

# MAX & Models Model Automated eXchange

*@ AID 2014-jun-03*

*Amsterdam*

*Michael van der Zel*



# Content

- Why & What?
- Positioning
- Functionality
- Current Uses
- MAX and FHIR
- MAX is a HL7 project

# Why

- Architects have to deal with a lot of model information that is maintained in spreadsheets by non-architects
- The “XMI” issue
  - Exchange between tools from different vendors
  - XMI was meant for that, but doesnot work very well
  - XMI also doesnot import well in a spreadsheet  
... have you tried to do this?

# Another Why

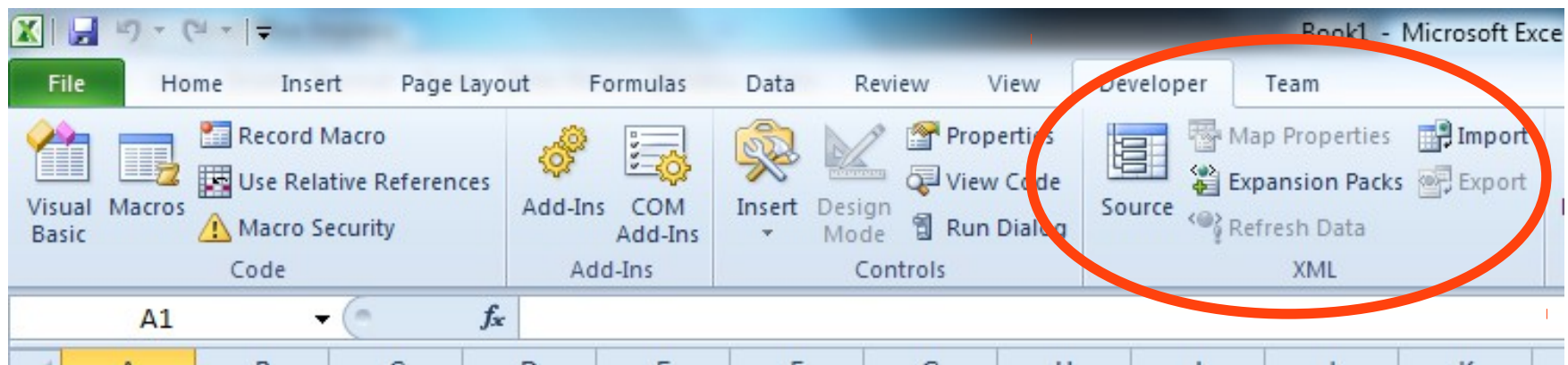
*"Michael the Enterprise Architect"*

<https://www.youtube.com/watch?v=qDI2oF1bASk>



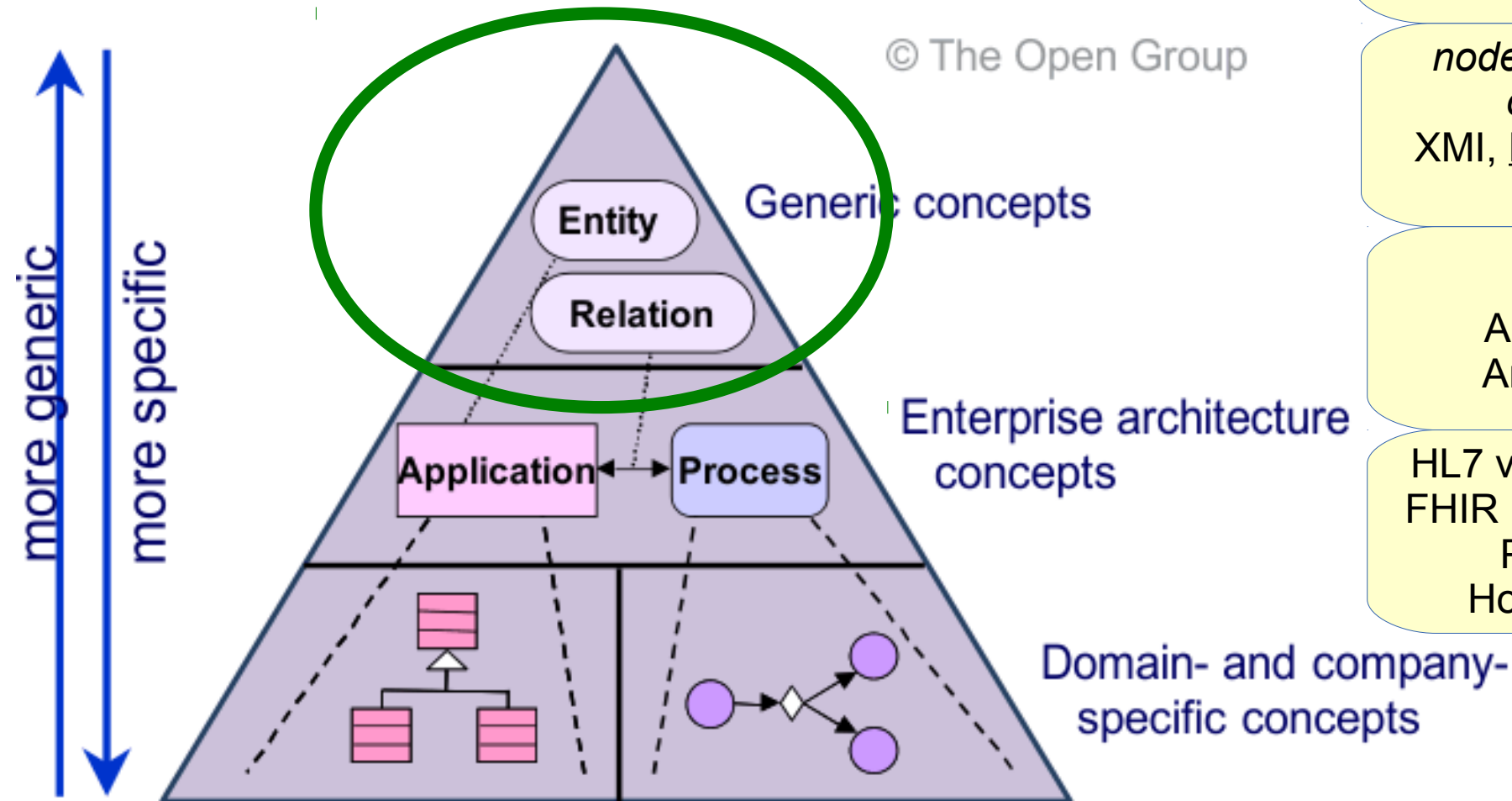
# “Wet van behoud van elende”

- Law of conservation of misery
- There is no such thing as a free lunch
- The problem doesnot go away ... break it up into parts / layers
- Basically MAX is a Models XML format that is “compatible” with a spreadsheet



# Positioning

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XML, Plain Text

*nodes / edges / objects*  
XMI, **MAX**, BMM, JSON

*typed*  
ADL, MIF, Archimate

HL7 v3 R/DMIMS, FHIR Resources & Profiles, Hospital EA





# Schema

ObjectType		
isAbstract	boolean	
id	[1..1]	token
name	[1..1]	token
alias	[0..1]	string
notes	[0..1]	MarkupType
stereotype	[0..1]	string
type	[0..1]	ObjectTypeEnum
parentId	[0..1]	string
modified	[0..1]	dateTime
tag	[0..*]	TagType
attribute	[0..*]	AttributeType

MarkupType
------------

ObjectTypeEnum
----------------

TagType		
name	token	
value	string	

AttributeType		
name	token	

RelationshipType		
id	[0..1]	token
label	[0..1]	token
sourceId	[1..1]	string
sourceLabel	[0..1]	token
sourceCard	[0..1]	token
destId	[1..1]	token
destLabel	[0..1]	token
destCard	[0..1]	token
notes	[0..1]	MarkupType
stereotype	[0..1]	token
type	[0..1]	RelationshipTypeEnum
tag	[0..*]	TagType

