University of Seville, Spain

Applied Software Engineering

Automated Analysis of Orthogonal Variability Models.
A First Step

Fabricia Roos Frantz and Sergio Segura

isa   http://www.isa.us.es
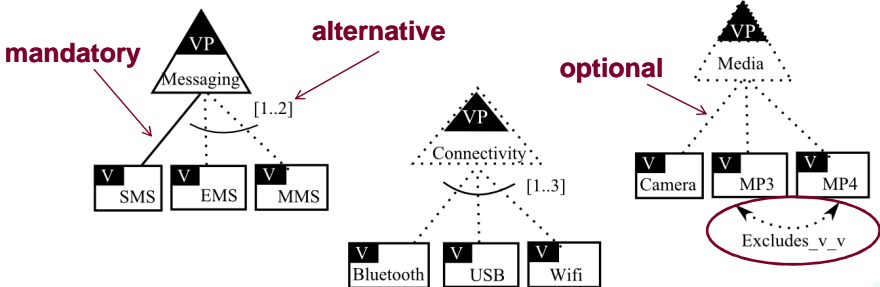

Motivation

OVM´s semantics

Operations

Tooling

Future work

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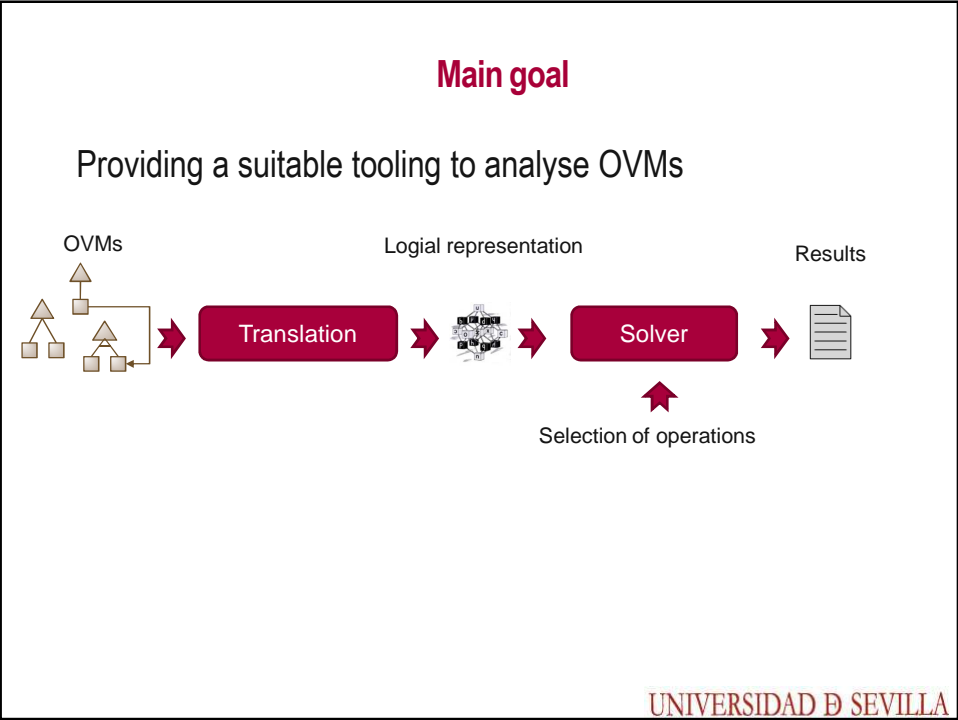Motivation

