**Problem Statement**

- Model Transformations are very important in Model Driven Engineering, however, they cope with growing complexity (decreasing reusability, maintainability, quality).
- ATL is most widely used Transformation Language, however, with weak support concerning transformation quality.
- Refactorings known from Object-Oriented Software for coping with bad quality a.k.a. Bad Smells.

**Goal:** Adaption of Refactorings to Transformations in ATL

**Bad Smells**

The ATL Transformation Zoo was analyzed to identify bad smells and define anti-patterns. A few of those smells are similar to those of object-oriented frameworks and are ported to the declarative paradigm of rule-based transformations.

- Bad Names
- God Rule
- Code Duplicate
- Unused Language Feature
- Oversized Binding/Filter
- If Cascade
- Deprecated Language Feature

**Evaluation**

For the evaluation metrics were used to measure statical quality attributes. The performance was analyzed with huge input models measuring the transformation runtime before & after refactorings have been applied.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Org</th>
<th>Ref.</th>
<th>SpeedupRT</th>
<th>Refactoring Steps</th>
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<tr>
<td># Rules</td>
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<td># Helpers with Context</td>
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<td># Bad Smells</td>
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</table>

**Outcome**

- Reduction of Bad Smells
- Increase of Refactorings & Transformation Quality

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