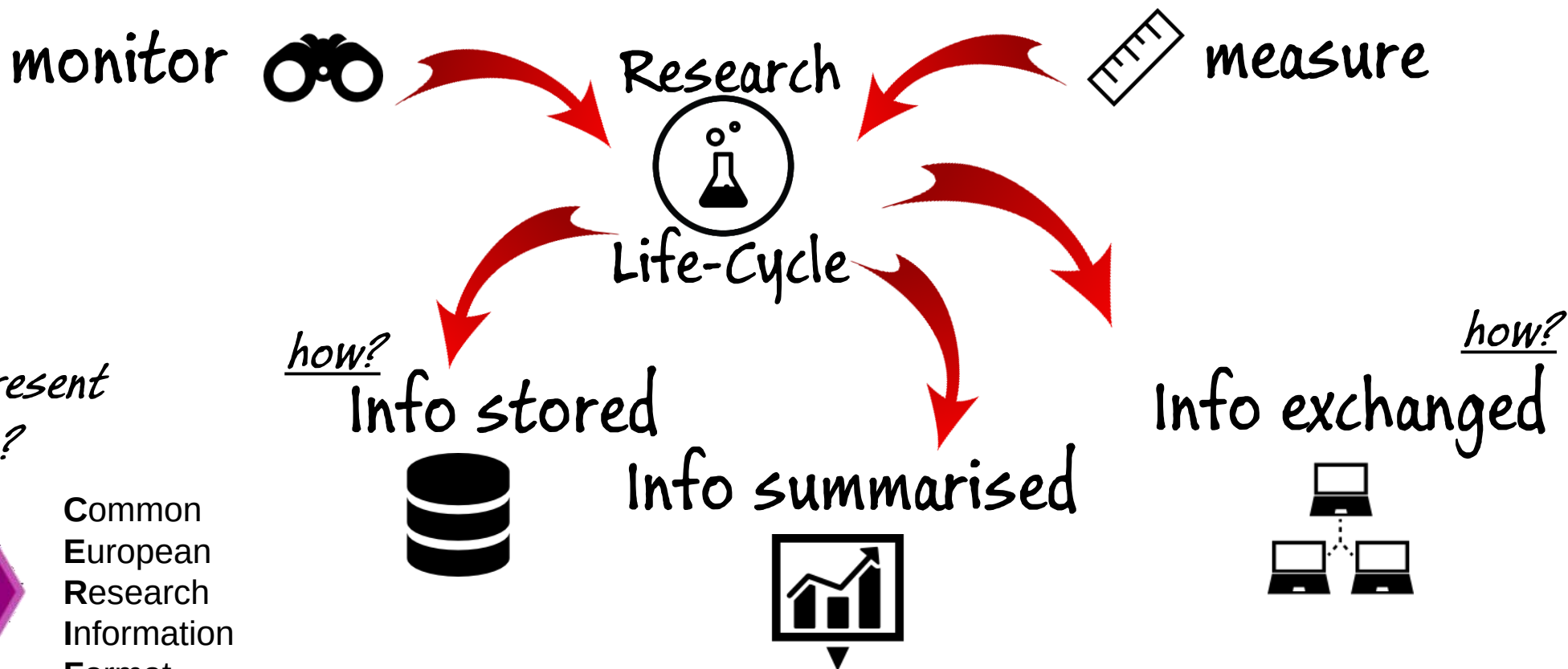
CERIF Tutorial

Valérie BRASSE, euroCRIS Board

Membership Meeting Helsinki – 27/05/2019

Based on the “CERIF Tutorial”
by Brigitte Jörg (CERIF TG Leader 2004-2012)
and Jan Dvořák (CERIF TG Leader since 2013)

Research Information



CERIF is an EU Recommendation to Member States, <http://cordis.europa.eu/cerif/>

Research Information provides context about...

... how the research is run



Research projects

Research infrastructures



... the research actors

Ph.D., Researchers, HR...

Research units, teams, structures...

... the research results



(Open) research data, Publications, Patents,...

Research domains

What characterises a research project?



A code (identifier), for ex a Grant number

A name or title

A (planned) start date

A (planned) end date or duration

[A source of funding]

A short or long description (abstract)

[A few scientific publications]

[A project coordinator]

[A research domain]

A web page (URI)

Source: http://cordis.europa.eu/project/rcn/106635_en.html

27/05/2019

CERIF tuto

SEQSEL
Project reference: 317697
Funded under: [FP7-PEOPLE](#)

Global cooperation to develop next generation whole genome SEquence SElection tools for novel traits  

From 2012-05-01 to 2016-04-30, ongoing project

Project details

Total cost: EUR 126 000	Topic(s): FP7-PEOPLE-2012-IRSES - Marie Curie Action "International Research Staff Exchange Scheme"
EU contribution: EUR 126 000	Call for proposal: FP7-PEOPLE-2012-IRSES
Coordinated in: Ireland	Funding scheme: MC-IRSES - International research staff exchange scheme (IRSES)

Objective

"The objective of this project, SEQSEL, is to build upon, solidify, formalise and condense the recently initiated, but as yet informal, relationships between several world-leading research partners in the EU (Ireland, The UK, and the Netherlands) and Oceania (i.e., Australia and New Zealand) in order to conduct joint research and participate in knowledge exchange and to identify regions of the bovine genome associated with feed intake and efficiency. The study will be undertaken in dairy cattl...

Related information 

Result In Brief	Mining the genome of dairy cattle
Report Summaries	Periodic Report Summary 1 - SEQSEL (Global cooperation to develop next generation whole genome SEquence SElection tools for novel traits)
Open Access 	Imputation of genotypes from low density (50,000 markers) to high density (700,000 markers) of cows from research herds in Europe, North America, and Australasia using 2 reference populations Pryce, J. E.; Johnston, J.; Hayes, B. J.; Sahana, G.; Weigel, K. A.; Mcparland, S.; Spurlock, D.; Krattenmacher, N.; Spelman, R. J.; Wall, E.; Calus, M. P. L. 2014

Coordinator

TEAGASC - AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY Ireland 

Participants

THE SCOTTISH AGRICULTURAL COLLEGE United Kingdom 

STICHTING DIENST LANDBOUWKUNDIG ONDERZOEK Netherlands 

Subjects

[Life Sciences](#)

euroCRIS
Current Research Information Systems

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About this system

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Contact us

RESEARCH COUNCILS UK

Gateway to Research

Innovate UK

Technology Strategy Board

A name or title

Social Media Analysis for Social Geography

Lead Research Organisation: [Newcastle University](#)

Department Name: Computing Sciences

Go back

Overview

Organisations

People

Outcomes

A short or long description (abstract)

Abstract

Many believe that social media data has the potential to give real insights into communities. However, there is a real challenge in unlocking this knowledge due to the enormous size and speed with which the data is generated, and a lack of understanding of issues such as ethics and the validity of conclusions drawn from the skewed sample of the population that social media users represent.

A (planned) start date

A (planned) end date or duration

Funded Value: £449,388

Funded Period: Feb 14 - Feb 16

Funder: ESRC

Project Status: Active

Project Category: Research Grant

Project Reference: ES/M001636/1

Principal Investigator: [Paul Watson](#)

Research Subject: Human Geography

Research Topic: Social Geography
Urban Geography

A code (identifier), for ex a Grant number

A few keywords

[A research domain]

A web page (URI)

Source: <http://gtr.rcuk.ac.uk/project/A49CA721-687A-4D55-8FDF-9B60375B6EA8>

27/05/2019

[A source of funding]

[A project coordinator]

design a scalable system for social media data analysis

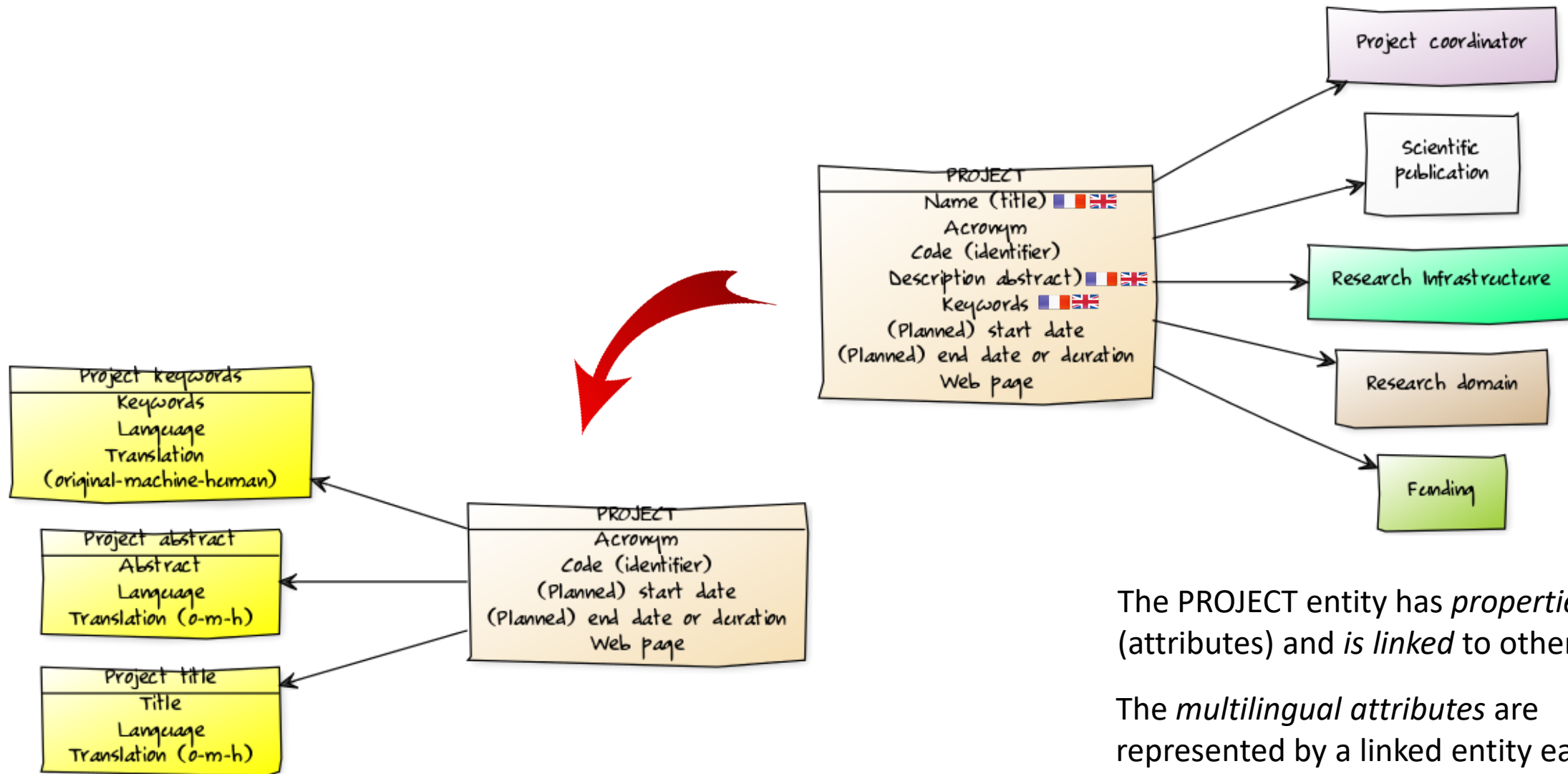
create a tool that makes it easy for social scientists to ask questions and visualise results

explore the use of modern statistical techniques to derive understanding from the data

drive and evaluate the system through case studies, including the use of the new tools to augment existing social science methods, and to understand the way third sector organisations can make effective use of social media

explore how the use of the tools can help the private and public sector to make key decisions.

Metadata for a Research Project



The PROJECT entity has *properties* (attributes) and *is linked* to other entities.

The *multilingual attributes* are represented by a linked entity each.

