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## Issues to be discussed on MFI-New-Part2

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Editor

MFI New Part2

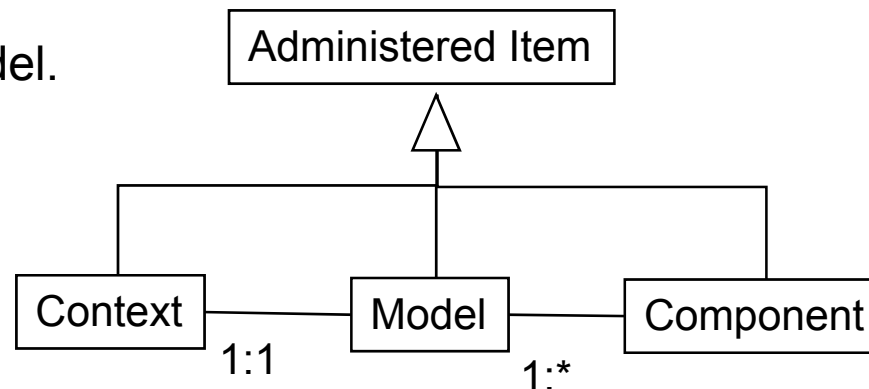
2010.5.16

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# Our tentative consensus at WG2 London meeting in November, 2009 (1 of 2)

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- The scope of new Part2 covers the ones of old Part2 (Core) and old Part4(Mapping)
- About old Part2
  - Make it simpler so that other parts of MFI (excluding Part1 (Reference model) and Part6 (Registration procedure)) can inherit all (?) the metaclasses of new Part2.
  - Tentative agreement on high-level metamodel.

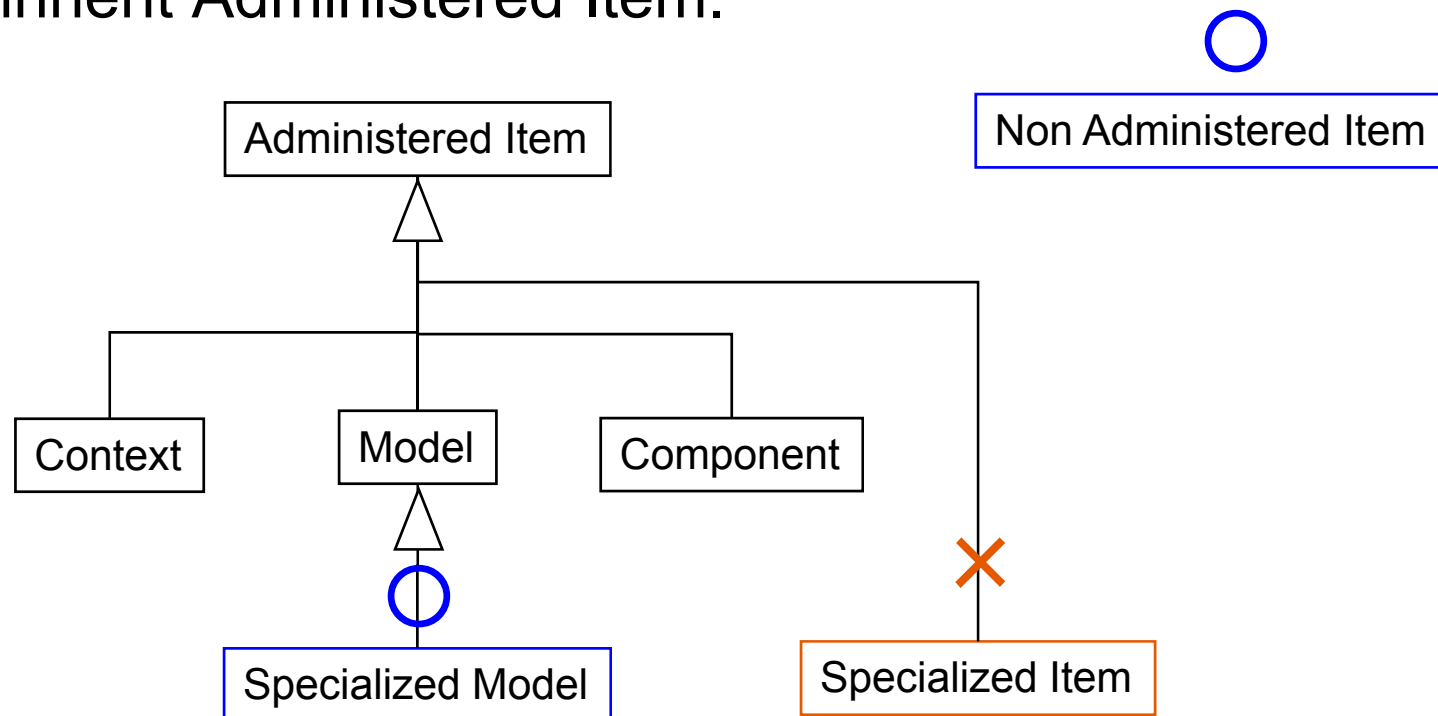


- About old Part4
  - Proposal from Baba-san.
    - ◆ Any mappings can be classified into 6 categories.
      - M1->M1, M2->M2, M1->M2->M2->M1, etc.
  - We need more discussions.

