CRD IV XBRL Taxonomy Introduction
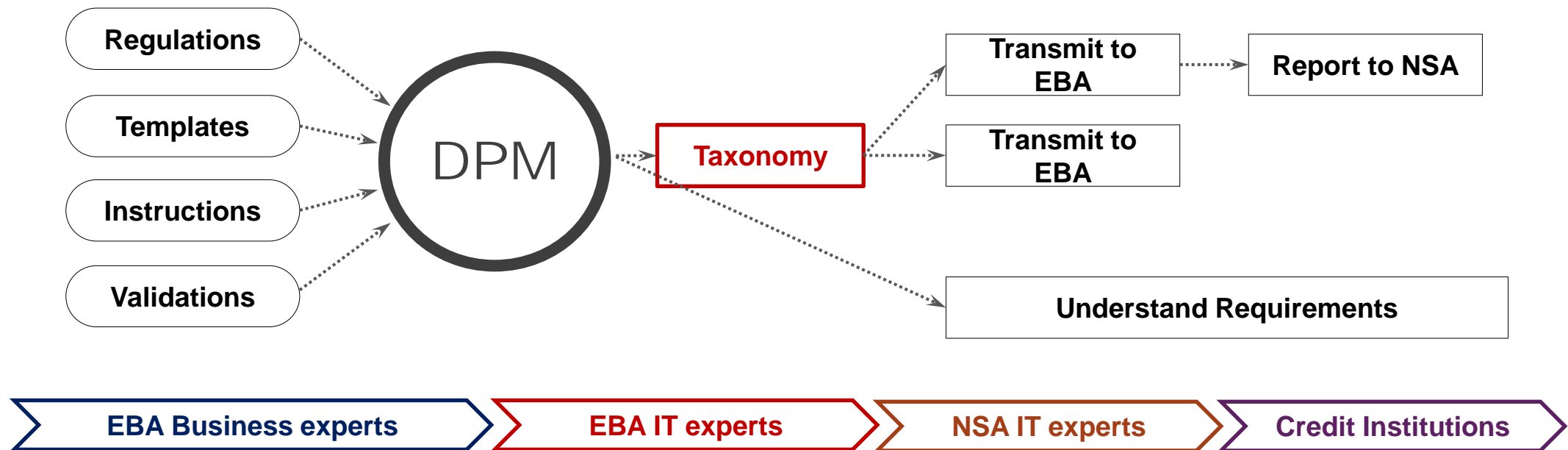
Owen Jones | CRR Taxonomy Project EBA

EBA XBRL Taxonomy

Primary purpose: For data exchange from NSAs to EBA

Regulations

Templates

Instructions

Validations

DPM

Taxonomy

Transmit to EBA

Transmit to EBA

Report to NSA

Understand Requirements

EBA Business experts | EBA IT experts | NSA IT experts | Credit Institutions

Many NSAs will use substantially the same for 1st level reporting

Data Point Model driven

Taxonomy is produced by an automated process

Directly from the DPM Database

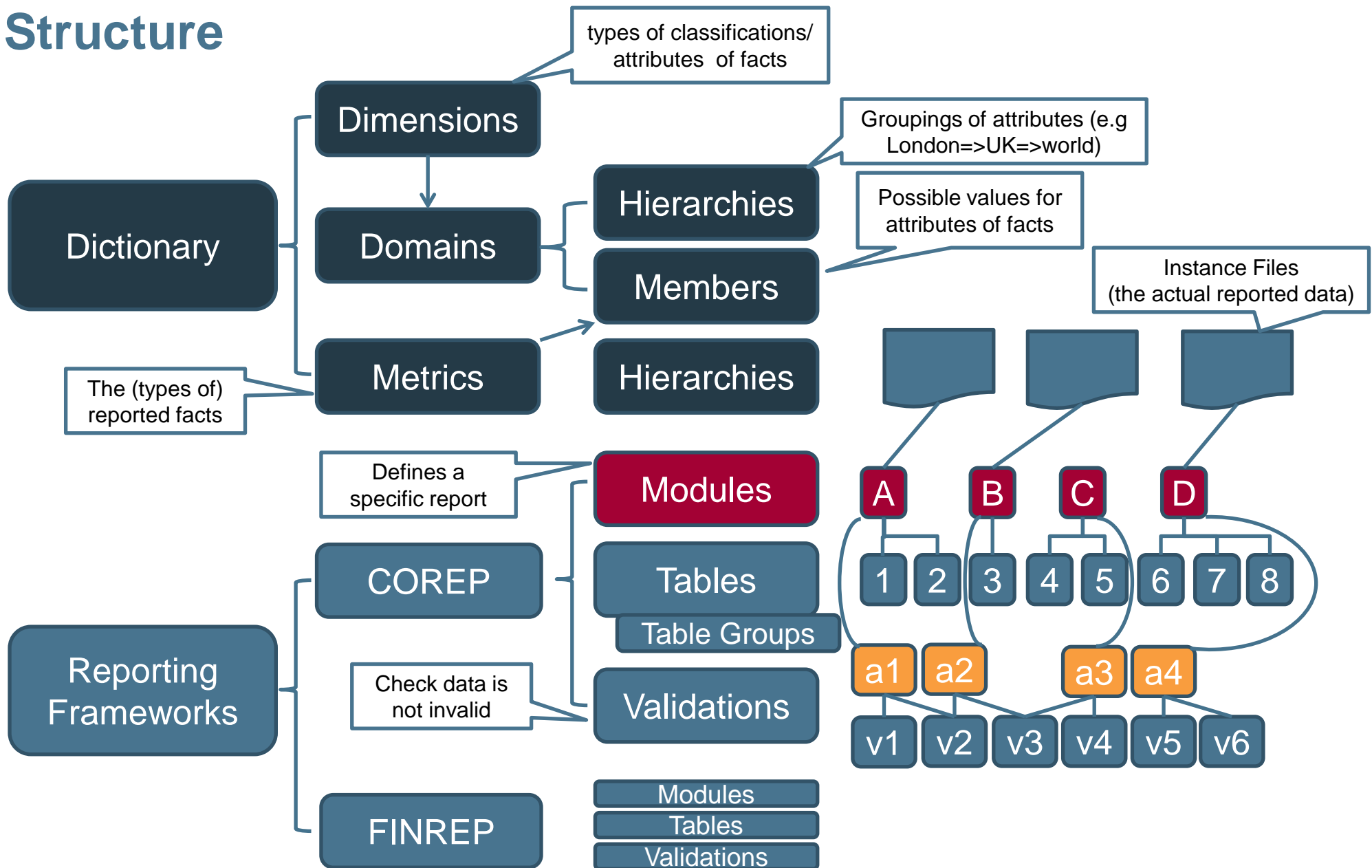**No intervention or manual editing**

Testing and feedback on taxonomy

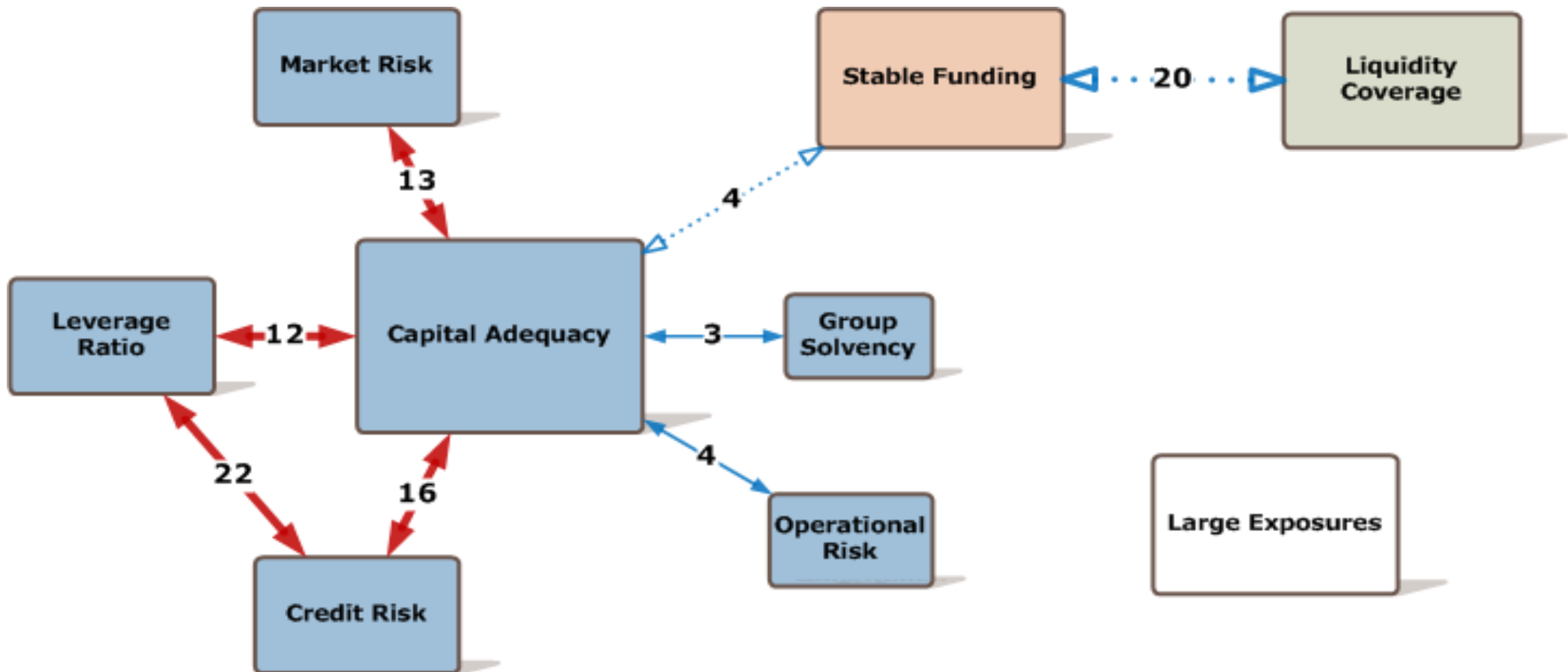**=> change to mapping approach**

If issues noticed with the DPM:

- **Reported to subject experts**
- **Experts change the DPM**
- **Taxonomy regenerated**

Structure

types of classifications/ attributes of facts

Dimensions

Groupings of attributes (e.g London=>UK=>world)

Dictionary

Domains

Hierarchies

Possible values for attributes of facts

Members

Instance Files (the actual reported data)

The (types of) reported facts

Metrics

Hierarchies

Defines a specific report

Modules

| A | B | C | D |

COREP

Tables

Table Groups

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Check data is not invalid

Reporting Frameworks

Validations

| a1 | a2 | a3 | a4 |

| v1 | v2 | v3 | v4 | v5 | v6 |

FINREP

Modules
Tables
Validations

CoRep Modules
4 major groupings of subjects => 4 separate reports ("instances")

(Indicates numbers of validation rules and shared data points linking reporting areas)

The XBRL entry points/modules (Jan 2014)

COREP

FINREP

COREP

Capital Adequacy
Group Solvency
Credit Risk
Operational Risk
Market Risk
Leverage Ratio

LE

Large Exposures

LCR

Liquidity Coverage

NSFR

Net Stable
Funding Ratio

FINREP

Part 1
Part 2
Part 3
Part 4

Filing Indicators

- Instance files must contain XML Tuples indicating which templates are reported

```
<find:fIndicators>
    <find:filingIndicator contextRef="c1">
            C_26.00
    </find:filingIndicator>
    <find:filingIndicator contextRef="c1">
            C_27.00
    </find:filingIndicator>
</find:fIndicators>
```

Remittance Control

- Filing Indicators allow **any** subset of templates to form an XBRL-valid file
- Only validations appropriate to the declared templates will be checked
- XBRL layer is "Flexible" rather than "Prescriptive"
- Reporters and receivers must ensure templates indicated are as required

	Reporter A	Reporter B	Reporter C
CA 1	■	■	
CA 2	■	■	■
CA 3	■	■	
CA 4	■		
CA 5.01	■	■	■
CA 5.02	■	■	
GS	■		■
CR SA	■		
CR IRB 1	■		
CR IRB 2	■		
CR GB 1		■	
CR GB 2		■	

Tables vs Templates

- **The DPM approach models the properties of rows and columns**
- **Unfortunately, in some ITS templates, the rows or columns change meaning part way through the table, which the DPM methodology (and XBRL Table linkbase) cannot cope with**

→ **we split the "template" into multiple "tables"**

- **Examples**
  - C 52.00 → C_52.00.a, C_52.00.b, …, C_52.00.e
  - C 45.00 → C_45.00.a, C_45.00.b

Row	ID	Item	Amount	Outflow				
				010	020	030	040	050
020-1370	1	**OUTFLOWS**						
020-100	1.1	**retail deposits**						
020-040	1.1.1	covered by a Deposit Guarantee Scheme in accordance with Directive 94/19/EC or an equivalent deposit guarantee scheme in a third country						
020	1.1.1.1	part of an established relationship making withdrawal highly unlikely						
030	1.1.1.2	held in transactional accounts, including accounts to which salaries are regularly credited						
...	...	...						

Row	ID	Item	Market value	Where the counterparty is not a central bank				
				extremely high liquidity and credit quality assets		high liquidity and credit quality		other liquidity and credit quality
				Amount due	Value according to Art. 418 CRR	Amount due	Value according to Art. 418 CRR	Amount due
120-950	1.2.2	**Liabilities resulting from secured lending and capital market driven transactions as defined in Article 192:**						
120-190	1.2.2.1	Other transferable assets representing claims on or guaranteed by						
120-130	1.2.2.1.1	transferable assets representing claims on or guaranteed by the central government of a Member State, a region with fiscal autonomy to raise and collect taxes, or of a third country in the domestic currency of the central or regional government, if the institution incurs a liquidity risk in that Member State or third country that it covers by holding those liquidity assets						
120	1.2.2.1.1.1	representing claims						
130	1.2.2.1.1.2	guaranteed by						

Multiple-choice values (Enumerations)

- **Several table cells should be reported as one of a set of values**
  - e.g. Group structure relationship = Associates or Joint ventures or Subsidiaries)
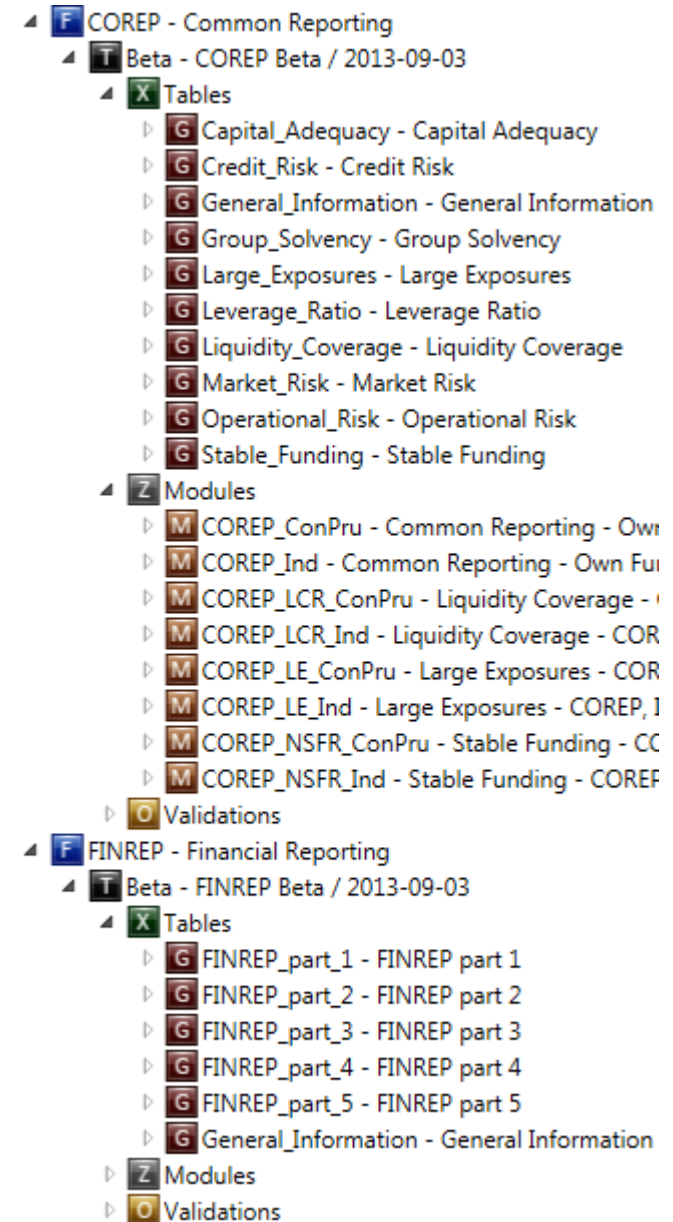
  IN XBRL

- **Values listed as domain members**

- **Metrics implemented with "QNameItem" datatype**

Enumerations in XBRL

- **XBRL does not currently have a standard mechanism to indicate which values are allowed**

- **We have used:**

  - **Belt - Custom annotation on metric to link to allowed values**
    - e.g. model:domain="eba_exp:RP"
      model:hierarchy=http://www.eba.europa.eu/xbrl/crr/role/dict/dom/RP/RP2"

  - **Braces - XBRL formulae to check only permitted values used**
    - E.g. $a = (xs:QName('eba_RP:x11'), xs:Qname('eba_RP:x3'), xs:Qname('eba_RP:x1'))

COREP and FINREP

- **Common dictionary – same concepts, same dimensions used to categorise things**

