MARIA

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http://giove.isti.cnr.it

MARIA XML

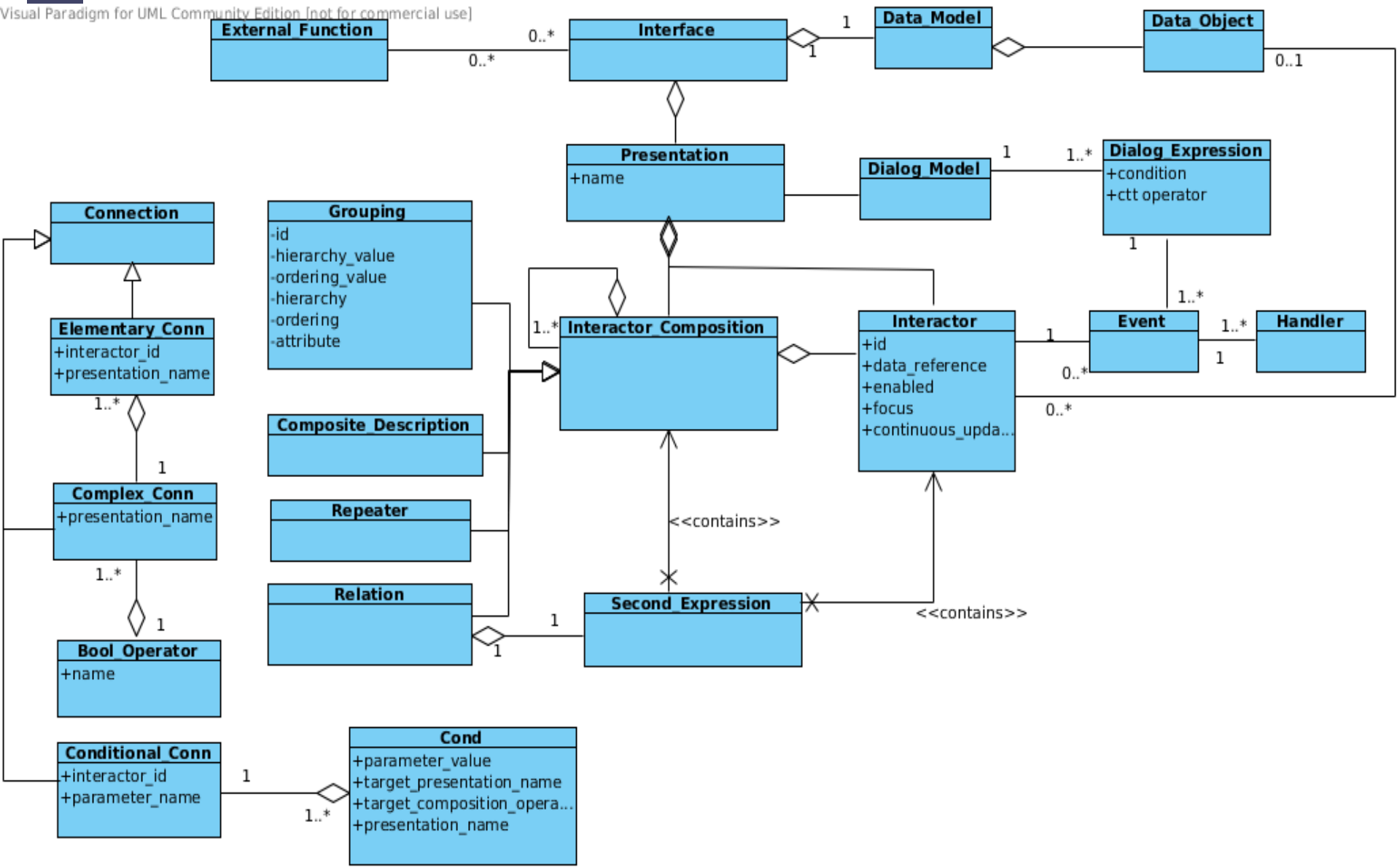
- **Experience in UIDL:** Since 1990
- **Adoption:** More than 70 Institutions worldwide in these countries: France, UK, USA, Switzerland, Italy, Brasil, Belgium, Uganda, The Netherland, Germany, Serbia, Spain, Tunisia, China, South Africa, Norway, Greece, Algeria, Portugal, Austria, Finland
- **Web Sites:** http://giove.isti.cnr.it/tools/MARIAE/home
- **Funding:** FP5 Cameleon, FP7 Open, FP7 ServFace, Artemis SMARCOS
- **Publications:** 30 Scientific Papers since 2003
- **Semantics:** UML2.0 class diagram
- **Syntax:** XML Schema
- **Coverage:** Task, Domain, Abstract User Interface, Concrete UI for graphical desktop, CUI for mobile, CUI for mobile with support for touch, CUI for vocal, CUI for multimodal desktop, CUI for multimodal mobile, Transformation
- **Compatibility:** With Cameleon Reference Framework and with Model-Driven Engineering principles (OMG)