MarkupType
------------

RelationshipTypeEnum
----------------------

TagType		
name	token	
value	string	

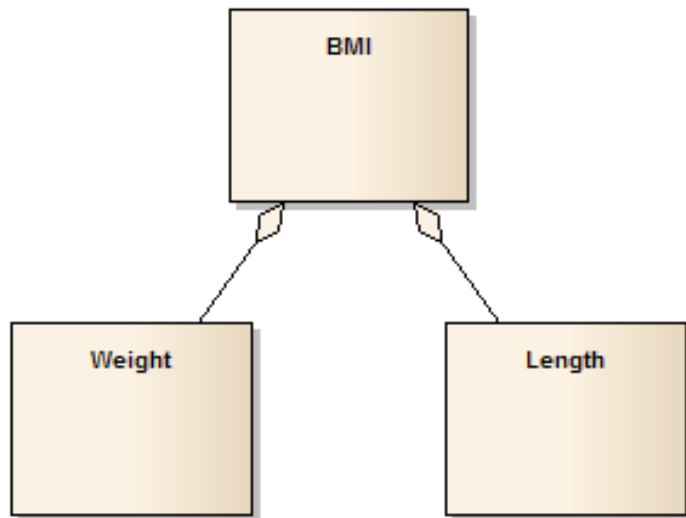
# Functionality

- Import / Update
- Export
- Validate (Schematron)
- Transform (XSLT)
- Edit parts of models using spreadsheets (CIC)



# Short Demo

1. Create small model in EA
2. Import into Excel
3. Change / Add
4. Update in EA



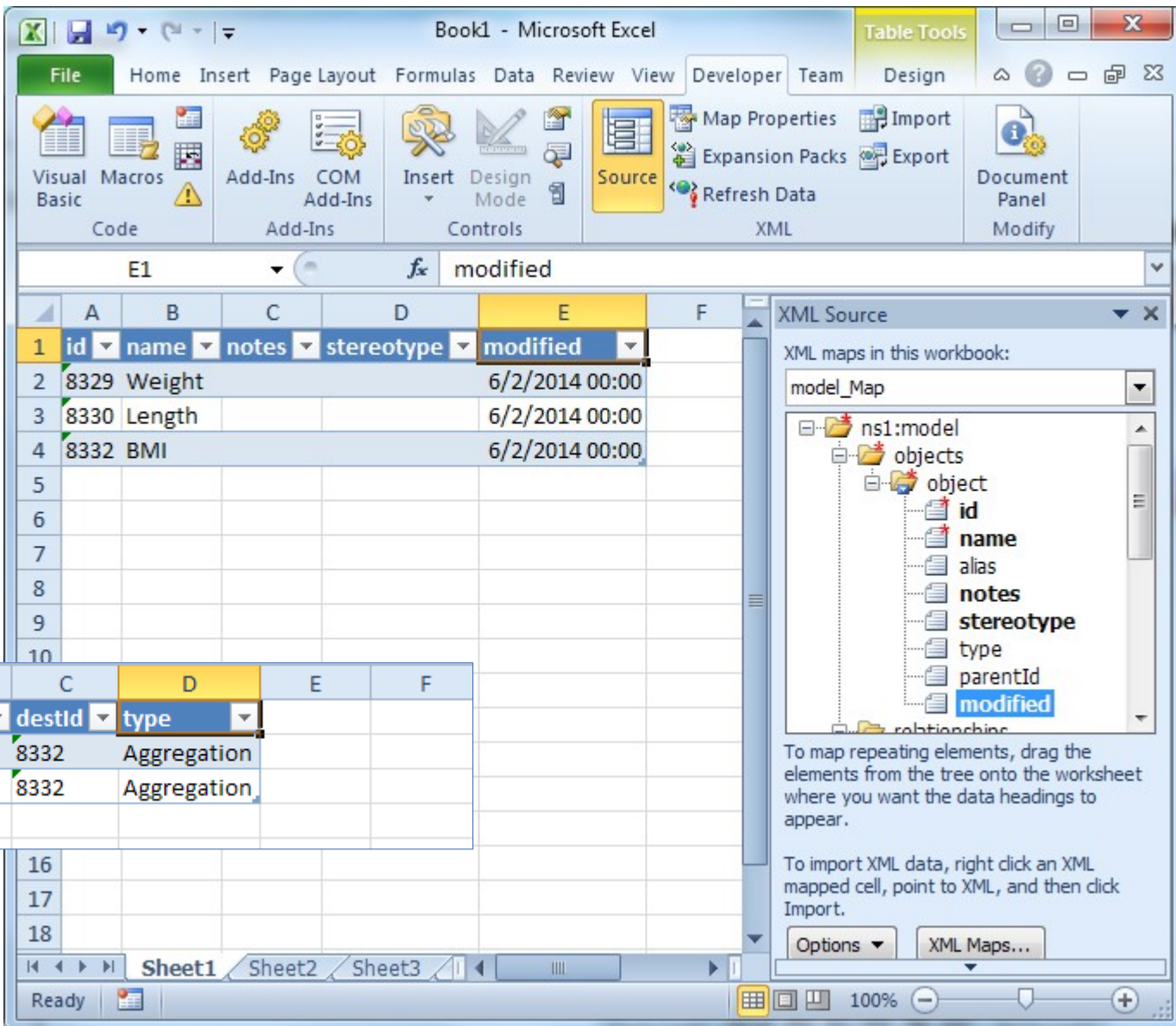
```

<model>
  <objects xmlns="">
    <object>
      <id>8329</id>
      <name>Weight</name>
      <type>Class</type>
      <modified>2014-06-02T00:00:00</modified>
    </object>
    <object>
      <id>8330</id>
      <name>Length</name>
      <type>Class</type>
      <modified>2014-06-02T00:00:00</modified>
    </object>
    <object>
      <id>8332</id>
      <name>BMI</name>
      <type>Class</type>
      <modified>2014-06-02T00:00:00</modified>
    </object>
  </objects>
  <relationships xmlns="">
    <relationship>
      <sourceId>8329</sourceId>
    </relationship>
  </relationships>
</model>
  
