

Data Model for the Collaboration of LASs and IACS/LPISs

- integrating LCM and LADM -

LPIS Workshop 17-18 September 2008, Sofia, Bulgaria

September 22, 2008

1

Overview

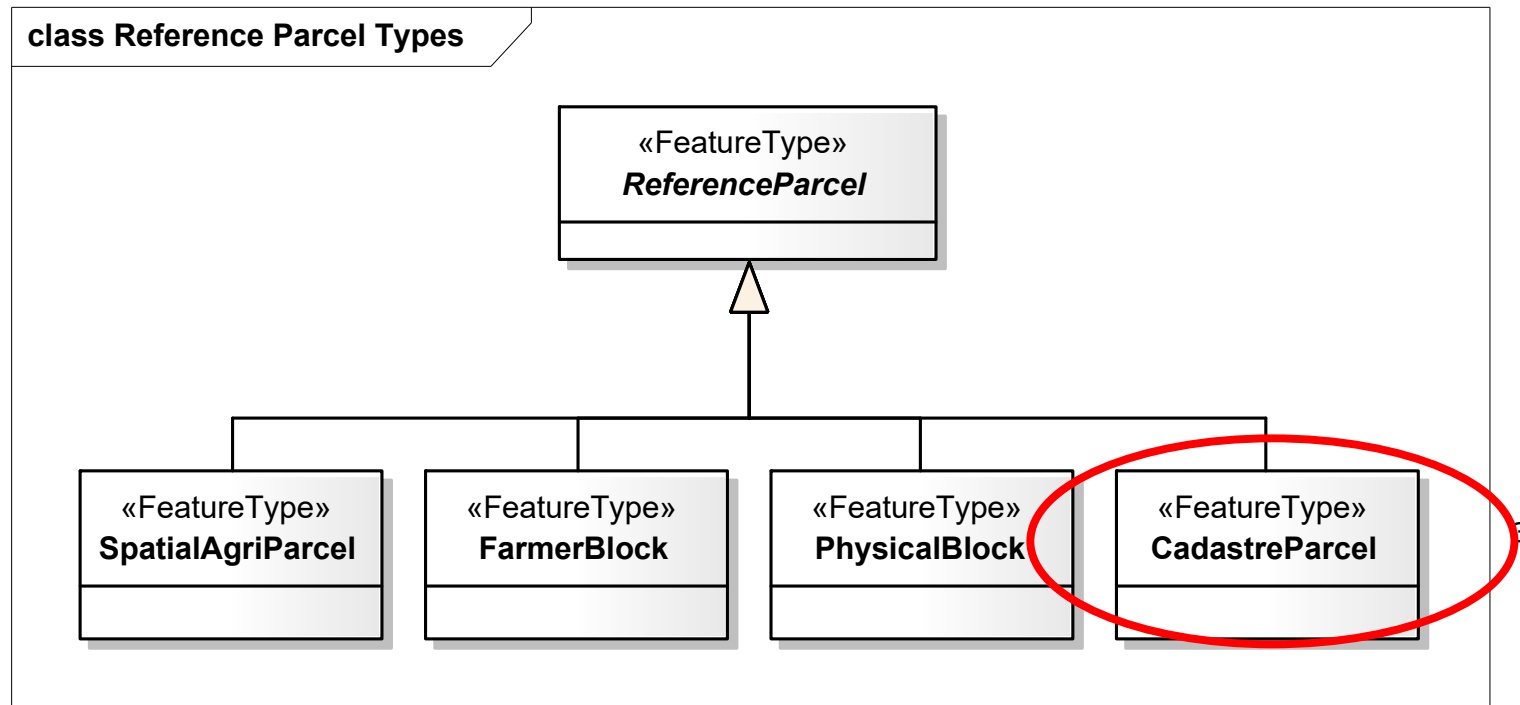
1. Motivation
2. Model integration
3. Conclusion

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Motivation

- Common Agricultural Policy (CAP) of EU with Integrated Administration and Control System (IACS), including LPIS
- Further explore the 1 of the 4 types of ReferenceParcels
- Use ISO 19152 (WD) LADM to refine this part



