

AM3 Tool Management

Goal: cartography of tools & formats

Way: chains of (ATL) transformations

Use case: Business Process Modeling for BNP/Paribas → cartography of BPM tools

Current state :

- input: an Excel table about some BPM tools
- first version of Tool cartography metamodel (AM3)
- 1st chain: from Excel table to Tool model
- 2nd chain: Tool model visualization in AM3 generic viewer
- (*interoperability with SIV visualization tool*)

Use case: BPM tools & formats

	Formats/Standards							
Tools	BPMN (Business Process Modeling Notation)	BPEL (Business Process Execution Language)	XPDL (XML Process Definition Language)	WSDL (Web Services Description Language)	AML (ARIS Markup Language)	UML (Unified Modeling Language)	JPDL (JBPM Process Definition Language)	JWT (Java Workflow Tooling) Visio
ARIS Platform (IDS Scheer)	I/E	I/E	E	I	B	I/E		
oFlow Toolbox					I			I
Bonita Open Solution	B		I/E					
BPEL Process Manager (Oracle)		B		I				
BPEL Project (Eclipse.org)		B		I				
BPMN Project (Eclipse.org)	B							
BPM-Xchange	I/E	I/E	I/E		I/E	I/E		I/E
Business Process Visual Architect (Visual Paradigm)	B	B	E	B			E	
Enterprise Architect 7.0 (Sparx Systems)	B			B		B		
JWT (Eclipse.org)	I/E		E				E	B
MagicDraw Architect or Enterprise (No Magic)	I/E	E		I/E		B		
MEGA Process	B	E	E	I				
Rational Software Architect (IBM)	B			E		B		
Tibco Business Studio	B		B	I/E	I/E	B		I/E
UModel Enterprise Edition (Altova)	B		B (XMLSpy)			B		

Legend:

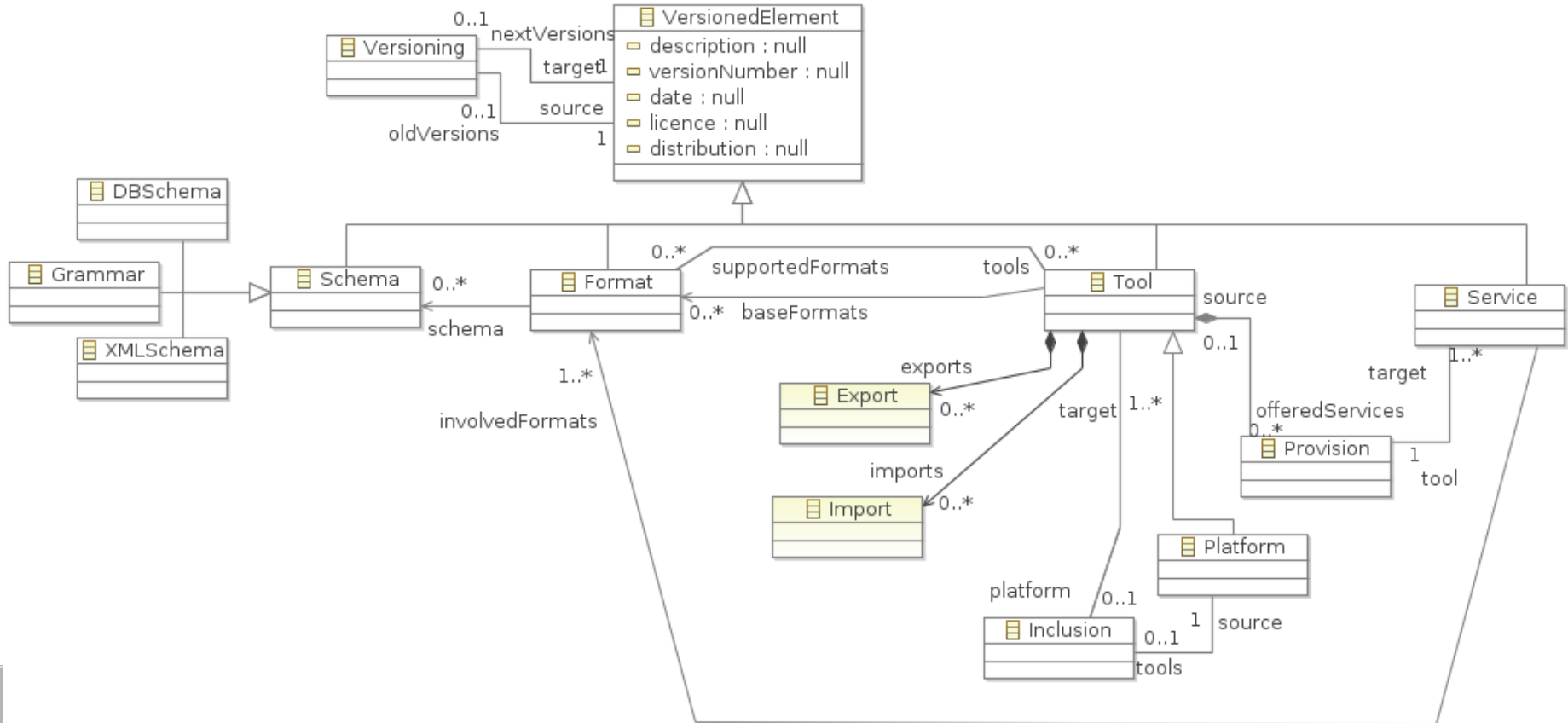
B for Base format
I for available Import format
E for available Export format

