

# CASE: Chair Production of „ Muebles Romero“

## 1. SCENARIO: COOPERATIVE DECISION MAKING IN VIRTUAL ENTERPRISES

# Scenario Description

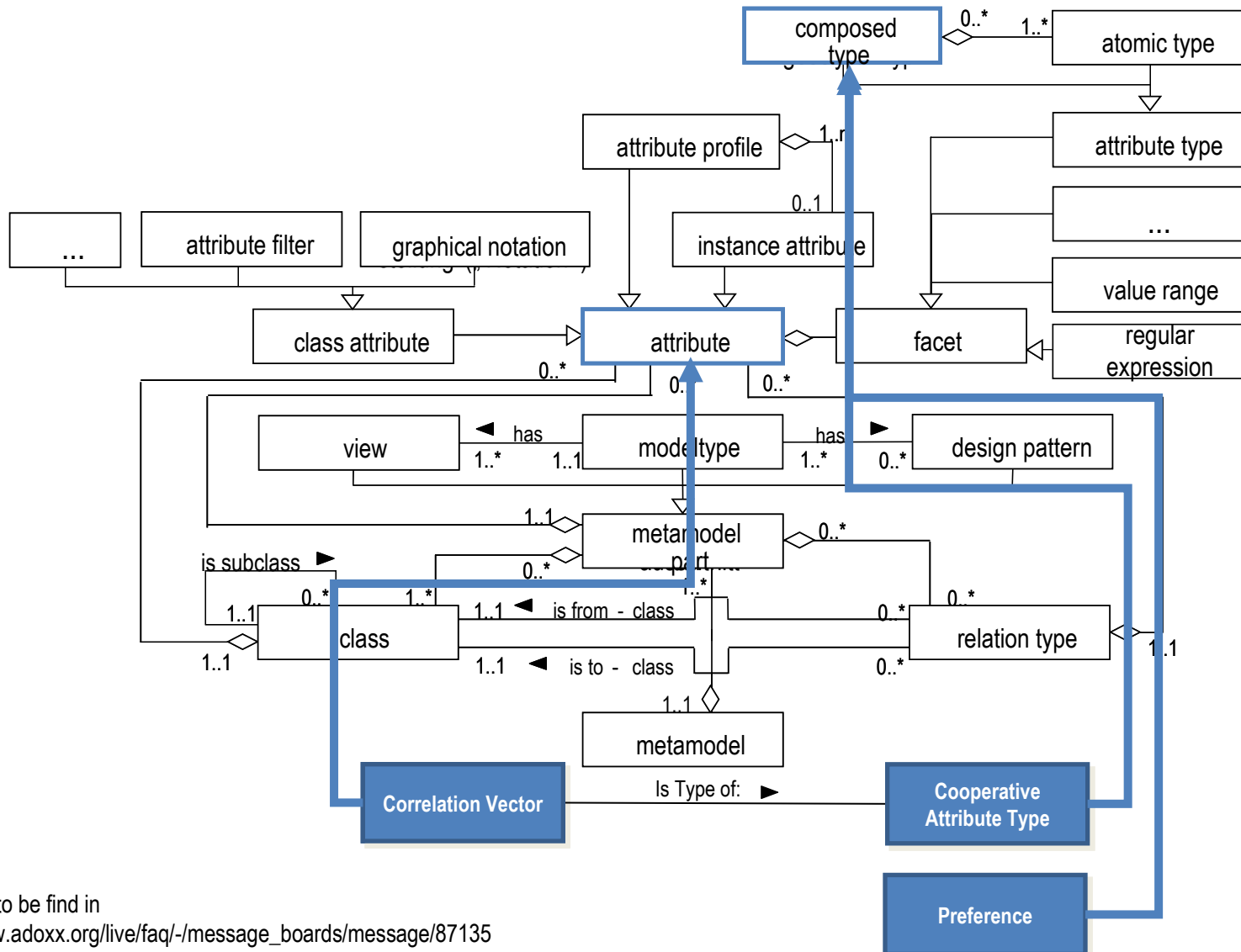


## Goal:

1. **Development of modelling method** that enables to describe the thread models.
2. **Selection of mathematical model** that realizes “Cooperative Decision Making” to find a consensus among preferences.
3. **Develop a mechanism** that realizes cooperative decision making based on selected mathematical model in the aforementioned modelling method describes thread models

**Case:** Enable cooperative decision making for relevant model information such as KPI thresholds, on quality criteria in thread models of a virtual enterprise.

