Flexible Insurance Systems

Part 3: Product Modelling
How would you model insurance products and why?

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Agenda

- Insurance Products Defined

- Why would I want a Product Model?

- The OEI Pattern

- From OEI to Sellable Products

- Calculations

- Variants (EI)O* (multiple Insured Objects per Coverage)

- Product Definition System Software Demo

  - Generali's PDFS

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Some Acronyms Used
Will be important for Modeling Styles

- **VP/MS:** Versicherungsprodukt-Modellierungs-System
  - By Interunfall/M&I/CAF – now bought and marketed by PMSC Micado
- **PDFS:** Product Definition System
  - By Generali Munich – under development
- **PVS:** Policy System by Generali Munich
  - Operational - Under ongoing improvement
- **VIAS II**
  - By ID Software, Kevelaer, Operational at many sites across Generali Group

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Insurance Products Defined

- Several Definitions Possible – we will use a very narrow one for this tutorial

- An insurance product will insure one or more <u>objects</u> against certain <u>events</u>. If the event occurs, the insurance will be obliged to pay an <u>indemnity</u>.
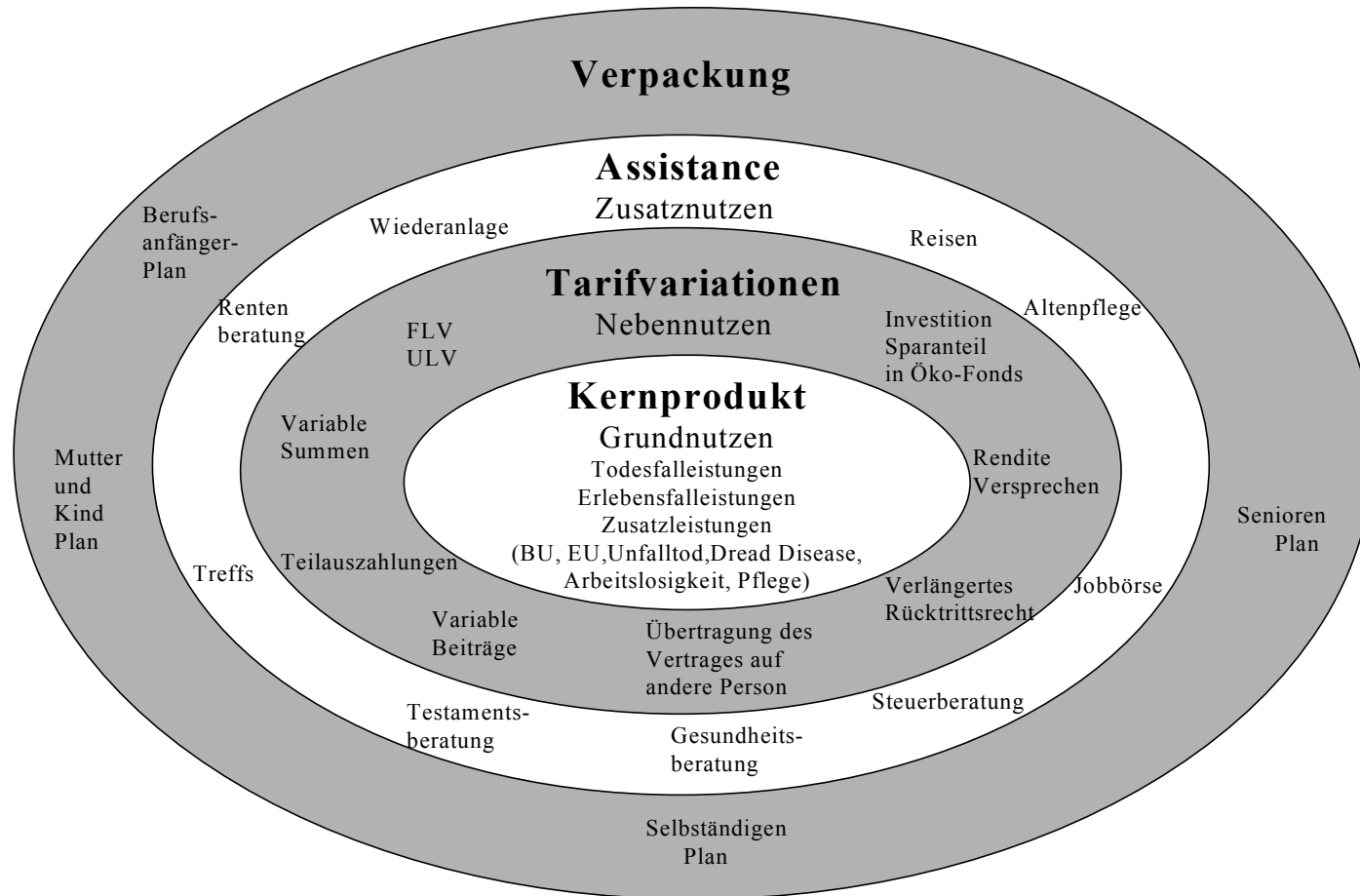
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But there are also other categories that are not coverd by OEI

- Savings components
  - E.g. annuity component of a life insurance
  - E.g. reserve in health insurance

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Insurance Products Defined
Range of Things called "Insurance Products"

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Why would I want a Product Model?