```

# In Excel

Sheet: Objects

Sheet: Relations



Book1 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Developer Team Design

Visual Basic Macros Add-Ins COM Add-Ins Insert Design Mode Source Map Properties Import Expansion Packs Export Document Panel Modify Refresh Data XML

E1 modified

	A	B	C	D	E	F
1	id	name	notes	stereotype	modified	
2	8329	Weight			6/2/2014 00:00	
3	8330	Length			6/2/2014 00:00	
4	8332	BMI			6/2/2014 00:00	
5						
6						
7						
8						
9						
10						

XML Source

XML maps in this workbook:

model\_Map

- ns1:model
  - objects
    - object
      - id
      - name
      - alias
      - notes
      - stereotype
      - type
      - parentId
      - modified

To map repeating elements, drag the elements from the tree onto the worksheet where you want the data headings to appear.

To import XML data, right click an XML mapped cell, point to XML, and then click Import.

Options XML Maps...

	A	B	C	D	E	F
1	id	sourceId	destId	type		
2		8329	8332	Aggregation		
3		8330	8332	Aggregation		
4						
16						
17						
18						

Sheet1 Sheet2 Sheet3

Ready 100%

# Current Uses

- EHR-S FM R2 Validation and Publication
- DCM Validation, Publication and Transformation
- UMCG EHR-S Architecture + Reporting
  - Get models into EA....
  - Get data from CMDB, Spreadsheets and other tooling into EA
  - DATProv LBGM import
- Archimate in EA
- MIF2's as UML – HL7 Challenge

# MAX on FHIR

- FHIR Resources → MAX → UML (EAP)
- DCM → MAX → XSLT → FHIR Profiles
  - DCM = Detailed Clinical Model (ISO 13972)
  - Functional Description + Specifications

# More info

- MSI + some documentation @ Box  
<https://app.box.com/s/ndhk4hnh2adzcho42sus>
- Sources @ Gforge  
<http://gforge.hl7.org/gf/project/max/>
- HL7 Wiki, needs update  
[http://wiki.hl7.org/index.php?title=MAX\\_-\\_Model\\_Automated\\_eXchange](http://wiki.hl7.org/index.php?title=MAX_-_Model_Automated_eXchange)
- Questions: [tooling@lists.hl7.org](mailto:tooling@lists.hl7.org)



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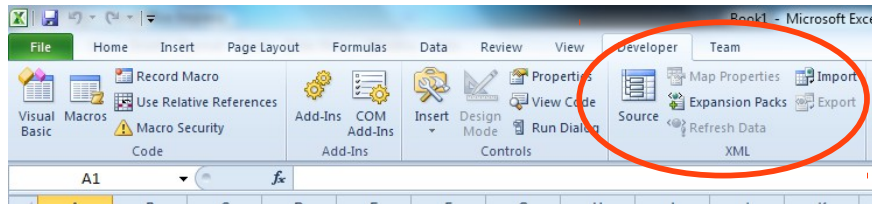