* "start date" and "end date" are deprecated in v1.6

Metadata for a Research Project

CERIF naming rule: in English, abbreviated, starting with *cf*

Example: Project title = *cfProjTitle*

cfPrjTitle			
cfProjId	ID	NN (PFK)	
cfLangCode	Char(5 BYTE)	NN (PFK)	
cfTrans	NChar(1)	NN (PK)	
cfTitle	Char(255 BYTE)	NN	

Project keywords
Keywords
Language
Translation
(original-machine-human)

cfPrjAbstr			
cfProjId	ID	NN (PFK)	
cfLangCode	Char(5 BYTE)	NN (PFK)	
cfTrans	NChar(1)	NN (PK)	
cfAbstr	NClob	NN	

Project abstract
Abstract
Language
Translation (o-m-h)

cfProjKeyw			
cfProjId	ID	NN (PFK)	
cfLangCode	Char(5 BYTE)	NN (PFK)	
cfTrans	NChar(1)	NN (PK)	
cfKeyw	Char(255 BYTE)	NN	

Project title
Title
Language
Translation (o-m-h)

PROJECT
Acronym
Code (identifier)
(Planned) start date
(Planned) end date or duration
Web page

cfPrj		
cfProjId	ID	NN (PK)
cfStartDate	Date	
cfEndDate	Date	
cfAcro	Char(16 BYTE)	
cfURI	Char(128 BYTE)	

Representation in Database

Format, Unicity, Not-null, Foreign Key (FK), composed Primary Key (set of PFK and PK)

cfProjAbstr		
cfProjId	ID	NN (PFK)
cfLangCode	Char(5 BYTE)	NN (PFK)
cfTrans	NChar(1)	NN (PK)
cfAbstr	NClob	NN

Key	Attribute Name	Domain	Data Type	Not Null	Unique
PFK	cfProjId	ID	Char(128 BYTE)	YES	NO
PFK	cfLangCode		Char(5 BYTE)	YES	NO
PK	cfTrans		NChar(1)	YES	NO
	cfAbstr		NClob	YES	NO

Key Type	Constraint Name	Attributes
PK	pk_cfProjAbstr	cfProjId, cfLangCode, cfTrans

cfProj		
cfProjId	ID	NN (PK)
cfStartDate	Date	
cfEndDate	Date	
cfAcro	Char(16 BYTE)	
cfURI	Char(128 BYTE)	

Key	Attribute Name	Domain	Data Type	Not Null	Unique	Check	Default	Comments
PK	cfProjId	ID	Char(128 BYTE)	YES	NO	NO		The project identifier (cfProjId) propagates to system-internal project-related entities: cfProjectTitle cfProjectAbstract cfProjectKeywords cfProject_Service cfProject_Event cfProject_Facility cfProject_Equipment cfProject_Classification cfProject_ResultPatent cfProject_ResultProduct cfProject_ResultPublication cfProject_Project cfProject_Person cfProject_PrizeAward cfProject_Funding cfProject_OrganisationUnit cfProject_Medium cfProject_Indicator cfProject_Measurement
	cfStartDate		Date	NO	NO	NO		{@deprecated 1.6} use the cfStartDate of an appropriate unary classification of this cfProject or an appropriate link between this cfProject and the project participant (cfOrganisationalUnit or cfPerson)
	cfEndDate		Date	NO	NO	NO		{@deprecated 1.6} use the cfEndDate of an appropriate unary classification of this cfProject or an appropriate link between this cfProject and the project participant (cfOrganisationalUnit or cfPerson)
	cfAcro		Char(16 BYTE)	NO	NO	NO		
	cfURI		Char(128 BYTE)	NO	NO	NO		

Example in DB

CERIF Project example database record			
Data	Attribute	Table	Type
project-ist-world*	cfProjId	cfProj	base
IST World	cfAcro	cfProj	base
http://www.ist-world.org/	cfURI	cfProj	base
2005-04-01	cfStartDate	cfProj	base
2007-11-30	cfEndDate	cfProj	base
Knowledge Base for RTD Competencies in IST	cfTitle	cfProjTitle	lang[en,o]
Wissensbasis für RTD Kompetenzen im Bereich IST	cfTitle	cfProjTitle	lang[de,h]
IST, Research Information, NMS, Portal,	cfKeyw	cfProjKeyw	lang
The objective of the project is to set up and populate an information portal with innovative functionalities ...	cfAbstr	cfProjAbstr	lang

cfProj

cfProjId (PK)	cfAcro	cfURI	cfStartDate	cfEndDate
project-ist-world	IST World	http://...	2005-04-01	2007-11-30

cfProjTitle, PK = cfProjID + cfLangCode + cfTrans

cfProjID (FK)	cfLangCode	cfTrans	cfTitle
project-ist-world	EN	O	Knowledge Base for RTD Competencies in IST
project-ist-world	DE	H	Wissensbasis für RTD Kompetenzen im Bereich IST

cfProjKeyw, PK = cfProjID + cfLangCode + cfTrans

cfProjID (FK)	cfLangCode	cfTrans	cfKeyw
project-ist-world	EN	O	IST, Research Information, NMS, Portal

cfProjAbstr, PK = cfProjID + cfLangCode + cfTrans

cfProjID (FK)	cfLangCode	cfTrans	cfAbstr
project-ist-world	EN	O	The objective of the project is to set...

Representation in XML

Enclosing XML element = CERIF entity physical name (cfProj)

Enclosed XML elements = CERIF entity's attributes (cfProjId, cfAcro,...)

```
<cfProj>
  <cfProjId>system-internal-project-identifier</cfProjId>
  <cfAcro>project acronym</cfAcro>
  <cfTitle cfLang="en" cfTrans="o">original project title in English</cfTitle>
  <cfTitle cfLang="fr" cfTrans="h">le titre du projet en français, traduction humaine</cfTitle>
  <cfTitle cfLang="de" cfTrans="m">der Titel des Projekts auf Deutsch, maschinelle Übersetzung</cfTitle>
</cfProj>
```

XML attributes are used for
multilingual CERIF attributes

cfLang, cfTrans:

- o for original language
- h for human translation
- m for machine translation

Representation and example in Linked Data

CERIF entity

Attributes

Multilingual attributes

```

@prefix xsd:      <http://www.w3.org/2001/XMLSchema#> .
@prefix rdfs:     <http://www.w3.org/2000/01/rdf-schema#> .
@prefix foaf:     <http://xmlns.com/foaf/0.1/> .
@prefix cerif:    <http://eurocris.org/cerif#> .
@prefix dc:       <http://purl.org/dc/elements/1.1/> .
@prefix dcterms:  <http://purl.org/dc/terms/> .

<http://cris.myOrganization.org/resource/projects/VOA3R>
a      cerif:Project ;

rdfs:label "Repositorio de Agricultura y Acuicultura de acceso abierto virtual"@es-es ,
"Virtual Open Access Agriculture & Aquaculture Repository"@en-uk ;

dc:title "Repositorio de Agricultura y Acuicultura de acceso abierto virtual"@es-es ,
"Virtual Open Access Agriculture & Aquaculture Repository"@en-uk ;

cerif:title "Repositorio de Agricultura y Acuicultura de acceso abierto virtual"@es-es ,
"Virtual Open Access Agriculture & Aquaculture Repository"@en-uk ;

foaf:homepage <http://voa3r.eu/> ;
cerif:uri <http://voa3r.eu/> ;

cerif:abstract "The general objective of the VOA3R project is to improve the spread of
European agriculture and aquaculture research results by using an innovative approach to
sharing open access research products. "@en-uk , "El objetivo general del proyecto VOA3R
es mejorar la difusión de los resultados de investigación en la agricultura y
acuicultura europea, mediante el uso de un enfoque innovador para el intercambio de
productos de investigación de acceso abierto."@es-es ;

dcterms:abstract "The general objective of the VOA3R project is to improve the spread of
European agriculture and aquaculture research results by using an innovative approach to
sharing open access research products. "@en-uk , "El objetivo general del proyecto VOA3R
es mejorar la difusión de los resultados de investigación en la agricultura y
acuicultura europea, mediante el uso de un enfoque innovador para el intercambio de
productos de investigación de acceso abierto."@es-es ;

cerif:internalIdentifier "ff8080812ddb916a012ddb9170b60001" ;
cerif:acronym "VOA3R" ;
cerif:startDate "2010-06-01"^^xsd:date ;
cerif:endDate "2013-05-31"^^xsd:date ;

```


ontology

CERIF Ontology 1.3

Authors: *Iván Ruiz Rube, Keith G Jeffery, Jan Dvorak, Brigitte Joerg, Geert van Grootel, Miguel Ángel Sicilia*

The *Common European Research Information Format (CERIF) Ontology Specification* provides basic concepts and properties for describing research information as semantic data. This document contains a friendly description of the *Common European Research Information Format (CERIF) Ontology* developed by EuroCRIS.

Namespace URI: <http://www.eurocris.org/ontologies/cerif/1.3#>

Terms: 26 Classes, 58 Properties

CERIF Semantic Vocabulary 1.3

Authors: *Iván Ruiz Rube, Keith G Jeffery, Jan Dvorak, Brigitte Joerg, Geert van Grootel, Miguel Ángel Sicilia*

The *Common European Research Information Format (CERIF) Semantic Vocabulary* provides general relationship and type terms for the research domain. This document contains a RDFa description of the *Common European Research Information Format (CERIF) Semantics* developed by EuroCRIS.

Namespace URI: <http://www.eurocris.org/ontologies/semcerif/1.3#>

Terms: 415 Classes

See D4.2 at <https://www.vre4eic.eu/publications/public-deliverables>

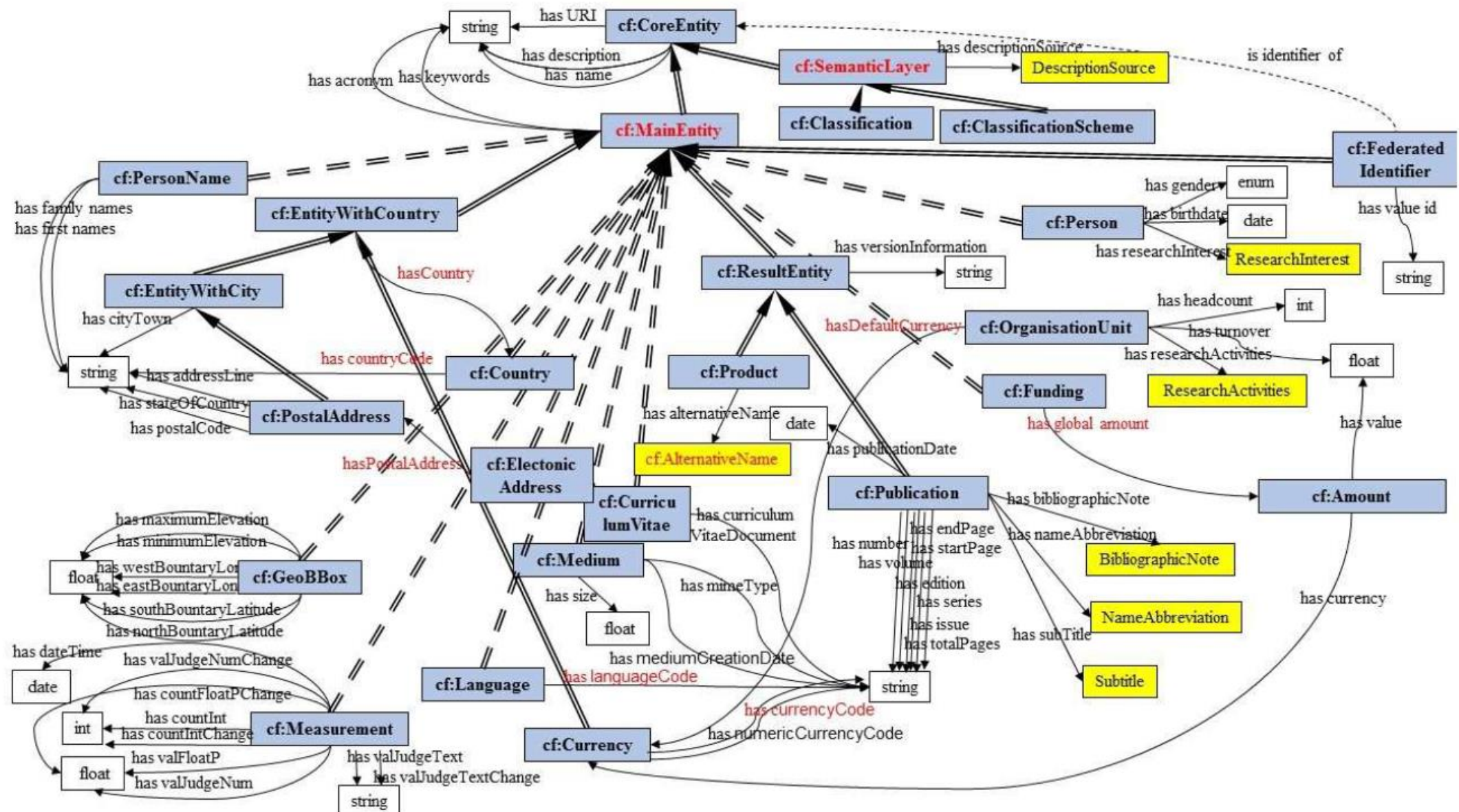


Figure 2 A simplified representation of individuals (CERIF1.6)