- **Java editor:** Developed in Java Swing
- **Web-based editor:** Developed in HTML5
- **Transform. engine:** Supported through XSLT transformations
- **HTML5/4 engine:** From CUI to HTML5 for desktop and mobile platforms
- **JSP (with WS access):** Engine From CUI to JSP (desktop/mobile platforms)
- **VoiceXML engine:** From CUI to VoiceXML for vocal platforms
- **X+V engine:** From CUI to X+V for multimodal platforms
- **SMIL engine:** From CUI to SMIL for multimedia platforms

MARIA XML Features

- Support for Data Model
  - Useful for specifying the format of input values, association of various data objects to the various interactors, ..
- Events at abstract/concrete levels
  - Property change events / Activation events (e.g. access to a web service or a database)
- Extended Dialogue Model
  - Conditions and CTT operators for event handlers, including support for parallel input
- Able to support user interfaces including complex and Ajax scripts
  - Continuously updating of fields without explicit user request
- Dynamic set of user interface elements
  - Conditional connections between presentations
  - Possibility to change only a part of a UI

Metamodel


Visual Paradigm for UML Community Edition [not for commercial use]
External_Function
Interface
Data_Model
Data_Object
Presentation
+name
Dialog_Model
Dialog_Expression
+condition
+ctt operator
Connection
Grouping
-id
-hierarchy_value
-ordering_value
-hierarchy
-ordering
-attribute
Elementary_Conn
+interactor_id
+presentation_name
Interactor_Composition
Interactor
+id
+data_reference
+enabled
+focus
+continuous_upda...
Event
Handler
Composite_Description
Complex_Conn
+presentation_name
Repeater
Relation
Second_Expression
<<contains>>
<<contains>>
Bool_Operator
+name
Conditional_Conn
+interactor_id
+parameter_name
Cond
+parameter_value
+target_presentation_name
+target_composition_opera...
+presentation_name
0..*
0..*
1
1
0..1
1
1..*
1
1..*
1..*
1
1..*
1
1..*
1
0..*
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1..*
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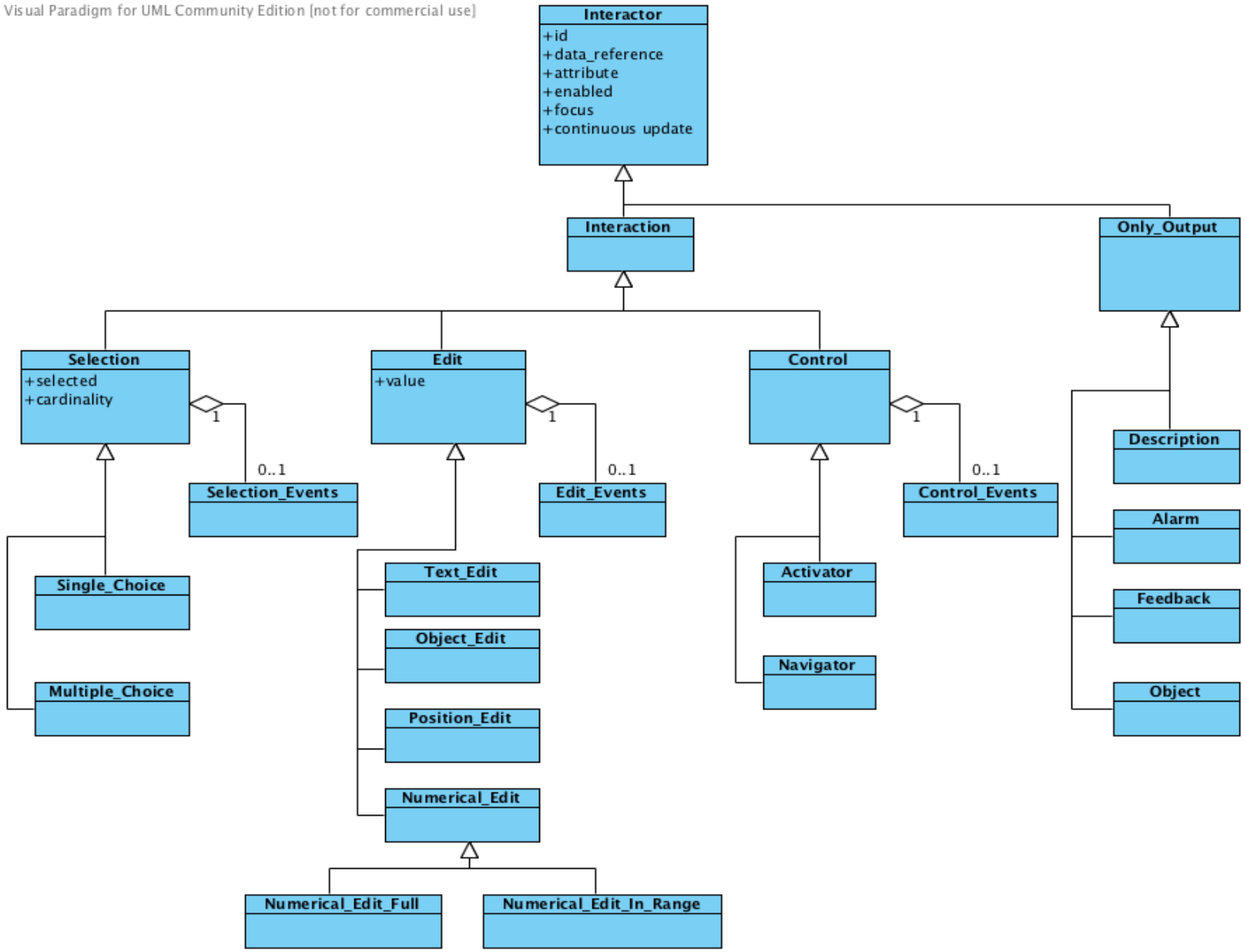
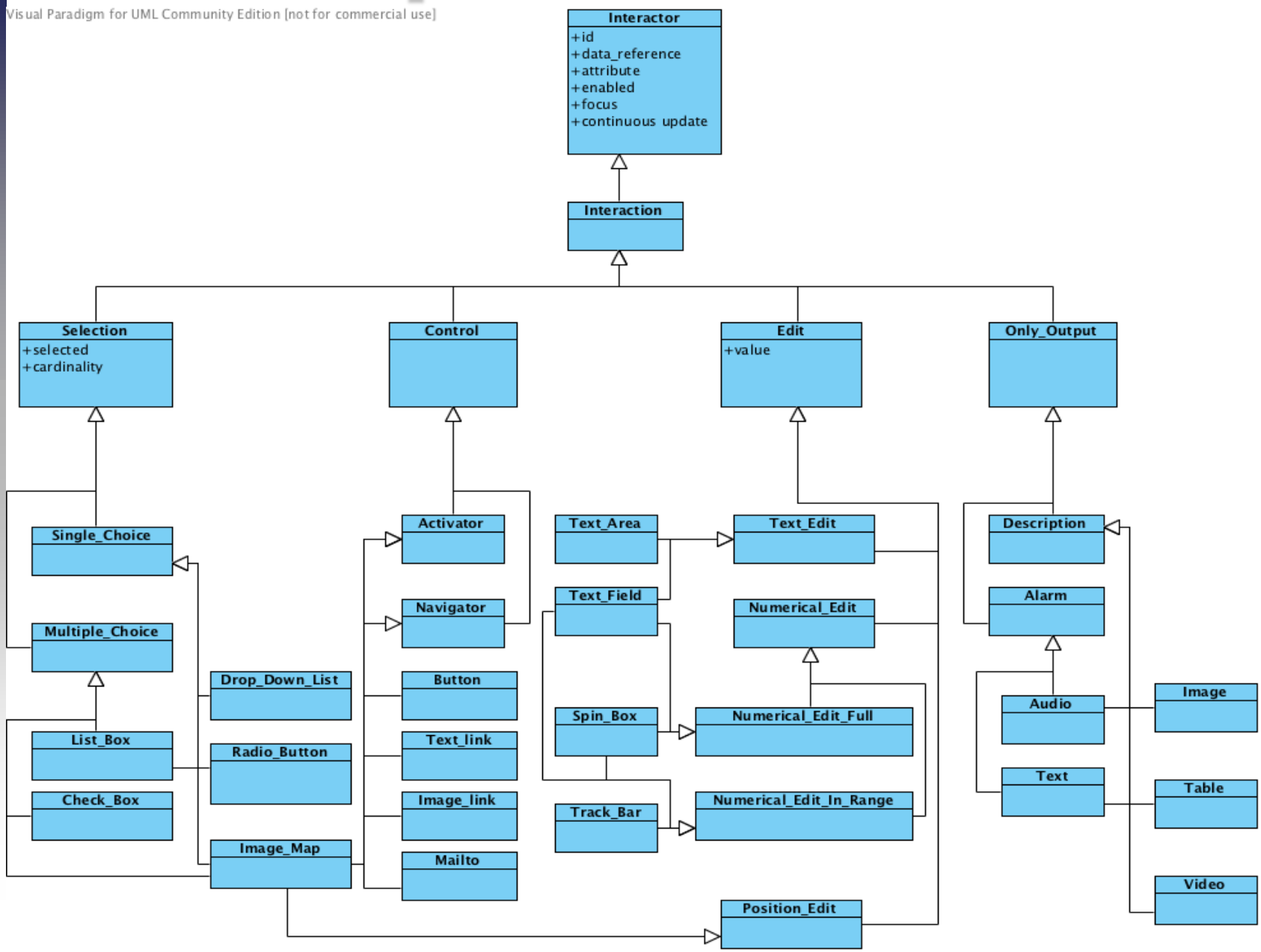
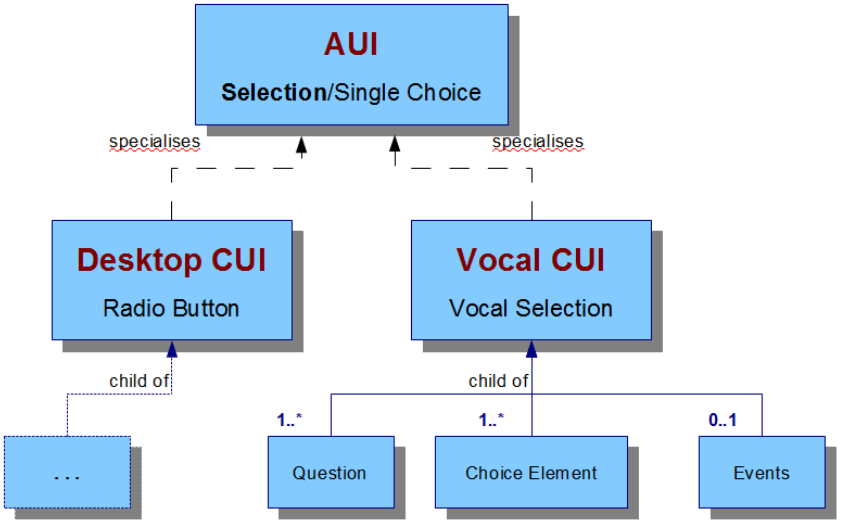
Metamodel