Tool Management metamodel

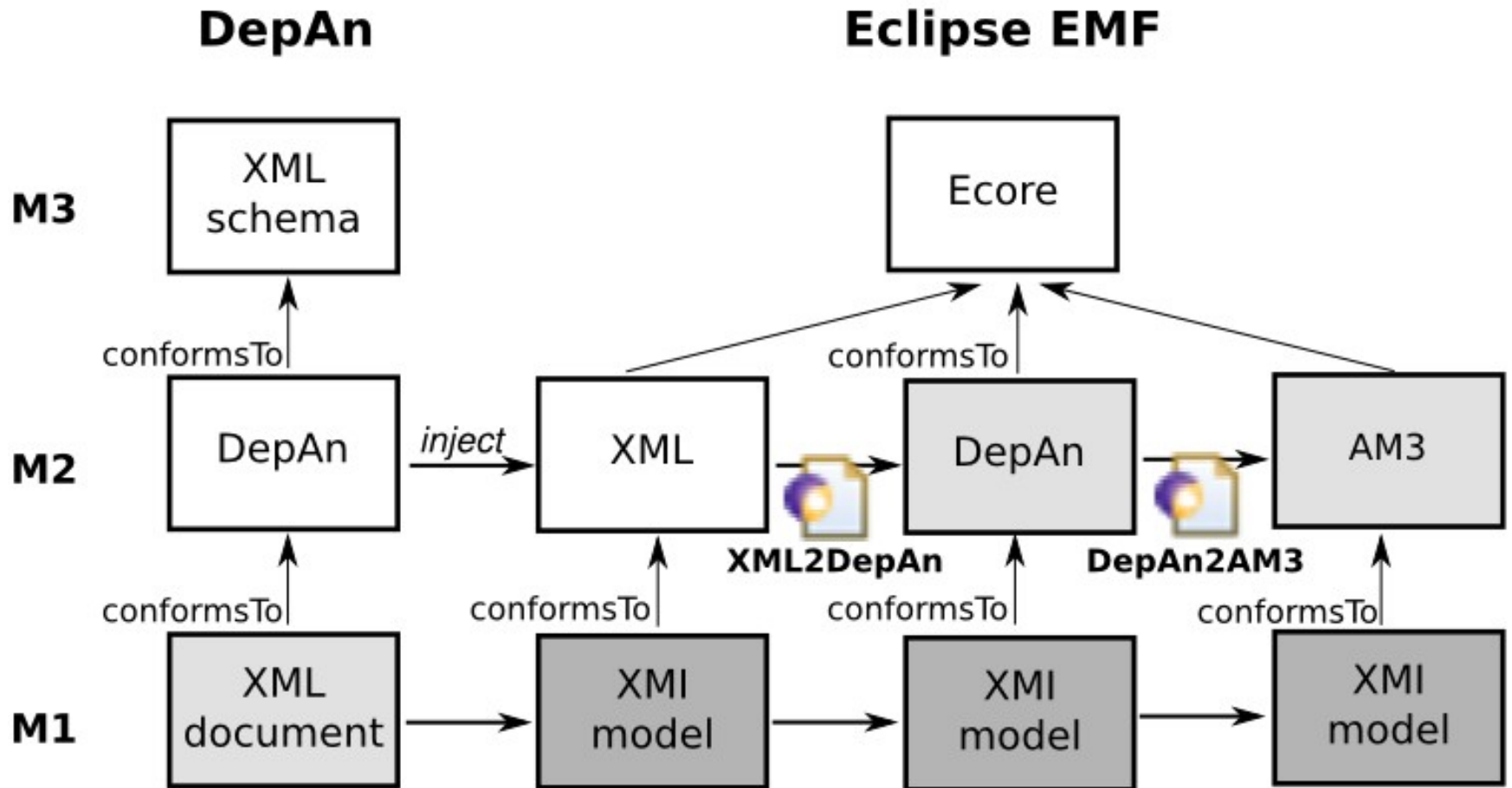
Specializes main AM3 types

Tool & Format: *inherit* AM3::Entity

Export & Import: *inherit* AM3::DirectedRelationship



1st chain: From **Excel** to **Tool**



1st chain: From Excel to Tool

1a: Excel table → Excel 2003 XML

- We collect data in Excel/OpenOffice
- We save data into Excel 2003 XML format

Tools	Formats/Standards	BPMN (Business Process Modeling Notation)	BPEL (Business Process Execution Language)	XPDL (XML Process Definition Language)	WSDL (Web Services Description Language)	AML (ARIS Markup Language)	UML (Unified Modeling Language)	JPDL (jBPM Process Definition Language)	JWT (Java Workflow Tooling)	Visio
ARIS Platform (IDS Scheer)		I/E	I/E	E	I	B	I/E			I
oFlow Toolbox										
Bonita Open Solution		B		I/E						
BPEL Process Manager (Oracle)			B		I					
BPEL Project (Eclipse.org)			B		I					
BPMN Project (Eclipse.org)										
BPM-Xchange		B								
Business Process Visual Architect (Visual Paradigm)		I/E	I/E	I/E		I/E	I/E			I/E
Enterprise Architect 7.0 (Sparx Systems)		B	B		B		B	E		
JWT (Eclipse.org)		I/E		E				E	B	
MagicDraw Architect or Enterprise (No Magic)		I/E	E		I/E		B			
MEGA Process			E	E	I					
Rational Software Architect (IBM)		B			E		B			
Tibco Business Studio		B		B	I/E	I/E	B			I/E
UModel Enterprise Edition (Altova)		B			B (XMLSpy)		B			

Legend:

B for Base format
I for available Import format
E for available Export format