- Be able to invent new products quickly

- Reuse parts of existing products that have been defined and tested before (product building blocks)

- And finally <u>manage products</u> by controlling them

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The OEI Pattern
Object, Event, Imdemnity

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The OEI Pattern
many products are modelled in terms of …

- Object

    - The objects that can be insured (insurable objects)

- Event

    - The Events that might happen to those objects

- Imdemnity

    - The imdemnity to be paid by the insurance

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The OEI Pattern Example

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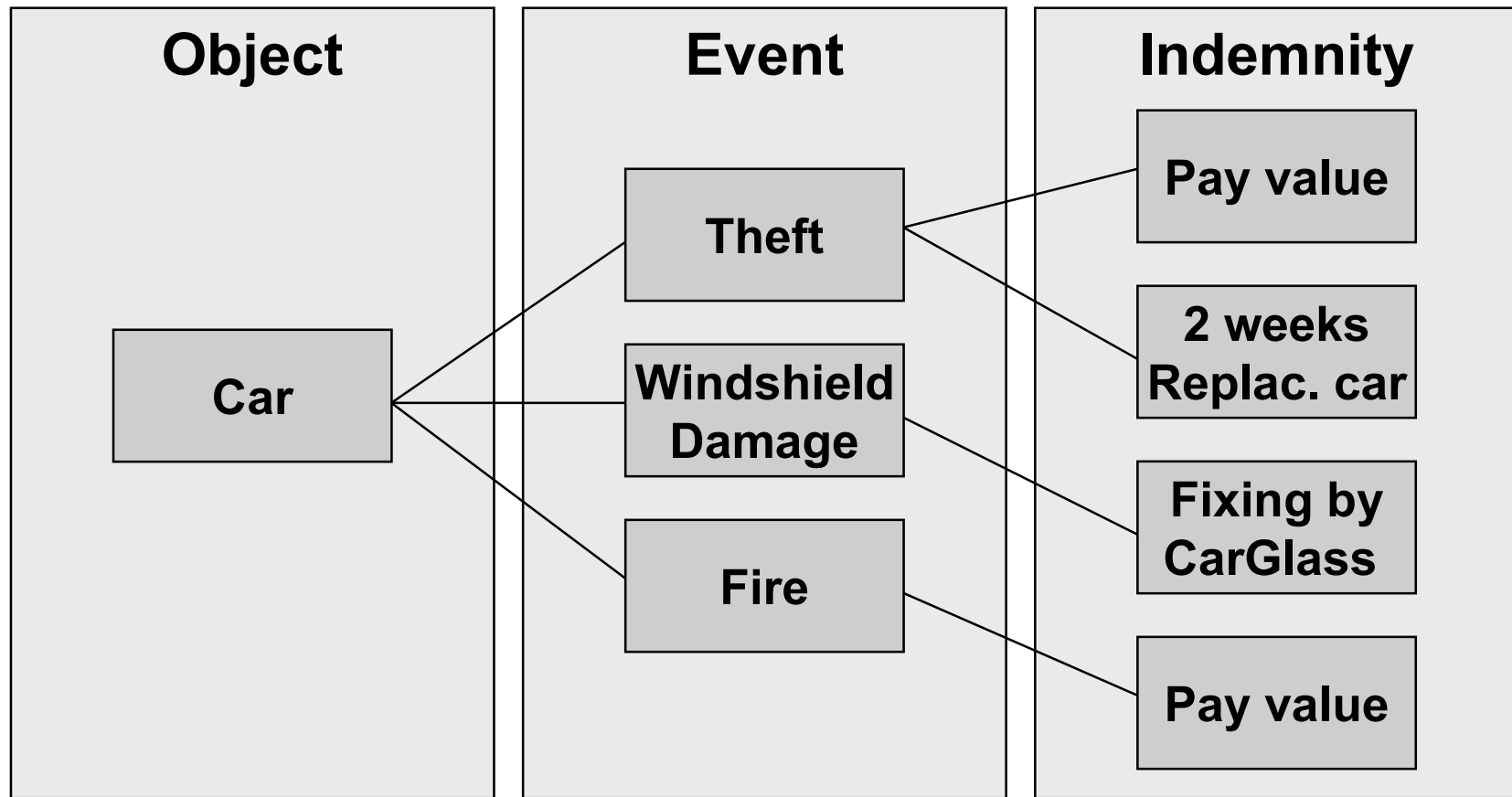
OEI – Other terms
E and I are often called a Coverage

Basic Theft Coverage

Theft —— Pay value

Premium Theft Coverage

Theft —— 2 weeks Rep car.

