

Web System Development based on Product Line Architectures

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Introduction

- Employing SPL for web development has received little attention
 - Product derivation
 - Product architecture derivation
- We aim to define a framework to develop web systems based on product-line architectures
- Benefits:
 - accelerates the development process by raising the level of abstraction of the customization procedures to maintain and evolve web product lines.

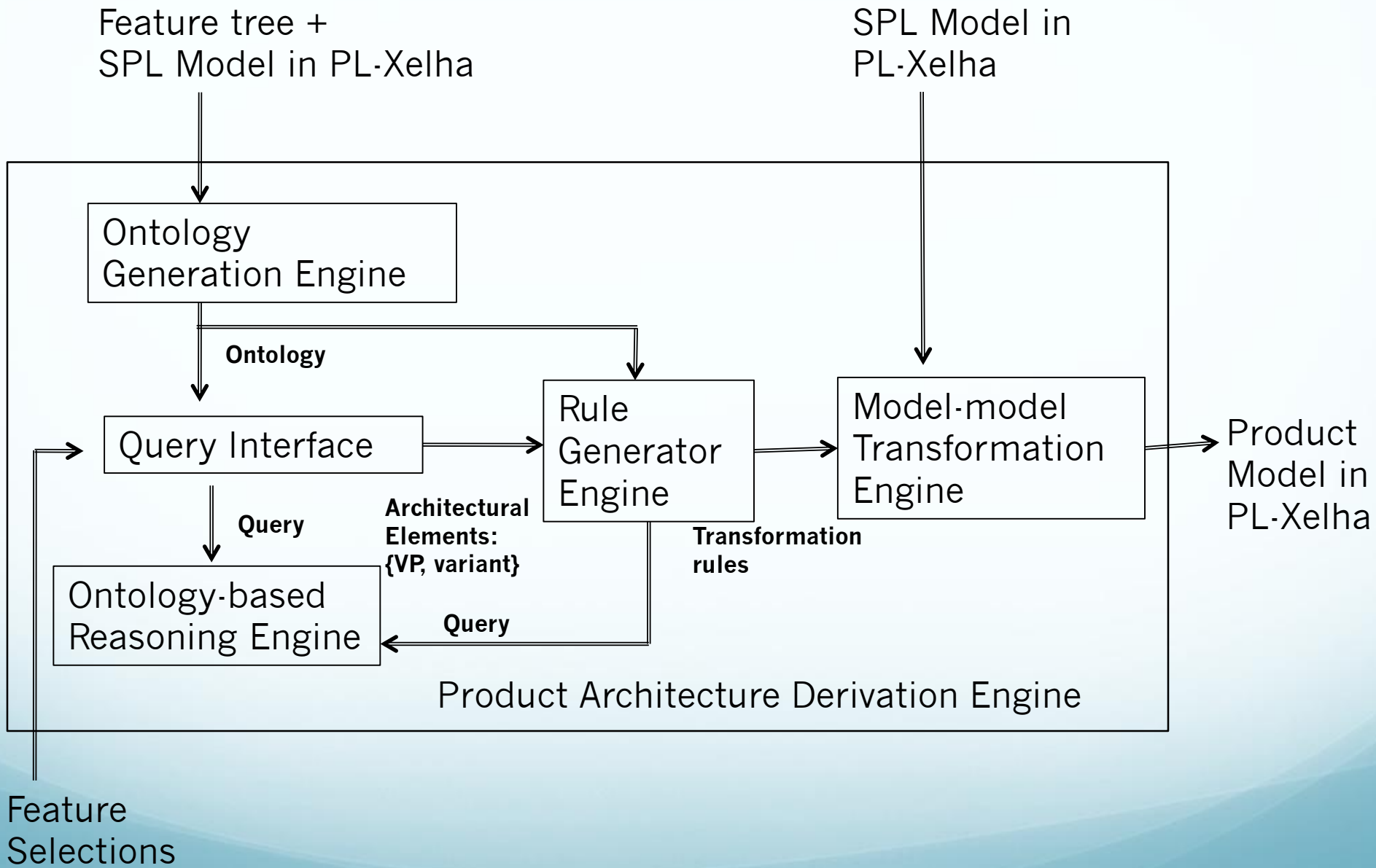
An Ontology-Based Product Architecture Derivation Approach