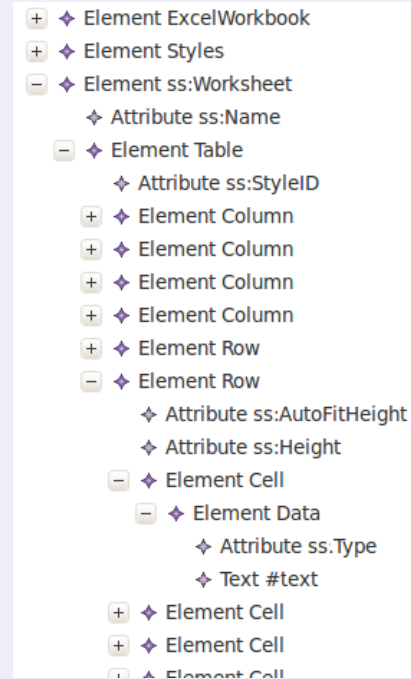
```
<ss:Worksheet ss:Name="tools">
  <Table ss:StyleID="tal">
    <Column ss:Width="64.2614"/>
    <Column ss:Width="176.9102"/>
    <Column ss:Width="342.4535"/>
    <Column ss:Span="8" ss:Width="64.2614"/>
    <Row ss:AutoFitHeight="0" ss:Height="13.663">
      <Cell><Data ss:Type="String">formats</Data></Cell>
      <Cell><Data ss:Type="String">Tool (company)</Data></Cell>
      <Cell><Data ss:Type="String">Web site</Data></Cell>
      <Cell><Data ss:Type="String">BPMN (Business Process
      <Cell><Data ss:Type="String">BPEL (Business Process
      <Cell><Data ss:Type="String">XPDL (XML Process Defir
      <Cell><Data ss:Type="String">WSDL (Web Services Desc
      <Cell><Data ss:Type="String">AML (ARIS Markup Langua
      <Cell><Data ss:Type="String">UML (Unified Modeling l
      <Cell><Data ss:Type="String">JPDL (jBPM Process Defi
      <Cell><Data ss:Type="String">JWT (Java Workflow Tool
      <Cell><Data ss:Type="String">Visio</Data></Cell>
    </Row>
    <Row ss:AutoFitHeight="0" ss:Height="13.663">
      <Cell><Data ss:Type="String">tool</Data></Cell>
      <Cell><Data ss:Type="String">ARIS Platform (IDS Sche
      <Cell ss:HRef="http://www.ids-scheer.com/en/ARIS_AR
      <Cell><Data ss:Type="String">I/E</Data></Cell>
      <Cell><Data ss:Type="String">I/E</Data></Cell>
      <Cell><Data ss:Type="String">E</Data></Cell>
    </Row>
  </Table>
</ss:Worksheet>
```