# Our tentative consensus at WG2 London meeting in November, 2009 (2 of 2)

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- If some part of MFI defines its own metaclass that inherit Administered Item, it shall inherit Administered Item through Context, Model, or Component, and shall not directly.
- Some part of MFI may define its own metaclass that does not inherit Administered Item.



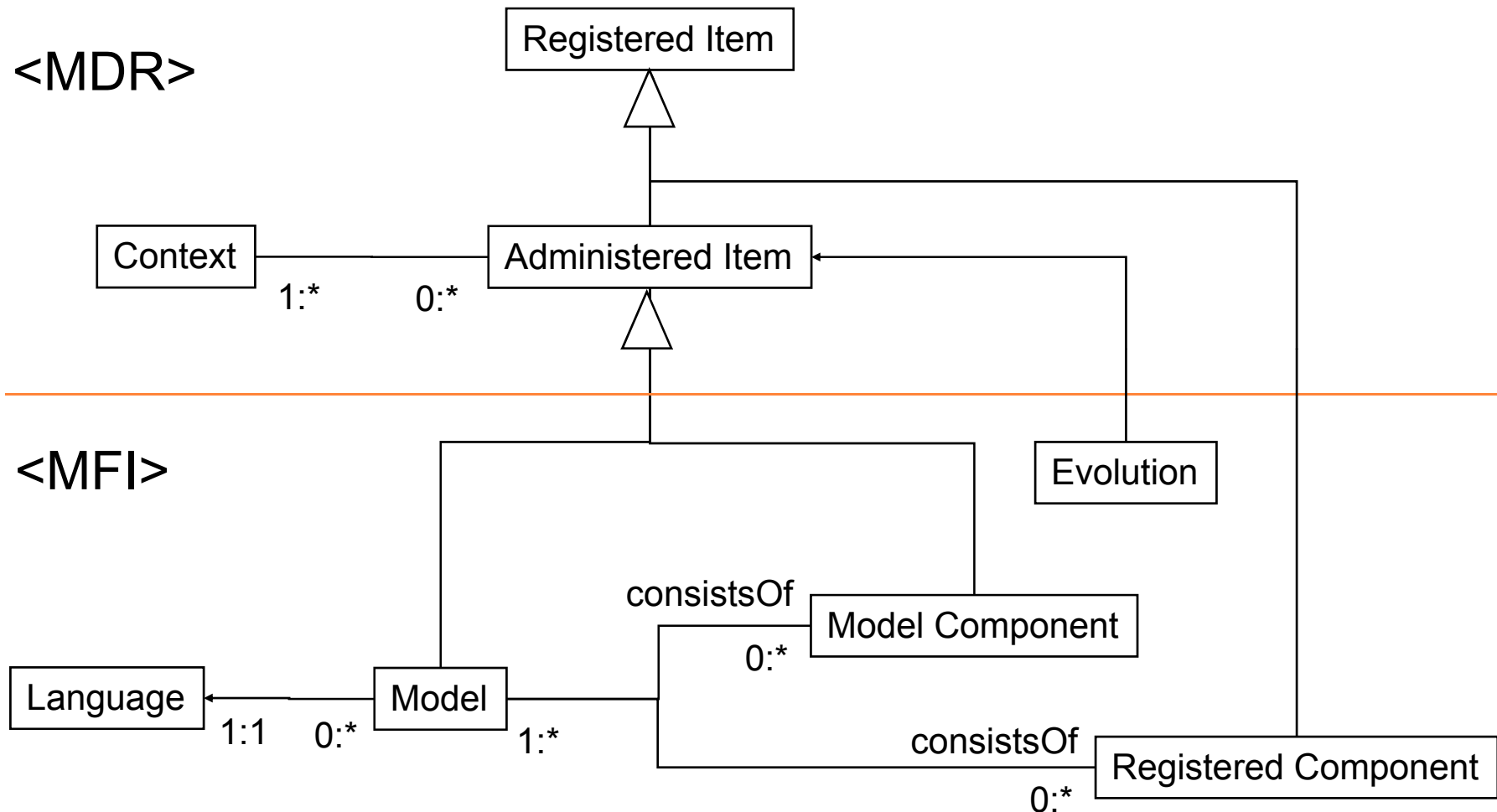
# Issues that need to be discussed

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1. Issues on Core model
2. Issues on Mapping
3. Issues on how to prescribe MFI metamodel