- **Different tables, different reporting units (modules).**

```
▲ F COREP - Common Reporting
    ▲ T Beta - COREP Beta / 2013-09-03
        ▲ X Tables
            ▷ G Capital_Adequacy - Capital Adequacy
            ▷ G Credit_Risk - Credit Risk
            ▷ G General_Information - General Information
            ▷ G Group_Solvency - Group Solvency
            ▷ G Large_Exposures - Large Exposures
            ▷ G Leverage_Ratio - Leverage Ratio
            ▷ G Liquidity_Coverage - Liquidity Coverage
            ▷ G Market_Risk - Market Risk
            ▷ G Operational_Risk - Operational Risk
            ▷ G Stable_Funding - Stable Funding
        ▲ Z Modules
            ▷ M COREP_ConPru - Common Reporting - Ow
            ▷ M COREP_Ind - Common Reporting - Own Fu
            ▷ M COREP_LCR_ConPru - Liquidity Coverage -
            ▷ M COREP_LCR_Ind - Liquidity Coverage - COR
            ▷ M COREP_LE_ConPru - Large Exposures - COR
            ▷ M COREP_LE_Ind - Large Exposures - COREP, I
            ▷ M COREP_NSFR_ConPru - Stable Funding - CC
            ▷ M COREP_NSFR_Ind - Stable Funding - COREF
        ▷ O Validations
▲ F FINREP - Financial Reporting
    ▲ T Beta - FINREP Beta / 2013-09-03
        ▲ X Tables
            ▷ G FINREP_part_1 - FINREP part 1
            ▷ G FINREP_part_2 - FINREP part 2
            ▷ G FINREP_part_3 - FINREP part 3
            ▷ G FINREP_part_4 - FINREP part 4
            ▷ G FINREP_part_5 - FINREP part 5
            ▷ G General_Information - General Information
        ▷ Z Modules
        ▷ O Validations
```

DPM Table descriptions

TableCode | F 03.01 ▼

F 03.01: Breakdown of financial assets by instrument and by counterparty sector: financial assets held for trading

		Columns	
		Carrying amount	Amount of cumulative change in the fair values attributable to changes in the credit risk
		010	020
Equity instruments	010	11112	
of which: at cost	020	11168	
of which: credit institutions	030	11084	
of which: other financial corporations	040	11093	
of which: non-financial corporations	050	11090	
Debt securities	060	11106	11060
Central banks	070		
General governments	080	11080	11055
Credit institutions	090	11083	11051
Other financial corporations	100	11092	11058
Non-financial corporations	110	11089	11056
Loans and advances	120	11114	11061
Central banks	130		
General governments	140		
Credit institutions	150		
Other financial corporations	160	11094	11059
Non-financial corporations	170	11091	11057
Households	180	11088	11055

Metric = Amount of cumulative change in fair values attributable to changes in credit risk
Base = Assets

Main category = Debt securities
Accounting portfolio = Financial assets held for trading

Metric = Amount of cumulative change in fair values attributable to changes in credit risk [mi]
Base = Assets
Main category = Debt securities
Counterparty sector = Other financial corporations
Accounting portfolio = Financial assets held for trading

Main category = Debt securities
Counterparty sector = Other financial corporations
Accounting portfolio = Financial assets held for trading

A brief word on Table Cells, Data points and Grey Cells

In the DPM

- Individual table cells and data points are explicit entities
- Individual cells can be explicitly marked as invalid (grey)

In XBRL

- Only table axes and dimensions are explicit
- The intersections of axes (cells) are simply a result
- Intersections of dimensions (data points) are similarly implied
- Valid cells specified by "hypercubes" of valid dimension combinations.
- Invalid cells are just the left over intersections.

XBRL Hypercubes are purely technical artefacts to indicate grey cells

- Can be very arbitrary
- No analytical value

XBRL Table linkbase

```
                    ┌─ X (col)      ┌── Predefined Axis ── 010 ── Dimension
┌─────────┐         │                                            members
│         ├─────────┼─ Y (row)      │
│  Table  │         │               └── Open/Variable Axis ── Key Dimension(s)
│         ├ ┄ ┄ ┄ ┄ └┄ Z (sheet)
└─────────┘
```
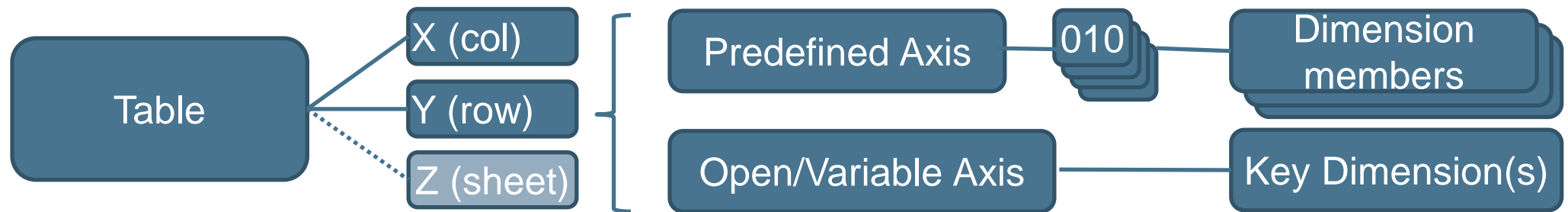
So Taxonomy is essentially a 1:1 mapping of the DPM

One difference, child row/columns

- DPM describes each independently
- XBRL style is to inherit attributes from parent

XBRL Tables

C_02.00

							Amount (010)
TOTAL RISK EXPOSURE AMOUNT (010)						r10c10	
	Of which: Investment firms under Article 90 paragraph 2 and Article 93 of CRR (020)					r20c10	
	Of which: Investment firms under Article 91 paragraph 1 and 2 and Article 92 of CRR (030)					r30c10	
	RISK WEIGHTED EXPOSURE AMOUNTS FOR CREDIT, COUNTERPARTY CREDIT AND DILUTION RISKS AND FREE DELIVER					r40c10	
		Standardised Approach (SA) (050)				r50c10	
			SA exposure classes excluding securitisation positions (060)			r60c10	
				Central governments or central ban		r70c10	

r60c10

Dimensional values

Metric	310 - Risk weighted exposure amount after SME-supporting factor
APR - Approach for prudential purpo	42 - Standardised Approach
BAS - Base	9 - Exposures
CPS - Counterparty sector	0 - Not applicable/ All counterparties
CPZ - Size of the counterparty	0 - Not applicable/ All counterparties
EXC - Exposure class	11 - Exposure classes excluding securitisation exposure class
MCY - Main category	195 - Instruments subject to credit risk excluding instruments subject to securitisation credit risk treatment
MRW - Methods to determine risk we	0 - Total
PRP - Prudential portfolio	11 - Banking book
TIF - Type of investment firm	0 - Not applicable/All activities
TRI - Type of risk	4 - Credit risk, counterparty credit risk and free deliveries
UES - Type of underlying	0 - Not applicable/ All types of underlying exposures

XBRL Instance Files – What do they look like

Fact
- Metric
- Value
- *Unit*
- *Accuracy*

Context
- Entity
- Period/Instant
- *Explicit Dimensions*
- *Typed Dimensions*
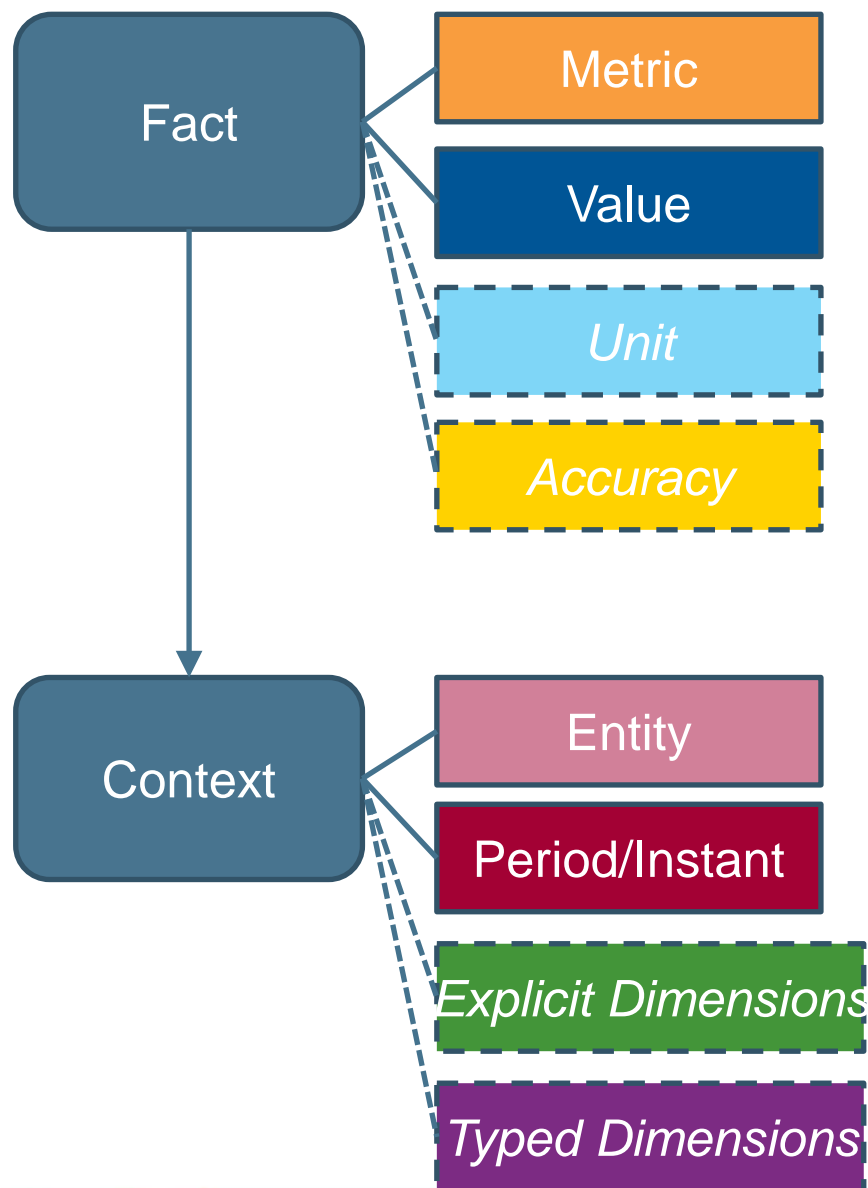
```
<eba_met:mi53 unitRef="uEUR" decimals="2"
contextRef="c2">100000000.00</eba_met:mi53>
…
<xbrli:context id="c2">
 <xbrli:entity> <xbrli:identifier
scheme="http://www.eba.europa.eu/fr/dummy">DUMMY</xbrli:ide
ntifier>  </xbrli:entity>
 <xbrli:period><xbrli:instant>2013-12-31</xbrli:instant>
</xbrli:period>
 <xbrli:scenario>
  <xbrldi:explicitMember
dimension="eba_dim:MCY">eba_MC:x342</xbrldi:explicitMember
>
  <xbrldi:explicitMember
dimension="eba_dim:COI">eba_CI:x5</xbrldi:explicitMember>
  <xbrldi:explicitMember
dimension="eba_dim:TOF">eba_OF:x2</xbrldi:explicitMember>
<xbrldi:typedMember dimension="eba_dim:LEC">
    <eba_typ:LE>a</eba_typ:LE>
   </xbrldi:typedMember>
 </xbrli:scenario>
</xbrli:context>
```