1st chain: From Excel to Tool

1b: Excel XML → XML model

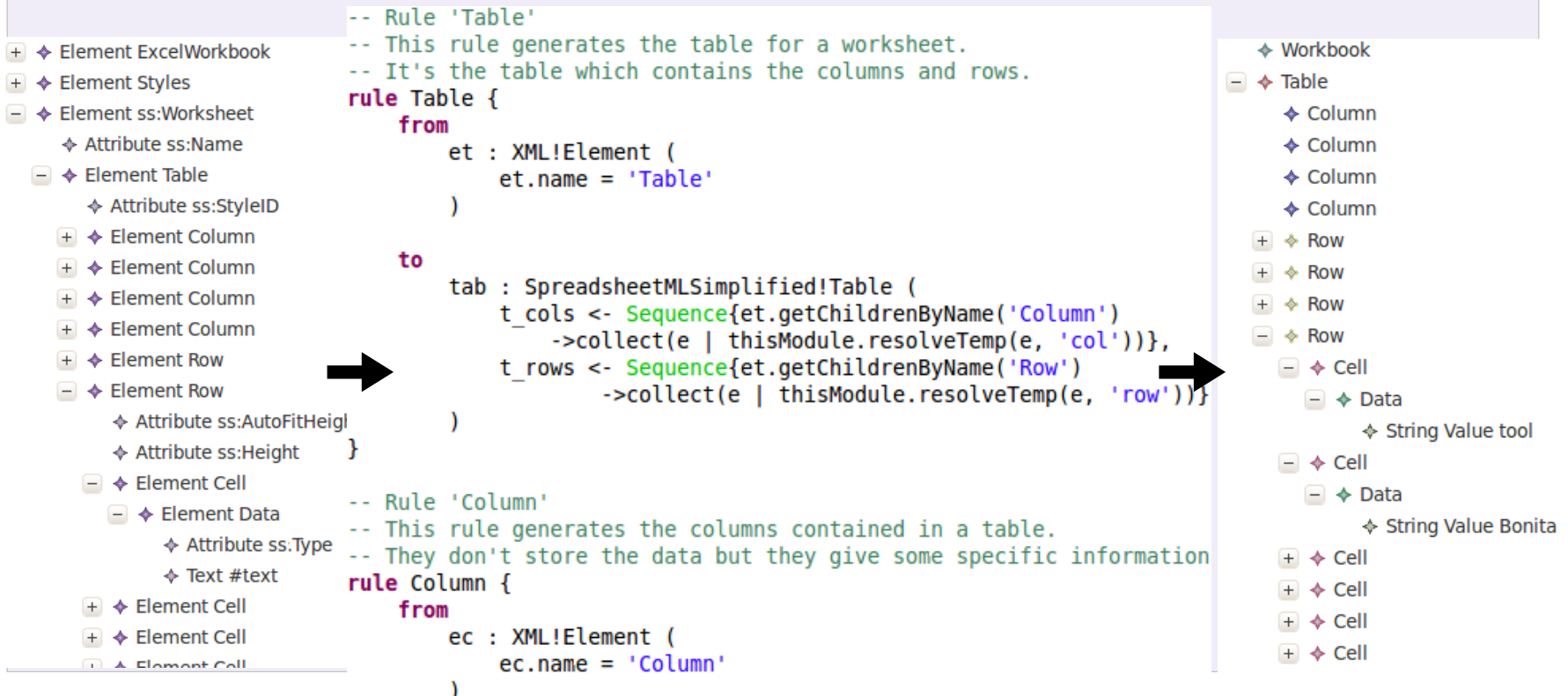
- The ATL XML injector gives the EMF model corresponding to the XML file

```
<ss:Worksheet ss:Name="tools">
  <Table ss:StyleID="ta1">
    <Column ss:Width="64.2614"/>
    <Column ss:Width="176.9102"/>
    <Column ss:Width="342.4535"/>
    <Column ss:Span="8" ss:Width="64.2614"/>
    <Row ss:AutoFitHeight="0" ss:Height="13.663">
      <Cell><Data ss:Type="String">formats</Data></Cell>
      <Cell><Data ss:Type="String">Tool (company)</Data></Cell>
      <Cell><Data ss:Type="String">Web site</Data></Cell>
      <Cell><Data ss:Type="String">BPMN (Business Process
      <Cell><Data ss:Type="String">BPEL (Business Process
      <Cell><Data ss:Type="String">XPDL (XML Process Defini
      <Cell><Data ss:Type="String">WSDL (Web Services Desc
      <Cell><Data ss:Type="String">AML (ARIS Markup Language
      <Cell><Data ss:Type="String">UML (Unified Modeling L
      <Cell><Data ss:Type="String">JPDL (jBPM Process Defi
      <Cell><Data ss:Type="String">JWT (Java Workflow Tool
      <Cell><Data ss:Type="String">Visio</Data></Cell>
    </Row>
    <Row ss:AutoFitHeight="0" ss:Height="13.663">
      <Cell><Data ss:Type="String">tool</Data></Cell>
      <Cell><Data ss:Type="String">ARIS Platform (IDS Scheer)
      <Cell ss:HRef="http://www.ids-scheer.com/en/ARIS_ARIS
      <Cell><Data ss:Type="String">I/E</Data></Cell>
      <Cell><Data ss:Type="String">I/E</Data></Cell>
      <Cell><Data ss:Type="String">E</Data></Cell>
  </Table>
</Worksheet>
```