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From Basic Models to Products

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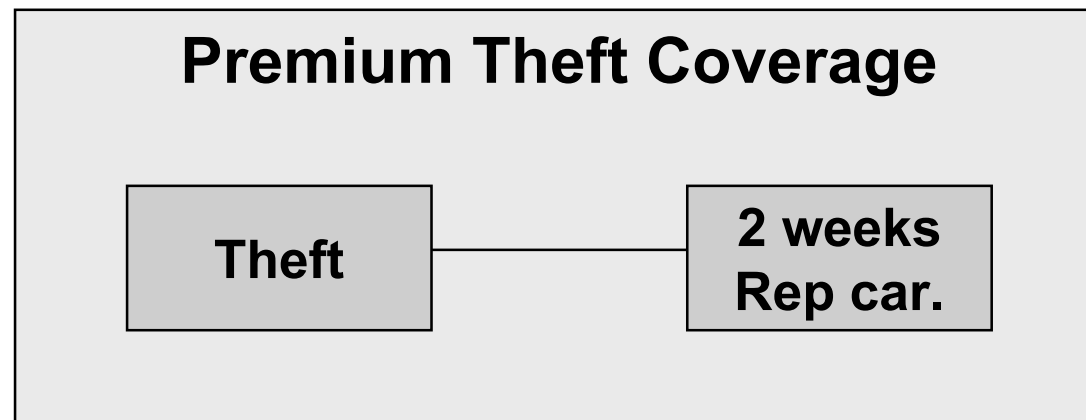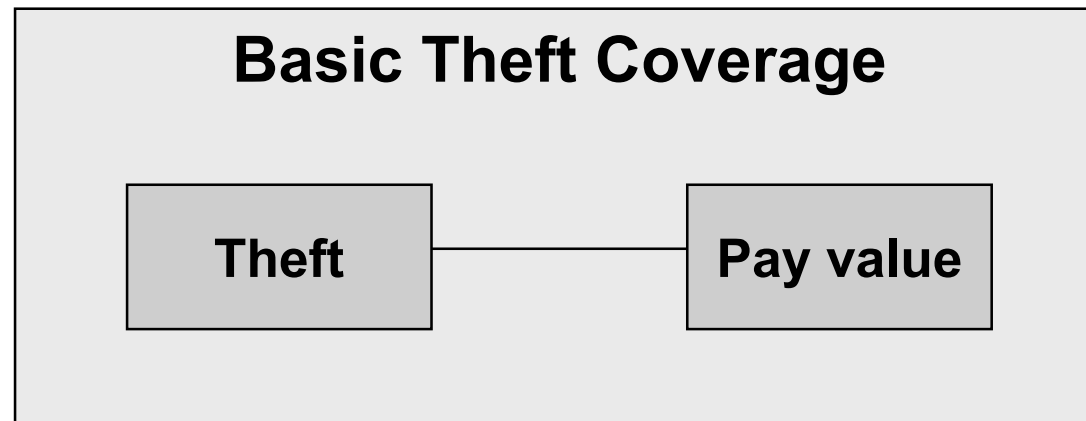
From Basic Models to Products
Elementary Products

Elementary Product

Attribute Pack

Object	Event	Indemnity
Car	Theft	Pay value
	Windshield Damage	2 weeks Replac. car
	Fire	Fixing by CarGlass
		Pay value

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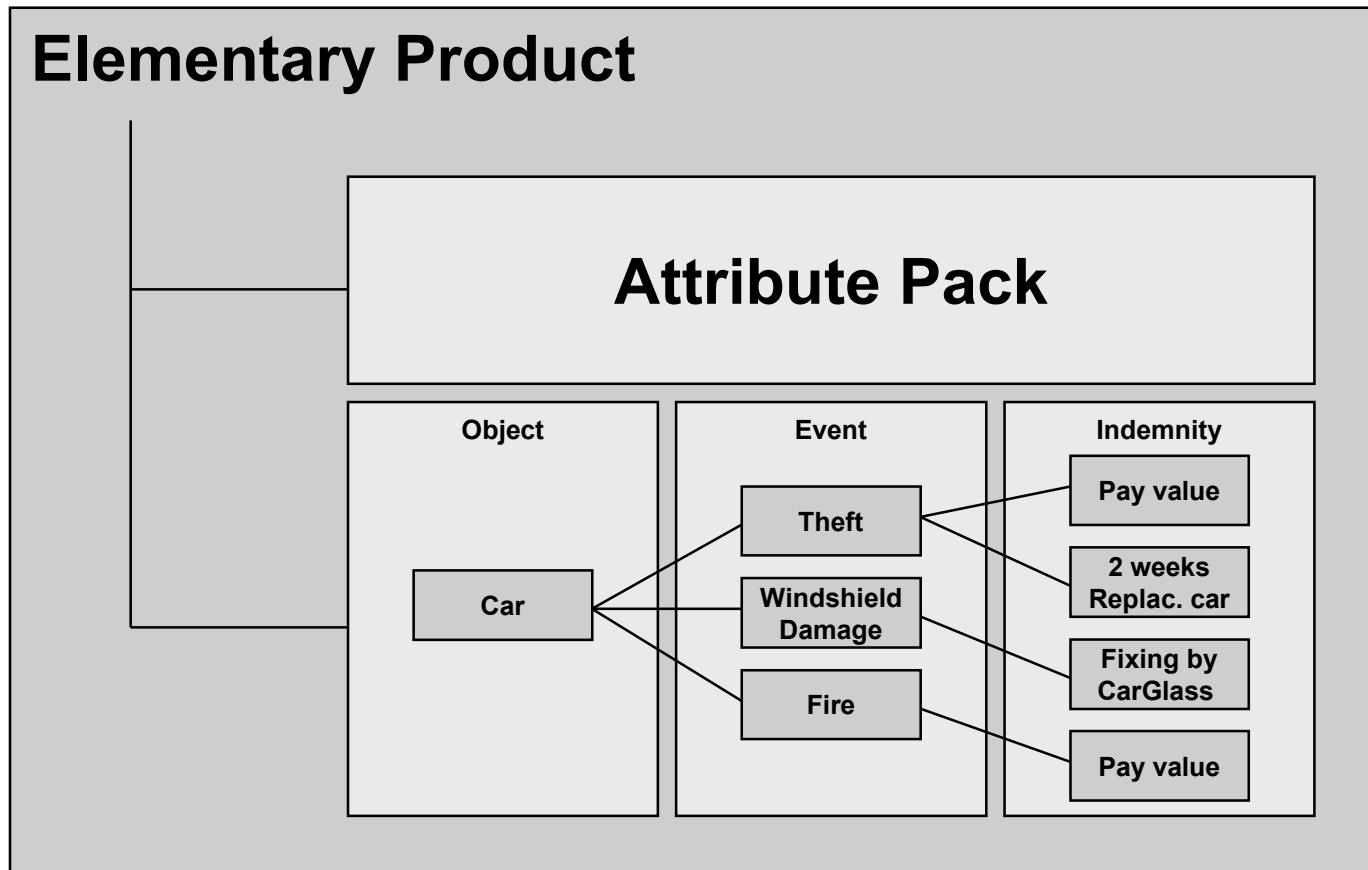
Example Attribute Pack and Bundling