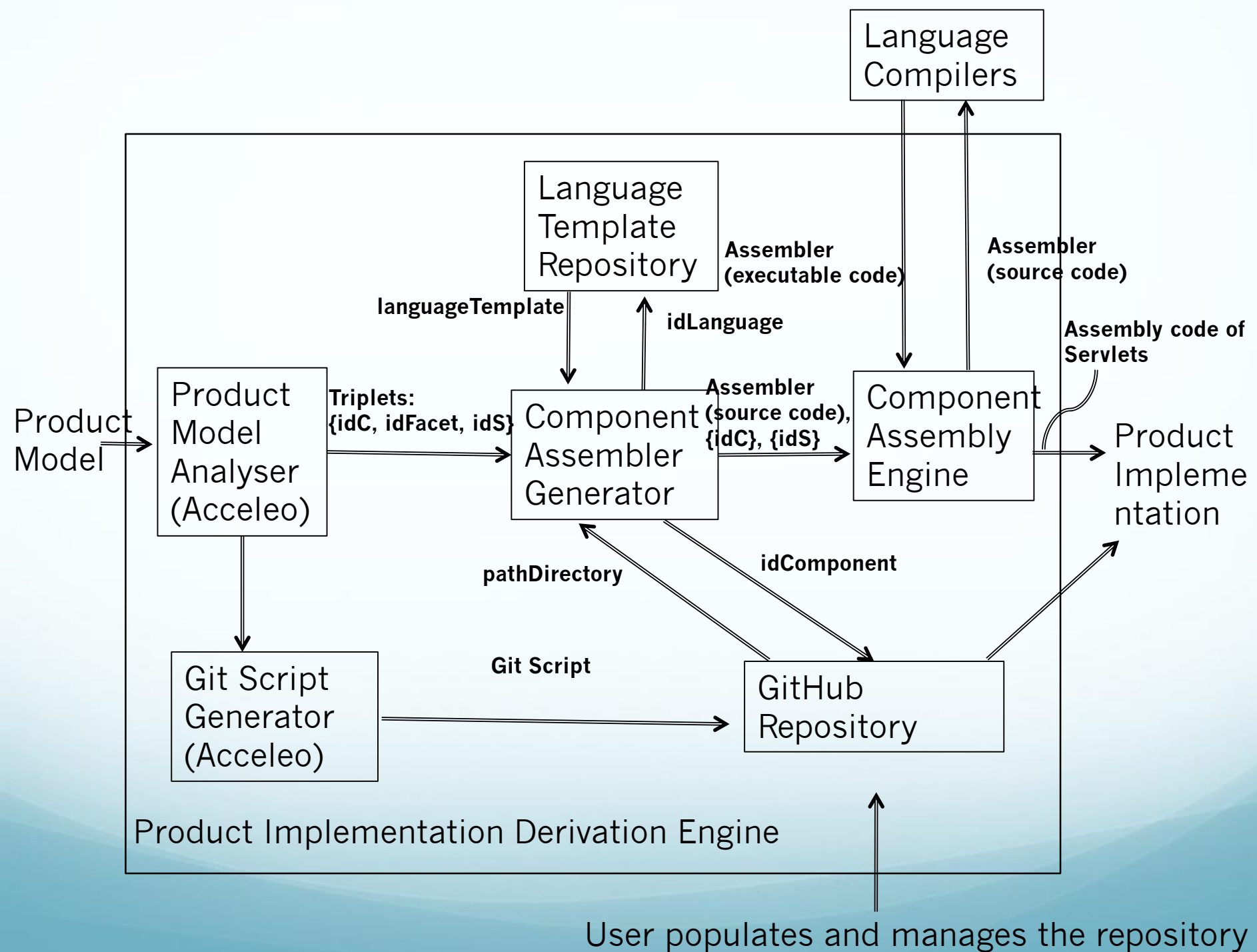
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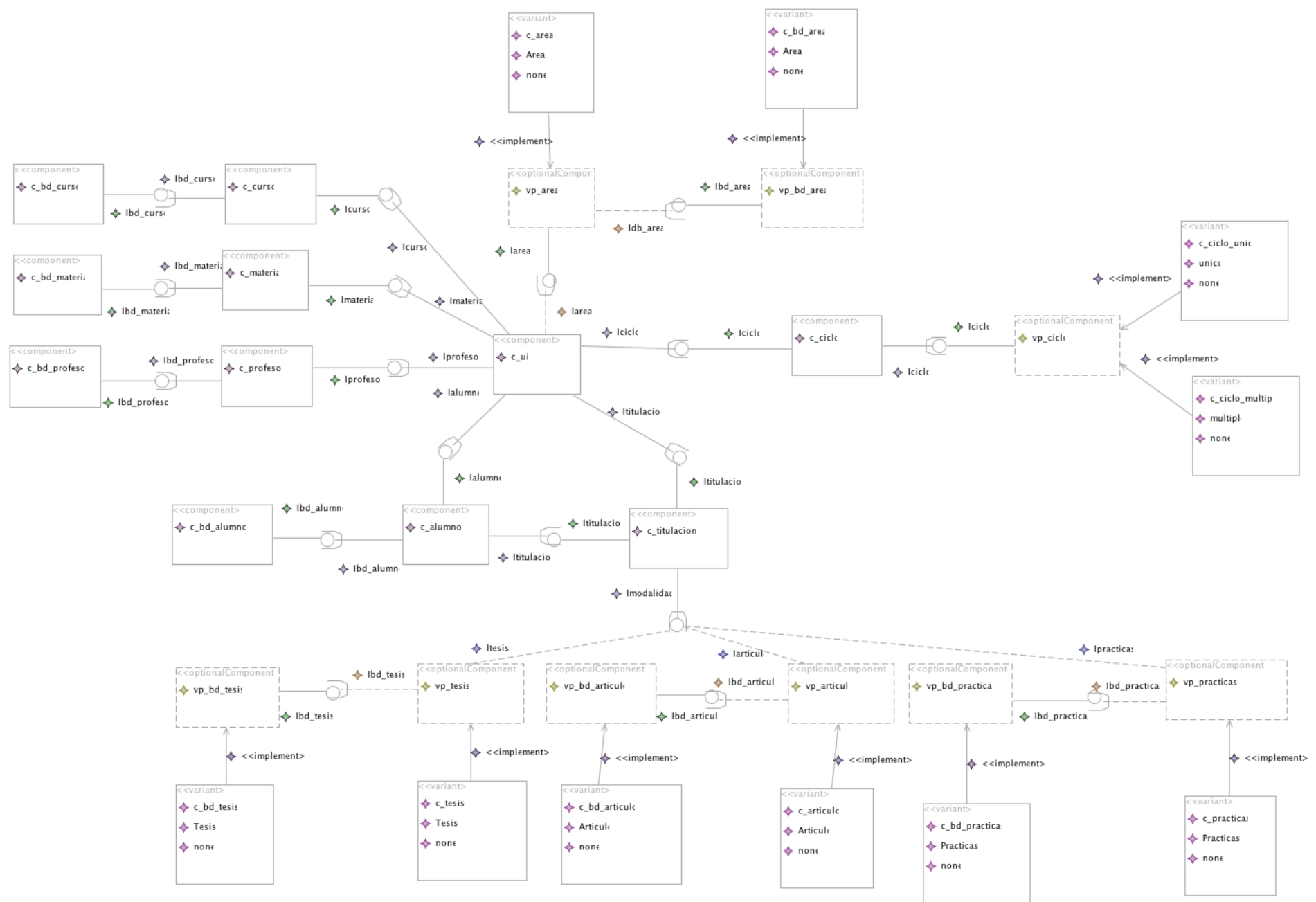
Abstract—Software product line (SPL) engineering has proven to improve software quality and shorten development cycles, cost and time. In product line engineering, product derivation is concerned with the realization of the variability at the implementation level. However, the majority of research works focuses on instantiating the variants selected in the final product, while the derivation at the architecture level has been poorly explored. As product line engineers often customize the product architecture by hand during the application engineering phase, the derivation and customization processes of the product line architecture (PLA) might be in some cases error-prone. Consequently, in this research we present an Ontology-based product Architecture Derivation (OntoAD) framework which automates the derivation of product-specific architectures from an SPL architecture. Our solution uses a language-independent model to specify the product line architecture and a model-driven engineering approach for architecture derivation activities. We use an ontology formalism to reason about the automatic generation of model-to-model transformation rules based on the selection of features and we illustrate our approach using a voice over IP motivating example. Finally, we report results about scalability and performance regarding the size of the variability model.