INTERMEDIARY SUMMARY



Common
European
Research
Information
Format

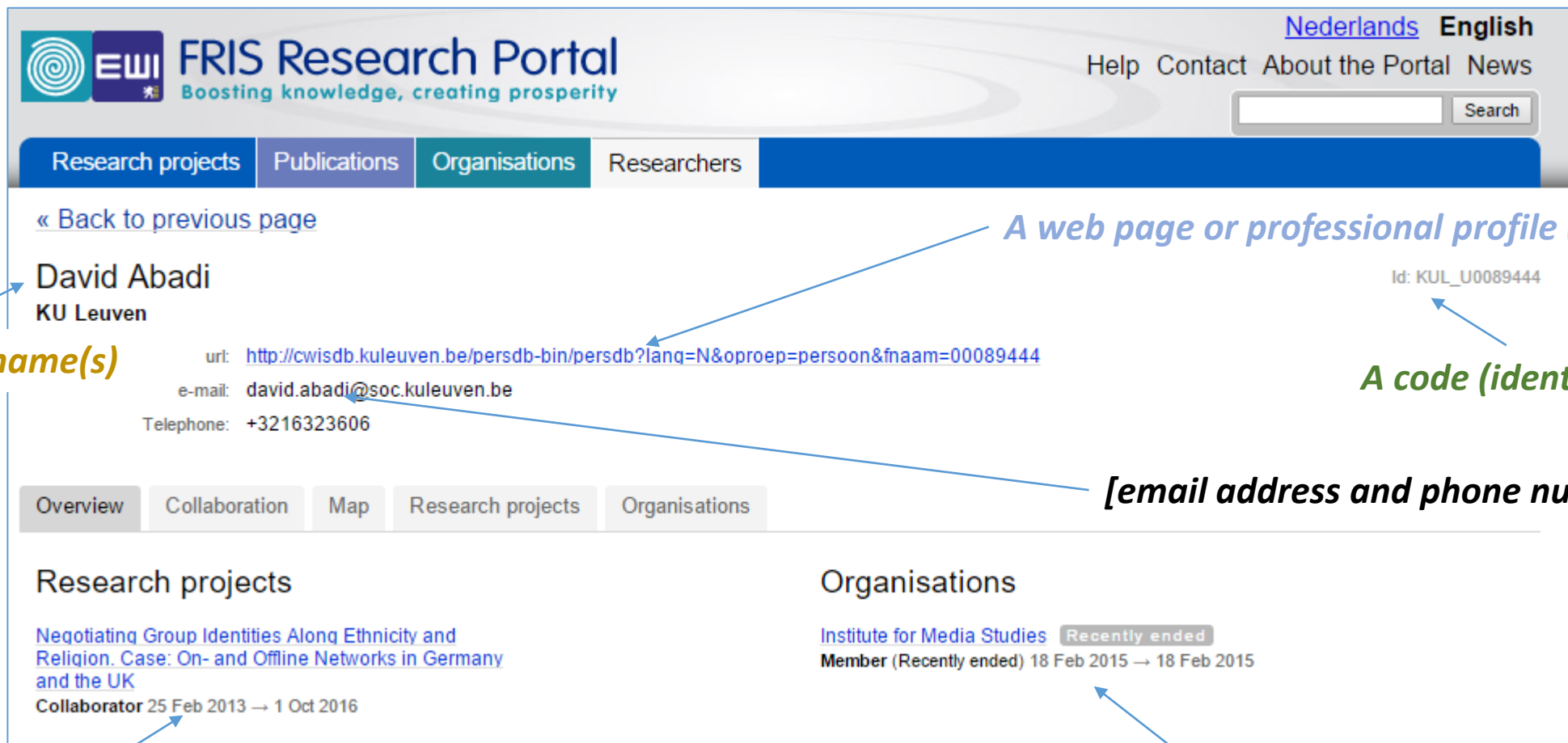
- CERIF is:
 - A conceptual model
 - A storage format in relational database
 - A set of exchange formats (XML, Linked Data)
- CERIF supports multilingualism, storing the original value of a literal attribute, and for any other language, a value translated by a machine and/or a human
- So far, we have seen the CERIF Entity “PROJECT” (cfProj)

We have seen how to represent, store or exchange metadata about research projects.

Similarly:

- What characterises a person (researcher, Ph.D.,...)?
- What characterises an organisation (research laboratory, institute,...)?





FRIS Research Portal
Boosting knowledge, creating prosperity

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« [Back to previous page](#)

David Abadi
KU Leuven

url: <http://cwisdb.kuleuven.be/persdb-bin/persdb?lang=N&oproep=persoon&fnaam=00089444>
e-mail: david.abadi@soc.kuleuven.be
Telephone: +3216323606

Id: KUL_U0089444

Overview Collaboration Map Research projects Organisations

Research projects

[Negotiating Group Identities Along Ethnicity and Religion. Case: On- and Offline Networks in Germany and the UK](#)
Collaborator 25 Feb 2013 → 1 Oct 2016

Organisations

[Institute for Media Studies](#) Recently ended
Member (Recently ended) 18 Feb 2015 → 18 Feb 2015

First and family name(s)

A web page or professional profile (URI)

A code (identifier)

[email address and phone number]

[A project on which he has worked]

[An organisation/unit in which he has worked]



PERSON

PROF.DR. A.M. KOREBRITS

Family and first name(s)

Keywords of expertise

[Expertise and skills]

A code (identifier)

[Several scientific publications he has (co-)authored]

A web page or professional profile (URI)

Source: <http://www.narcis.nl/person/RecordID/PRS1300875/id/24389/Language/EN>

Export page

ADHD ADOLESCENTS AGGRESSIVE BEHAVIOUR BEHAVIOURAL CRIME
CRIMINAL DEVIANT DISORDERS IMPULSIVITY LATER PROBLEMS PSYCHIATRY
RELATION THEIR WITH YOUTH

Expertise

Behaviour disorders and their (later) relation with criminal behaviour;
Impulsivity and deviant aggressive behaviour in youth and adolescents;
Psychiatry; ADHD; Behavioural problems; Youth crime

Expertise (NL)

Gedragstoornissen en de (latere) relatie met crimineel gedrag; Impulsiviteit
en normafwijkend agressief gedrag bij jeugdigen en adolescenten; Psychiatrie;
ADHD; Gedragsproblemen; Jeugdcriminaliteit

Digital Author ID

info:eu-repo/dai/nl/298198304

PUBLICATIONS

(the most recent at the top)

- › Don't you Dare Look at me, or else: Negative and Aggressive Interpretation Bias, Callous Unemotional Traits and Type of Aggression
- › Differential Associations Between Psychopathy Dimensions, Types of Aggression, and Response Inhibition
- › Validity of the Modified Child Psychopathy Scale for Juvenile Justice Center Residents
- › Differential Associations Between Psychopathy Dimensions, Types of Aggression, and Response Inhibition
- › Delinquency in Context. Neighbourhood and Gender Interactions among Adolescents

CLASSIFICATION

D23350

› Psychiatry, clinical psychology

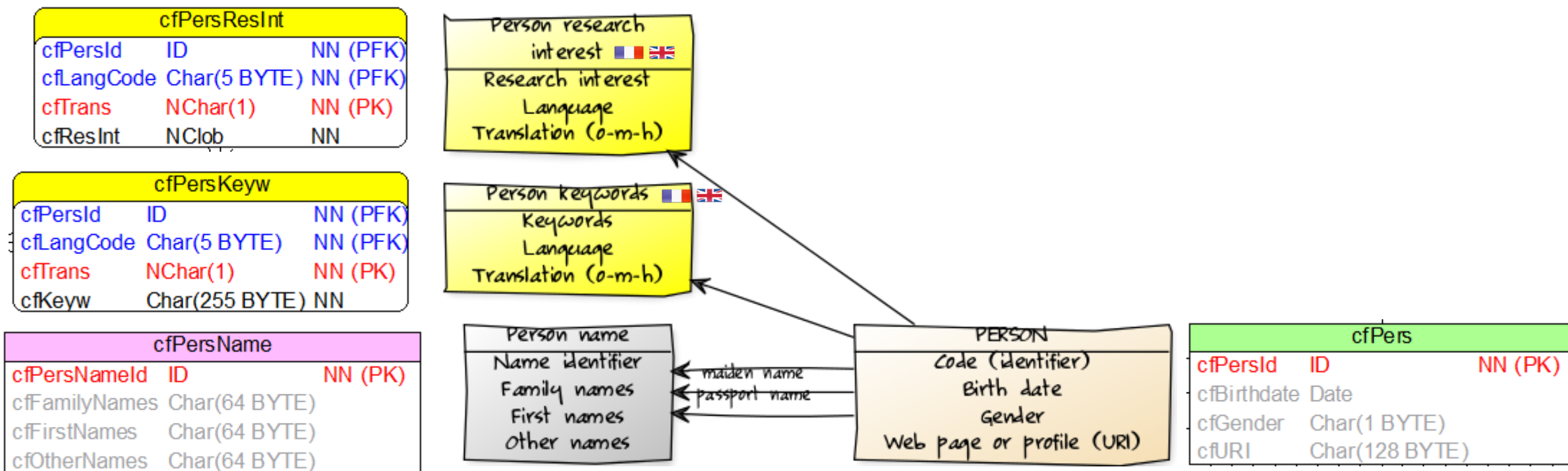
D41300

› Criminal (procedural) law and criminology

Metadata for a person

CERIF naming rule: in English, abbreviated, starting with *cf*

Example: *Person Research Interests* = *cfPersResInt*



A person may have several names:
maiden vs married name, name on
passport and name used to sign an
article, ...

* "other names" is deprecated in v1.6

Metadata for an organisation unit: ex in NARCIS

Organisation Unit name

Acronym

[Parent organisation unit]

A web page (URI)

Description of the research activity

[Scientific domains]

ORGANISATION

CENTER FOR EXPERIMENTAL AND MOLECULAR MEDICINE (CEMM)

Export page

Part of

Part of

Acronym

Address

Get directions

Postal address

Phone

Fax

URL

Mission

Academisch Medisch Centrum - AMC

Universiteit van Amsterdam

CEMM

Meibergdreef 9, 1105 AZ Amsterdam

Google Maps

Postbus 22660, 1100 DD Amsterdam

+31-20-5665910

+31-20-6977192

<http://www.amc.nl/web/Research/Departments/Overview/Center-for-Experimental-and-Molecular-Medicine-CEMM-1/Center-for-Experimental-and-Molecular-Medicine-CEMM.htm>

The Center for Experimental and Molecular Medicine (CEMM) is a laboratory within the AMC which is fully devoted to interdisciplinary fundamental and clinical research of a variety of common diseases (cardiovascular and thrombotic disease, host defense, infectious disease, cancer, and others). Mission: The mission of CEMM is to perform high quality translational research, bridging fundamental research with preclinical and clinical investigations in the field of Oncology, Infectious Diseases, Host Defense and Blood Coagulation & Inflammation (i.e. the four research groups housed in CEMM). Goals and ambition: It is the ambition of CEMM to facilitate translational science in the broadest of terms, maintaining strong ties with clinical departments and providing an optimal infrastructure and multidisciplinary environment for the scientific flourish of our research groups. The number one goal is to produce high quality research as reflected by publications in high ranking journals.