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From Basic Models to Products
Sellable Products with Options

Sellable Product „Car Insurance 2000"

✓

Product Bundle
Car Liability

✓ **Elementary Product**
Minimum Car Liabilty

✗ **Elementary Product**
Premium Car Liability

✓ **Elementary Product**
Car Property Damage

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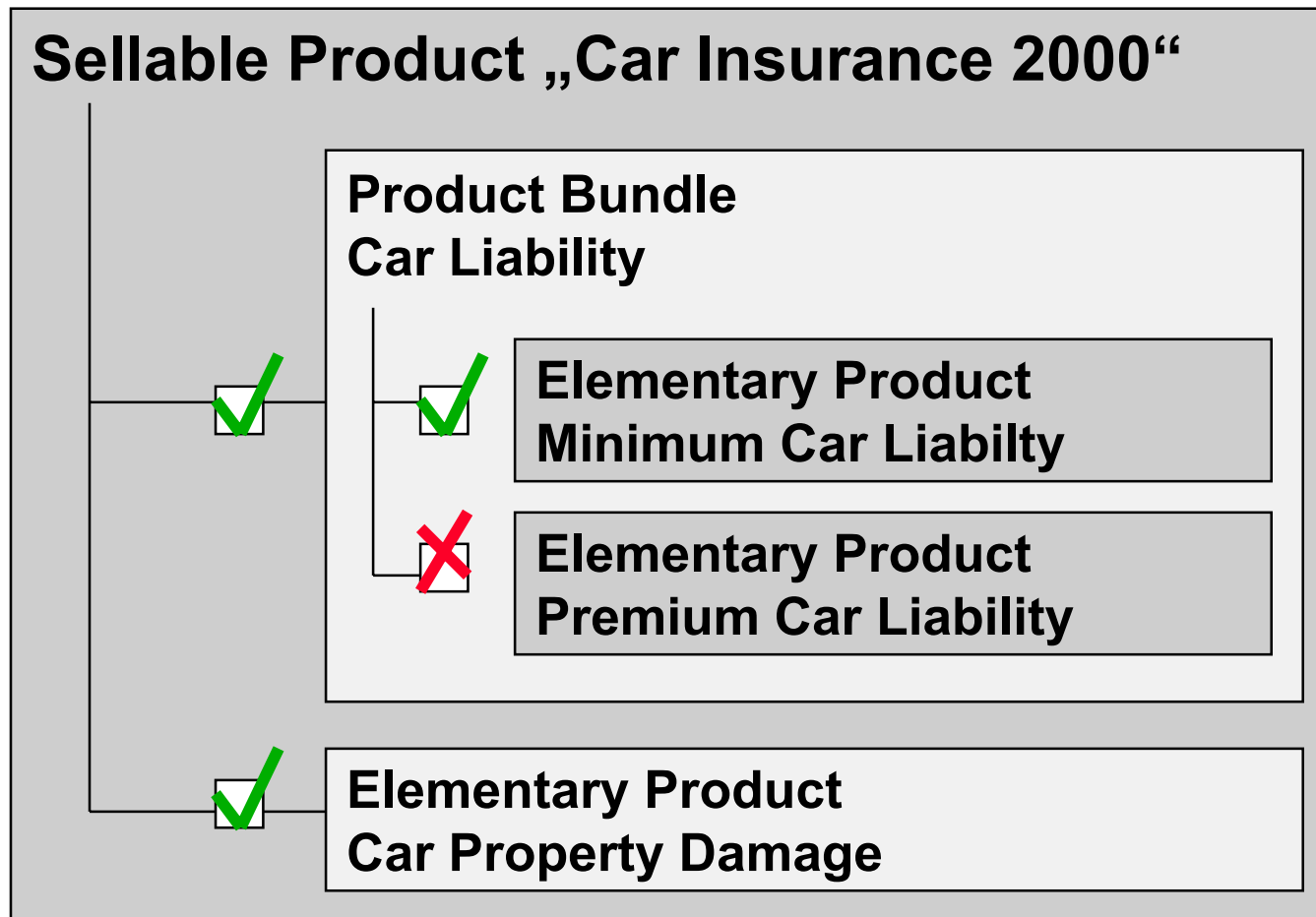
Example: Elementary Product „Hausrat"
1 Insured Object, 2 Alternative Coverages

