

# SERAPIS 2 Ecore

## Bridging Two Modeling Spaces in Eclipse

Master- /Diplomstudium:  
Software Engineering & Internet Computing

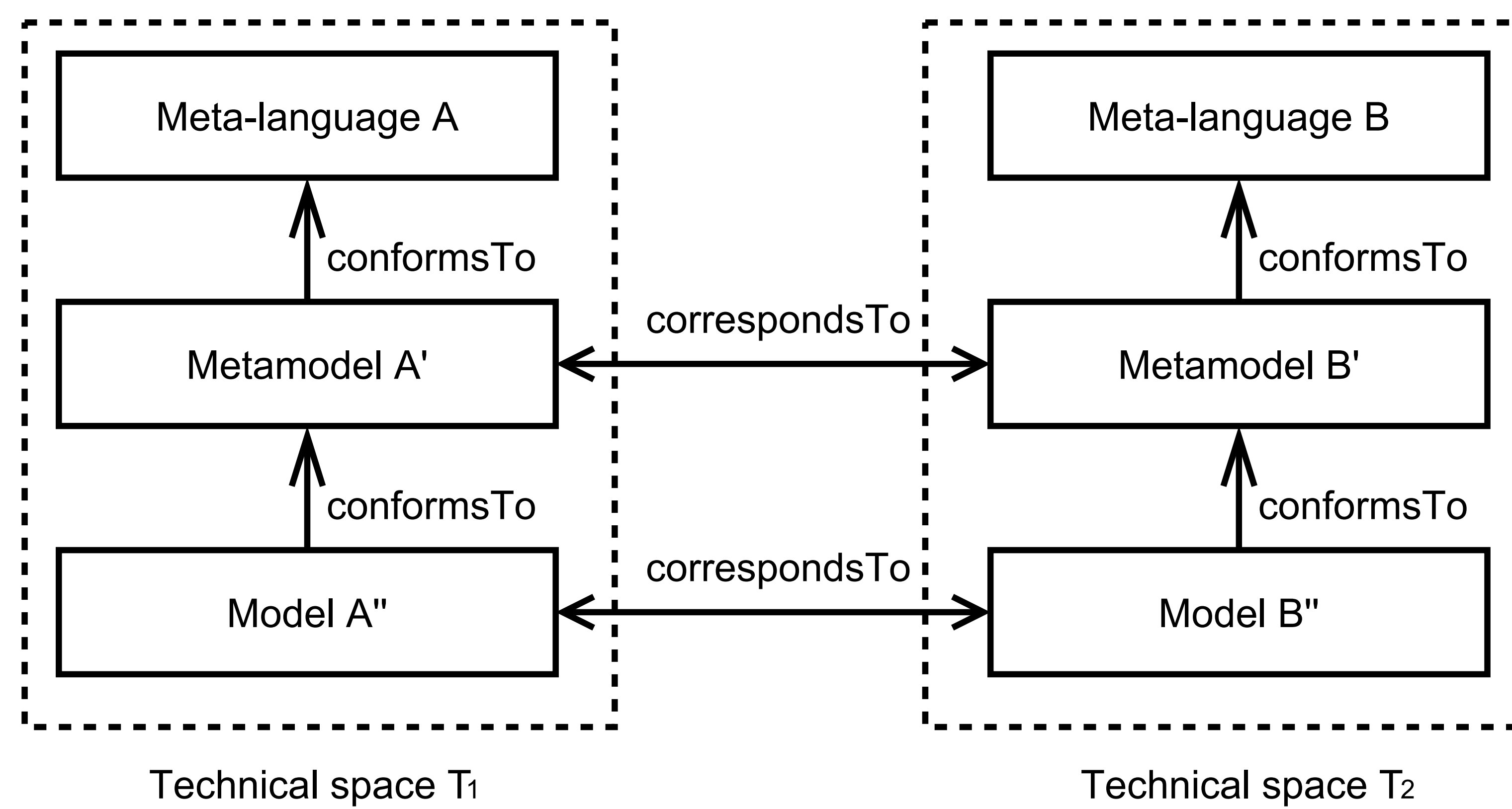
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### INTRODUCTION AND OBJECTIVE

- Like the Eclipse Modeling Framework (EMF), the SERAPIS modeling tool is based on Eclipse and also introduces three meta-layers in its architecture.
- Instead of Ecore, SERAPIS utilizes a proprietary meta-language that is not compliant to existing standards.
- As a consequence, SERAPIS-based models cannot be integrated with other development tools which causes a vendor-lock.
- Propose a strategy to bridge the SERAPIS technical space to EMF, allowing for model transformation in order to overcome the vendor-lock.
- Provide an implementation with the purpose of evaluating the feasibility of the researched transformation approach.

