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Title : Méthodologie de Développement Objet

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The document titled "Méthodologie de Développement Objet" is divided into several sections. The content focuses on object-oriented development methodology and model engineering. It was written by Christine Solnon and is associated with the INSA de Lyon - 4IF for the academic year 2014-2015.

The document starts by discussing the idea of automating software production and the concept of generating code automatically from specifications. It explores the challenge of specifying a system in an informal language that is easy for users to understand but difficult to exploit automatically, versus using a formal language that is unambiguous but harder for non-experts to comprehend. The author suggests a combination of informal and formal descriptions in practice.

The document then briefly introduces formal languages and grammar. It explains that a formal language is described by a formal grammar, which consists of rules that define syntactically correct words in the language. An example of formal grammar is provided.

The concept of model transformation is introduced, which refers to the process of converting a model from one language to another. Models are described as words in a formal language. The source language is the language of the input model, and the target language is the language of the output model. Different types of model transformations are mentioned, such as optimization, refactoring, re-engineering, migration, synthesis of programs, compilation, and reverse engineering.

The document discusses the automatic transformation of models. It explains that a grammar describes the syntactically correct words but does not provide an interpretation of the word in the real world. To automatically transform a word from one language to another, it is necessary to associate a semantic interpretation with the abstract syntax trees of the words. Transformation rules are applied to achieve the desired transformation.

The document compares the use of models in traditional software development processes versus model-driven engineering. It highlights the central role of models in model-driven engineering, where models are written and maintained, and code is generated from these models. The document poses the question of whether model-driven engineering is an ambitious but realistic goal.

Finally, the document suggests additional resources for further reading on model-driven engineering, including books and websites related to the Eclipse Modeling Framework (EMF), Model-Driven Architecture (MDA), and meta-modeling.