# Development of the Modelling Method with inheriting required concepts from ADOxx Meta<sup>2</sup>model:



Scenario to be found in  
[http://www.adoxx.org/live/faq/-/message\\_boards/message/87135](http://www.adoxx.org/live/faq/-/message_boards/message/87135)

# Meta Modelling Layer : Realising Modelling Language



**Meta2Model:**  
 GRAPHREP, MetaModel,  
 Modeltype, Class, Attribute

provides



developed in C++, C#, Java

**GRAPHREP**

```

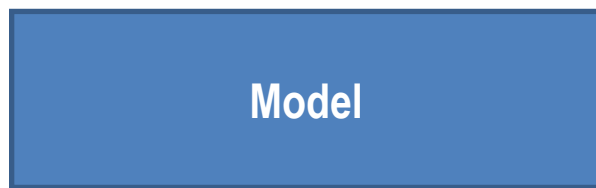
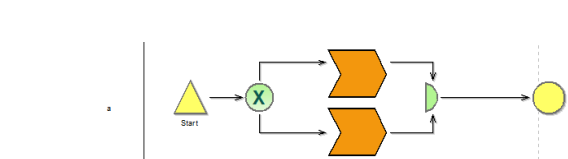
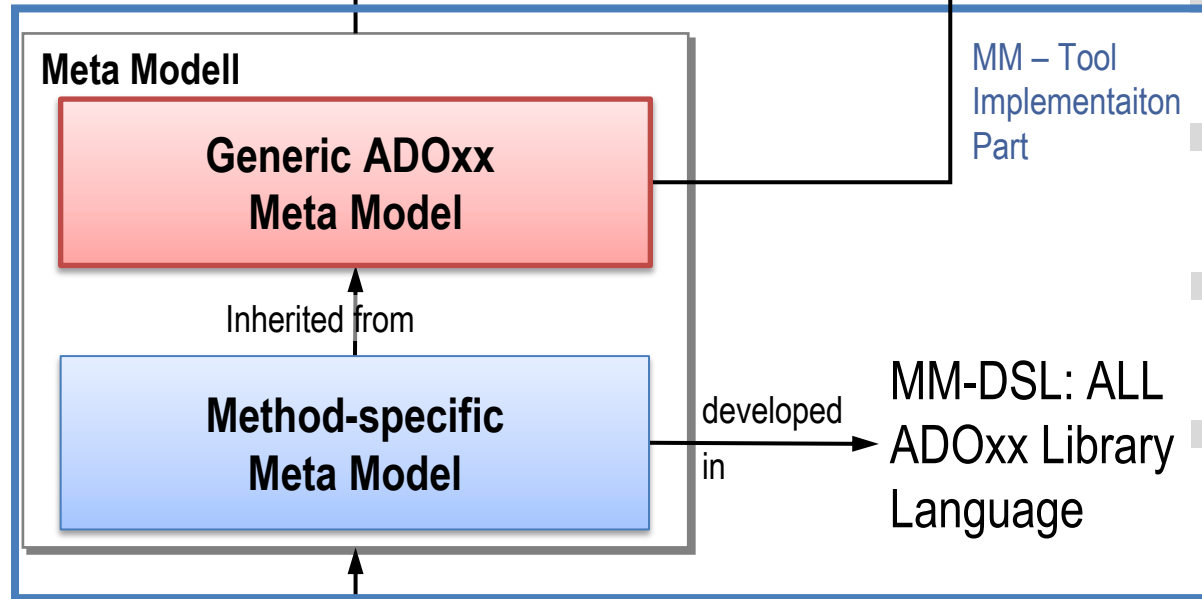
GRAPHREP
AVAL atype:"Type"
PEN color:$000
IF (atype = "Bas
  SET f:"green"
ELSIF (atype =
  SET f:"orange
ELSIF (atype =
....
    
```