XBRL Instance   Relationship to   DPM
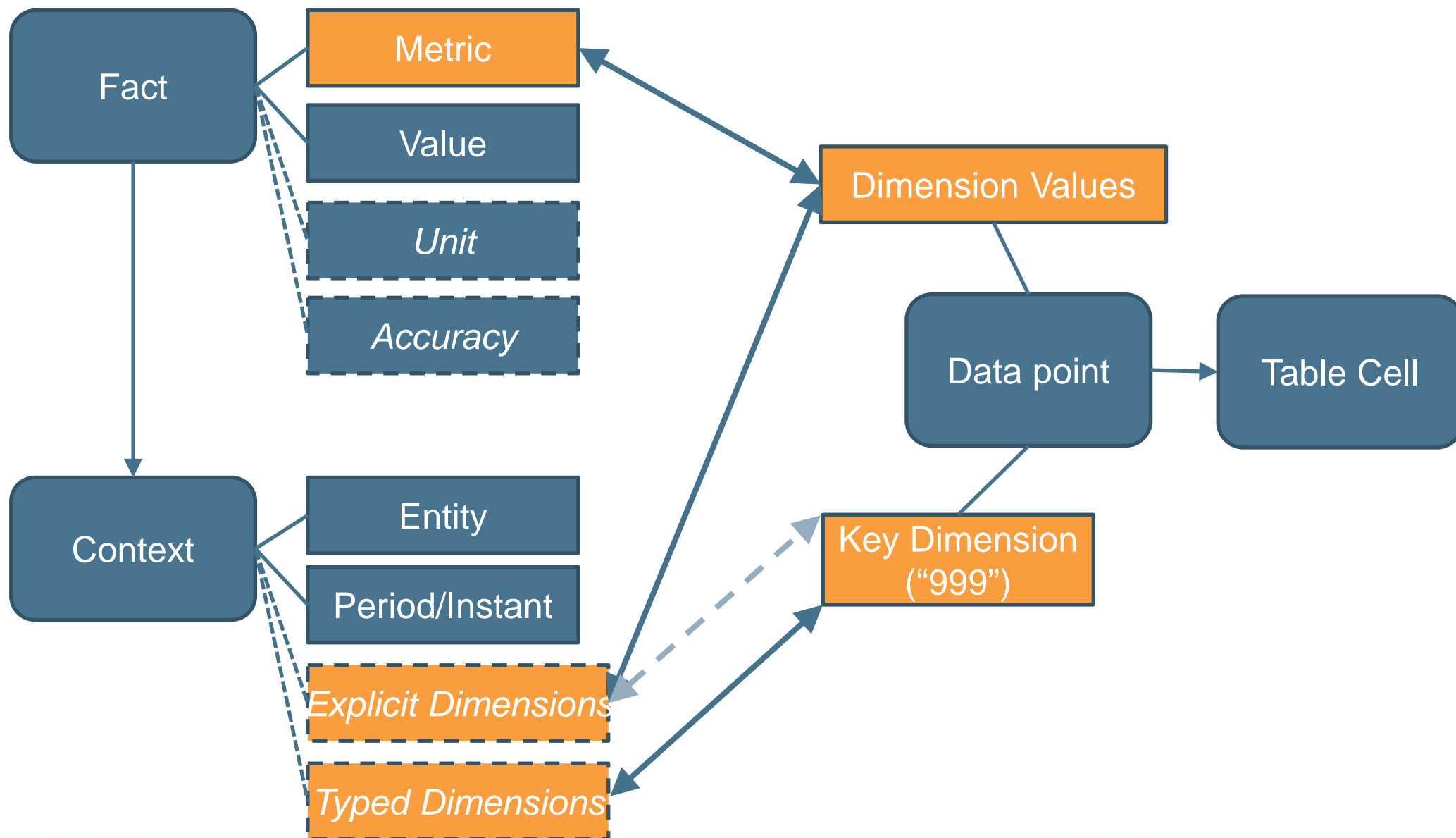
Types of tables

The frameworks contain several different kinds of tables

- **Simple two–dimensional tables**

- **Tables with more complex features:**
  - Sheets (z-axes)
  - Open tables
  - Open sheets

Fixed Sheets - DPM

C 08.01.a - Credit and counterparty credit risks and free deliveries: IRB Approach to capital requirements - TOTAL

Fixed Sheets - XBRL

- **Number of options known in advance**
- **All "expected", non-reported means "zero"**
- **Maps as a simple predefined z-axis, just like rows or columns**
- **Cells on each sheet just have different dimensional properties**
- **Relate to different facts (context/metric)**
- **XBRL software will show e.g. a drop down box to choose a sheet**
- **N.B. also covers fixed lists of currencies/countries (C 18, C 21)**

Open tables – Rows

31.2 Group structure: "instrument-by-instrument"

Security code	Entity code	Holding company LEI code	Holding company code	Holding company name	Accumulated equity interest (%)	Carrying amount	Acquisition cost
ITS V.Part 4.3(a)	ITS V.Part 4.3(e)	ITS V.Part 4.3(b)	ITS V.Part 4.3(c)	ITS V.Part 4.3(d)	ITS V.Part 4.3(e)	ITS V.Part 4.3(e)	ITS V.Part 4.3(e)
010	020	030	040	050	060	070	080

TableCode F 31.02

	Columns						
Security code	Entity code	Holding company LEI code	Holding company code	Holding company name	Accumulated equity interest (%)	Carrying amount	Acquisition cost
010	020	030	040	050	060	070	080

Rows Open 999

Scope of the group: "instrument-by-instrument"

		Entity code	Holding company LEI code	Holding company code	Holding company name	Accumulated equity interest (%)	Carrying amount	Acquisition cost
		020	030	040	050	060	070	080
Security A	Security A	DUM11	LEI 123	DUM21	Dummy Co	0.012	70,010,011	8,001,000
Security B	Security B	DUM12	LEI 456	DUM22	ACME ltd	0.011	3,010,033	6,001,000

Open tables – Rows

These map to an "Open Axis"

Number of entries unknown/unlimited

Linked to one (or more) "typed" dimensions (number, string etc.)