Some reflections on Rural Land Administration/Management

- Different LASs
 - History and Social structure
 - Fiscal and/or Legal purposes
 - Coordinated by different Organisations
 - Different content & technology use
- Different LPISs
 - Dependant on LAS or not
 - **Reference parcels** (Agricultural, Farmer or Physical)
 - Use of Digital Ortho Photo/Imagery Products
 - Use of Large Scale Topographic Maps

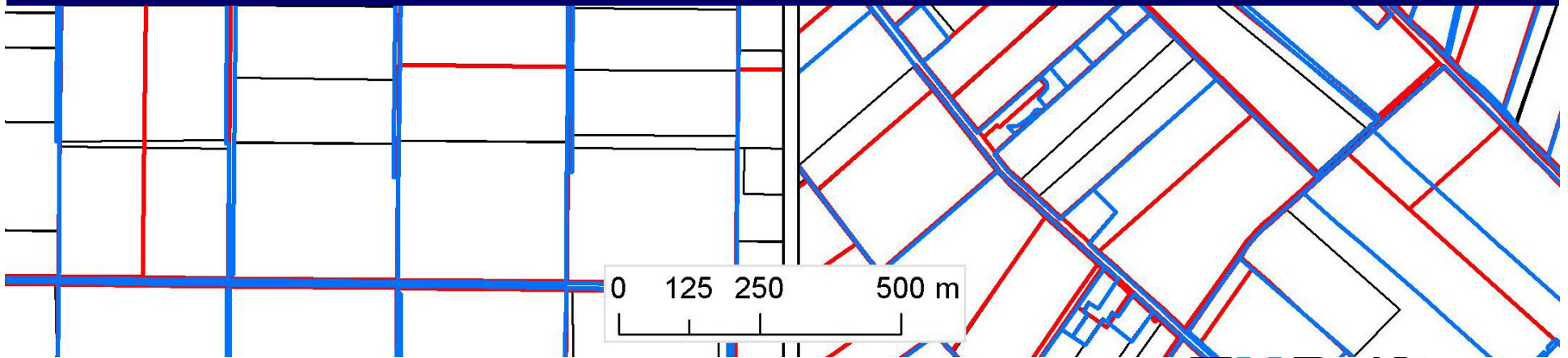
Possible Collaborations

- Full Integration
 - Physical integration or distributed system
 - No data redundancy
- Sharing Data at a Certain Extent (acceptable), SII
- Sharing a System Development Pattern (at least), MDA

The Relation Between LAS & LPIS

Geometry Overlap; Case Study in the NL

- Study Areas
 - NO-Polder (400 km², 9300/4500 agri./ref. parcels)
 - Newly established area
 - With even shaped landscapes
 - Twente (1000 km², 43.000/44.000 agri./ref. parcels)
 - An old area
 - With complex shaped landscapes