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Variants explained

Elementary Product: „Hausratversicherung"

Insured Object „Wohnung"

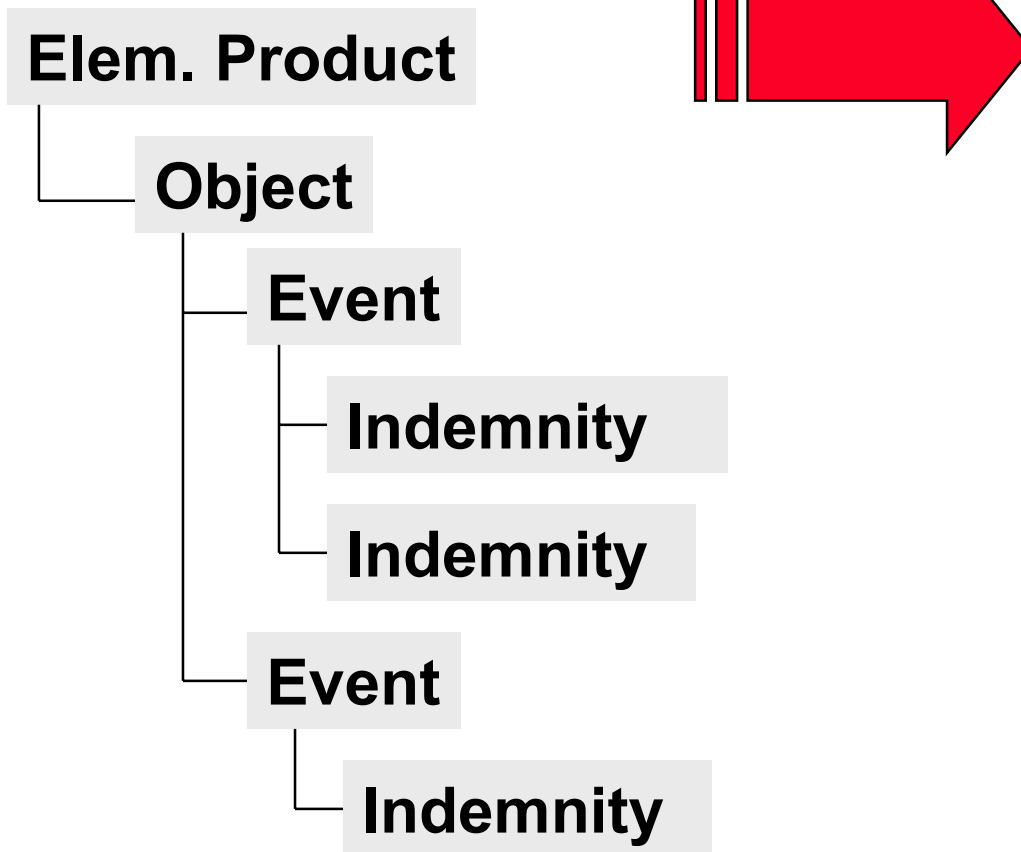✓ **Coverage „ Komportdeckung"**

✗ **Coverage „ Basisdeckung"**

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Variants explained
Tree transformation (1 of 2)

VP/MS Style

Elem. Product
- Object
  - Event
    - Indemnity
    - Indemnity
  - Event
    - Indemnity