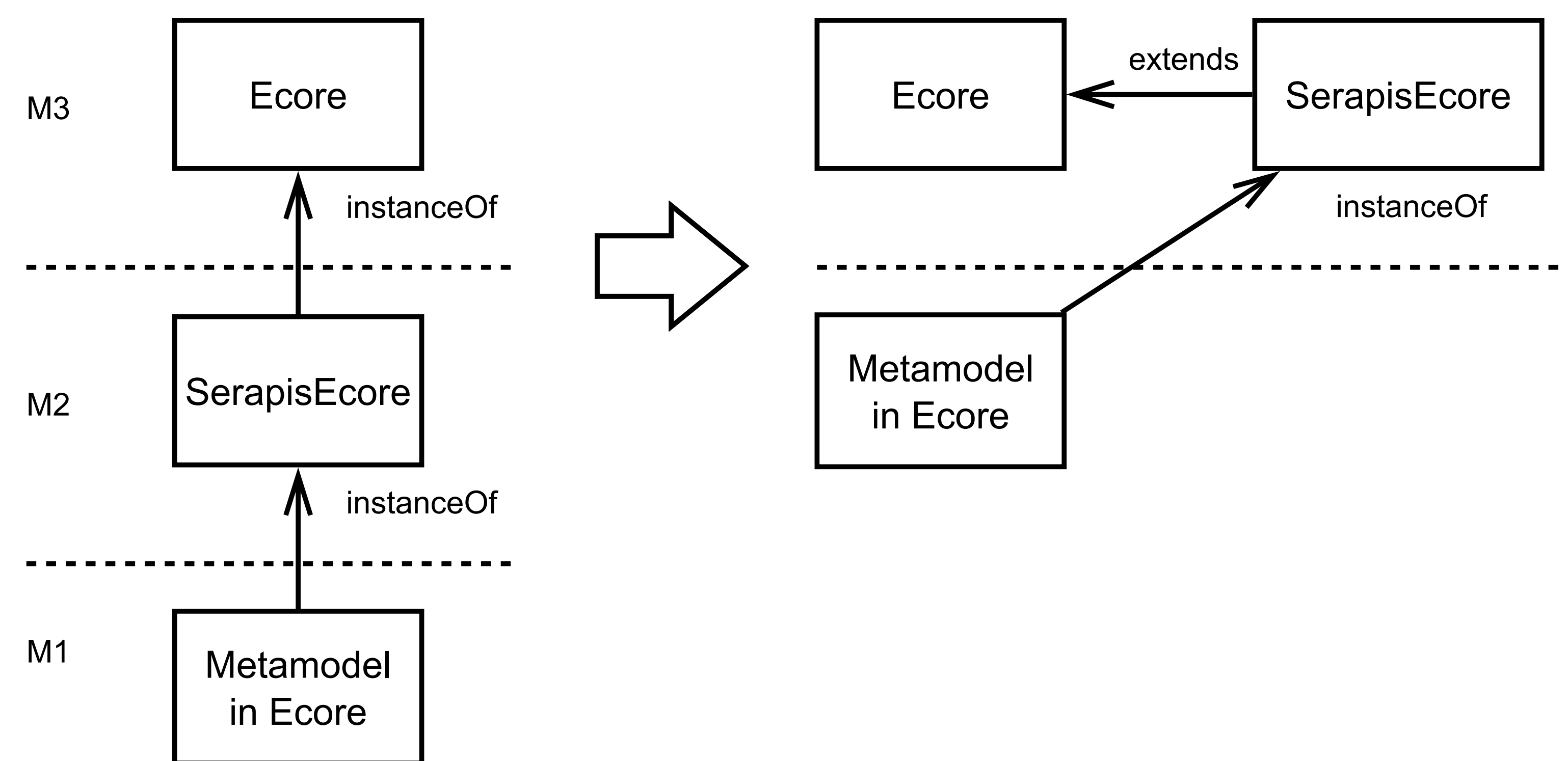
### METAMODEL BRIDGING AND META-LEVEL LIFTING



The Ph.D. thesis by Manuel Wimmer [1] suggests to bridge metamodels between two different technical spaces as follows:

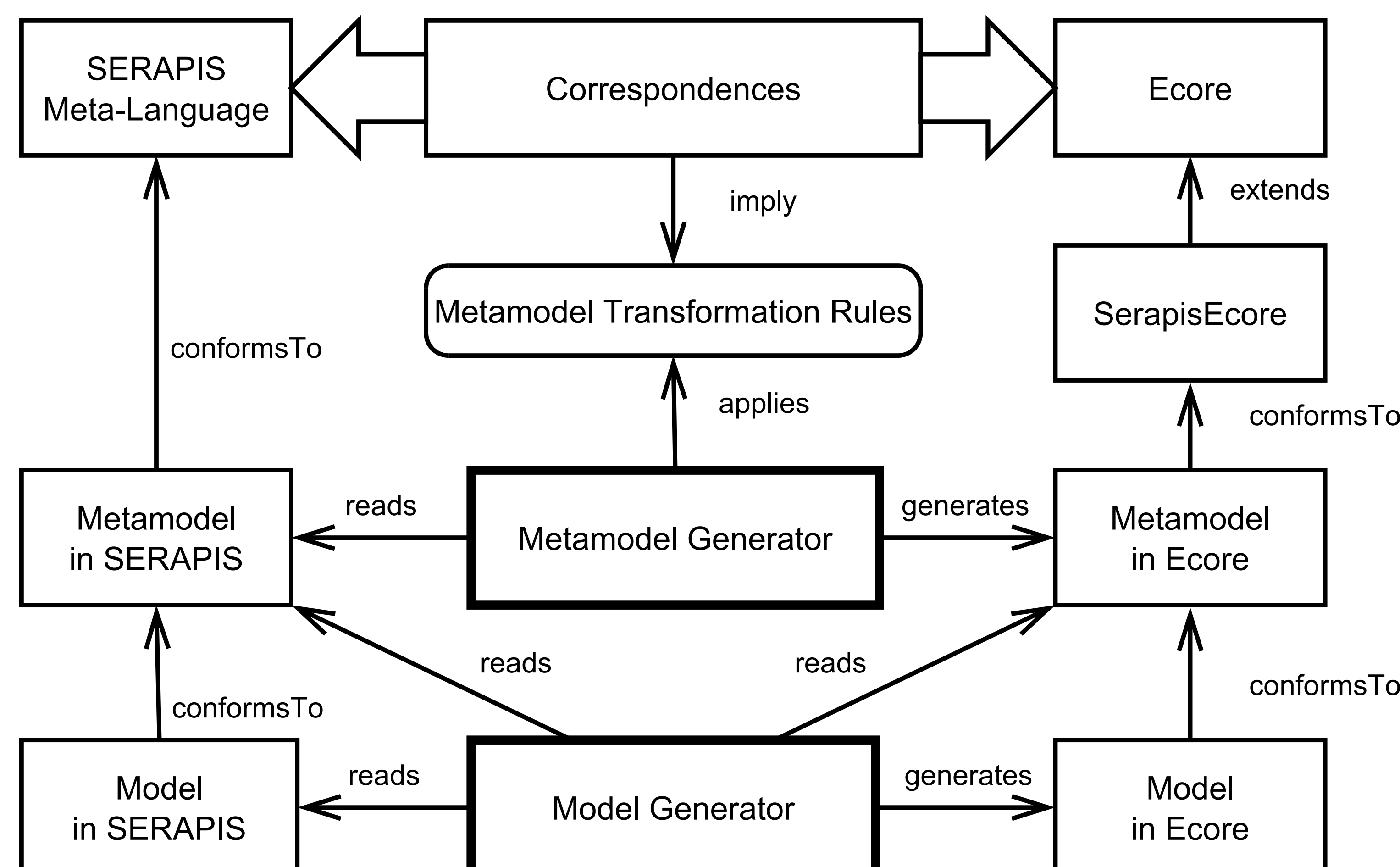
- Establish a mapping between the elements of **Meta-language A** and **Meta-language B**.
- Derive transformation rules from the mapping in order to generate **Metamodel B'**.
- Apply heuristics to manually resolve ambiguities in the mapping.

This transformation approach is adapted to the technical spaces of SERAPIS and EMF, and extended with the capability to also generate models.



- Directly mapping the SERAPIS meta-language to Ecore is not possible, so the **SerapisEcore** metamodel is designed to provide missing language features.
- The meta-level lifting approach of EMF Profiles [2] is applied to lift the **SerapisEcore** metamodel to the level of a meta-language, allowing to extend Ecore.

### RESULT AND CONCLUSION



- The **Metamodel Generator** reads the SERAPIS metamodel and generates a new metamodel in Ecore according to the transformation rules derived from the correspondences of both meta-languages.
- Applying the same basic principle, the **Model Generator** uses correspondences between the SERAPIS metamodel and the generated target metamodel to instantiate the model in Ecore.
- Metamodel bridging [1] and meta-level lifting [2] are valuable approaches for bridging different technical spaces.

[1] M. Wimmer. From Mining to Mapping and Roundtrip Transformations - A Systematic Approach to Model-based Tool Integration, PhD Thesis, TU Wien, 2008.

[2] P. Langer, K. Wieland, M. Wimmer, and J. Cabot. EMF Profiles: A Lightweight Extension Approach for EMF Models, Journal of Object Technology, 11(1), April 2012.