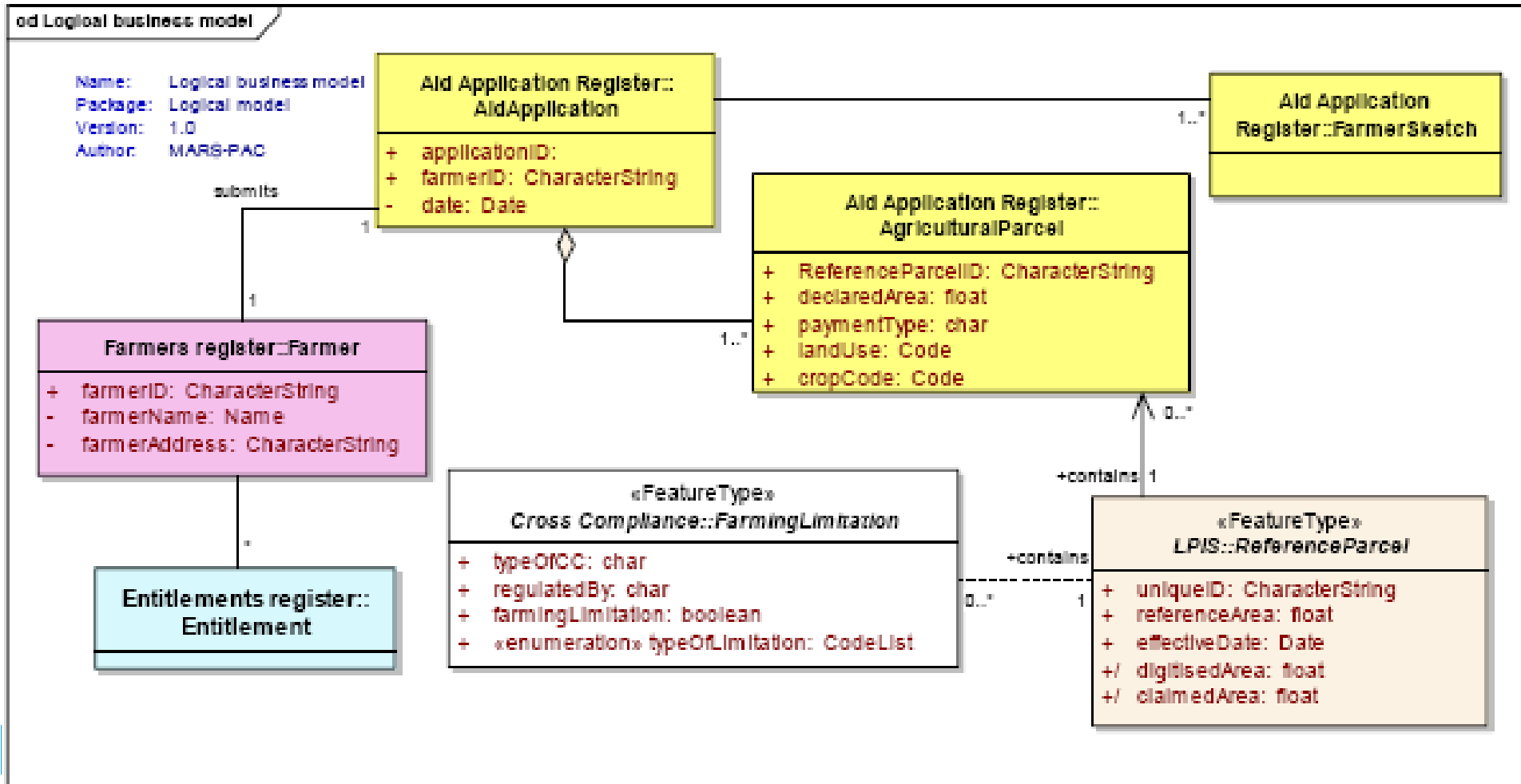
The Relation Between LAS & LPIS

Geometry Overlap; Results

Boundary Overlap

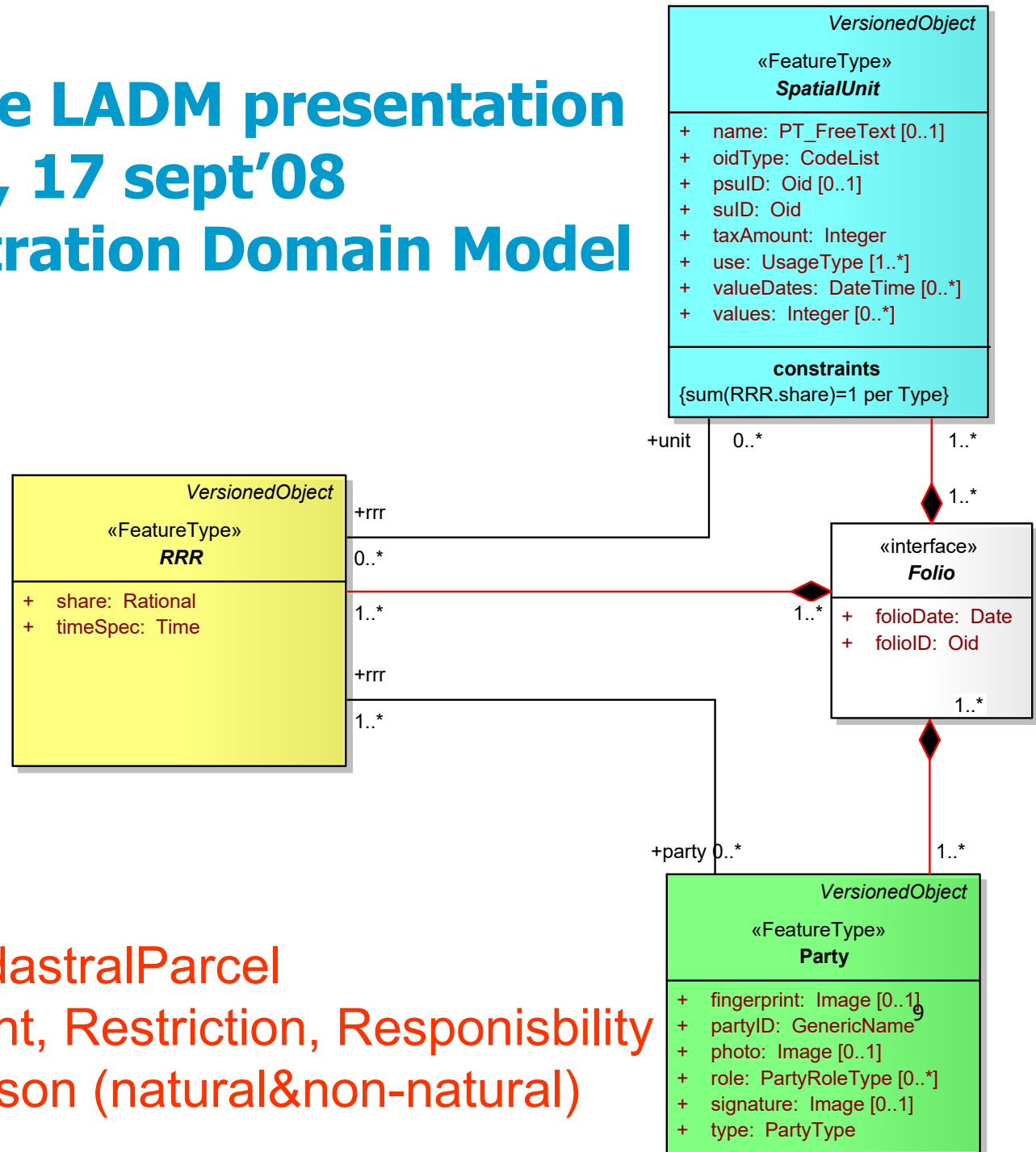
		Intersection		with Agricultural Parcels				with Reference Parcels			
		Tolerance		1m	2m	3m	5m	1m	2m	3m	5m
	NO-Polder	any	km %	1479 23	2140 33	2449 38	2715 42	1530 35	2259 51	2556 58	2792 63
		> 100m	km %	1408 22	2092 33	2412 38	2678 42	1425 32	2166 49	2471 56	2693 61
	Twente	any	km %	7146 33	11407 53	12908 59	13408 62	5800 25	10803 48	12721 57	12815 57