In the DPM

> each repeated cell has exactly the same data point ID

> data point has a dimension with value "999"

In XBRL

> "scenario" of context contains (another) explicitMember value:

 <xbrldi:explicitMember dimension="eba_dim:CEG">eba_GA:PL</xbrldi:explicitMember>

> Easy when creating instances, watch out when reading them

Open tables – Sheets – Known range – DPM

C 15.00 - Exposures and losses from lending collateralised immovable property

Country where the exposure is generated = <Key value>

Sheet per Country		Columns			
		Losses			
		Sum of losses stemming from lending up to		Sum of overall losses	
			of which: immovable property valued with mortgage lending value		of which: immovable property valued with mortgage lending value
		010	020	030	040
Row collateralised by: Residential property	010	84973	84977	84975	8497!
collateralised by: Commercial immovable property	020	84972	84976	84974	8497{

Open tables – Sheets – XBRL rendering

C 15.00 (CR IP Losses) Exposures and losses from lending collateralised immovable property

ALBANIA

Country	Unfix
ALBANIA	
AUSTRIA	
BELGIUM	
AFGHANISTAN	
ÅLAND ISLANDS	
AMERICAN SAMOA	
ANDORRA	
ANGOLA	
ANGUILLA	
ANTARCTICA	
ANTIGUA AND BARBUDA	
ARGENTINA	
ARMENIA	
ARUBA	
AUSTRALIA	
AZERBAIJAN	
BANGLADESH	
BARBADOS	
BOSNIA AND HERZEGOVINA	
UNITED ARAB EMIRATES	

Select a value to fix

	Exposures				
	Losses				Exposures
	Sum of losses stemming from lending up to the reference percentages		Sum of overall losses		Sum of the exposures
	Sum of losses stemming from lending up to the reference percenta...	of which: immovable property valued with mortgage lending value	Sum of overall losses	of which: immovable property valued with mortgage lending value	Sum of the exposures
erty	€900,100,010,000	€900,200,010,000	€900,300,010,000	€900,400,010,000	€900,500,010,000
movable property	€900,100,020,000	€900,200,020,000	€900,300,020,000	€900,400,020,000	€900,500,020,000

Open tables – Sheets

- Used where "some" options from a list should be reported
e.g. Top 10 countries by exposure, "significant" currency holdings
- Non-reporting does NOT mean "zero".

In the DPM

>each repeated cell has exactly the same data point ID

>data point has a dimension with value "999"

In XBRL

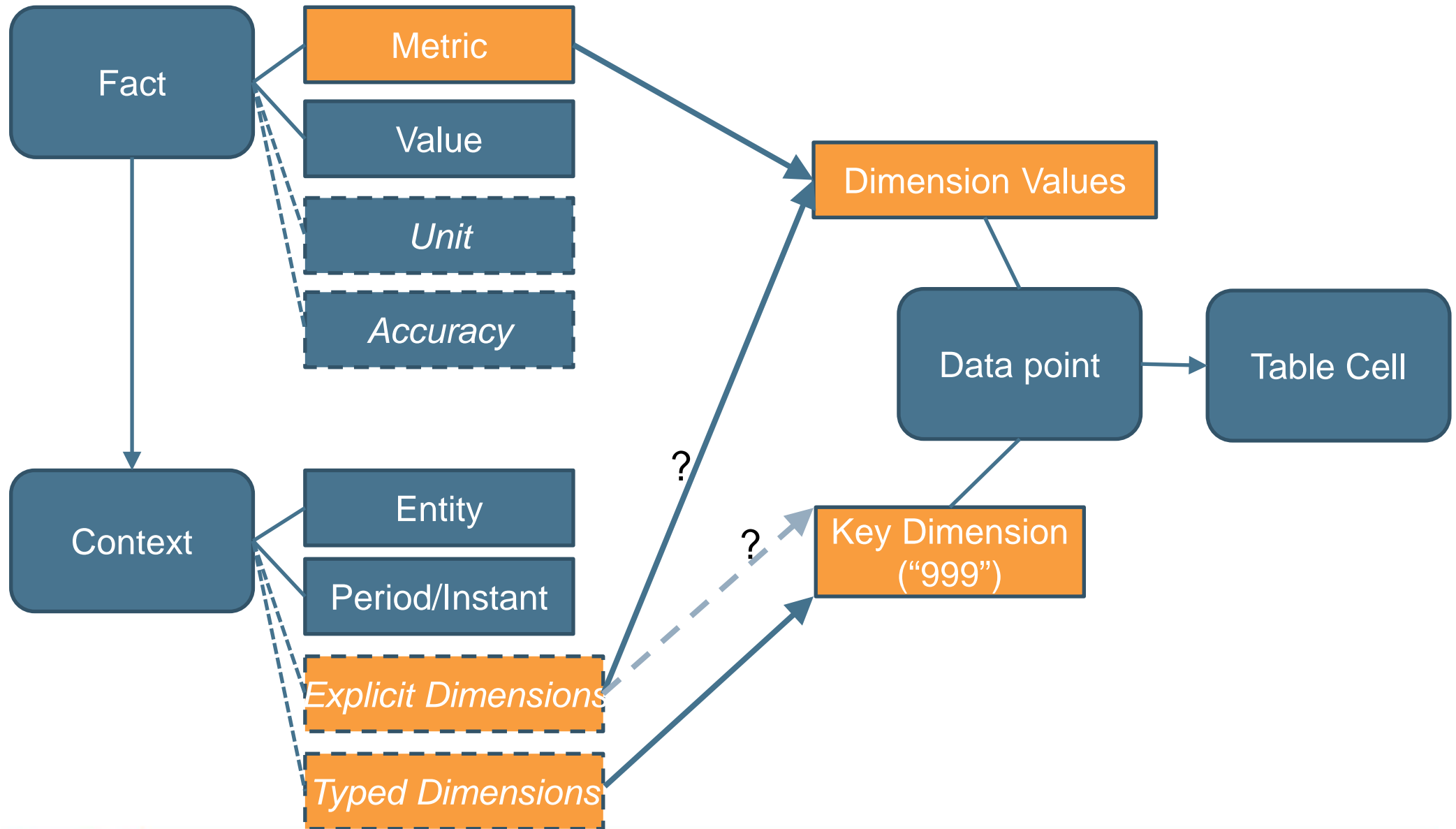>Choices are known (e.g. countries), so maps to an explicit domain

>"scenario" of context contains an explicit domainvalue

```
<xbrldi:typedMember dimension="eba_dim:LEC">
    <eba_typ:LE>a</eba_typ:LE>
</xbrldi:typedMember>
```

XBRL Instance

DPM

Validations

# Purpose of Validations

XBRL validation formulae:

- Communicate the rules unambiguously
- Allow filer to independently check data _before_ submission
- Enable a step change in reporting quality

Not a magic bullet:

- Cover only the groundwork of basic validity checking
- Wider data quality checks will still need to be done by reporters and receivers in order to ensure correct data submissions.

Validations

- Identity
- Sign
- Hierarchy
- Manual (single-table)
- Manual (multi-table)
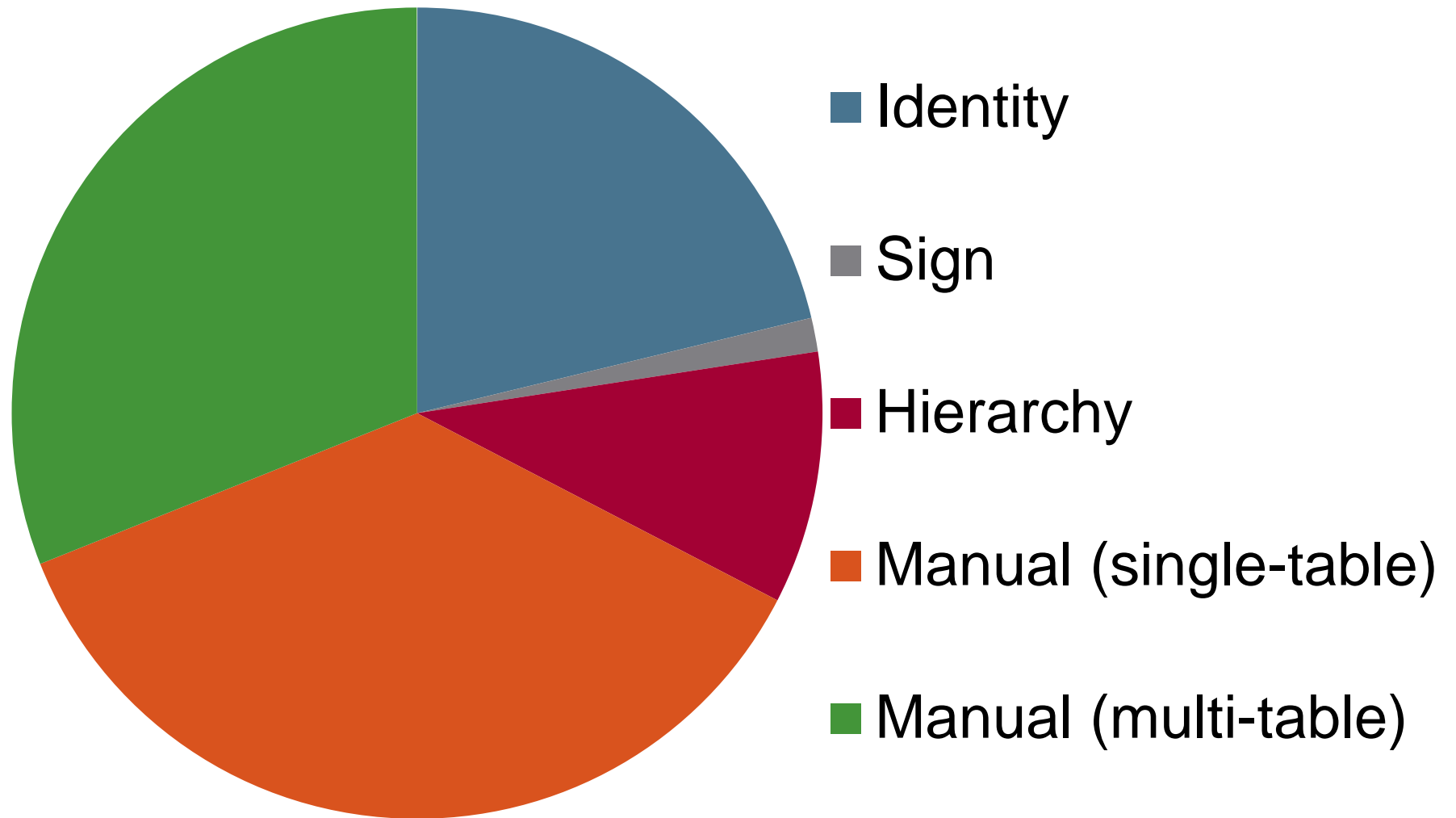
Identities

e.g. {F 01.01 , r030, c010} ≡ {F 09.00 , r010, c010}

Cells that refer to exactly the same piece of information. They share exactly the same DPM categorisations.