CLASSIFICATION

D23000

Medicine

Metadata for an organisation unit

CERIF naming rule: in English, abbreviated, starting with *cf*

Example: Organisational Unit Research Activities = cfOrgUnitResAct

cfOrgUnitName			
cfOrgUnitId	ID	NN (PFK)	
cfLangCode	Char(5 BYTE)	NN (PFK)	
cfTrans	NChar(1)	NN (PK)	
cfName	Char(255 BYTE)	NN	

Unit name
Name
Language
Translation (o-m-h)

cfOrgUnitKeyw			
cfOrgUnitId	ID	NN (PFK)	
cfLangCode	Char(5 BYTE)	NN (PFK)	
cfTrans	NChar(1)	NN (PK)	
cfKeyw	Char(255 BYTE)	NN	

Unit keywords
Keywords
Language
Translation (o-m-h)

cfOrgUnitResAct			
cfOrgUnitId	ID	NN (PFK)	
cfLangCode	Char(5 BYTE)	NN (PFK)	
cfTrans	NChar(1)	NN (PK)	
cfResAct	NClob	NN	

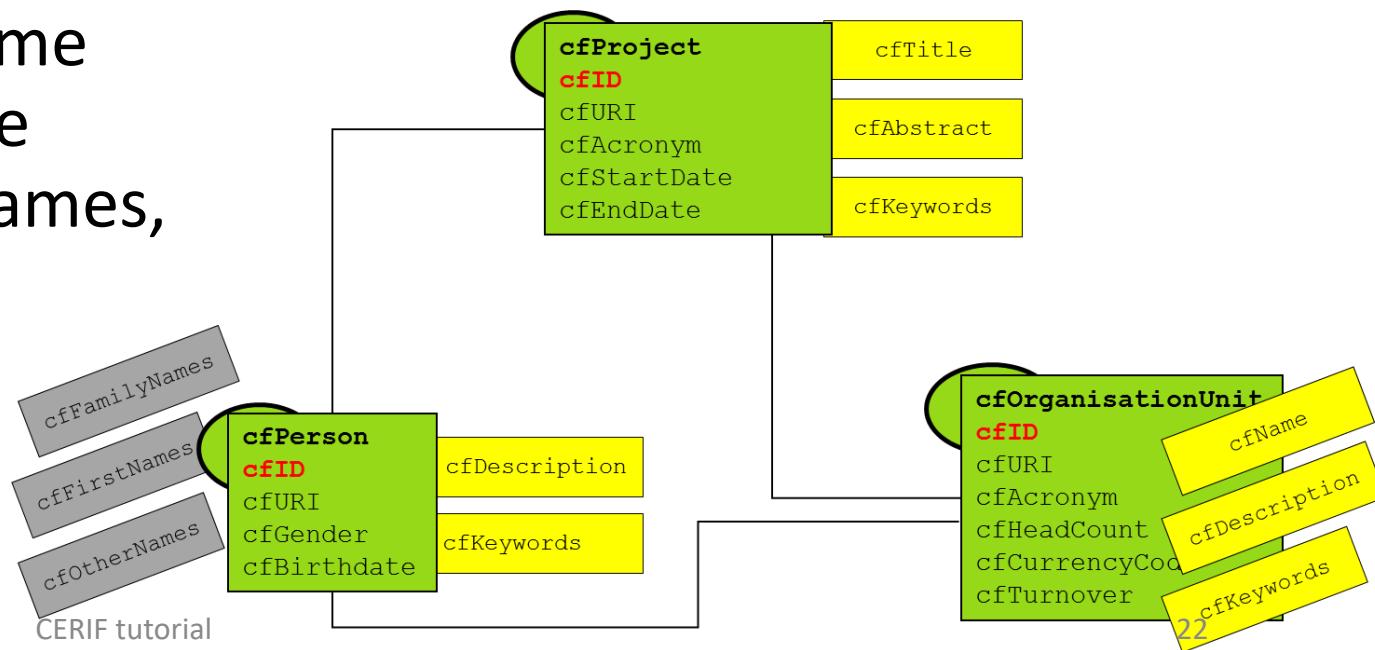
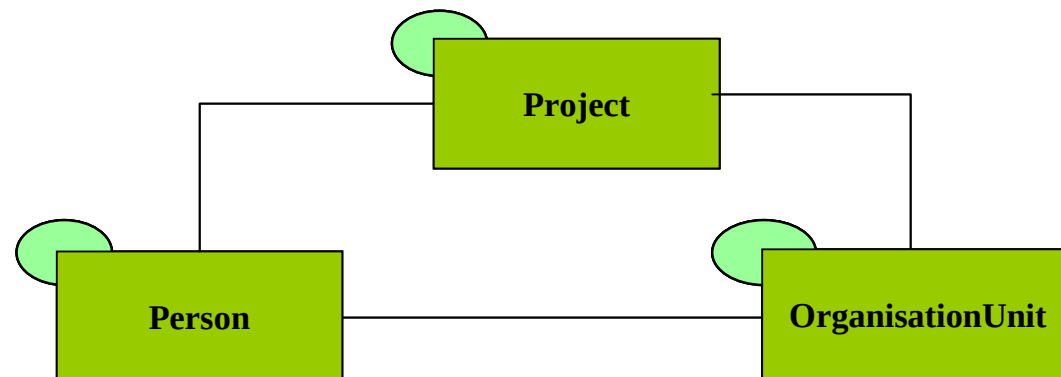
Unit activities
Research activities
Language
Translation (o-m-h)

ORG UNIT
Code (identifier)
Acronym
Headcount
Turnover
Currency code
Web page (URI)

cfOrgUnit			
cfOrgUnitId	ID	NN (PK)	
cfCurrCode	Char(3 BYTE)	(FK)	
cfAcro	Char(16 BYTE)		
cfHeadcount	Integer		
cfTurn	Float		
cfURI	Char(128 BYTE)		

INTERMEDIARY SUMMARY

- The CERIF base entities are:
Project, Person and Organisational Unit
- These entities have attributes, some being isolated as they are multiple (Person Name) or multilingual (Names, Keywords, Description...)



What other metadata can be described with CERIF?



What characterises research results (publication, patent, “product”)?

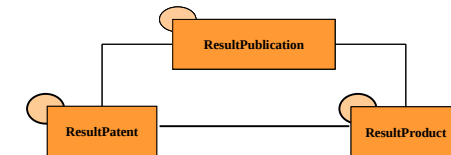
SCIENTIFIC PUBLICATION	
Code (identifier)	
Publication date	
Title	  
Name abbreviation	  
Subtitle	  
Description (abstract)	  
Keywords	  
Bibliographic note	  
Version information	  
Number	
Volume	
Edition	
Series	
Issue	
Start page	
End page	
Total number of pages	
ISBN	
ISSN	
Web page (URI)	

PATENT	
Code (identifier)	
Title	  
Description (abstract)	  
Keywords	  
Version information	  
Registration date	
Approval date	
Patent number	
Web page (URI)	

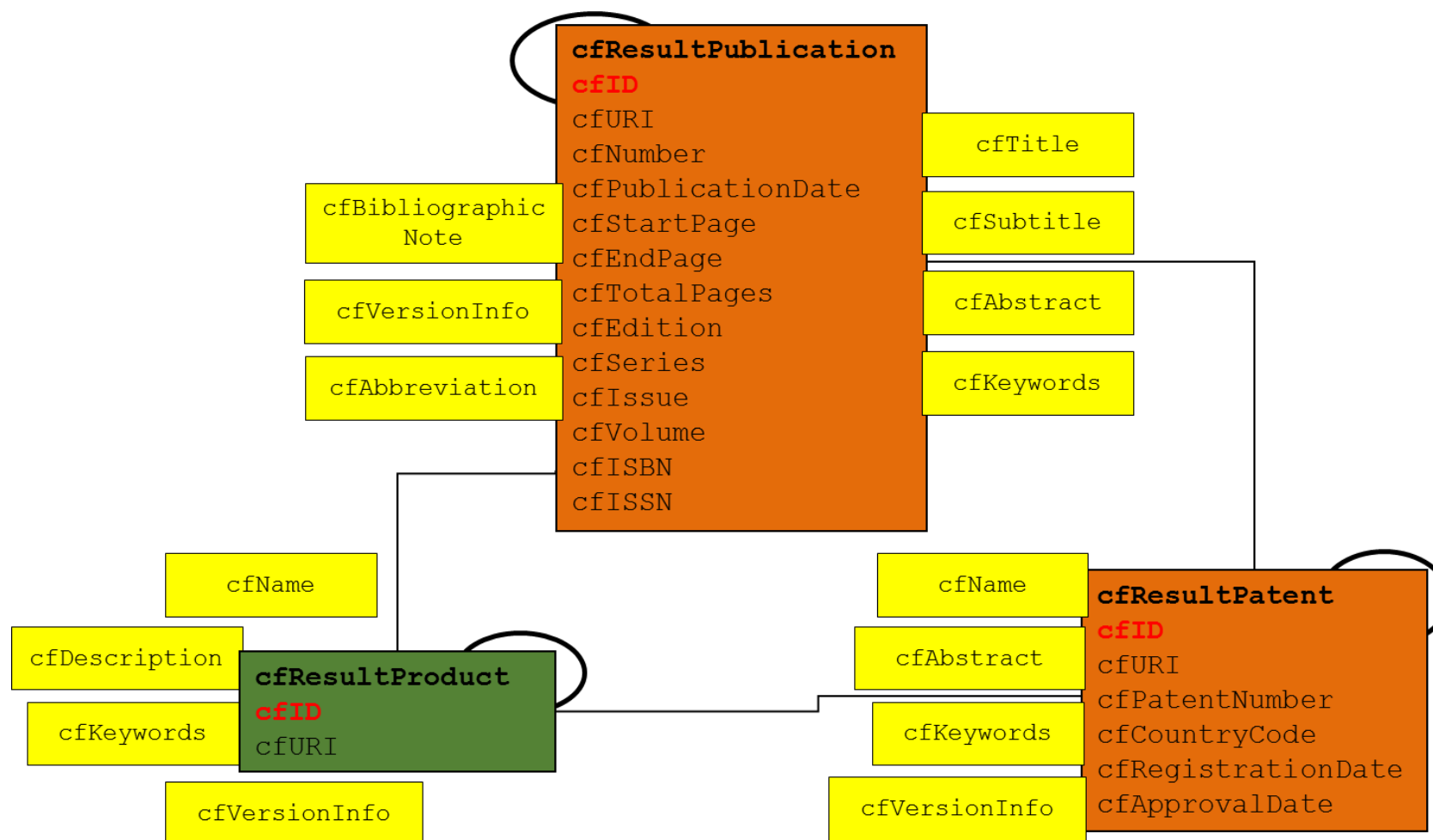
RESEARCH PRODUCT	
Code (identifier)	
Name	  
Description	  
Keywords	  
Version information	  
Web page (URI)	

For example: a software developed during a project, research dataset...

* “ISSN”, “ISBN”, “registration date”, “approval date” and “patent number” are deprecated in v1.6