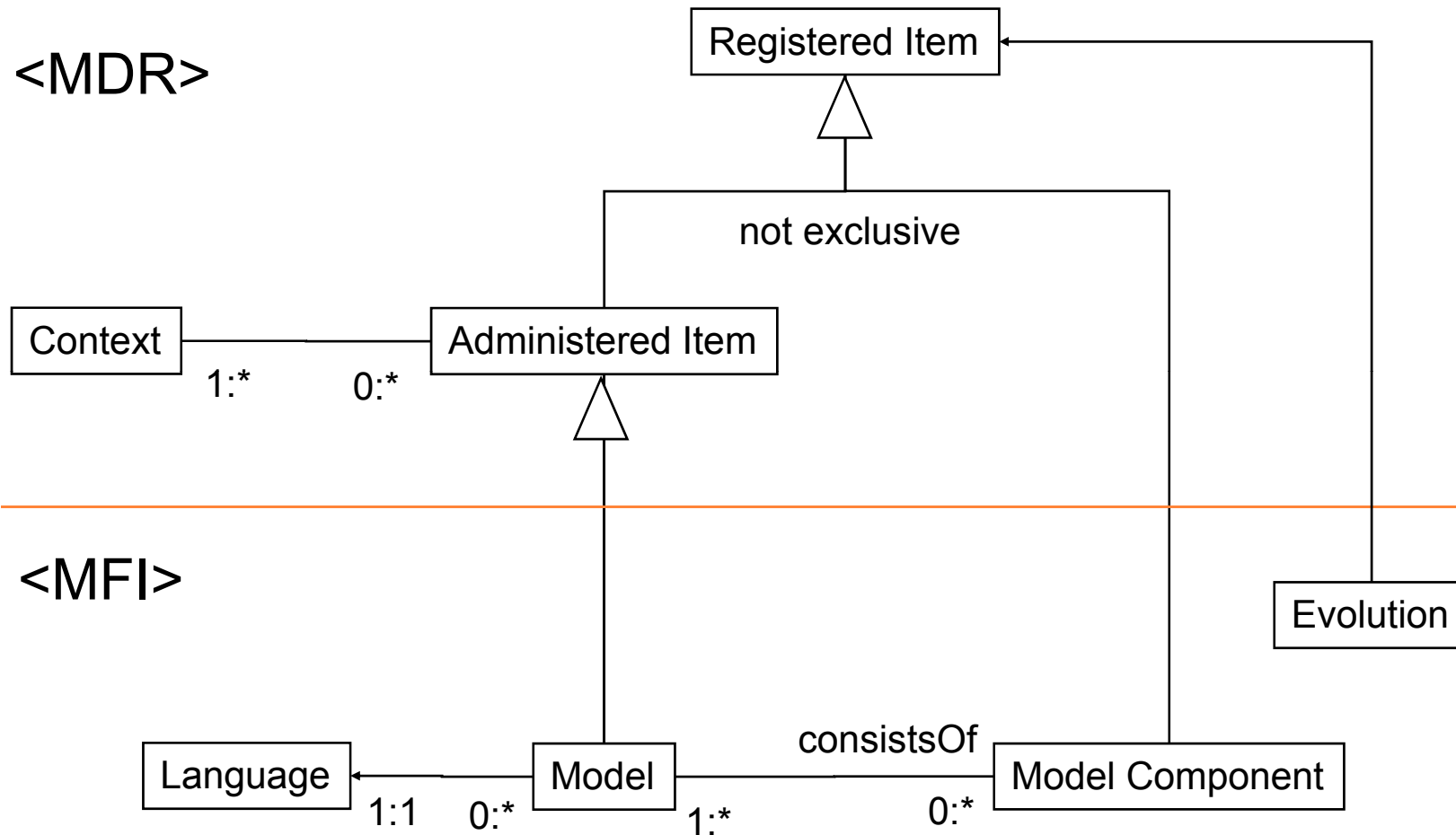
- About the tentatively agreed high-level metamodel
  
- Context---Use Context of MDR
  - Even today, it is still controversial what is a context?
  - Practically, it is difficult to identify a context.
    - ◆ If there are two context, it is difficult to determine whether these two are identical or not.
  - We have to get a good consensus on what a context is and to clearly define the metaclass “Context”. Otherwise, it may become a trash with many uncontrolled natural language descriptions.
  - Do we really need metaclass “Context” in the Core?
  
- Superclass of Atomic\_Construct
  - There is no superclass of Registered\_Ontology\_Atomic\_Construct of Part3, which inherits Administered Item.