Coverage Style**
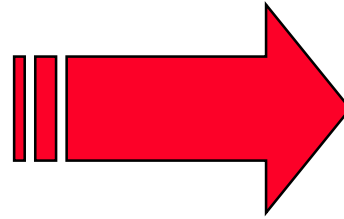
Elem. Product
- Object
  - Coverage
  - Coverage
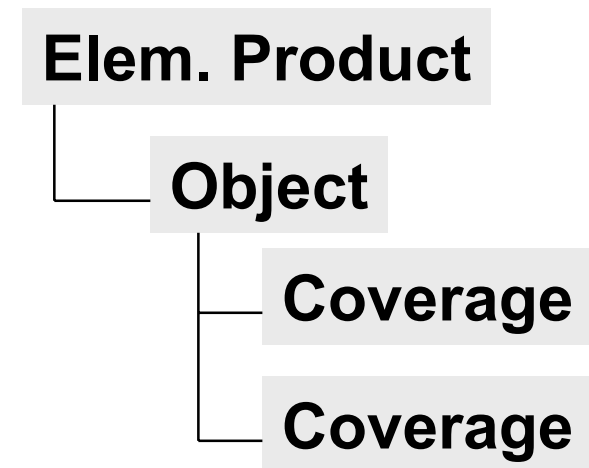
** nowhere implemented

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Variants explained
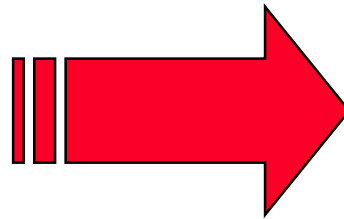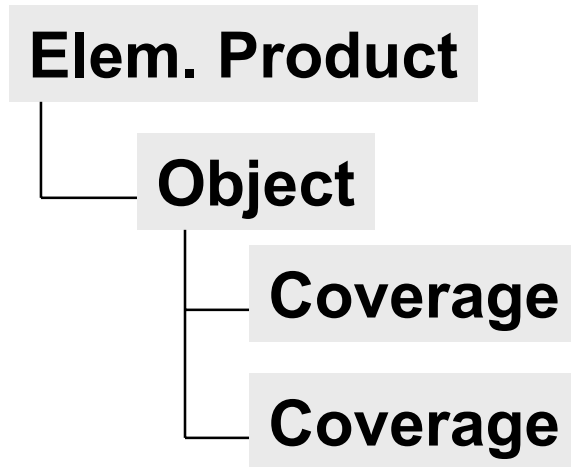# Tree transformation (2 of 2)

Coverage Style**

PDFS Style

Elem. Product
- **Object**
  - **Coverage**
  - **Coverage**

Elem. Product
- **Object**
- **Coverage**
- **Coverage**

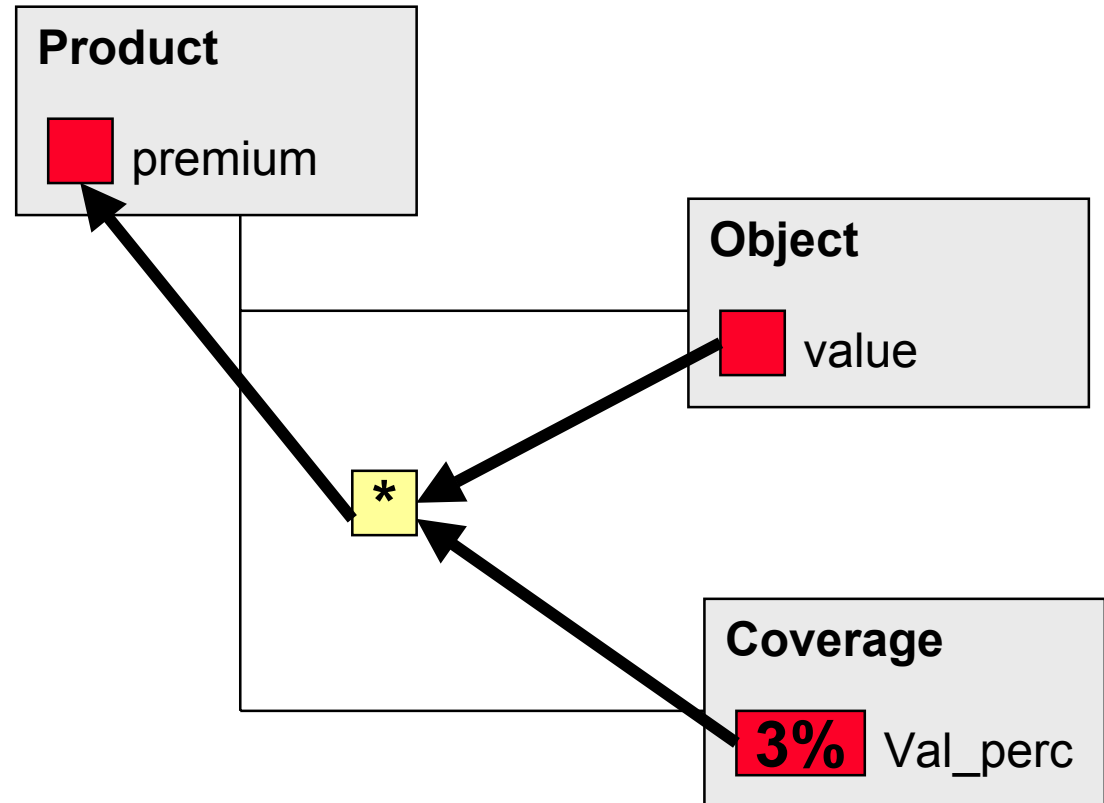W .Keller
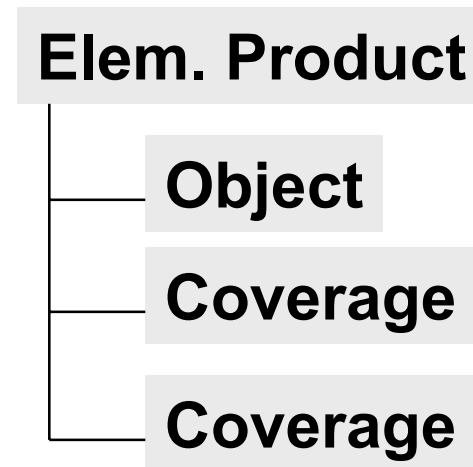
Calculations
What's the premium I have to pay?