Specialisation of

**MODI**

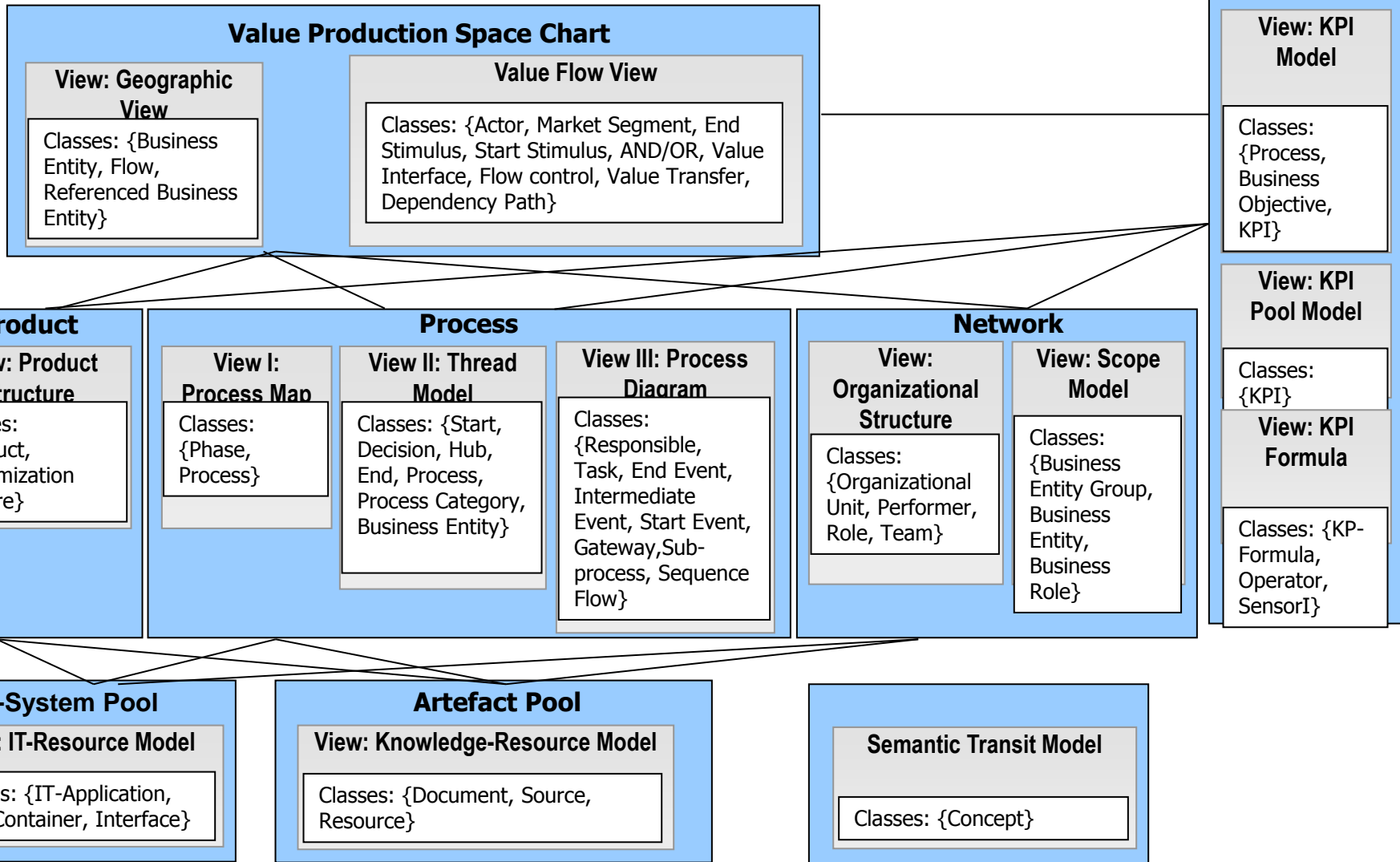
```

MODELTYPE "Product Structure" from:none
plural:"Product Structures" pos:0 not-
simulateable bitmap:"db:\sample.bmp"
INCL "Product"
INCL "Customization feature"
INCL "Note"
INCL "inside"
MODE "All Classes" from:all
    
```