		> 100m	km %	5479 25	9723 45	11228 52	11271 52	4212 19	8956 40	10825 48	10295 46

IACS/LPIS Core Model; see LCM presentation Sagris, 17 sept'08



ISO 19152, see LADM presentation van Oosterom, 17 sept'08

Land Administration Domain Model



Legend:

SpatialUnit =CadastralParcel
RRR =Right, Restriction, Responisbility
Party =Person (natural&non-natural)

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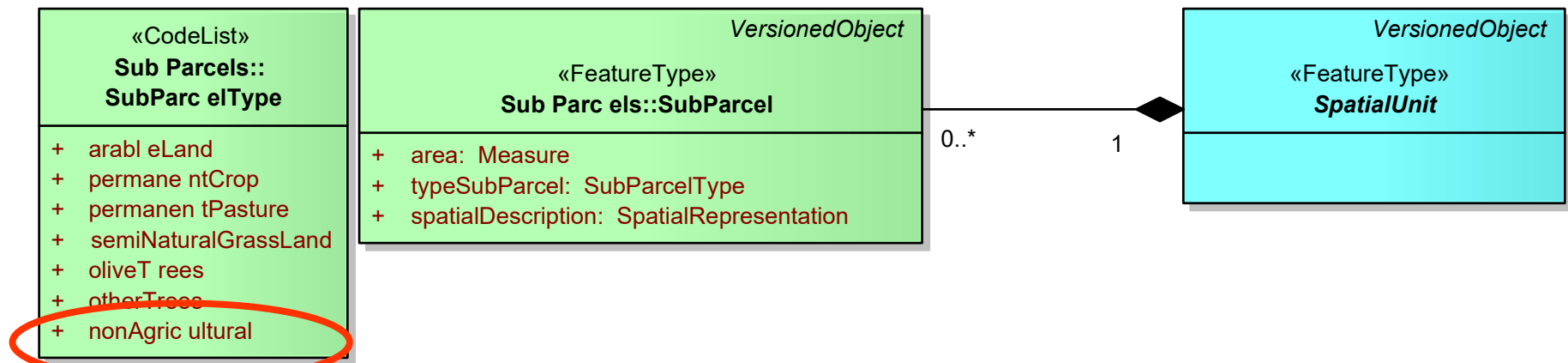