# High-level metamodel of Part2 Core Candidate1



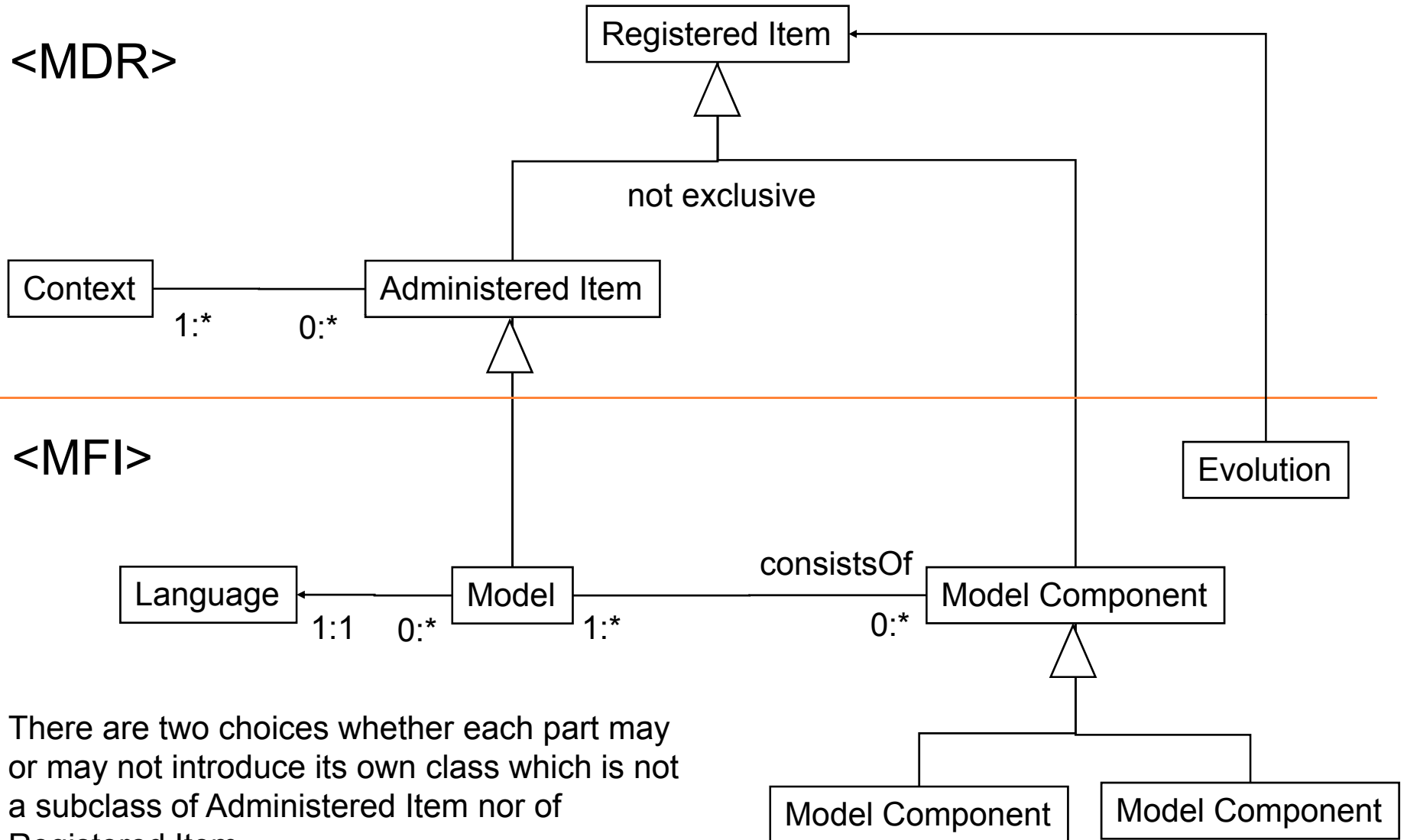
There are two choices whether each part may or may not introduce its own class which is not a subclass of Administered Item nor of Registered Item.

# High-level metamodel of Part2 Core Candidate2



There are two choices whether each part may or may not introduce its own class which is not a subclass of Administered Item nor of Registered Item.

# High-level metamodel of Part2 Core Candidate3



There are two choices whether each part may or may not introduce its own class which is not a subclass of Administered Item nor of Registered Item.

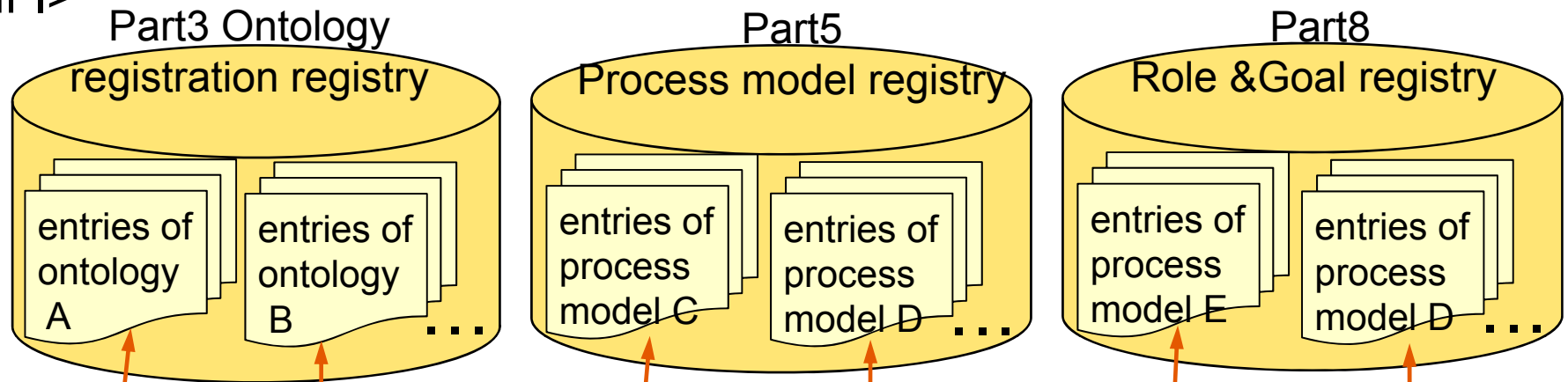
- Whether some facilities (metaclasses) of Part3 which is applicable to other parts should be moved to nwePart2 or not?
- Distinction of Unregistered\_xxx(Item), Reference\_xxx(Item) and Local\_Item. --- will not be introduced to Part2
- authoritativeLevel of Local\_Item --- will not be introduced to Part2.
- Item\_Evolution --- Something will be introduced to Part2, but not exactly the same as Item\_Evolution in Part3 Ed2.
- Language --- will be added to Partt2.
  - Ontology\_Language of Part3 and Process\_Model\_Language of Part5 are almost the same.
  - Each part has a specialized Language inherited from Language of Part2.