described in ADL, XML

# OVERVIEW OF BIVEE META MODEL

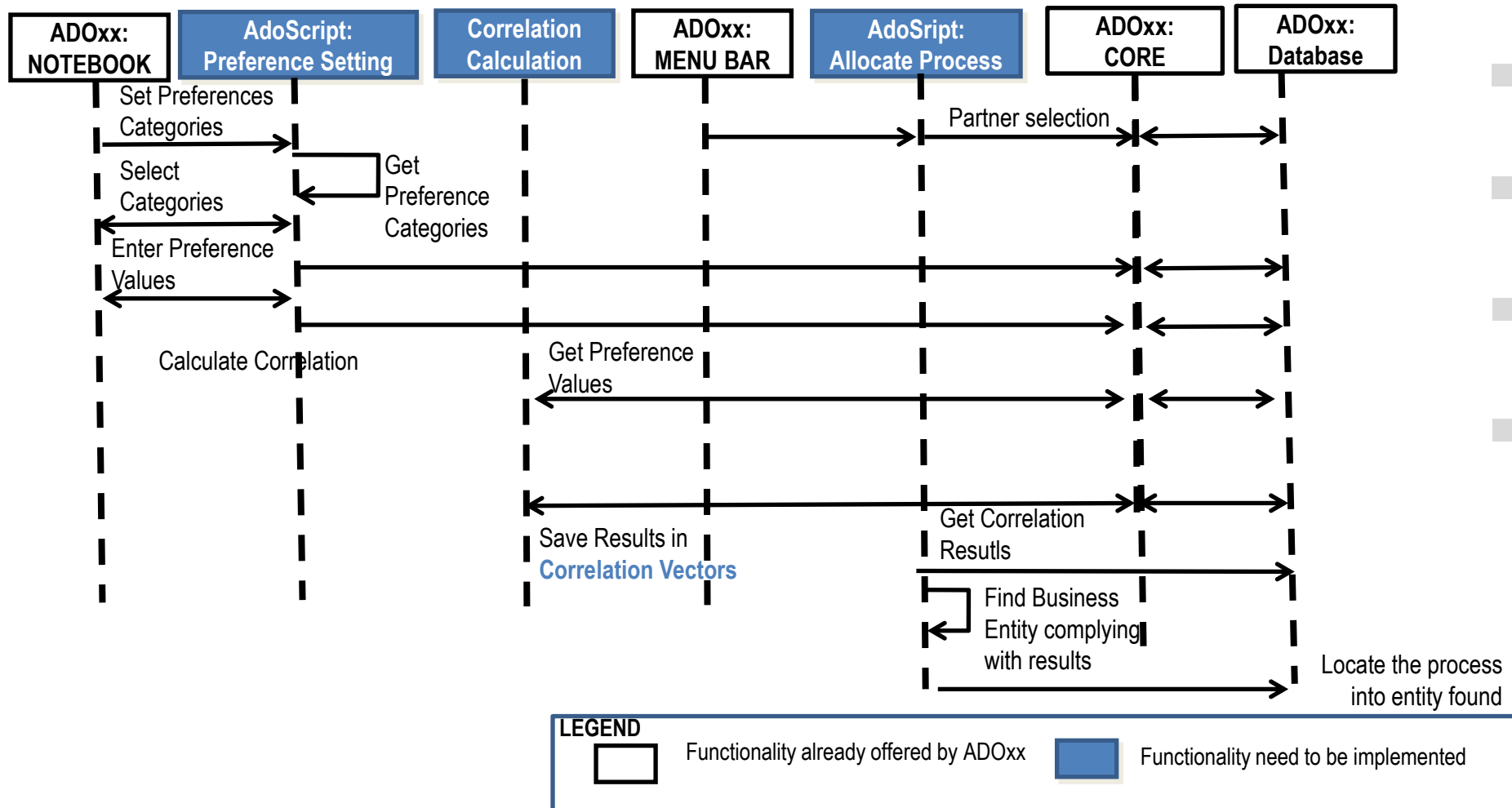


Modelling Method is to be find in ALL Repository in Adoxx.org



# Description of Algorithm:

- A mechanism has been implemented with using AdoScript, which enables selection of dimensions, collection of values from preferences according to dimensions and calculates correlation according to selected mathematical model











# ADOxx Realization HANDS-ON




1. Development of a **modelling method in ADOxx** for Virtual Enterprises including a model type „thread model“.
2. Development of „**Cooperative Decision**“ mechanisms in ADOxx enables modelling „thread models“ with making decisions on the relevant information of the models cooperatively, with AdoScript.

# Used ADOxx Functionality: Realising a Modelling Language



Introduction
Setup of Implementation Environment

<b>Modelling Language Implementation</b>	
<b>Classes</b>	
<b>Relations</b>	
<b>Class Attributes and Attributes</b>	
<b>GRAPHREP</b>	
<b>ATTRREP</b>	
CLASS Cardinality	
CONVERSION	
Model Pointer	
Attribute Facets	
<b>Model Types</b>	

Mechanisms & Algorithms Implementation		
	Core Functions for Model Manipulation	
	Database	
	Visualisation	
	Query	
	Transformation	
	Configuration of ADOxx Components	
	Visualisation	
	Query	
	<b>External Coupling ADOxx Functionality</b>	
	<b>ADOscript Triggers</b>	
	<b>ADOscript Language Constructs</b>	
	Visualisation AdoScripts	
	Visualisation Expression	
	<b>Query ADOscript</b>	
	Transformation ADOscript	
	ADD-ON Implementation	
	ADOxx Web-Service	
	XML / ADL Import – Export	
	ADOscript Batch Mode	





