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Duplicate Analyzer Goal

- Small and large companies pay some invoices twice
 - Supplier does not complain
- These errors shall be detected

Duplicate Analyzer Starting Point

- Not entirely clear specification
 - What is a duplicate invoice?
- Naive rules do not work
- The classic schism of computation prohibits solution
 - Thinking in data and processes prohibits finding good rules

Duplicate Analyzer Solution

- modeling of predefined notions without consideration of data or functional interpretation of the notions
- Transfer of data into specific model
- Verification of the model trice a day

Duplicate Analyzer Result

- Highly interactive finding different models of a duplicate
- Modeling language = implementation language
 - Enables novel experimental tools
 - Very powerful rule variants in very high speed

xCarrier Goal

- What the best carrier for a shipping?
 - Many providers
 - With different conditions
 - Size
 - Weight
 - No hazard goods
 - Special preferences
 - By shipper
 - By receiver
- Rules shall be defined by
 - Carriers
 - Shippers
 - Receivers

xCarrier Starting Point

- Inconsistent table of example rules and no idea
 - Ow that could be transformed into an application
- Example rules:
 - If the following information about a shipment is know
 - Carrier X may be chosen
 - Product Y of carrier X shall be chosen
 - Carrier Y must be chosen
- Notions were unclear
 - Carrier
 - Shipment
 - Rule

xCarrier Solution

- Ignore confused notions and tables
- Create a generic rule system
- Model the known domain
- Experiment
 - Transform analysis data into rules of the rule system
 - Execute the rules
 - Create a conception to interpret the result
 - Deduct what the different authors might have thought

xCarrier Result

- Quickly implemented prototypes for rules
 - Easy verification of the model by the product manager
 - Short cycles of precision and correction
- Connection of the prototype to a SAP web-mockup of the application for customer meetings
 - Pilot installation of the prototype
 - Verification of rules with real carriers and real customers

What is Common?

- Leave the old way of thinking
- This is not new for humans

Energy

- 1897 In 1807, Thomas Young was the first to use the term "energy" instead of vis viva to refer to the product of the mass of an object and its velocity squared.



Energy

- Its understanding the key driving force of industrialization.
- Leaving tangeable objects behind and defining new notions and concepts

Smalltalk

- Smalltalk is the best environment to experience new notions and new concepts
- And to execute them
 - In prototypes

Smalltalk

- Smalltalk is the best environment to experience new notions and new concepts
- And to execute them
 - In prototypes
 - In products
 - In projects running 24*365/6

Modeling

- Every notion can be modeled in Smalltalk
 - When it is defined precisely

=>

- Every Computer Science Notion can be modeled in Smalltalk.

=>

- Every Computer Language can be embedded in Smalltalk

Prototyping

- It has never been doubted that Smalltalk is the best prototyping technology ever.
- Without loss of quality a Smalltalk program is a fully functional product

Metaprogramming

- Everything is an object
 - Classes
 - Metaclasses
 - Processes
 - Contexts
 - Compiler

Smalltalk Example I

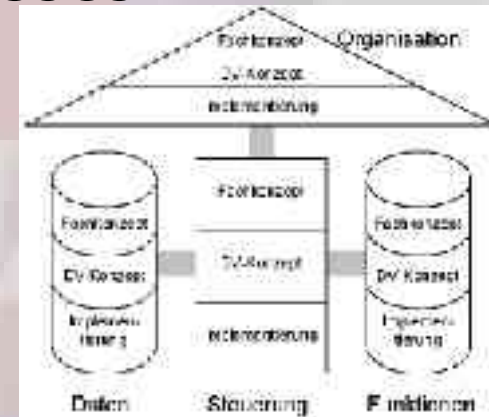
- Simple dynamic binding (small and large integer multiplication)
 - 10000 factorial
 - Just type it in a workspace and print it

Smalltalk Example II

- A model for Lambda Calculus
 - $f := [:n \mid n < 1 \text{ ifTrue: } [1] \text{ ifFalse: } [(f \text{ value: } (n-1)) * n]]$.
 - f value: 10000
 - Just linearize the well known formula
 - Just the same outcome as of the slide before

Why does this all Matter?

- Finding appropriate models is key in business
 - All of SAP's domain is modeling businesses
 - ARIS is Business Process Management tool
 - Functional view
 - Organisational view
 - Data view
 - Control view
 - You remember
 - This is Classic Analysis
- There are 34,000 SAP customers
 - There are still a few white spaces in the SAP offering
 - There is a real business need for improvement



What is Technically Missing?

- Easy access from NetWeaver to Smalltalk
- Easy access from Smalltalk to NetWeaver
- Provide SAP concept framework in Smalltalk

- Stay tuned for next presentation
 - By Ralf Ehret and Taylan Kraus-Wippermann

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