The glue between LCM and LADM

DeclaredAgriParcel and SpatialUnit

- Only relevant part of cadastral parcel (SpatialUnit) is used as reference parcel Æ modeled via new SubParcel

class Land Use/Cover Types

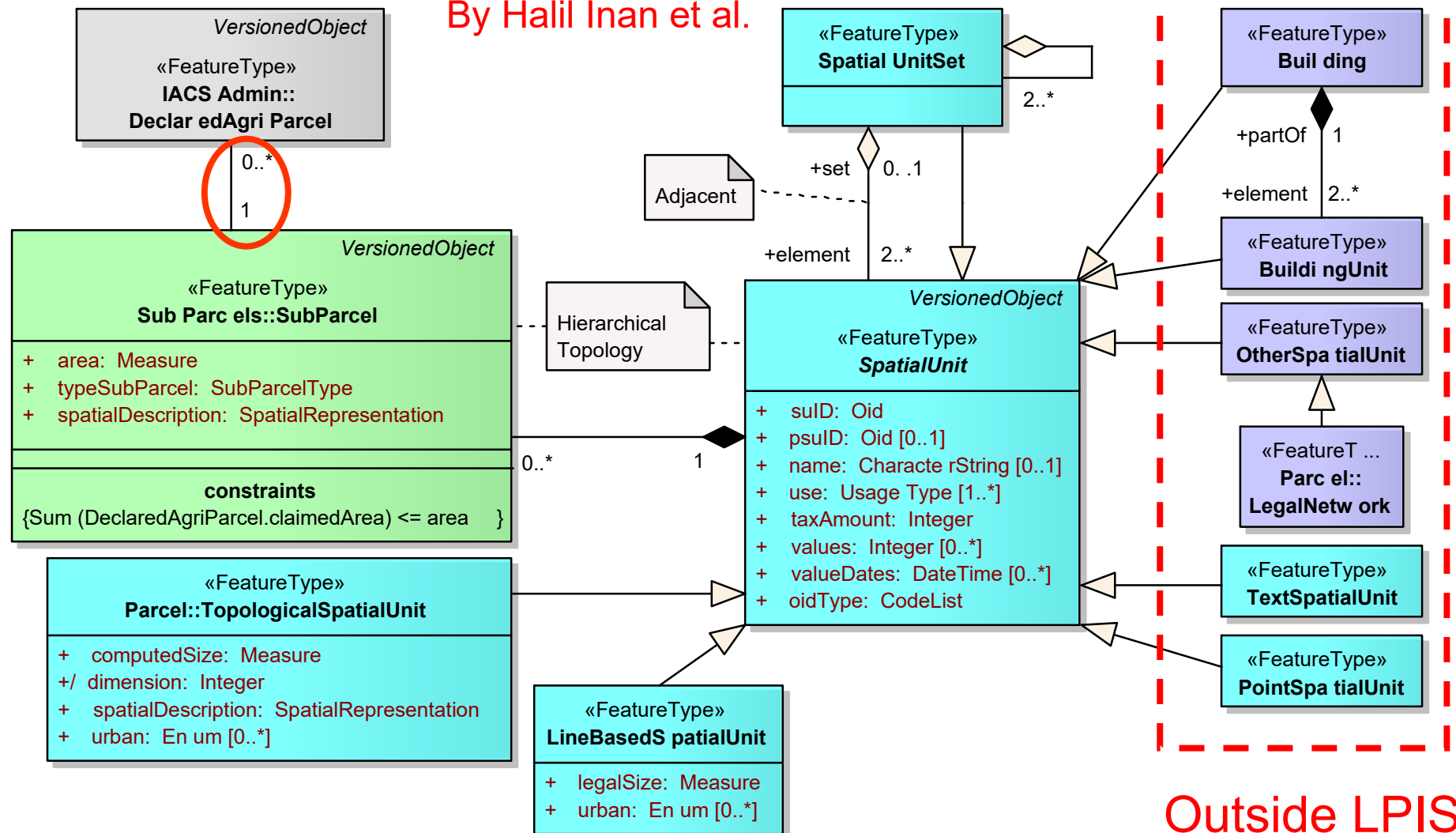


Excluded

Only area SpatialUnits (Parcel) relevant

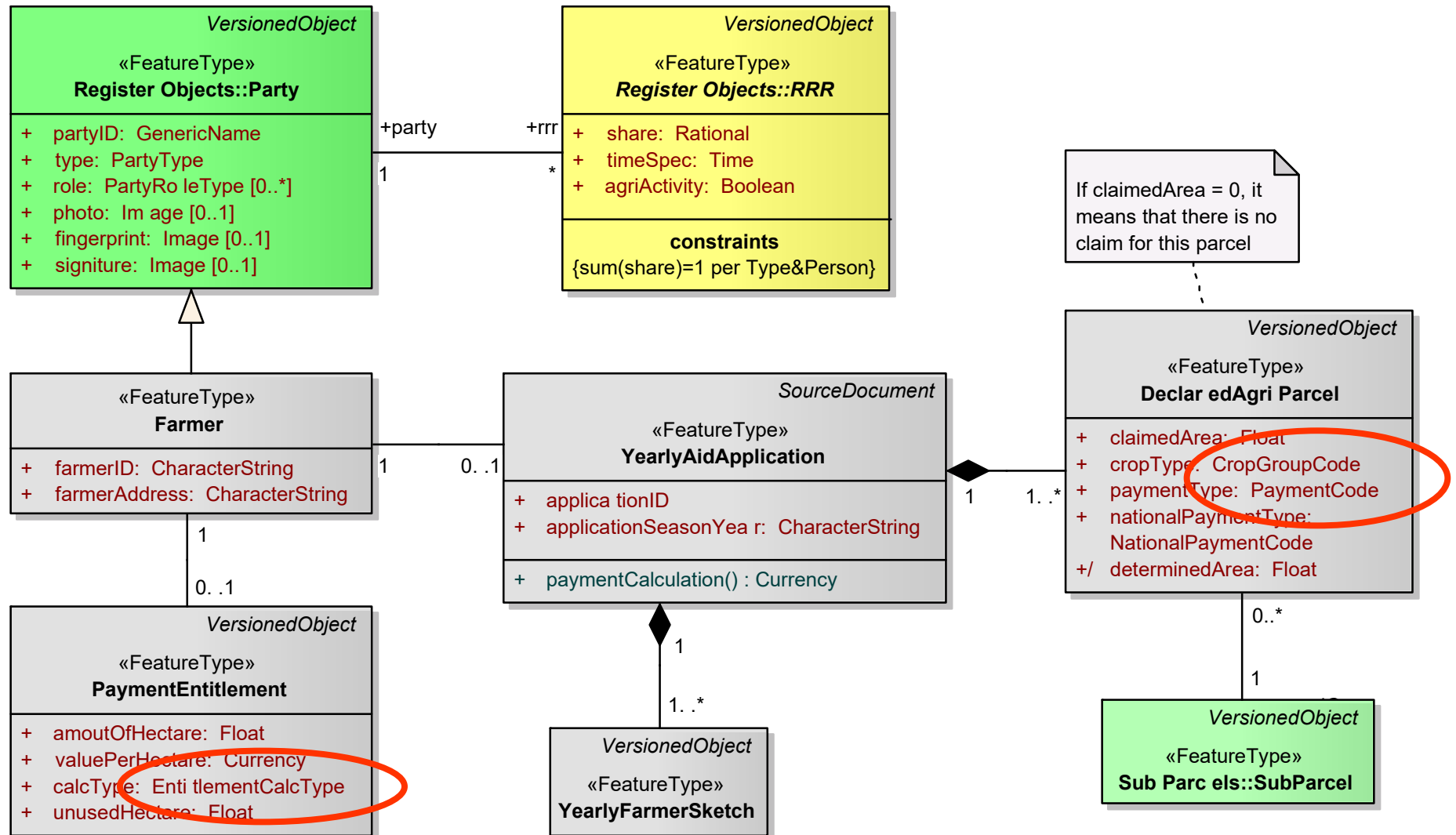
class LADM - IACS/LPIS Spatial Classes

By Halil Inan et al.