Result entities in the CERIF model

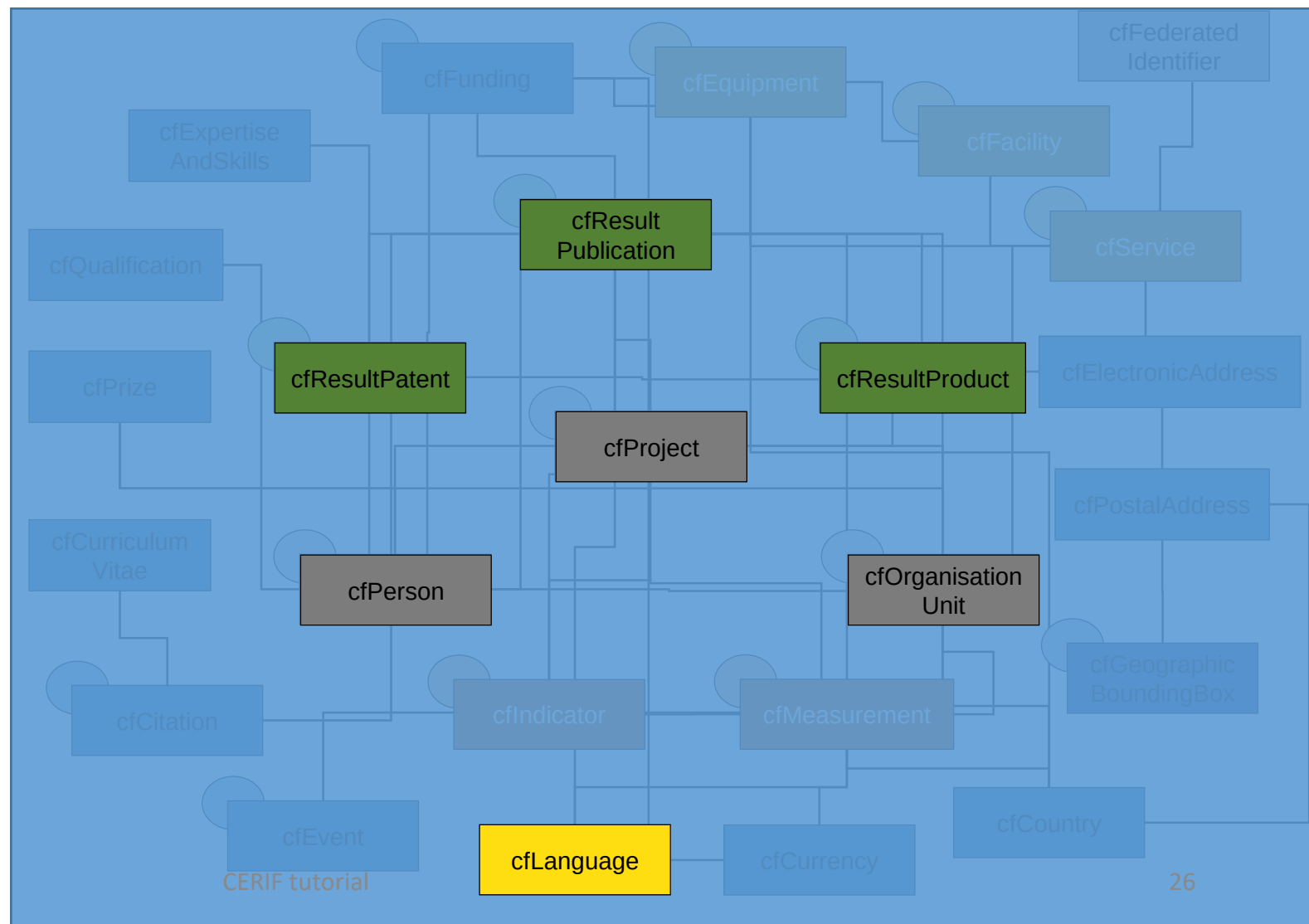


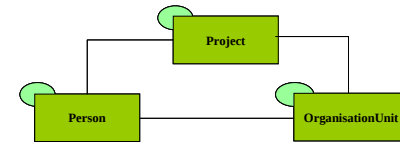
INTERMEDIARY SUMMARY

So far, we have seen

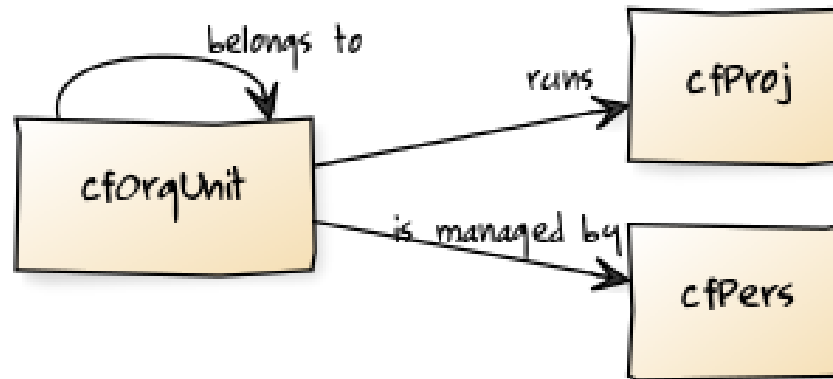
the 6 “core” entities
of the CERIF 1.6
model,

as well as the
notion of
multilingualism





What are the relations between a person, a project, an organisational unit?

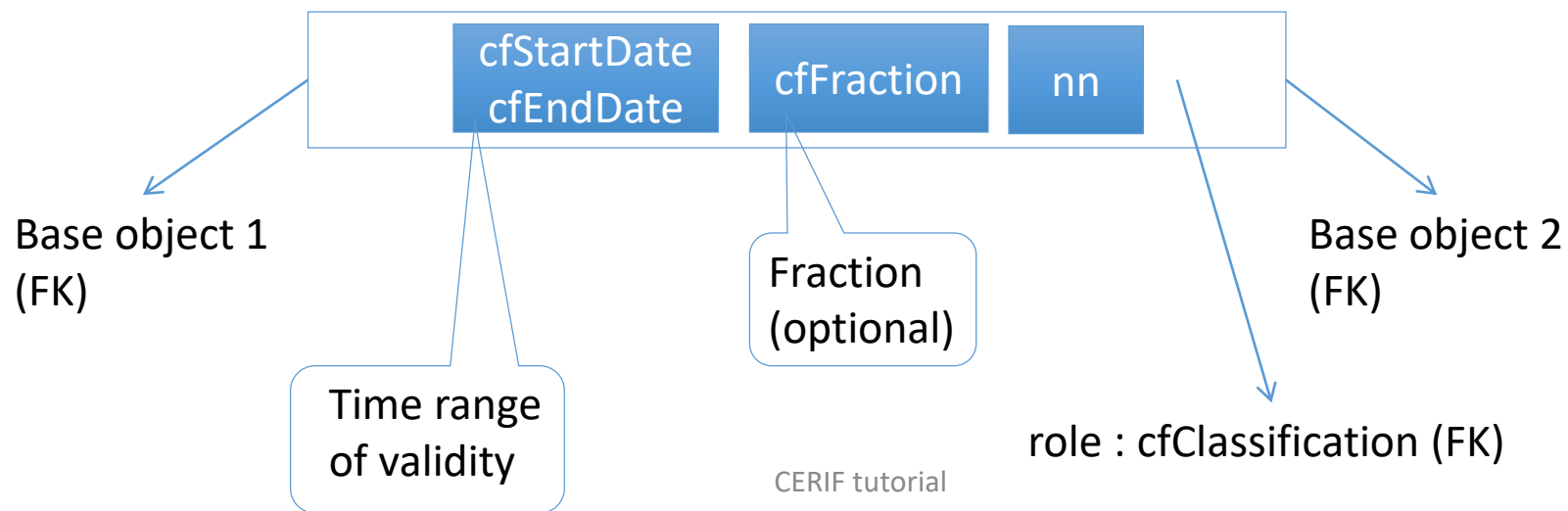


Representation of a relation in CERIF

In CERIF, a relation between two entities is also an entity: a “Link Entity”.

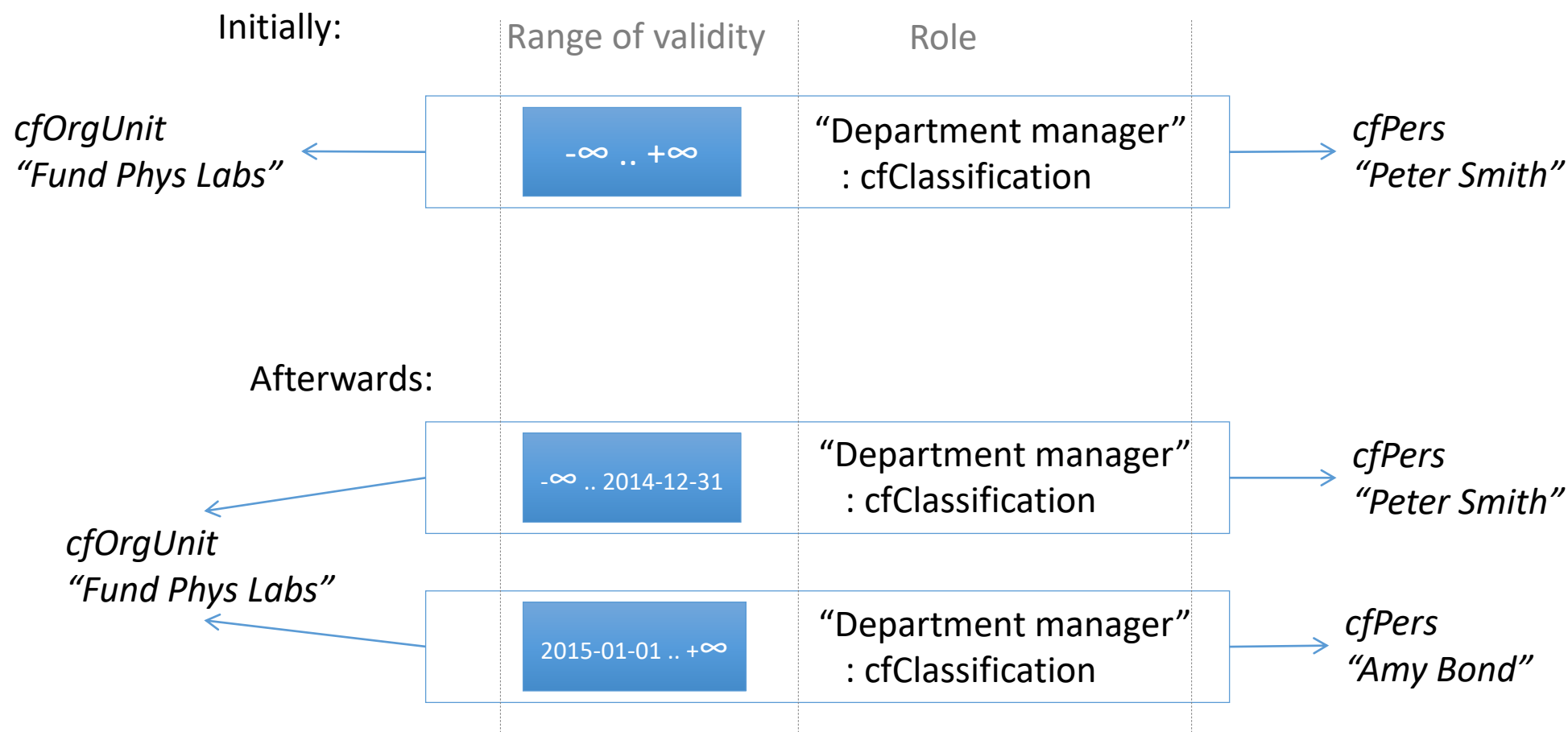
This Link Entity contains:

- A reference to each of the two “base” entities
- A “role” (semantic part of the model, see later on)
- A time range of validity: start date and end date for the relation with this role
- (optionally) a fraction (see example)
- (depending on the link entity) some specific attributes



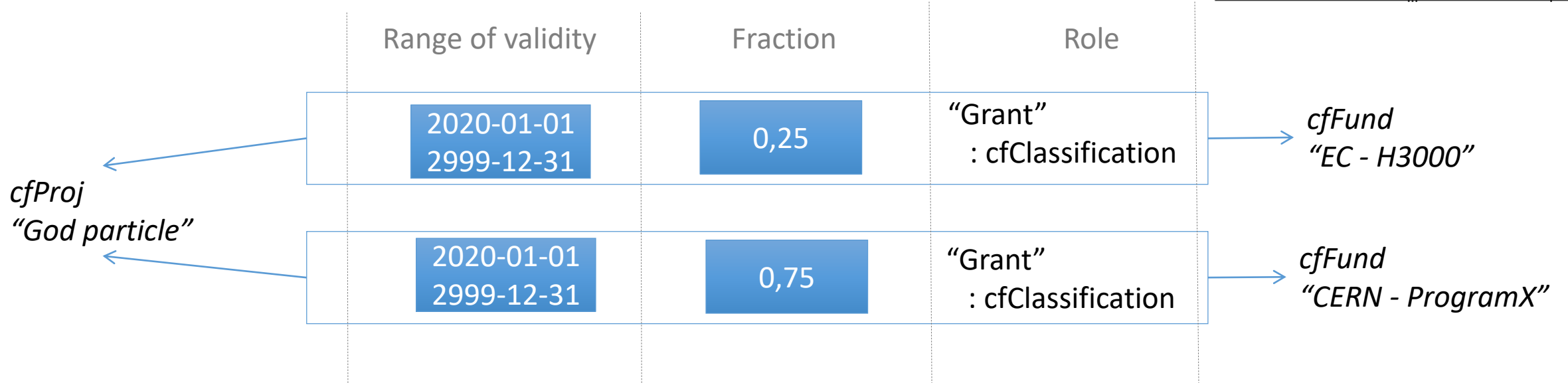
Example for the range of validity

The department manager Peter Smith at the Fundamental Physics Labs is replaced on 01/01/2015 by Amy Bond.



Example for the fraction

cfProj_Fund		
cfProjId	ID	NN (PFK)
cfFundId	ID	NN (PFK)
cfClassId	ID	NN (PFK)
cfClassSchemeId	ID	NN (PFK)
cfStartDate	Timestamp(6)	NN (PK)
cfEndDate	Timestamp(6)	NN (PK)
cfFraction	Float	
cfAmount	Float	
cfCurrCode	Char(3 BYTE)	(FK)



The "God particle" project is funded from 01/01/2020 until 31/12/2999 for 25% by the "EC – H3000" program and for 75% by the "CERN – ProgramX" program.

Note 1: start and end dates for the project can be different (starting on 01/01/2015 for example).

Note 2: in this link entity "cfProj_Fund", the specific attributes are: cfAmount (funding amount) and cfCurrCode (currency).