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What's the premium I have to pay?
Basic Idea

- Analogous to attribute tree evaluations in compiler building

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What's the premium I have to pay?
Real Life

17/03/01   W .Keller
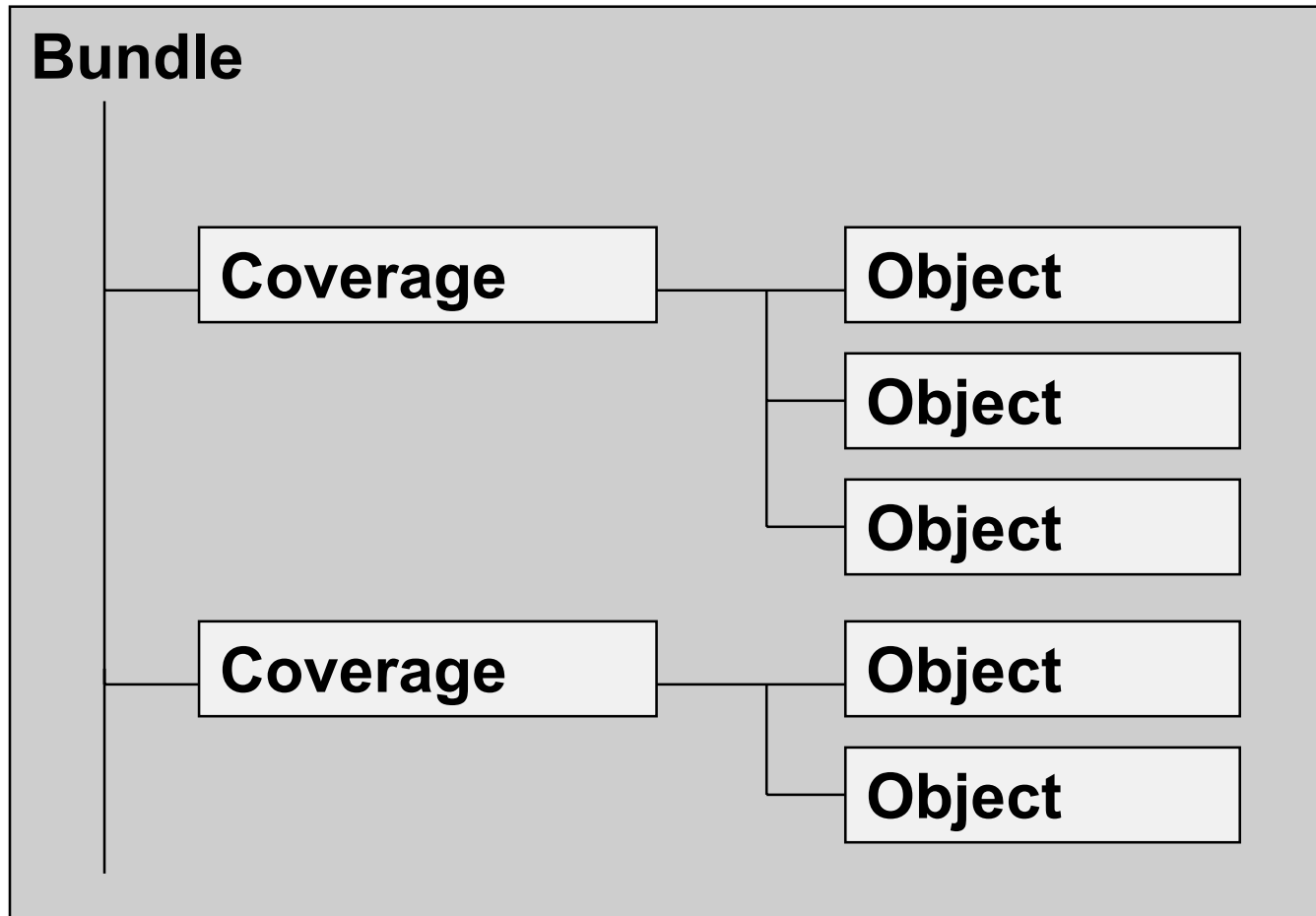
Variants: VIAS II Style
Yet Another Way to Model Products ...