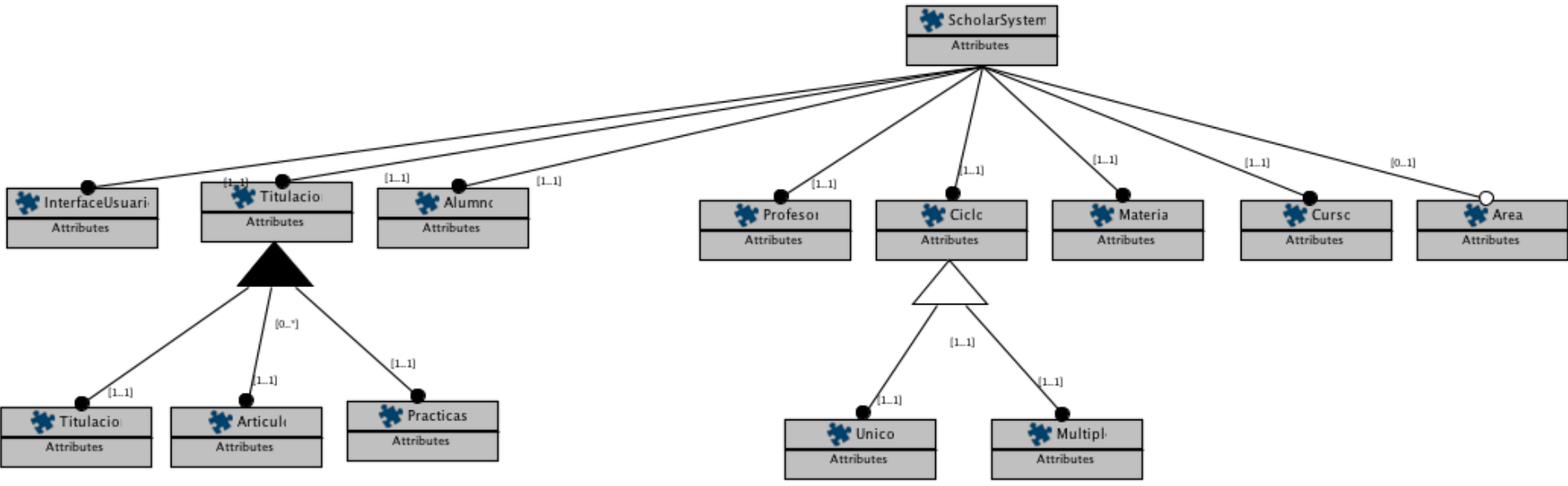
Index Terms—Software product lines, feature models, software architecture, product derivation, architecture derivation, ontologies, model-driven engineering, scalability











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Gracias!