Identities - Mapping to XBRL

In XBRL (within a single reporting instance) these are intrinsic
- Both cells are represented by the same fact
- The value is only reported once
- Fill in one cell and the other will show the same value automatically

But

- Some identities cross reported instances (modules or frameworks)
- These are **NOT** automatically handled by XBRL

XBRL Formulae

All other rules are expressed as XBRL formula assertions

The definition of the rules are Form centric (refer to table cells)

+ Easier for business users to define and review
- Not particularly suited to DPM or XBRL formats

Quick Intro to XBRL Formula

Assertions consist of

Rule expression
- **Arbitrary xpath expression (basically an equation),**
- **e.g. $a = $b + $c**

Variables
- **E.g. $a**

Filters (Variable and Global)
- **Give properties facts must have to be assigned to a variable**

Preconditions
- **Conditions that must be true for the validation rule to evaluate**

Example

	1 - Assets	2 - Current	3 - Fixed
1 – France			
2 – Germany			
3 – Spain			
4 - All			

"(Row 1-4) C1 = C2 + C3"

Example

	Metric	Carrying Amount	Carrying Amount	Carrying Amount
	AssetType	Assets	Current Assets	Fixed Assets
Country		1 - Assets	2 - Current	3 - Fixed
France	1 – France	$a	$b	$c
Germany	2 – Germany	$a	$b	$c
Spain	3 – Spain	$a	$b	$c
	4 - All	$a	$b	$c

"(Row 1-4) C1 = C2 + C3"
$a = $b + $c

Filter on a : [AssetType = Assets]
Filter on b : [AssetType = Current]
Filter on c : [AssetType = Fixed]

Global Filter : [Metric = Carrying Amount]

Sign

e.g. {C 07.00.c, r290,c030} <= 0

Simply indicate that a particular cell (or range of cells) must have a particular sign, i.e. whether they must be positive or negative

Few rules, each rule can cover large swathes of a table

(Note strange looking rules like "{C 07.00.c}>= 0", where the scope of the rule covers rows and columns)

Hierarchies

Rules are produced automatically from the hierarchies of members specified in the DPM for domains of values.

e.g.

One of the hierarchies for the "Approach" domain states that
```
"Standardised approaches for commodities risk"
 = ( "Maturity ladder approach"
        + "Extended maturity ladder approach"
        + "Simplified approach" )
```

Looking for places in the tables this might apply leads to the rule:

C 23.00 - Columns (010-060): {r010} = {r080}+{r070}+{r090}

Hierarchies

e.g. C 23.00 - Columns (010-060): {r010} = {r080}+{r070}+{r090}
Xpath expression $a = $b + $c + $d

		All positions (005)		Net positions (029)		Positions subject to capital charge	Capital requirements (060)	Total risk exposure amount (070)
		Long (010)	Short (020)	Long (030)	Short (040)			
TOTAL POSITIONS IN COMMODITIES (010)		r10c10 1 - $a	r10c20 3 - $a	r10c30 2 - $a	r10c40 4 - $a	r10c50 5 - $a	r10c60 6 - $a	r10c70
	Precious metals (except gold) (020)	r20c10	r20c20	r20c30	r20c40	r20c50	r20c60	
	Base metals (030)	r30c10	r30c20	r30c30	r30c40	r30c50	r30c60	
	Agricultural products (softs) (040)	r40c10	r40c20	r40c30	r40c40	r40c50	r40c60	
	Others (050)	r50c10	r50c20	r50c30	r50c40	r50c50	r50c60	
	Of which energy products (oil, gas)	r60c10	r60c20	r60c30	r60c40	r60c50	r60c60	
	Maturity ladder approach (070)	r70c10 1 - $c	r70c20 3 - $c	r70c30 2 - $c	r70c40 4 - $c	r70c50 5 - $c	r70c60 6 - $c	
	Extended maturity ladder approach (080)	r80c10 1 - $b	r80c20 3 - $b	r80c30 2 - $b	r80c40 4 - $b	r80c50 5 - $b	r80c60 6 - $b	
	Simplified approach: All positions (090)	r90c10 1 - $d	r90c20 3 - $d	r90c30 2 - $d	r90c40 4 - $d	r90c50 5 - $d	r90c60 6 - $d	
	Other non-delta risks for commodity options (100)						r100c60	
	Simplified method (110)						r110c60	
	Delta plus approach - additional re						r120c60	
	Delta plus approach - additional re						r130c60	
	Scenario matrix approach (140)						r140c60	

"Manual" rules

These are rules that have been written by hand by business experts, e.g. :

C 07.00.a : {r150,c215} = {r150,c200} * 2%

C 16.00.a : if {r010,c010} > 0 or {r010,c020} > 0 then {r010,c070} > 0

C 25.00 (r020) : {c080} = max(c040}, {c050}) + max({c060},{c070})

F 02.00 (c010) : {r520} = sum(r530-570)

Also cross table rules like

{C 42.00, r070,c010} = {C 45.01, r150,c030} + sum({C 01.00, c010, (r800, r842, r930-950)})

"Manual" rules - syntax

Normal algebraic expressions, most Xpath functions allowed (max, abs, if …)

Cell/column/row/sheet references

- {C 45.01, r150, c030, s001} and variations

Sums

- sum({C 01.00, c010, (r800, r842, r930-950)})
- sum({C 06.00, c100,(rNNN)}) – open table
- xsum({C 01.00, (c010-030, r020-040)}) – syntax trick

Each formula can be applied to a set of rows, columns or sheets
The formulae are simply translated to real XPath for XBRL

Representation

(Same) Rules expressed in three formats:

Plain text **– ITS Annex XV** **– Spreadsheet**

Structured – DPM – Database

Formal – Taxonomy – XBRL

Representations – Rule Spreadsheet (Annex XV)

	ID	Type	t1	t2	Rows	Columns	Sheets	Formula	HierarchyCode(s)	ParentMemberID
156	v155_h	Hierarchy	F 25.02			(010)		{r010} = +{r030} + {r020}	PL75	2637
157	v156_h	Hierarchy	F 25.01			(010)		{r040} = +{r060} + {r050}	PL76	2619
158	v157_h	Hierarchy	F 25.02			(010)		{r040} = +{r060} + {r050}	PL76	2619
159	v158_h	Hierarchy	F 08.01			(010;020;030;0		{r500} = +{r460} + {r230} + {r470} + {r490} + {r480}	PL91	2608
160	v159_h	Hierarchy	F 15.02		(010;020;030			{c030} = +{c020} + {c010}	TA14	2738
161	v160_h	Hierarchy	F 18.00			(010)		{r020} = +{r030} + {r050} + {r040}	TA88	2770
162	v161_h	Hierarchy	F 24.00			(010)		{r010} = +{r020} + {r040} + {r030} + {r050}	TA88	2741
163	v162_h	Hierarchy	F 24.00			(010)		{r060} = +{r070} + {r080}	TA88	2750
164	v163_h	Hierarchy	F 18.00			(010)		{r080} = +{r090} + {r100}	TA88	2750
165	v164_h	Hierarchy	F 24.00			(010)		{r130} = +{r140} + {r150} + {r160}	TA88	2756
166	v165_h	Hierarchy	F 18.00			(010)		{r140} = +{r150} + {r160} + {r170}	TA88	2756
167	v166_h	Hierarchy	F 24.00			(010)		{r060} >= +{r090}	TA95	2750
168	v167_h	Hierarchy	C 24.00			(030;040;050;0		{r030} = +{r040} + {r050}	TR1	2701
169	v168_h	Hierarchy	C 18.00	C 19.00			(001)	{C 18.00, r325,c060} = +{C 19.00, r010,c610}	TR1	2713
170	v169_h	Hierarchy	C 24.00			(030;040;050;0		{r060} = +{r070} + {r080}	TR1	2706
171	v170_h	Hierarchy	C 07.00.a			(010;030;040;0	(001;002;003	{r020} <= +{r030}	CT20	1668
172	v171_h	Hierarchy	C 07.00.b			(210)	(001;002;003	{r020} <= +{r030}	CT20	1668
173	v172_m	Manual	C 01.00			(010)		{r020} = {r030} + {r130} + {r180} + {r200} + {r210} + {r220} + {r230} + {r240} + {r250} + {r300} + {r340} + {r37		
174	v173_m	Manual	C 01.00					{r030,c010} = {r040,c010} + {r060,c010} + {r070,c010} + {r092,c010}		
175	v174_m	Manual	C 01.00					{r070,c010} = {r080,c010} + {r090,c010} + {r091,c010}		
176	v175_m	Manual	C 01.00					{r130,c010} = {r140,c010} + {r150,c010}		
177	v176_m	Manual	C 01.00					{r150,c010} = {r160,c010} + {r170,c010}		
178	v177_m	Manual	C 01.00					{r250,c010} = {r260,c010} + {r270,c010} + {r280,c010} + {r285,c010} + {r290,c010}		
179	v178_m	Manual	C 01.00					{r300,c010} = {r310,c010} + {r320,c010} + {r330,c010}		

Representations – Rule Spreadsheet (Annex XV)

- **Primary format for specification and review by business experts**

- **Will be best input for many custom implementations.**

- **Includes some rules that are not mapped into DPM/XBRL**
  - these should be handled by NSA systems/processes.