- OEI: Individual Car Insurance ✔
- O(EI): Same, but with other Terminology -> Coverage ✔
- (EI)O*: Industry Insurace ✘

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VIAS Style
often used in Industry Insurance

Bundle

Coverage — **Object**

Object

Object

Coverage — **Object**

Object

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Why are variants as they are
Some „Black Magic" unveiled

- Few people will be able to explain you why and how Styles have evolved – Some might start arguing in a rather religious fashion

- VP/MS comes from sales systems

  - Primary force: The sales agent needs arguments to sell the product

  - What Objects does the Customer have – what Events could happen to these Objects – what will she get, if she buys my insurance.

 - Not a force: Performance aka depth of the tree – does not matter

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Why are variants as they are
Some „Black Magic" unveiled

- PDFS comes from a back office policy administration system
  - Sales arguments are not a primary force
  - But performance is – the less levels in the tree, the faster the system if implemented in a relational database
- VIAS comes from Industry Insurance
  - And has been expanded to other product divisions
  - Performance matters – and stuff like VP/MS did not exist in the time VIAS was designed

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Product Definition System Software Demo

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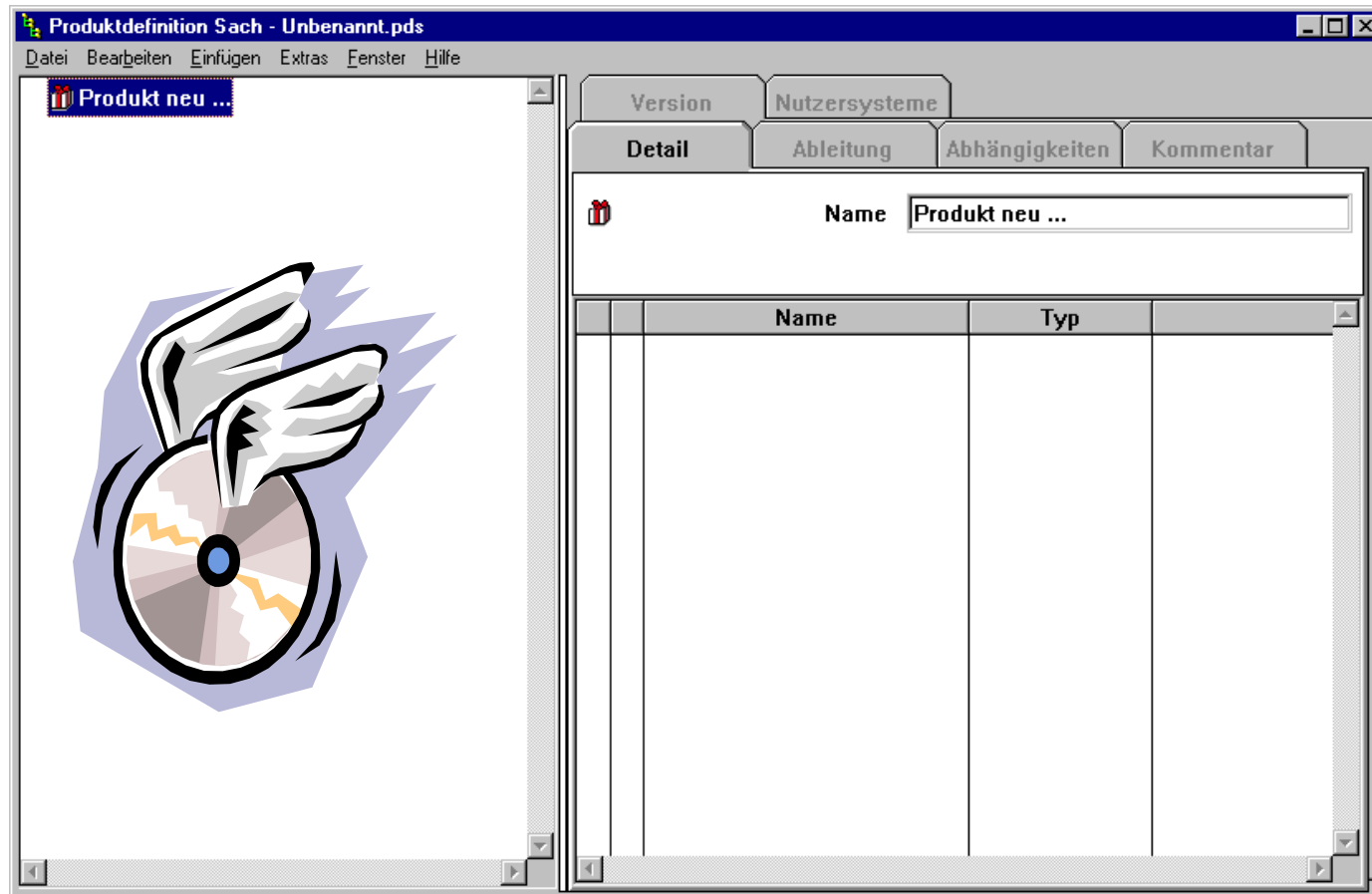
Credits

- Screen shots taken from Generali's Product Server
  Thanks go to the Munich PDFS Team

- Product Demo shows PDFS

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