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## 2. Issues on mapping

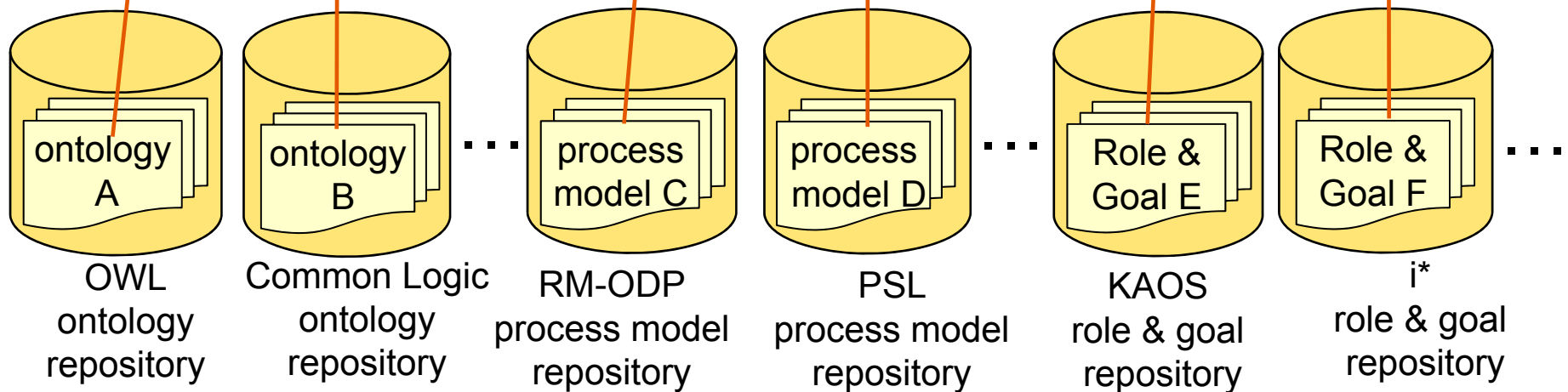
# Basic Structure of MFI

<MFI>



Only common semantics (essential subsets) are registered in MFI registry with some additional information.

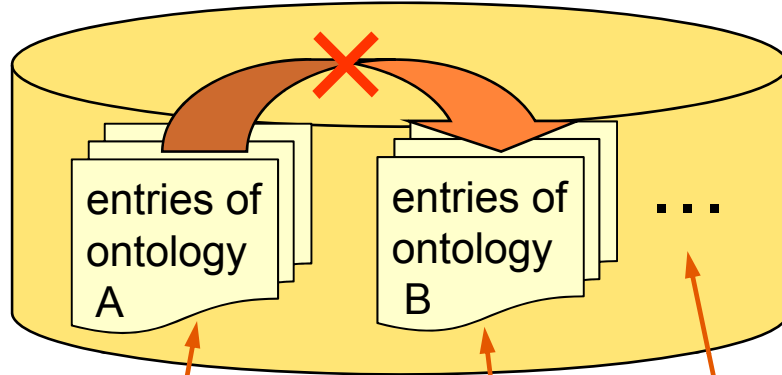
<Outside MFI>



# Basic Structure of MFI

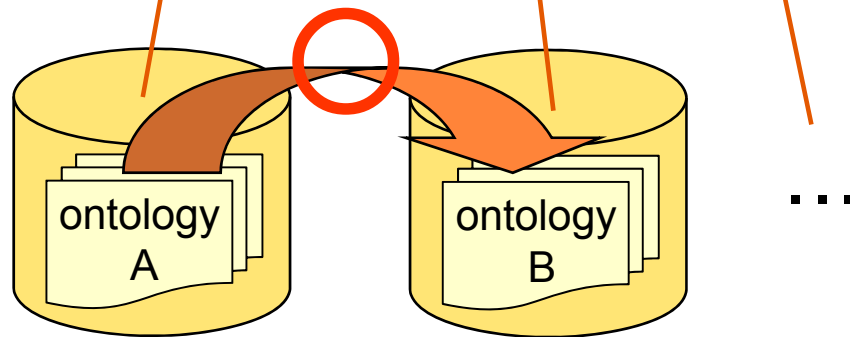
# (MFI Part3 Case)

MFI Ontology registration registry



MFI Ontology registration registry does not have enough information to define a mapping from A to B because it has only common semantics of A and B.