Admin side (mainly IACS/LPIS)

class LADM - IACS/LPIS Administrative Classes



Some admin model details

- Farmer inherits from Party
- YearlyAidApplication inherits from SourceDocument and has 2 components: YearlyFarmerSketch (1..*) and DeclaredAgriParcel (1..*)
- Code lists used

class Code Lists for Administrative Classes

«CodeList» PaymentCode
+ SP S
+ set-a-side
+ durumWheat
+ protei nCrop
+ ri ce
+ nuts
+ energyCrops
+ starchPotato
+ arableCropsRegionalAid
+ arableCropsAreaPayment
+ seeds

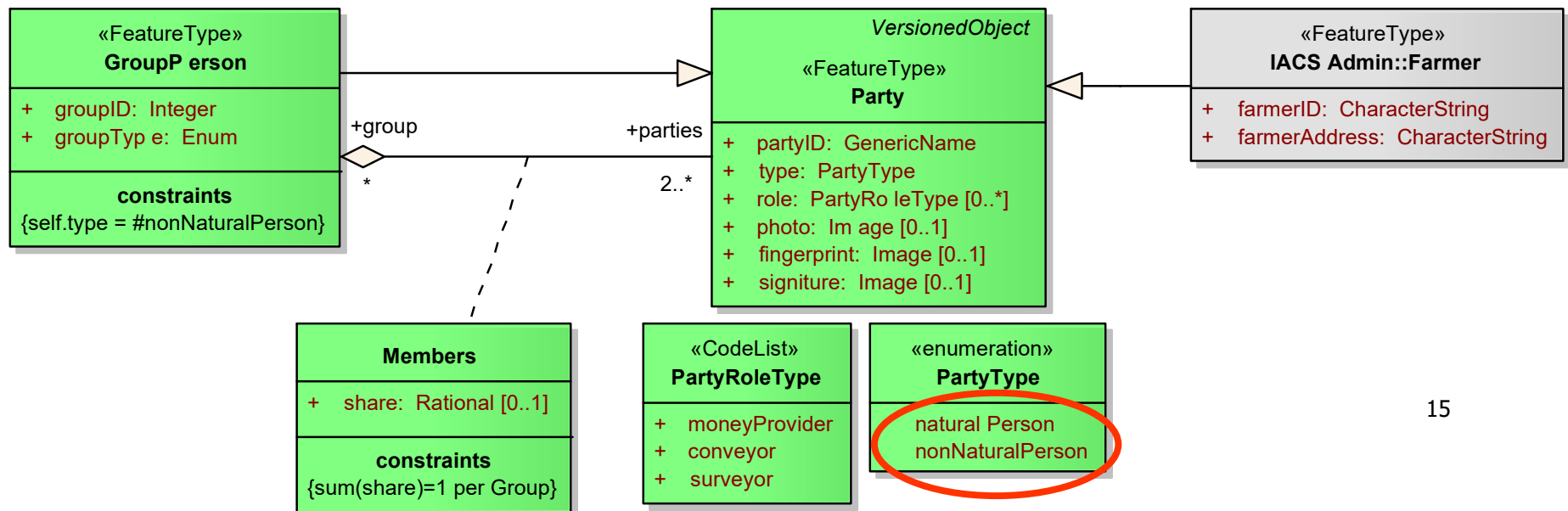
«CodeList» CropGroupCode
+ noCrop
+ wheat
+ ry e
+ barley
+ oats
+ vines
+ starchPatatoes
+ linseed
+ .. .