OVM´s semantics

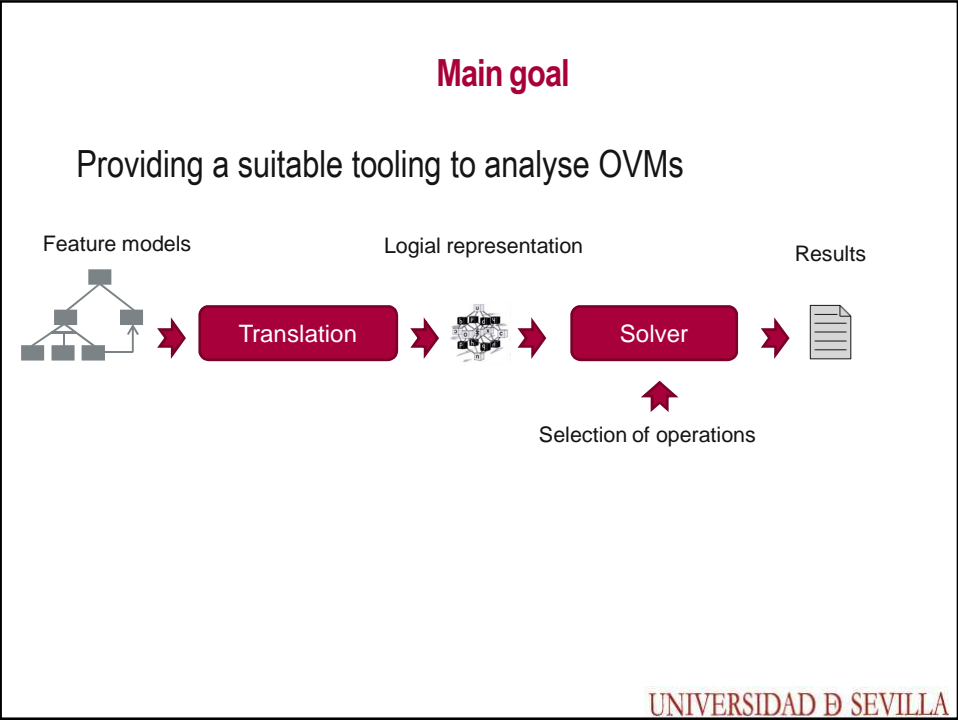Operations

Tooling

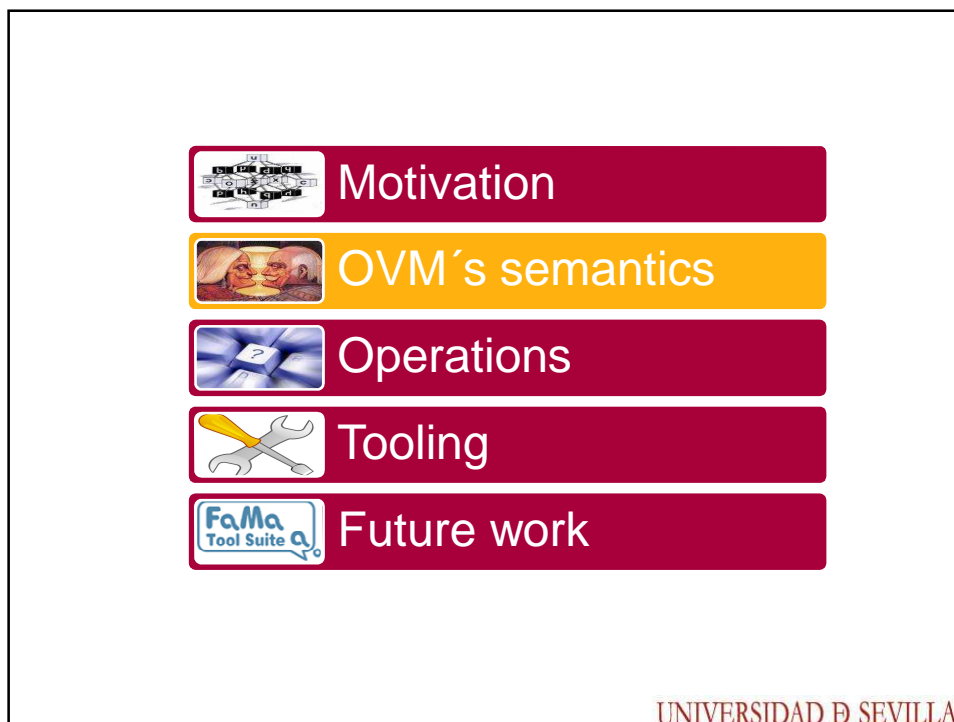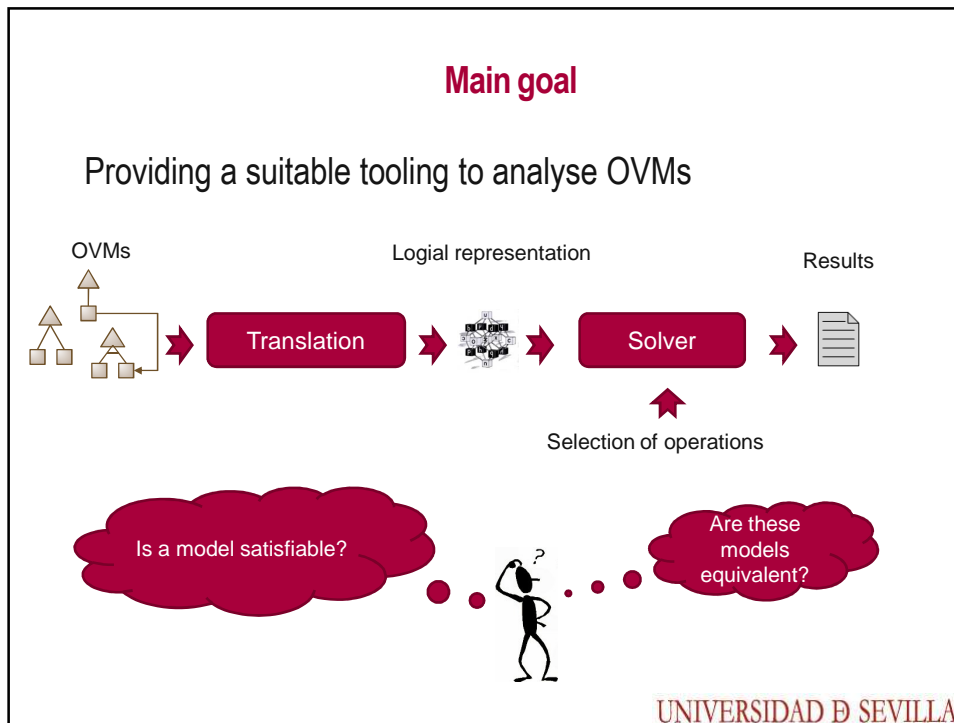Future work

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Orthogonal variability model (OVM)

- OVM is a variability model that documents only the variability of a SPL   [Klaus Pohl et al., Springer, 2005]
- Variation points and variants
- Mandatory, optional and alternative relationships
- Constraints: requires and excludes

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Main goal

Providing a suitable tooling to analyse OVMs

Feature models   Logial representation   Results

Translation   Solver

Selection of operations

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Is a model satisfiable?

Are these models equivalent?

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Motivation

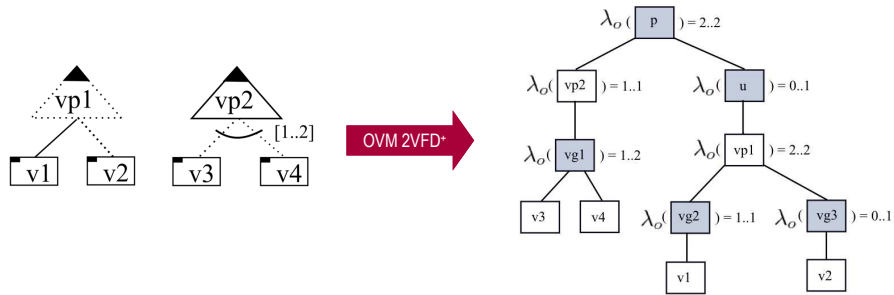OVM´s semantics

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What formal semantics of OVM should be used?