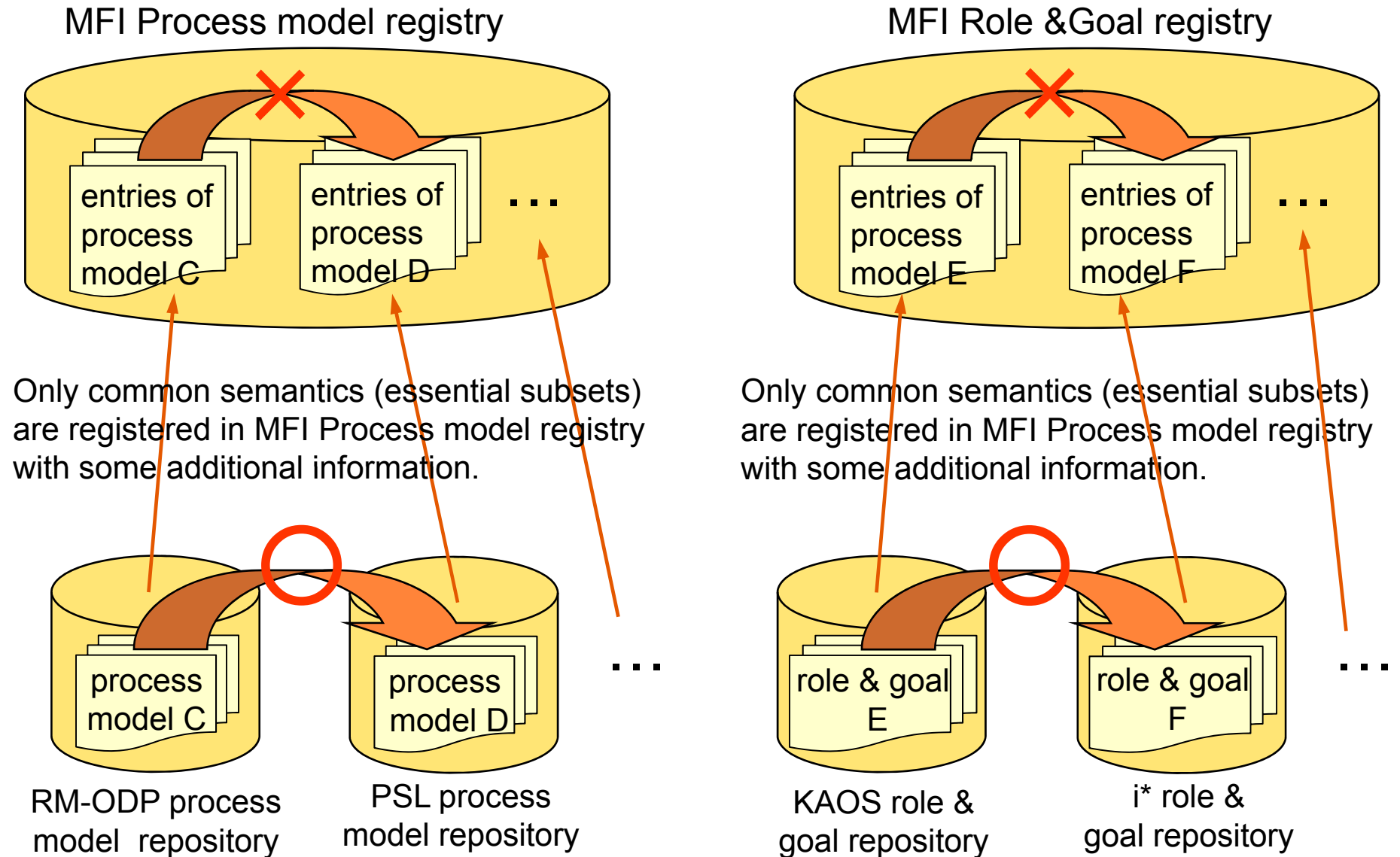
Only common semantics (essential subsets) are registered in MFI Ontology registration registry with some additional information.



OWL ontology repository      Common Logic ontology repository

Mapping from A to B may be defined, using all the information (semantics) of A in OWL ontology repository and B in Common Logic ontology repository.

# Basic Structure of MFI (MFI Part5 and Part8 Case)



## About mapping

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- One of the basic policies of MFI is that it only has common semantics of targets, independent of the languages that describe them.
- Hence, MFI registry does not have enough information to define a mapping from actual A to actual B.
- Moreover, since complete targets are out of the scope of MFI and MFI only registers their common semantics, complete mappings between targets is also out of the scope of MFI and MFI only registers the common semantics of complete targets?
  - If so, we need complete mapping repositories depending on  $C(n,2)$  language combinations.  $n$ =number of language

# Mapping within the scope of MFI Part2

## ■ Mapping in M1



- This includes the following.



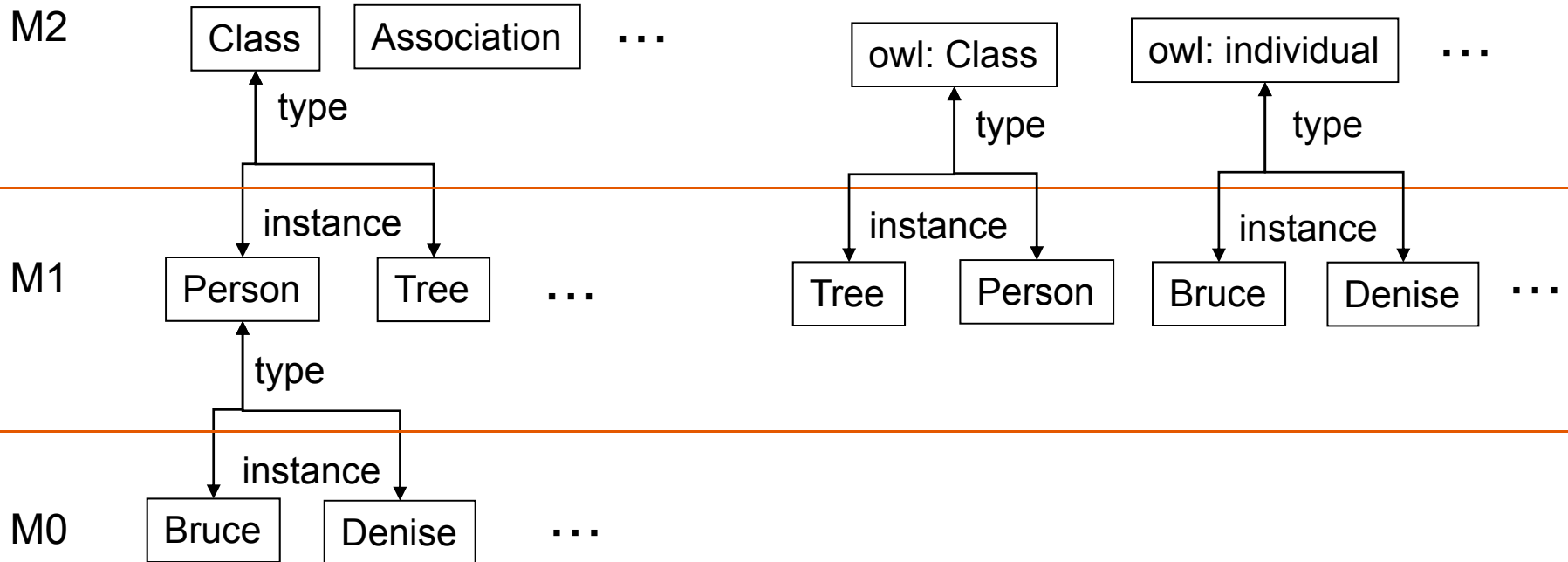
## ■ Note:

- MFI Part2 shall provide a facility to register a mapping as far as it can be defined.
- It is out of the scope, for example, to map the methods of class A to E/R model, since E/R model do not has a method.

# Note: Level-pair (or multi meta level) is not all mighty.

M3 MOF (or UML for UML)

MOF

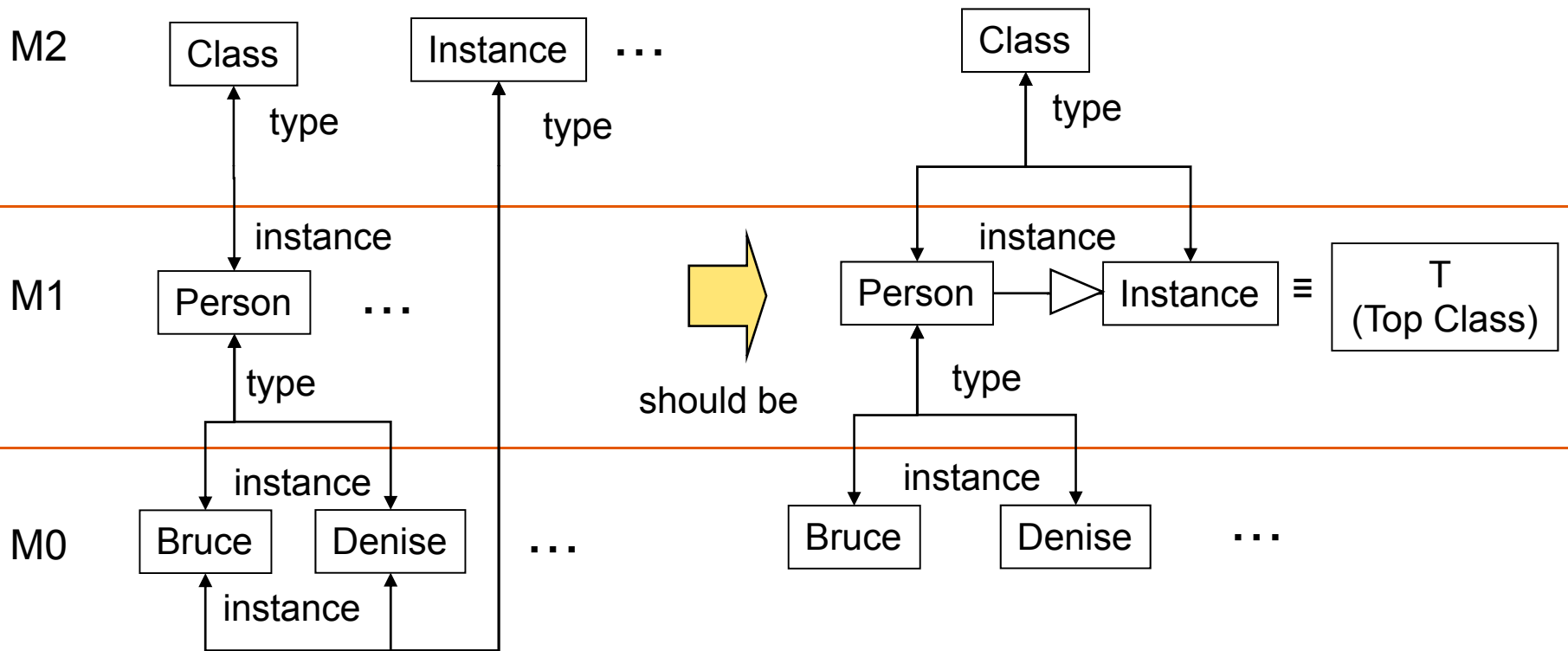


Note: OWL metamodel in ODM

# Note: Level-pair (or multi meta level) is not all mighty.

M3 MOF (or UML for UML)

MOF (or UML for UML)



Metalevel focusing on M2

Metalevel focusing on M1 and M0

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### 3. Issues on how to prescribe MFI metamodel

# Underlying meta-meta model

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## ■ MOF or UML?