Examples of Link Entities in CERIF

cfPers_Pers			
cfPersId1	ID	NN	(PFK)
cfPersId2	ID	NN	(PFK)
cfClassId	ID	NN	(PFK)
cfClassSchemeld	ID	NN	(PFK)
cfFraction	Float		
cfStartDate	Timestamp(6)	NN	(PK)
cfEndDate	Timestamp(6)	NN	(PK)

cfProj_OrgUnit			
cfProjId	ID	NN	(PFK)
cfOrgUnitId	ID	NN	(PFK)
cfClassId	ID	NN	(PFK)
cfClassSchemeld	ID	NN	(PFK)
cfFraction	Float		
cfStartDate	Timestamp(6)	NN	(PK)
cfEndDate	Timestamp(6)	NN	(PK)

cfOrgUnit_Equip			
cfOrgUnitId	ID	NN	(PFK)
cfEquipId	ID	NN	(PFK)
cfClassId	ID	NN	(PFK)
cfClassSchemeld	ID	NN	(PFK)
cfFraction	Float		
cfStartDate	Timestamp(6)	NN	(PK)
cfEndDate	Timestamp(6)	NN	(PK)
cfCurrCode	Char(3)		(FK)
cfAvailability	Char(64)		
cfConditions	Char(255)		
cfPrice	Float		

cfOrgUnit_Class			
cfOrgUnitId	ID	NN	(PFK)
cfClassId	ID	NN	(PFK)
cfClassSchemeld	ID	NN	(PFK)
cfFraction	Float		
cfStartDate	Timestamp(6)	NN	(PK)
cfEndDate	Timestamp(6)	NN	(PK)

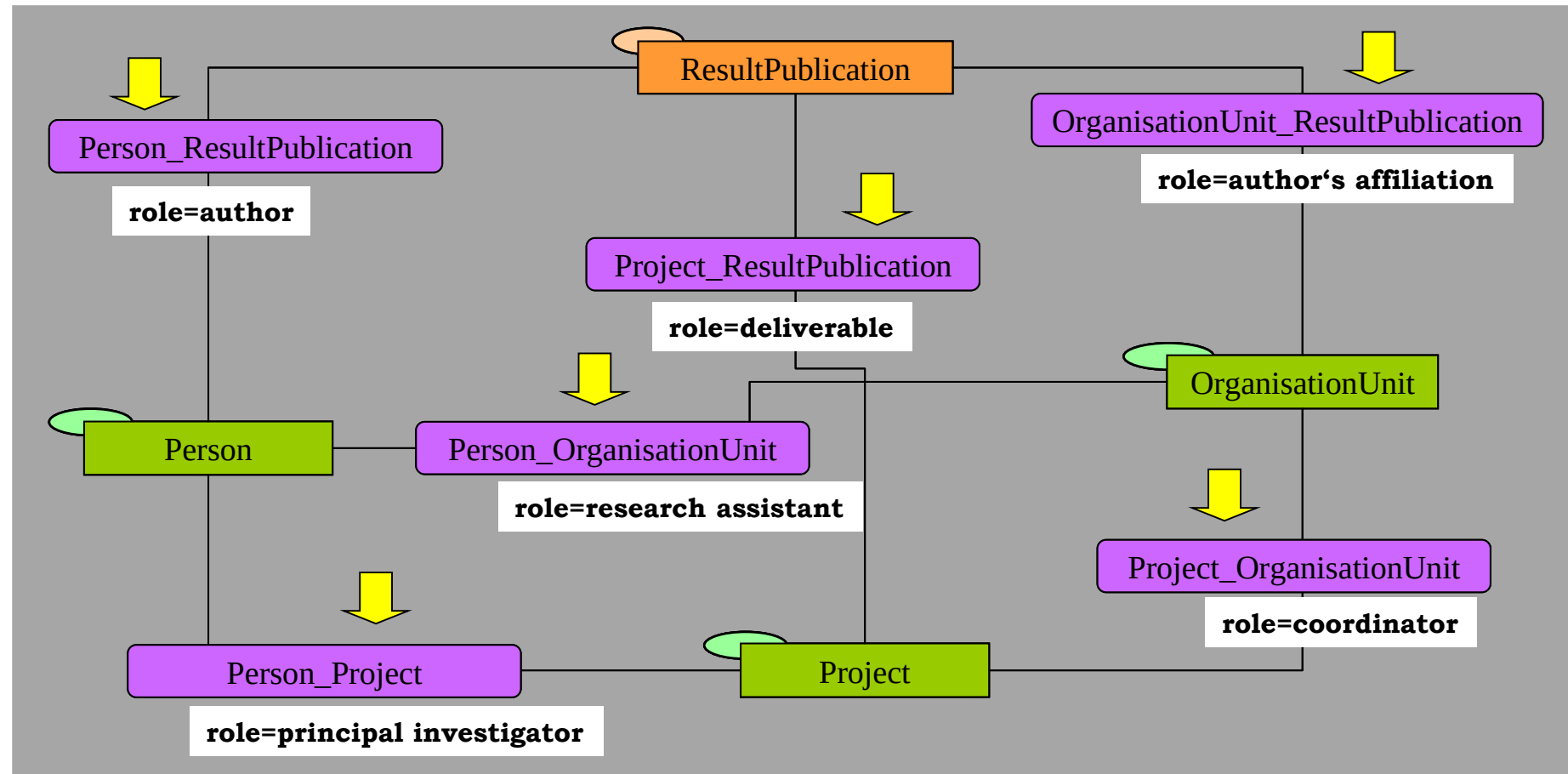
cfClass_Class			
cfClassId1	ID	NN	(PFK)
cfClassId2	ID	NN	(PFK)
cfClassSchemeld1	ID	NN	(PFK)
cfClassSchemeld2	ID	NN	(PFK)
cfClassId	ID	NN	(PFK)
cfClassSchemeld	ID	NN	(PFK)
cfFraction	Float		
cfStartDate	Timestamp(6)	NN	(PK)
cfEndDate	Timestamp(6)	NN	(PK)

cfProj_Pers			
cfProjId	ID	NN	(PFK)
cfPersId	ID	NN	(PFK)
cfClassId	ID	NN	(PFK)
cfClassSchemeld	ID	NN	(PFK)
cfFraction	Float		
cfStartDate	Timestamp(6)	NN	(PK)
cfEndDate	Timestamp(6)	NN	(PK)

INTERMEDIARY SUMMARY

On top of the “core” entities seen so far, there are in CERIF some entities representing a relation between 2 entities and its characteristics:

- some specific attributes
- a range of validity
- a fraction
- a role



What are links useful for?

They allow, for example, navigation between linked entities, when browsing metadata:

Let's look at Gateway to Research (UK) as an example.

Social Media Analysis for Social Geography

Lead Research Organisation: [Newcastle University](#)

Department Name: Computing Sciences

[Go back](#)

Overview Organisations **People** Outcomes

People

- Paul Watson (Principal Investigator)
- M Coombes (Co-Investigator)
- Paolo Missier (Co-Investigator)
- Ranald Richardson (Co-Investigator)
- Darren James Wilkinson (Co-Investigator)

Social Media Analysis for Social Geography

Lead Research Organisation: [Newcastle University](#)

Department Name: Computing Sciences

[Go back](#)

Overview **Organisations** People Outcomes

Organisations

- Newcastle University, United Kingdom (Lead Research Organisation)
- Red Hat UK (Collaboration)

Paul Watson

Newcastle University

[Go back](#)

Search within this person's projects...

Search

Reset

Start Date Funded Value End Date Relevance

CSV

25 50 100

Refine by:

£12,100,800
Oct 09 - Sep 15

[Inclusion through the Digital Economy](#)
EPSRC award to Newcastle University and Paul Watson

Funded Amount

[£100K to £1M](#) (5)

[£1M to £10M](#) (3)

[Above £10M](#) (1)

£5,577,010
Oct 13 - Oct 18

[An New Frontier in Design: The Simulation of Open Engineered Biological Systems](#)
EPSRC award to Newcastle University and Nicholas George Wright

Project Status

[Active](#) (6)

[Closed](#) (3)

£4,013,760
Oct 06 - Mar 11

[CARMEN: Code analysis, repository, and modelling for e-Neuroscience](#)
EPSRC award to Newcastle University and Colin David Ingram

Region

[North East](#) (8)

[Scotland](#) (1)

£1,301,190
Oct 13 - Sep 16

[BESiDE - The Built Environment for Social Inclusion in the Digital Economy](#)
EPSRC award to University of Dundee and Vicki Hanson

Project Category

[Research Grant](#) (9)

£981,508
Feb 12 - Jan 16

[Trustworthy Ambient Systems: Resource Constrained Ambience](#)

Newcastle University

1 Park Terrace, Newcastle Upon Tyne, Tyne and Wear, NE1 7RU, United Kingdom (North East)

[Go back](#)

Search within Newcastle University...

Search

Reset

Start Date Funded Value End Date Relevance

< 1 2 3 4 5 >

CSV

25 50 100

Refine by:

£12,100,800
Oct 09 - Sep 15

[Inclusion through the Digital Economy](#)
EPSRC award to Newcastle University and Paul Watson

Funded Amount

[Up to £100K](#) (333)

[£100K to £1M](#) (669)

[£1M to £10M](#) (124)

[Above £10M](#) (2)

£11,231,100
Jun 99 - Aug 11

[Biomarkers for nutritional intake and health](#)
MRC award to MRC Human Nutrition Research Group and Dietrich Albert Volmer

Project Status

[Closed](#) (792)

[Active](#) (336)

£9,253,540
Apr 93 - Sep 11

[The mouse atlas database project](#)
MRC award to MRC Human Genetics Unit and Richard Alan Baldock

Region

[North East](#) (907)

£8,748,090

[Evoque_e](#)
TSB award to Jaguar Land Rover Limited and Banbir Neta

The semantic layer

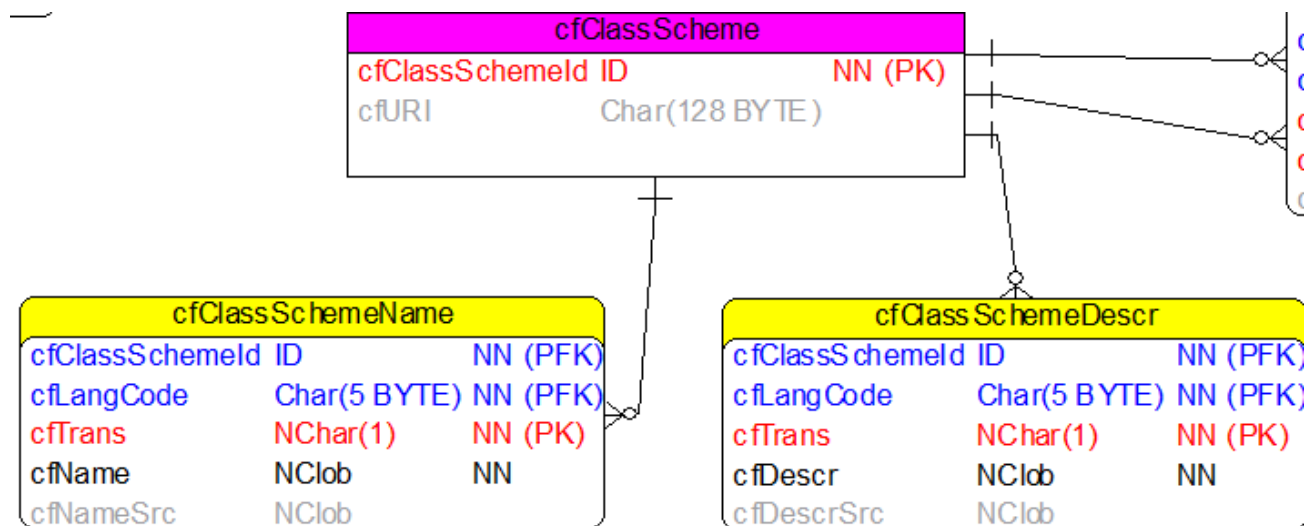
- To classify an entity, we link it to a “term”.
- To define a role in a relation between 2 entities, we define it via a “term”.
- The “authorised” terms are gathered into “schemes” or vocabularies.
- Terms in separate vocabularies can be synonyms; a vocabulary can be a subset of another,...