- **Each rule has a unique ID that links it to the DPM and XBRL representations**

Formula syntax

Formula syntax is fairly self explanatory,

Cell Address – {C 01.00, r010, c020, s030} – various parts may or may not be present
Ordinate range – e.g. "c010-020"
$name = parameter value – XBRL specific.

Sums

sum(c060-180) – where table and other details are determined by context
sum({C 43.00.b, c030, (r130, r170)}) – where they must be explicit
sum({C 09.01.a, r010, c010, (sNNN)}) – sum over an open/all sheet/row(s)
xsum – "cross-sum", essentially means the same as sum, just needed for technical reasons – defines a *set* of rows/columns/sheets, the intersections of which should be summed.

Representations – DPM Database
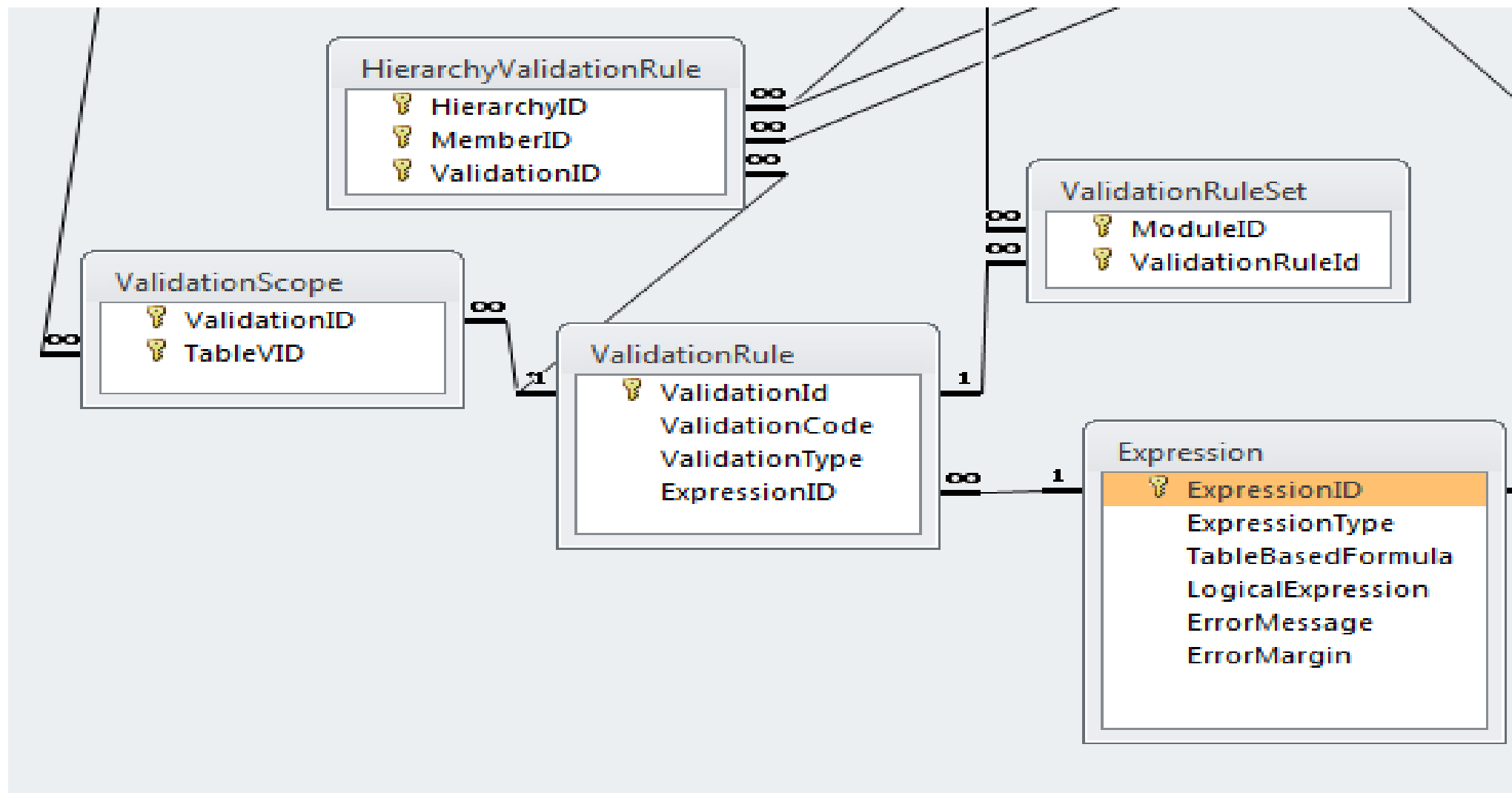
Representation - XBRL
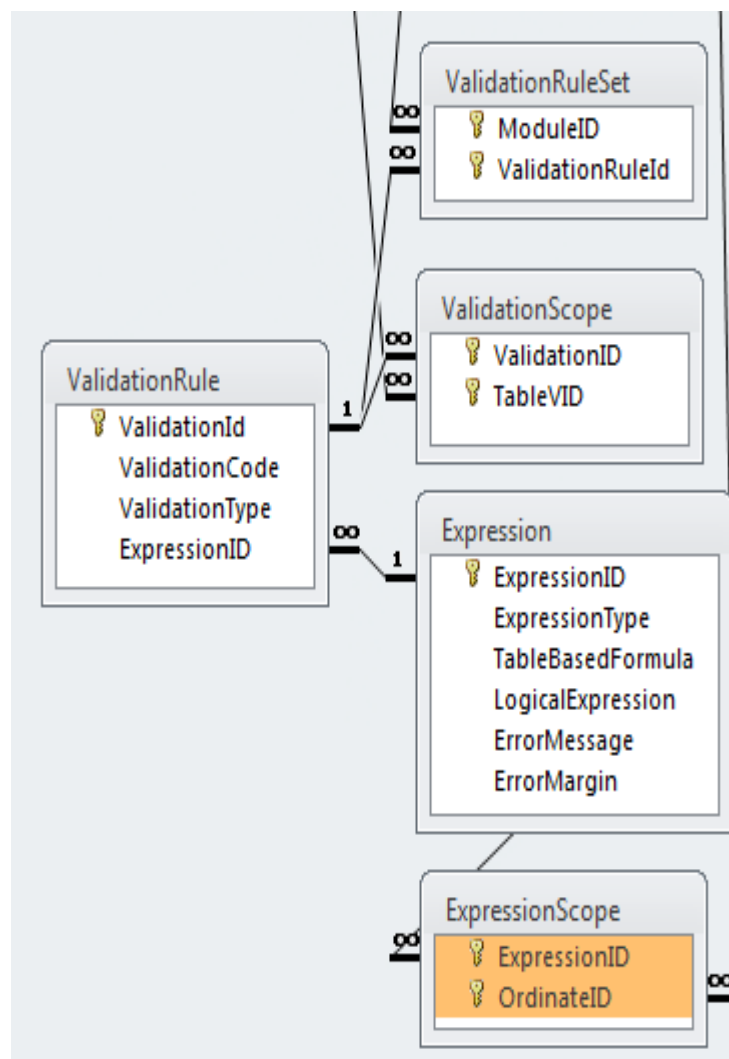
Identifies with which modules the rules is associated (linked by).

Rules for common table sets are grouped into assertion sets.

Each rule has preconditions based on filing indicators for required tables.

"LogicalExpression" is the XPath expression used in XBRL

Rule has filters to restrict evaluations to these ordinates.