- Part3 uses ISO/IEC 19502 MOF1.4
- Part5 uses UML2.?
  
- Advantage of using MOF
  - ◆ High affinity with a UML tool based on MOF
- Advantage of using UML
  - ◆ Higher expressiveness compared to MOF

## Note

- Since all the metamodels of MFI are relatively simple, practically it does not matter so much to use MOF or UML for the purpose of prescribing them.
- But, at least, MFI should take the same policy, and preferably, both MDR and MFI should take the same policy.

# What version of MOF or UML should be used?

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## ■ MOF and UML are continuously updated.

- Current version

- MOF 2.0 published in January, 2006.      Ver.2.1 is underway.

- UML 2.2 published in Februarys, 2009.      Ver.2.3 is underway.

## ■ Should we follow the latest version of MOF or UML?

or

## ■ Should we stick to ISO/IEC version of MOF or UML?

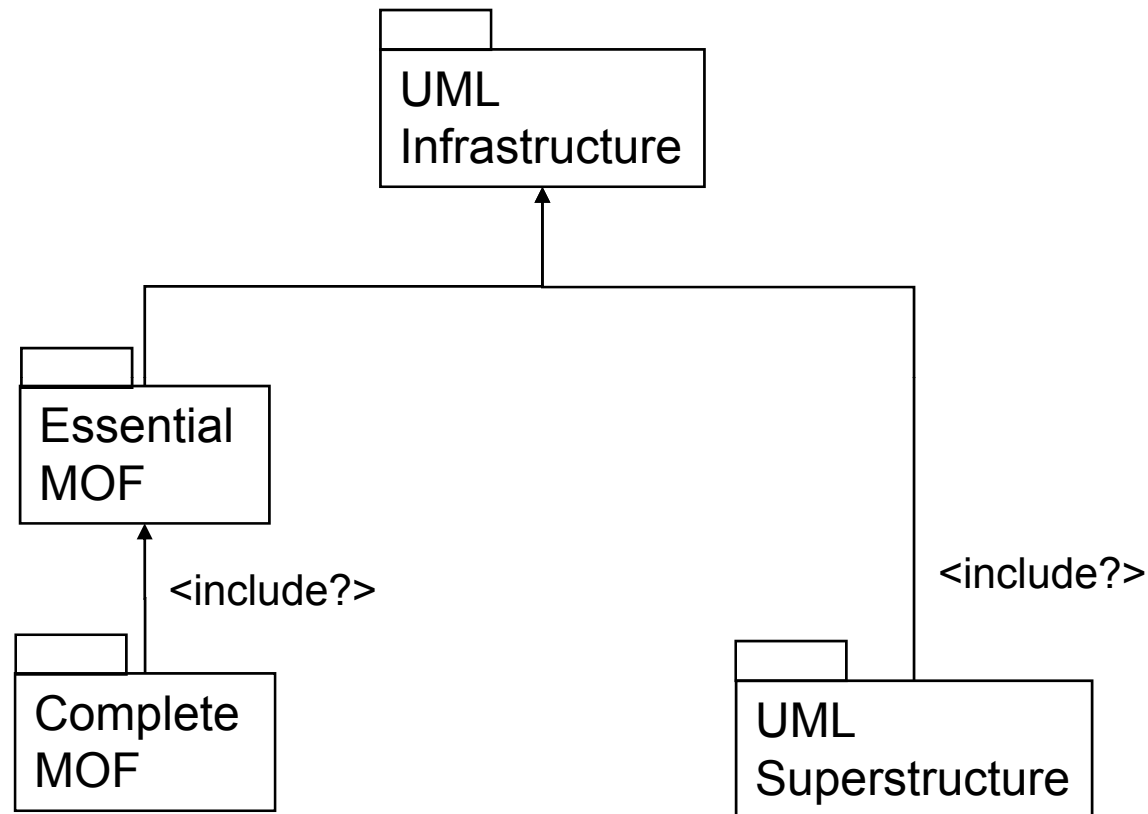
- ISO/IEC 19502 MOF, which is nearly equal to MOF 1.4.

- ISO/IEC 19501 UML, which is equal to UML 1.4.2

  - ◆ FDIS 19501 Ed2, which is equal to UML 2.x, is underway???

# High-level Package Structure of UML family

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MFI old Part2&4 and Part3 uses older version of MOF (ISO/IEC 19502 MOF1.4) to define its (meta) model.

MDR Part3 Ed3 and MFI Part 5 uses (a part of ) UML Superstructure to define its (meta) model.

# A few other style(?) issues

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## ■ Reference or association?

- Which should be used?
- MFI Part3 and Part5 use references?
- MDR Part3 Ed3 uses associations.
  
- Advantage of using references
  - ◆ By defining as a reference of its owner class, it becomes clear who is responsible for the value (link).
- Advantage of using associations
  - ◆ Roles and multiplicities of both ends can be defined easily.
  
- A least, MFI should use the same style, and preferably, both MDR and MFI should take the same style.

## ■ Formats

- Currently, Part3 and Part5 use their own style to prescribe their metaclasses.
- A least, MFI should use the same format, and preferably, both MDR and MFI should take the same format.