1st chain: From Excel to Tool

1c: XML model → Excel model
generic **XML2Excel** (independent from content)



1st chain: From Excel to Tool

1d: Excel model → Tool model

- ATL transformation specific to our problem (tool cartography)

```
rule row2tool {
  from
    row : SExcel!Row (
      row.r_cells->at(1).getCellStringValue() = 'tool'
    )
  using {
    name : String =
      row.r_cells->at(2).getCellStringValue();
    site : String =
      row.r_cells->at(3).getCellStringValue();
    values : Sequence(SExcel!Cell) =
      row.formatCells;
  }
  to
    tool : Tool!Tool(
      description
      id
      identifier
      baseFormats
      supportedFormats
      exports
      imports
      saves
      loads
      locator
    ),
    id : Tool!URI (
      value
    ),
    location : Tool!AM3Locator (
      value
    )
  }
}
```

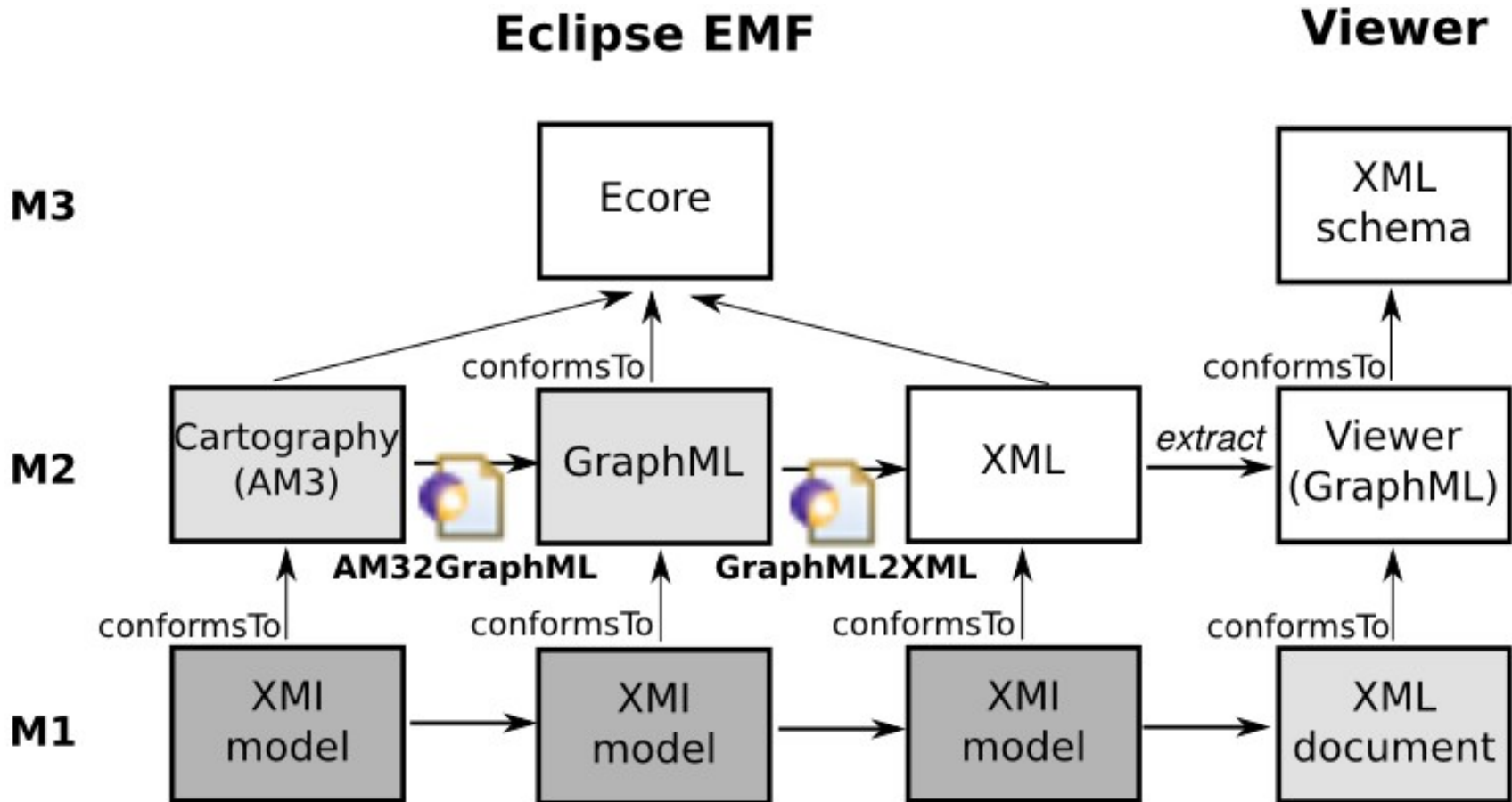
Left side (Excel model):

- Workbook
- Table
 - Column
 - Column
 - Column
 - Column
 - Row
 - Row
 - Row
 - Row
 - Cell
 - Data
 - String Value toc
 - Cell
 - Data
 - String Value Bo
 - Cell
 - Cell
 - Cell
 - Cell
 - Cell

Right side (Tool model):

- Format BPMN (Business Process Modeling Notation)
- Format BPEL (Business Process Execution Language)