Representations – DPM Database
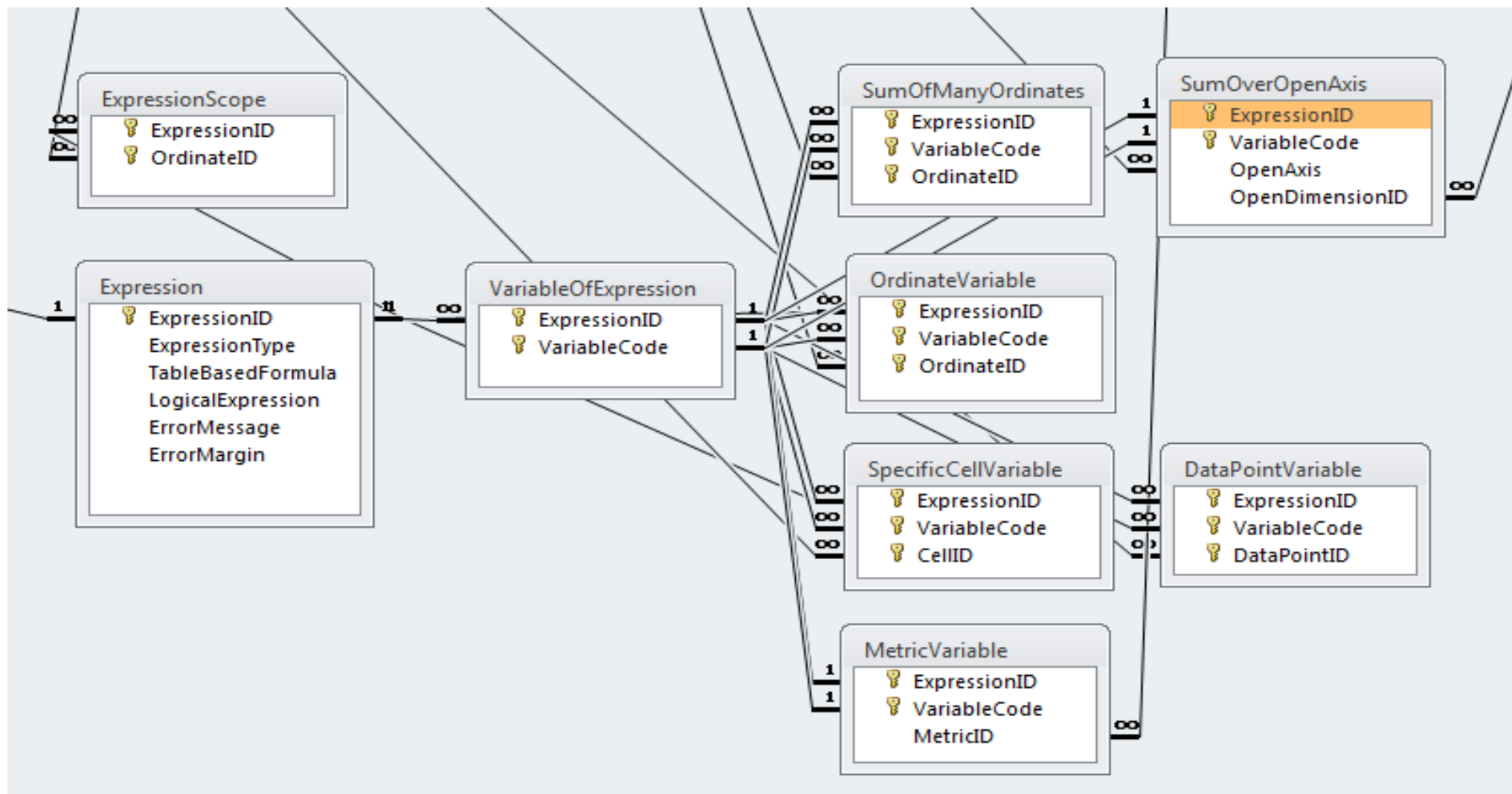
Representations – DPM Database - Variables

SpecificCellVariable
🔑 CellID

{C 45.01, r150, c030, s001}

OrdinateVariable
🔑 OrdinateID

{C 45.01, r150}

SumOfManyOrdinates
🔑 OrdinateID

sum({F 15.02, (c010-030)}),
xsum({F 05.01.a, (r210, r260, c010-030)})

SumOverOpenAxis
OpenAxis
OpenDimensionID

{C 10.01, r020} = **sum({C 10.02, (rNNN)}),**
sum({C 09.02, r130, c090, **(sNNN)})**

MetricVariable
MetricID

[Type of counterparty] IN
{[Institutions],[Unregulated financial entities]}

Representations – XBRL - Variables
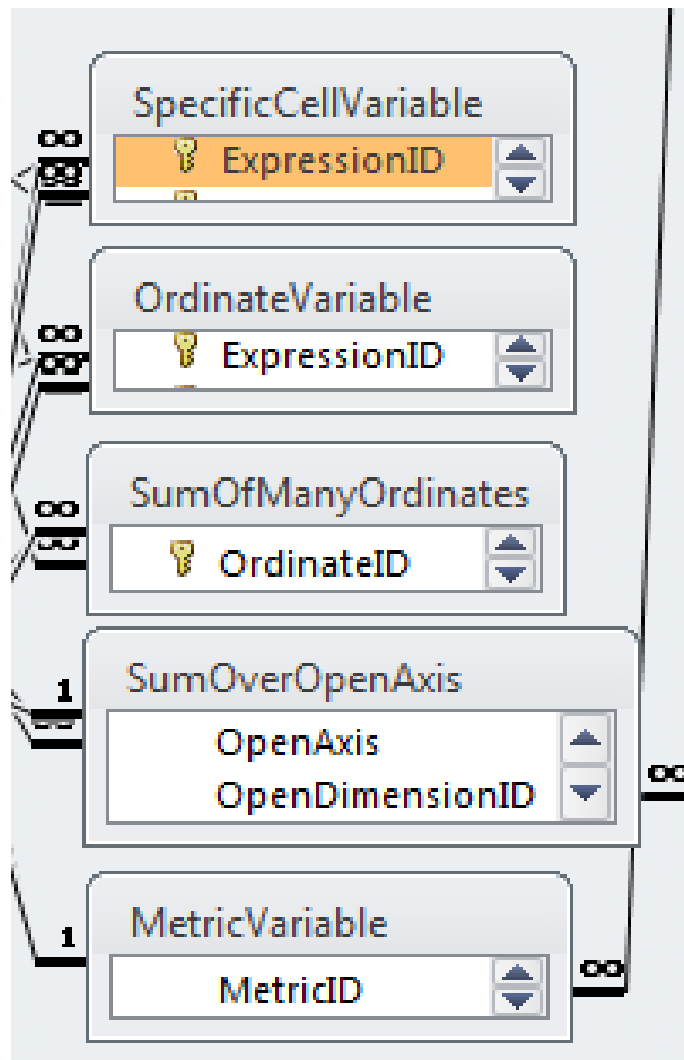
$a – filter sufficient to pinpoint a data point

$a – filter to a column/row/sheet

sum($a) – bind as sequence, combine multiple ordinate dimensions with OR

sum($a) – bind as sequence, covers the open axis dimension

Filter Primary Item = eba_met:ei219

$a = ([CT:x6],[CT:x50]) ["Institutions","Unregulated Financial Entities"]

Example - Formula

v175_m: {C 01.00, r130,c010} = {C 01.00, r140,c010} + {C 01.00, r150,c010}

Example - XBRL

v175_m: {C 01.00, r130,c010} = {C 01.00, r140,c010} + {C 01.00, r150,c010}

Taxonomy Assertions Beta - COREP Beta / 2013-09-03
- C_00.01
- C_01.00
  - v0148_h : $a = $b + $c + $d
  - v0172_m : $a = $b + $c + $d + $e + $f + $g + $h
  - v0173_m : $a = $b + $c + $d + $e
  - v0174_m : $a = $b + $c + $d
  - v0175_m : $a = $b + $c
  - v0176_m : $a = $b + $c
  - v0177_m : $a = $b + $c + $d + $e + $f

v0175_m : $a = $b + $c
- Affected tables
  - C_01.00
- Required tables
  - C_01.00
- Filters
- Variables
  - $a [0]
    - MCY - Main category = 363 - Retained earnings, Profit
    - Metric = 76 - Computable amount
  - $b [0]
    - MCY - Main category = 301 - Retained earnings
    - Metric = 53 - Carrying amount
  - $c [0]
    - MCY - Main category = 276 - Profit or loss
    - Metric = 76 - Computable amount
- $a = $b + $c

Filters
- BAS - Base = 11 - Own funds
- OFS - Own funds = 2 - CET1 Capital
- CNO - Controlling and non-controlling owners = 4 - Owners of the parent
- MCU - Main category of the underlying = 0 - Total/Not applicable
- TOF - Transitionally treated as in Own Funds = 0 - Not applicable/ All own funds
- INV - Significant investments = 0 - Not applicable/All portfolios
- MCL - Main category that generates the deferred tax liability = 0 - Total/Not applicable
- RPR - Related parties/Relationships = 0 - Not applicable/All related parties/All relationships
- APR - Approach for prudential purposes = 0 - Not applicable/ All approaches
- TRI - Type of risk = 0 - Not applicable/All risks

Precondition: "$find:tC_01.00"

//find:fIndicators/find:filingIndicator[not(@find:filed) or @find:filed != false()] = 'C_00.01'

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