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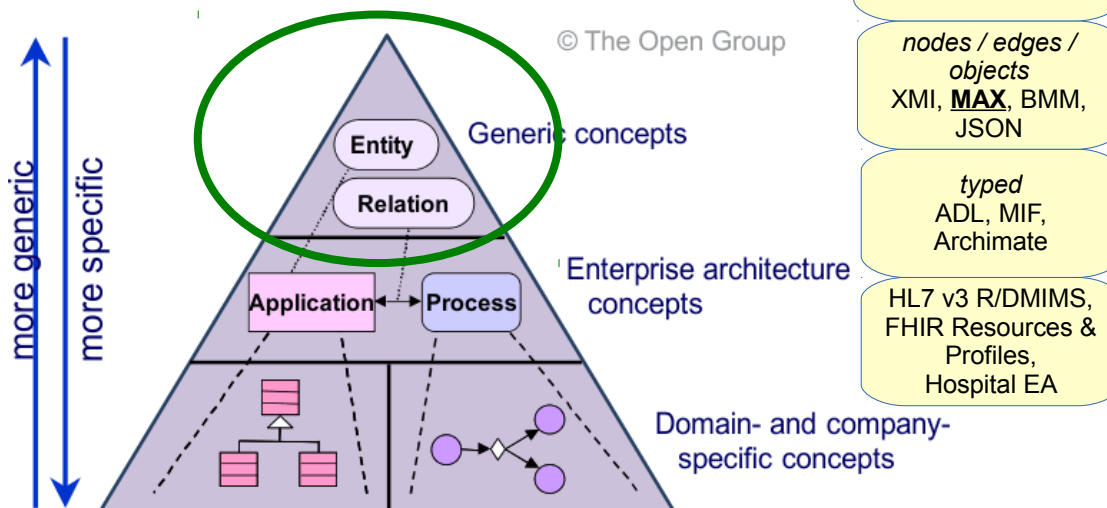
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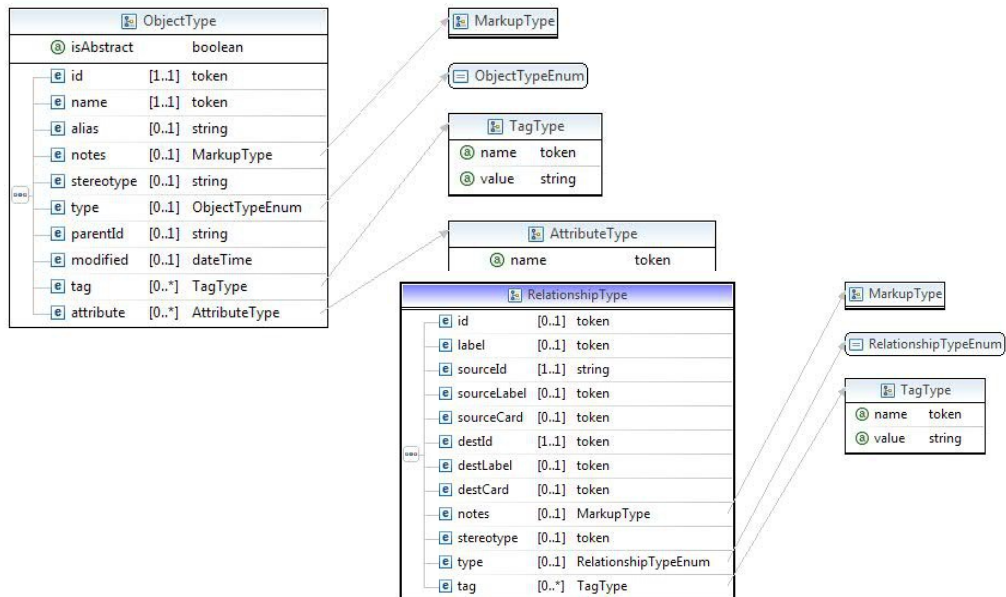


# Positioning





# Schema





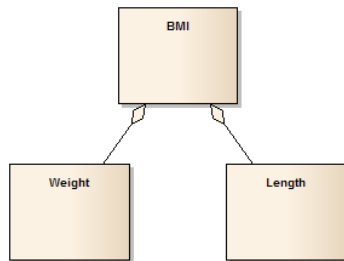
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- Questions: [tooling@lists.hl7.org](mailto:tooling@lists.hl7.org)