- Format XPD (XML Process Definition Language)
- Format WSDL (Web Services Description Language)
- Format AML (ARIS Markup Language)
- Format UML (Unified Modeling Language)
- Format JPDL (jBPM Process Definition Language)
- Format JWT (Java Workflow Tooling)
- Format Visio
- Tool ARIS Platform (IDS Scheer)
- Tool bFlow Toolbox
- Tool Bonita Open Solution
 - URI Bonita Open Solution
 - AM3 Locator <http://www.bonitasoft.com/products/BF>
- Load Bonita Open Solution imports from BPMN (Bus
- Load Bonita Open Solution imports from XPD (XML
- Save Bonita Open Solution exports to BPMN (Busin
- Save Bonita Open Solution exports to XPD (XML Pr
- Tool BPEL Process Manager (Oracle)
- Tool BPEL Project (Eclipse.org)

2nd chain: AM3 visualization



2nd chain: AM3 visualization

Tool types inherit from **AM3** types

- so AM3 transformations apply on them

We apply the AM3→visualization chain:

2a : **AM3toGraphML**

2b: **GraphML2XML**

2c: **XML** extraction

2d: run Prefuse-based
AM3 visualizations



Interoperability: *SIV* export

Works as the AM3 generic chain

3a: **AM3toSIVGraphML**

- a GraphML model with SIV specific tags

3b: **GraphML2XML**

3c: **XML** extraction

3d: loading in **SIV**