Vocabulary: cfClassScheme

- ID
- URI
- Name
- Description

with, for the literals:

- Language
- Translation
- Source

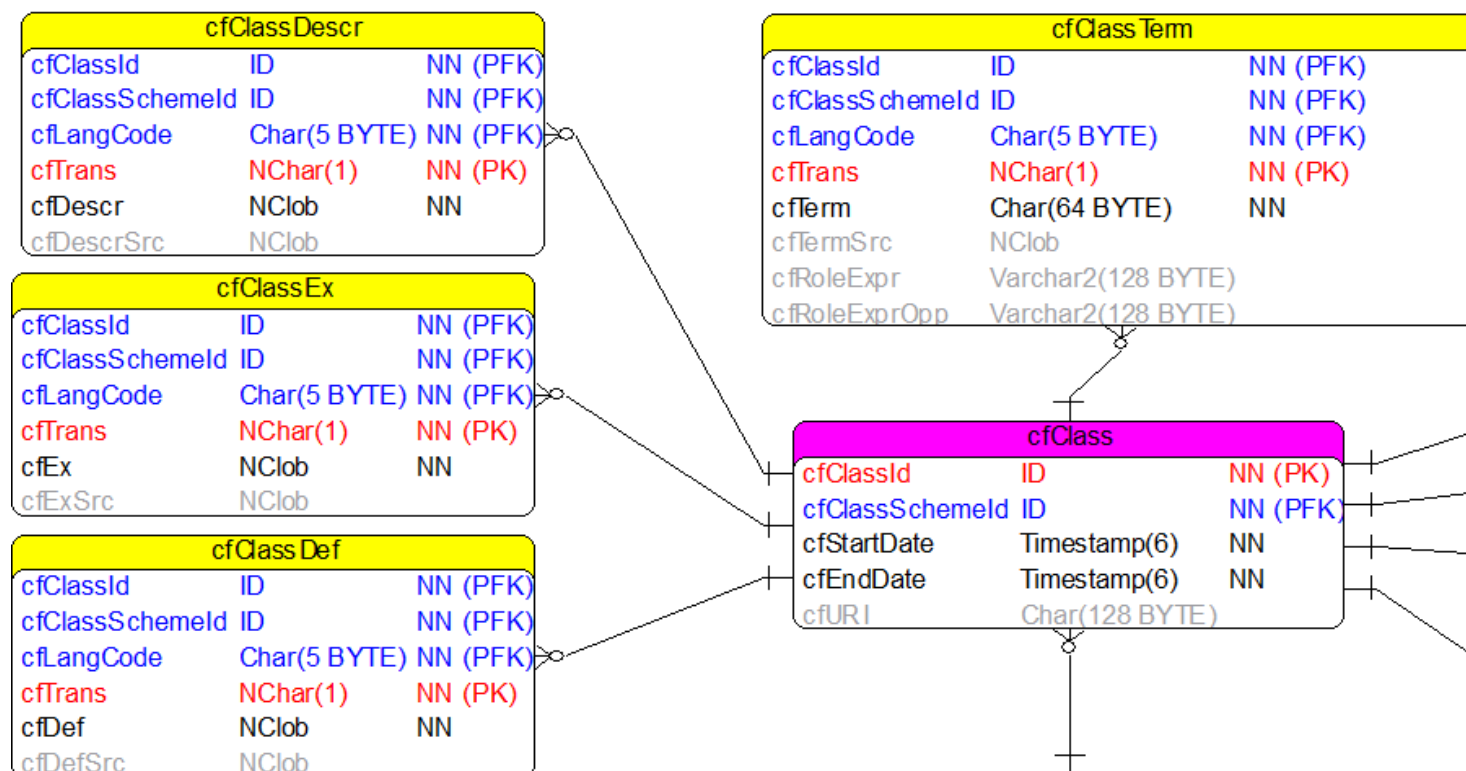


- Vocabulary it belongs to
- ID
- Start/End dates
- URI
- Term
- Description
- Definition
- Example

with, for the literals:

- Language
- Translation
- Source

Term: cfClass



Terms: cfClass

To define the role of a relation

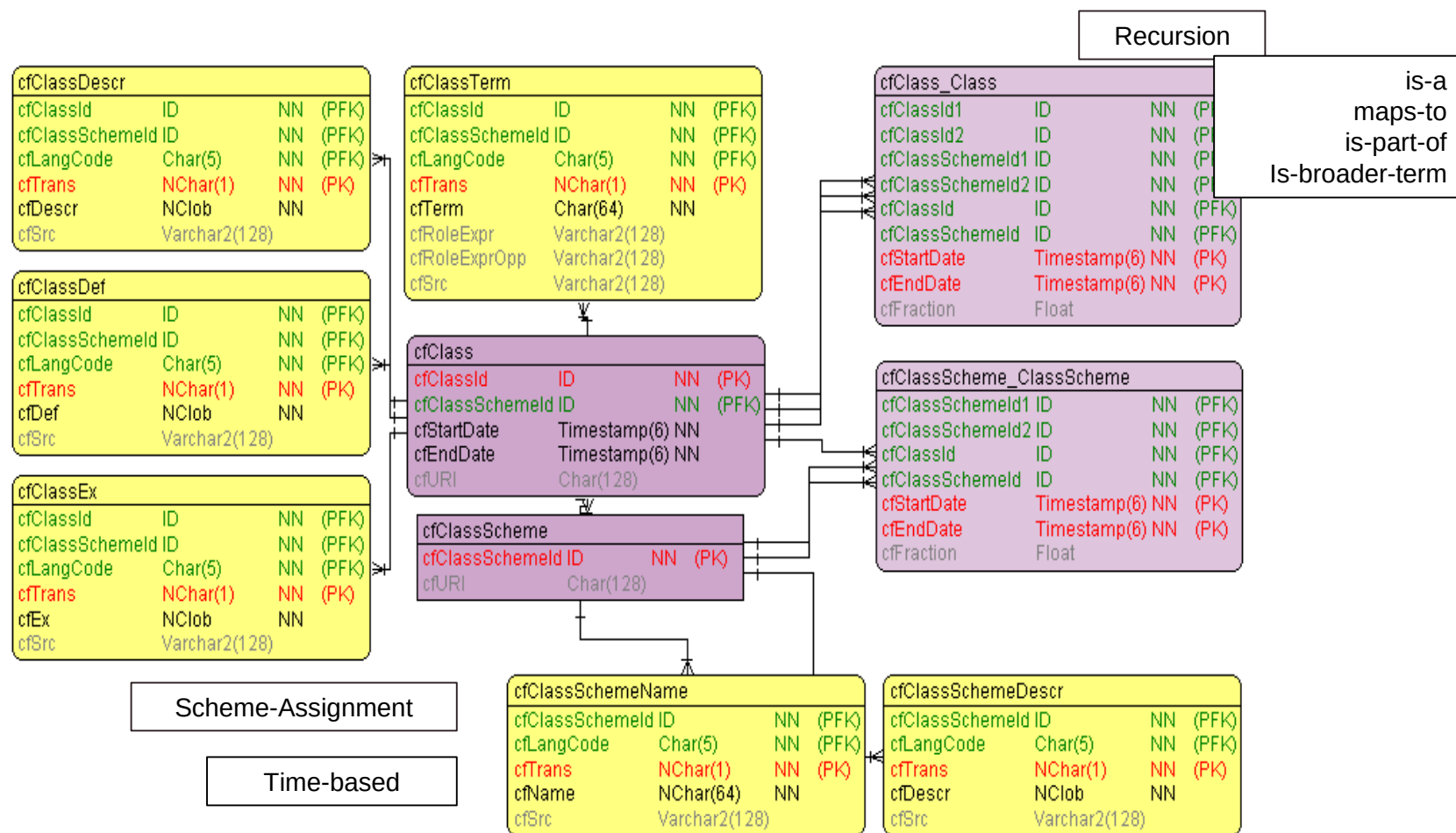
To classify an Org Unit

Vocabularies: cfClassScheme

1	cfClassification ID	cfClassification Term	cfClassificationDefinition	cfClassificationSchemeName	usage with CERIF
200	f97f3ccd-13c0-46ce-9cb3-98ebb58f39fd	Rejected	The funder rejected the proposed a	Activity Statuses	cfProj_Class
201	0bb4df81-4e9a-41ae-947c-5ae3bde26abd	Assumed Unsuccessful	The funder has not (yet) responded	Activity Statuses	cfProj_Class
202	bfcdfa1c-6d27-4012-9468-1c91cecbba45	Withdrawn	The funder has agreed to fund the p	Activity Statuses	cfProj_Class
203	276a4f0c-6729-47df-b8d3-7cd1cb3c7e67	Closed	The activity is considered complete	Activity Statuses	cfProj_Class
204	eda2b2e2-34c5-11e1-b86c-0800200c9a66	Issuer	An issuer is an institution that issues	Organisation Funding Roles; Identifier S	cfOrgUnit_Fund; cfFedId_Srv
205	eda2b2e3-34c5-11e1-b86c-0800200c9a66	Responsible	A responsible is the agent or cause;	Organisation Funding Roles; Person Res	cfOrgUnit_Fund; cfPers_Facil; cfPers_Equip; cfPers_Srv
206	eda2b2e4-34c5-11e1-b86c-0800200c9a66	Financier	Financier (pronounced /fɪnən'sɪər/,	Organisation Funding Roles	cfOrgUnit_Fund
207	eda2b2e5-34c5-11e1-b86c-0800200c9a66	Cost Center	In business, a cost centre is a divisio	Organisation Measurement Relations	cfOrgUnit_Meas
208	eda2b2e6-34c5-11e1-b86c-0800200c9a66	Funding Programme	A Funding Programme is the source	Funding Source Types	cfFund_Class
209	eda2b2e7-34c5-11e1-b86c-0800200c9a66	Call	no source found	Funding Source Types	cfFund_Class
210	eda2b2e8-34c5-11e1-b86c-0800200c9a66	Tender	A call for tenders from a funder add	Funding Source Types	cfFund_Class
211	eda2b2e9-34c5-11e1-b86c-0800200c9a66	Gift	A gift or a present is the transfer of	Funding Source Types	cfFund_Class
212	40d72109-28ba-4110-a3e9-23ecca3bb795	Internal Funding	Where the source of funding comes	Funding Source Types	cfFund_Class
213	eda2b2ec-34c5-11e1-b86c-0800200c9a66	Academic Institute	An academic institution is an educa	Organisation Types	cfOrgUnit_Class
214	eda2b2ed-34c5-11e1-b86c-0800200c9a66	University	A university is an institution of highe	Organisation Types	cfOrgUnit_Class
215	eda2b2ee-34c5-11e1-b86c-0800200c9a66	University College	The term "university college" is used	Organisation Types	cfOrgUnit_Class
216	eda2b2ef-34c5-11e1-b86c-0800200c9a66	Research Institute	A research institute is an establishm	Organisation Types	cfOrgUnit_Class
217	eda2b2f0-34c5-11e1-b86c-0800200c9a66	Strategic Research Insitute	A strategic research institute's core	Organisation Types	cfOrgUnit_Class
218	eda2b2f1-34c5-11e1-b86c-0800200c9a66	Company	A company is a form of business org	Organisation Types	cfOrgUnit_Class
219	eda2b2f2-34c5-11e1-b86c-0800200c9a66	SME	Small and medium enterprises (also	Organisation Types	cfOrgUnit_Class
220	eda2b2f3-34c5-11e1-b86c-0800200c9a66	Government	A government is the organization, o	Organisation Types	cfOrgUnit_Class
221	eda2b2f4-34c5-11e1-b86c-0800200c9a66	Higher Education	Higher education or post-secondary	Organisation Types	cfOrgUnit_Class
222	eda2b2f5-34c5-11e1-b86c-0800200c9a66	Private non-profit	An organization that is incorporated	Organisation Types	cfOrgUnit_Class

1	cfClassification SchemeId	cfClassification Scheme Name	cfClassification Scheme Description
52	759af93d-34ae-11e1-b86c-0800200c9a66	Research Infrastructure Types	This scheme contains CERIF vocabulary terms applicable in the cfEquipment_Classification, cfService_Classification, cfFacility_Classification link entities, being thus infrastructure types.
53	759af938-34ae-11e1-b86c-0800200c9a66	Output Types	This scheme contains CERIF vocabulary terms applicable in the cfResultPublication_Classification, cfResultPatent_Classification, cfResultProduct_Classification, cfEvent_Class link entities, being thus output types.
54	759af939-34ae-11e1-b86c-0800200c9a66	Organisation Types	This scheme contains CERIF vocabulary terms applicable in the cfOrganisationUnit_Classification link entity, being thus organisation types.
55	7e21f287-2c00-443b-ae61-fd9ed9e71333	Funder Types	The types of funding organisations defined by HESA: http://www.ref.ac.uk/media/ref/content/subguide/01_12a.pdf (page 11)

Relations between terms, between vocas



INTERMEDIARY SUMMARY

The semantic layer in CERIF...