# HANDS-ON

CASE: Chair Production of „ Muebles Romero“

**SCENARIO: COOPERATIVE DECISION  
MAKING IN VIRTUAL ENTERPRISES**

# Cooperative Attribute Scripted– Realization (1/2)



## AdoScript Code:

```
GET_PREFERENCE_VALUES intproc_objid:(VAL s_intprocess_objid)
pref_attrid:(n_intproc_outspacepref_attrid) answers:a_answers_to_space
```

...

```
CALCULATE_CORRELATION a_answers_1_array:(a_answers_from_space)
a_answers_2_array:(a_answers_to_space) max_w_1:(3) max_w_2:(3)
a_prefandcorrandidim_array:a_correlation_results
```

...

```
PROCEDURE GET_PREFERENCE_VALUES intproc_objid:integer pref_attrid:integer answers: reference
```

```
{
```

```
  CC "Core" GET_REC_ATTR_ROW_COUNT objid:(intproc_objid) attrid:(pref_attrid)
```

```
  SET n_numberof_pref_space:(count)
```

```
  SET answers:(array(n_numberof_pref_space))
```

```
  FOR i from:0 to:(n_numberof_pref_space-1)
```

```
  {
```

```
    CC "Core" GET_REC_ATTR_ROW_ID objid:(intproc_objid) attrid:(pref_attrid) index:(i+1)
```

```
    SET n_rec_pref_rowid:(rowid)
```

```
    SET n_preferences_objid:(tobjid)
```

```
    CC "Core" GET_ATTR_VAL objid:(n_rec_pref_rowid) attrname:("Preference")
```

```
    SETL s_temp_pref:(val)
```

```
    CC "Core" GET_ATTR_VAL objid:(n_rec_pref_rowid) attrname:("Weight") as-string
```

```
    SETL s_temp_weight:(val)
```

```
    CC "Core" GET_ATTR_VAL objid:(n_rec_pref_rowid) attrname:("Dimension") as-string
```

```
    SETL s_temp_dimension:(val)
```

```
    SET answers[i]:(s_temp_pref+"@"+s_temp_weight+"@"+s_temp_dimension)
```

```
  }
```

```
}
```

**Retrieve each  
preference values  
from each actor**

# Cooperative Attribute Scripted– Realization (2/2)



## AdoScript Code:

```
PROCEDURE CALCULATE_CORRELATION a_answers_1_array: array a_answers_2_array: array
max_w_1:integer max_w_2:integer a_prefandcorrandidim_array: reference
{
    SET co:(1/(2*max_w_1*max_w_2))
    SET n_answer_1_value:0
    SET n_answer_2_value:0
    SET n_questions_count:(a_answers_1_array.length)
    SET flag:1
    SET a_product_s_array:(array(n_questions_count))
    SET a_prefandcorrandidim_array:(array(n_questions_count))
    FOR i from:0 to:((n_questions_count-1))
    {
        SETL temp_prefandweight:(a_answers_1_array[i])
        SETL temp_pref:(token(temp_prefandweight , 0 , "@"))
        SET n_weight_1:(VAL token (temp_prefandweight , 1 , "@"))
        SETL temp_dim:(token(temp_prefandweight , 2 , "@"))
        FIND_SAME_PREF pref:(temp_pref) a_pref2:(a_answers_2_array) weight:n_weight_2
        IF ((n_weight_1<=0) AND (n_weight_2<=0))
        {
            SET flag:(-1)
        }
        SET a_product_s_array[i]:(((1/2)+(flag*co*(n_weight_1*n_weight_2))))
        SETL s_help_string:(STR (a_product_s_array[i]))
        SET a_prefandcorrandidim_array[i]:(temp_pref+"@"+s_help_string+"@"+temp_dim)
        SET flag:(1)
    }
}
```

**Calculate Correlation  
between each  
preference pairs**

# Cooperative Attribute Scripted - Screen Shot



**1** Click on the 'Set Preferences' dropdown menu.

**2** Select Preference List

**3** Click on the 'First User Preferences' table.

**4** Click on the 'Second User Preferences' table.

**5** Click on the 'Calculate Correlation' button.

**6** Click on the 'Extras' menu item.

**Correlation Results:**

Preference	Dimension	Correlation
1 A	Reliability	0.500000
2 B	Availability	0.500000
3 C	Cost	

**Modeling Explorer - Model groups**

- Models
  - Preference Model 1.0
  - Thread Model 1.0

**Extras Menu:**

- Auto save...
- Change password...
- Status...
- Configuration...
- Messages
- AdoScript Debug Shell
- Allocate Processes



# Further Questions?

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