«enumeration» EntitlementCalcType
singleFarmPayment
regionSingleFarmPayment
combin ation

Attention to the Farmer in the model

- Farmer in article 2 of Regulation EC No 1782/2003: natural or legal person or group of natural or legal persons
- Farmer gets to additional attributes: farmerID, farmerAddress

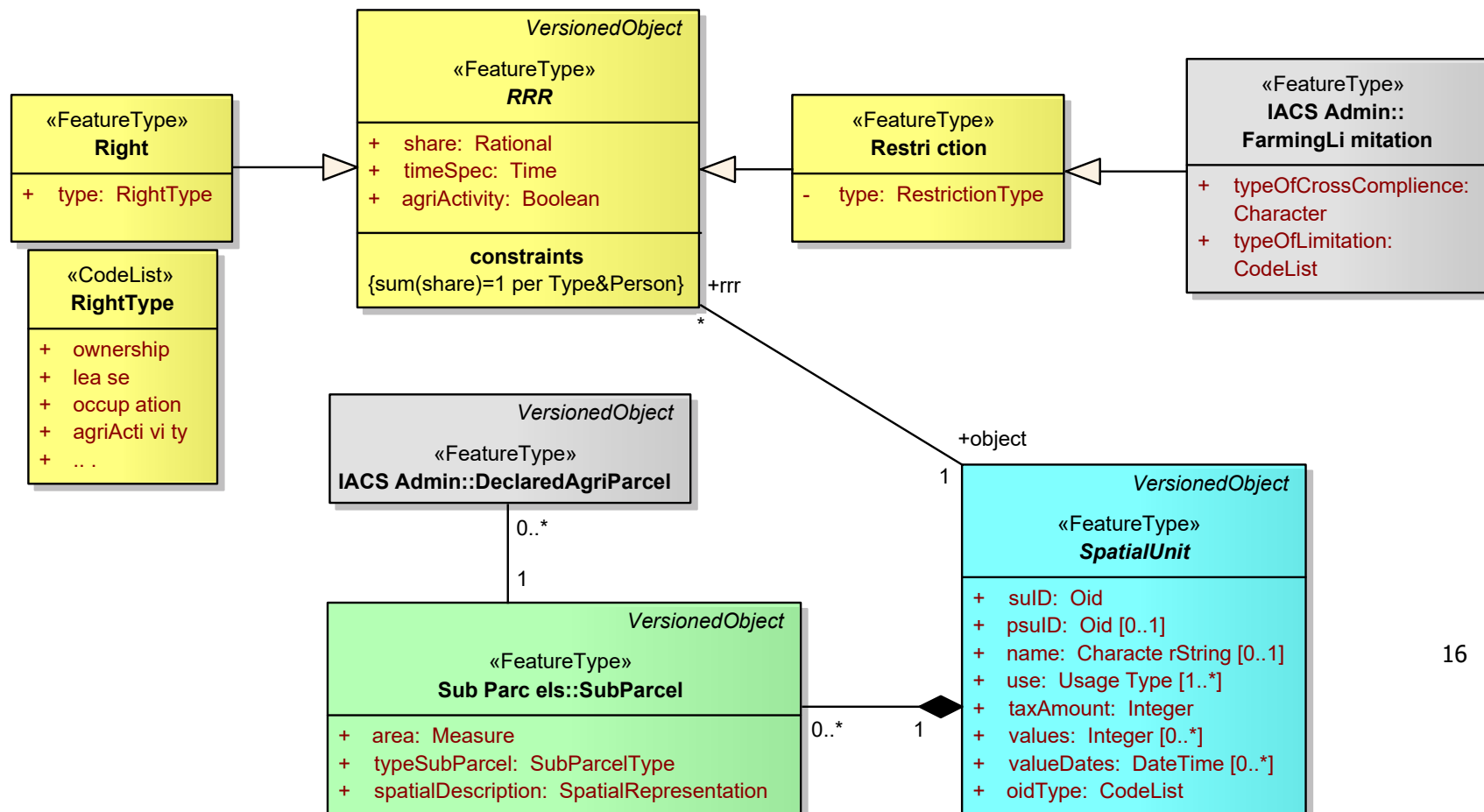
class Farmer as a kind of Person



LADM: Farming rights and restrictions

- This right is different from the IACS/LIPS 'right to be paid' (entitlement)
- FarmingLimitations due to cross compliance

class Aid Application and RRR relation



Conclusion

- Multi-purpose cadastre may serve LPIS (in case cadastral parcel is used as reference parcel)
- Integrated approach may be implemented in distributed manner (each doing a part) via SII
- Proposed model is still generic and may need refinement to be adapted for specific country
- In case the cadastral parcels do systematically not coincide with real world land use integration is not useful for LPIS, but one could doubt the usefulness of such a cadastre for every application
- Integrated LCM/LADM model proposed as informative annex F to ISO 19152

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