...allows to capture any schema or structure:

- Flat Lists
- Thesauri
- Classification Systems (ex. SKOS, ...)
- Taxonomies
- Ontologies

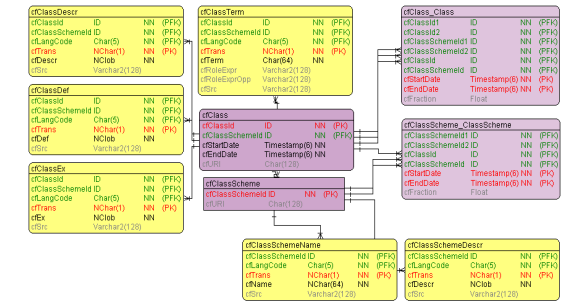
... is open and extensible in all directions

- New Schemas
- New Concepts / Terms
- New Relationships

... enables to manage

- roles and types semantics
- Subject Headings
- archiving (time component)

... allows for simple mappings between schemes



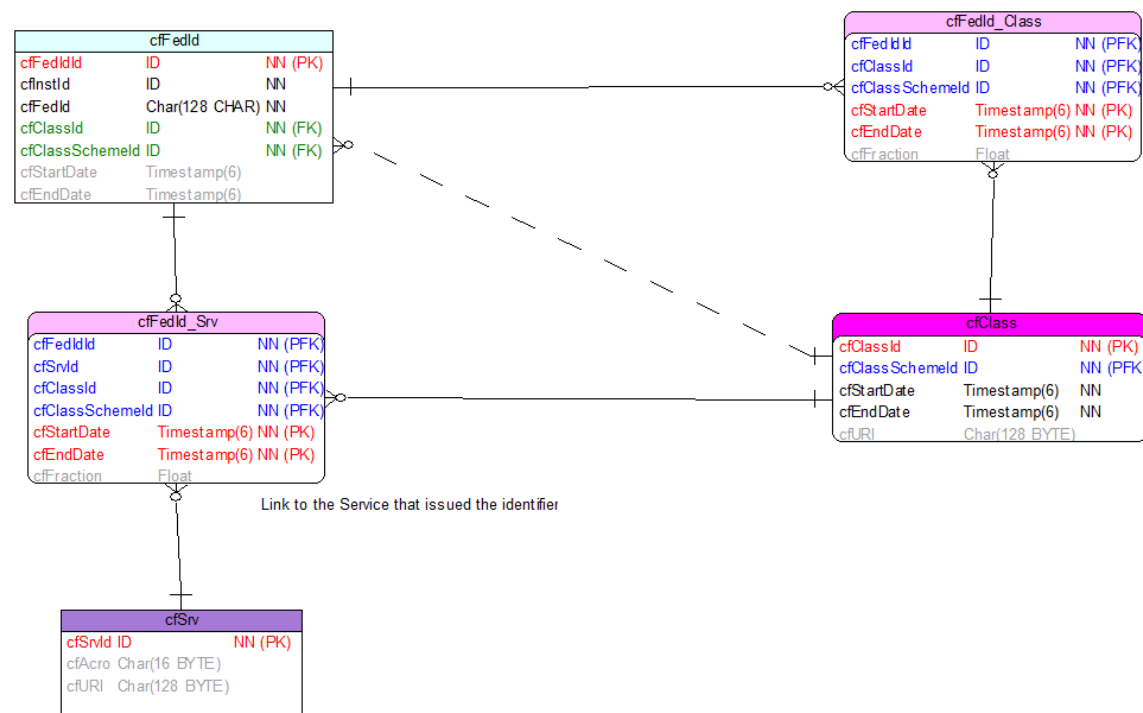
Federated Identifier: cfFedId

Many identifiers exist:

- ResultPublication
 - ISBN
 - ISSN
 - DOI
 - WoS Accession Number
 - Scopus EID
 - PubMed Central ID
- Person
 - Social Security Number
 - Staff Id in HR system
 - Author identifier
 - ORCID
 - IdRef
- Project/Grant
 - Funder's reference number
 - Organisation's reference number
- Organisation
 - VAT Identification Number
 - Internal Code
 - FundId
- Classification
 - External Code

A dedicated entity, cfFedId, is responsible for storing the set of identifiers for a record, by keeping:

- which entity it is about (cfClassId, cfClassSchemeld)
- the primary key identifying the record (cfInstId)
- the relevant identifier
- optionally, the service that issued this identifier



Measures and indicators



- economic and commercial
- economic
- impact on business

Measures

- improving performance of existing businesses

- increased turnover
- time savings
- reduced costs

by 1.2M€ in 2012
of 14.56%
by 42%

- new products/processes
- creating numbers of new products/services
- commercialising / other success measures

Indicators

Extract from the MICE List of Indicators

GLOBAL SUMMARY ON CERIF

- A conceptual model
- A storage format
- Several exchange formats
- Covers the main concepts of Research
- As well as Indicators and Measures
- Multilingual
- Extensible semantic layer
- Federated Identifier
- Time-based traceability

Last developments

CERIF Profiles

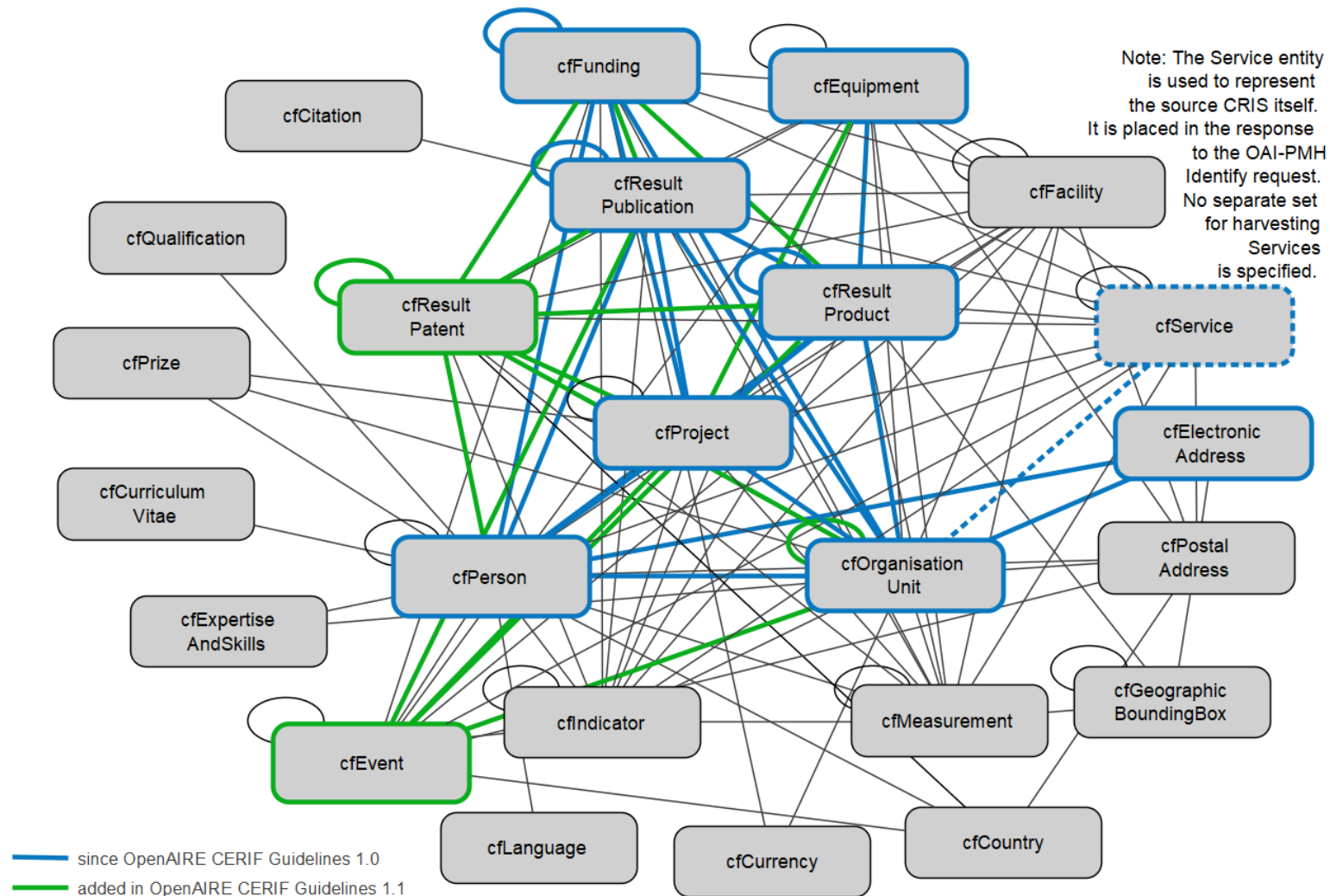
- Entities & attributes:
 - Profile $\subset$ CERIF
- Semantic vocabularies:
 - Profile – more specific
 - Sources: CERIF & beyond
- Integrity constraints:
 - Profile $\supset$ CERIF

Profile data is
CERIF

Producers know
what to include

Consumers know
what to expect

Subset of CERIF entities



<Publication xmlns="https://www.openaire.eu/cerif-profile/1.1/" id="852734">

<Type xmlns="https://www.openaire.eu/cerif-profile/vocab/COAR_Publication_Types">http://purl.org/coar/resource_type/c_6501<!-- journal article --></Type>

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<PublishedIn>

<Publication id="893204">

<Type scheme="https://www.openaire.eu/cerif-profile/vocab/COAR_Publication_Types">http://purl.org/coar/resource_type/c_0640<!-- journal --></Type>

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<Identifier type="https://www.openaire.eu/cerif-profile/vocab/IdentifierTypes#EISSN">1558-5646</Identifier>

<Publishers>

<!-- [...] -->

</Publishers>

</Publication>

</PublishedIn>

<Volume>66</Volume>

<Issue>5</Issue>

<StartPage>1474</StartPage>

<EndPage>1489</EndPage>

<Identifier type="https://www.openaire.eu/cerif-profile/vocab/IdentifierTypes#DOI">10.1111/J.1558-5646.2011.01539.X</Identifier>

<!-- [...] -->

</Publication>

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<!-- [...] -->

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<Author>

<Person>

<PersonName>

<FamilyNames>Singhal</FamilyNames>

<FirstNames>Sonal</FirstNames>

</PersonName>

</Person>

<Affiliation>

<OrgUnit id="301248">

<Name xml:lang="en">Museum of Vertebrate Zoology</Name>

<PartOf>

<OrgUnit id="329384">

<Name xml:lang="en">University of California, Berkeley</Name>

</OrgUnit>

</PartOf>

</OrgUnit>

</Affiliation> <!-- [...] -->

</Author> <!-- [...] -->

</Authors>

<!-- [...] -->

</Publication>

<Publication xmlns="https://www.openaire.eu/cerif-profile/1.1/" id="852734">

<!-- [...] -->

<Keyword xml:lang="en">hybrid zones</Keyword>

<Keyword xml:lang="en">phylogeography</Keyword>

<Abstract xml:lang="en">Phenotypically cryptic lineages comprise an important yet understudied part of biodiversity;
<!-- [...] --></Abstract>

<References>

<Product id="729487">

<Type xmlns="https://www.openaire.eu/cerif-profile/vocab/COAR_Product_Types">http://purl.org/coar/resource_type/c_ddb1<!-- dataset --></Type>

<Name xml:lang="en">Data from: Strong selection against hybrids maintains a narrow contact zone between morphologically cryptic lineages in a rainforest lizard</Name>

<VersionInfo xml:lang="en">1</VersionInfo>

<Identifier type="https://www.openaire.eu/cerif-profile/vocab/IdentifierTypes#DOI">10.5061/DRYAD.4GH6HF5G</Identifier>

<!-- [...] -->

</Product>

</References>

</Publication>

CERIF development

By the CERIF Task Group of euroCRIS

Adopting open-source software projects
tools & best practices:

→ <https://github.com/EuroCRIS/CERIF-DataModel>

→ CC BY license

Two branches:

- master: latest official release (1.6.1)
- develop: on-going development



Thank you!
Questions?

**TO CONTACT
ME:**

 vbrasse@is4ri.com
 [@valcas2000](https://twitter.com/valcas2000)
 +33 695 025 600
 is4ri.com (website)
 sometec.eu (blog)