- Current OVM´s semantics   [Metzger et al. - RE 2007]
  - ❏ Translation from OVM into VFD+
  - ❏ VFD+ = VFD + textual constraints
  - ❏ VFD (Varied Feature Diagram)   [Schobbens et al., J. Computer Networks, 2007]

- Giving a direct semantics

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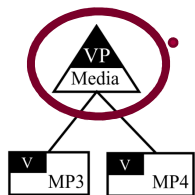Future work

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How to specify equivalent models?

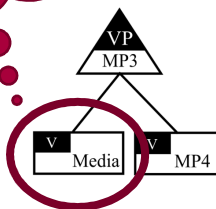- Equivalent feature models [Schobbens et al., J. Computer Networks, 2007]

Two models are equivalent if they represent the same set of products, i.e. ,they describe the same product line.

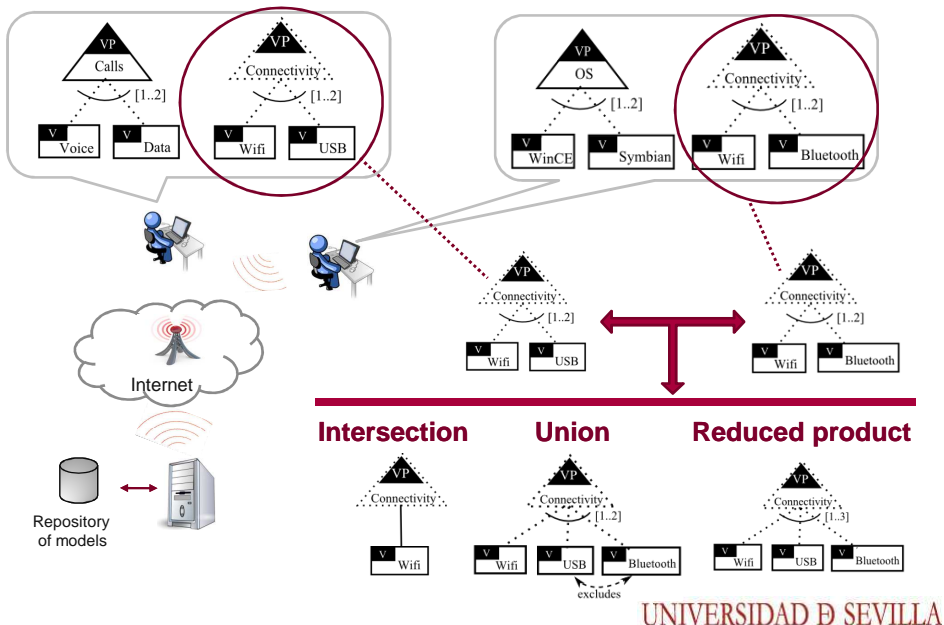- Equivalent OVMs?

VPs and Vs are semantically different

?
≡

Products = {Media, MP3, MP4}   Products = {MP3, Media, MP4}

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How to specify merging of OVM models?

Intersection   Union   Reduced product

excludes

Repository of models

Internet

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Tooling for the analysis of OVMs

How to provide a suitable tooling to analyse OVMs?

FAMA

FAMA-F *is a formal framework for the automated analysis of software product lines in general and feature models in particular.*

FAMA-FW *an extensible framework for the automated analysis of Variability Models integrating different logic paradigms and solvers.*

FAMA website: http://www.isa.us.es/fama

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	Tooling
	Future work

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Future work

- Studying OVM's semantics
- Working on equivalent OVM models
- Formal definition of merging of OVM models
- Using FAMA as tool support
- Integrate with existing OVM edition tools

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Thank you!!

Any questions and/or suggestions

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