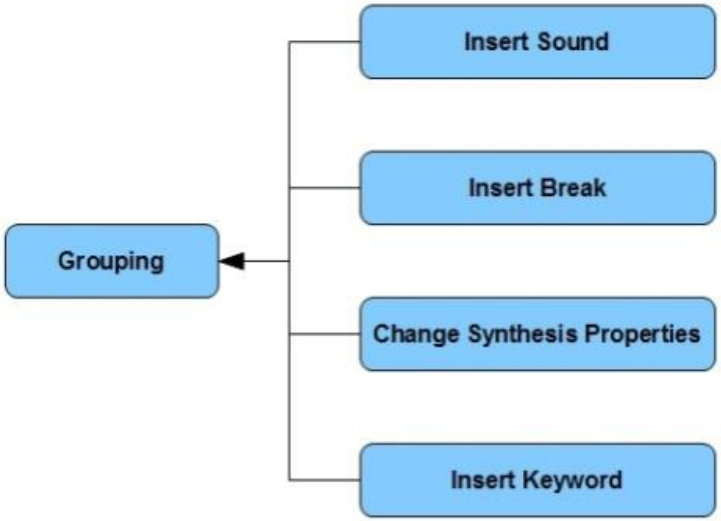

Visual Paradigm for UML Community Edition [not for commercial use]
Interactor
+id
+data_reference
+attribute
+enabled
+focus
+continuous update
Interaction
Only_Output
Selection
+selected
+cardinality
Edit
+value
Control
1
0..1
Selection_Events
Edit_Events
Control_Events
Description
Alarm
Feedback
Object
Single_Choice
Multiple_Choice
Text_Edit
Object_Edit
Position_Edit
Numerical_Edit
Activator
Navigator
Numerical_Edit_Full
Numerical_Edit_In_Range

Graphical Concrete

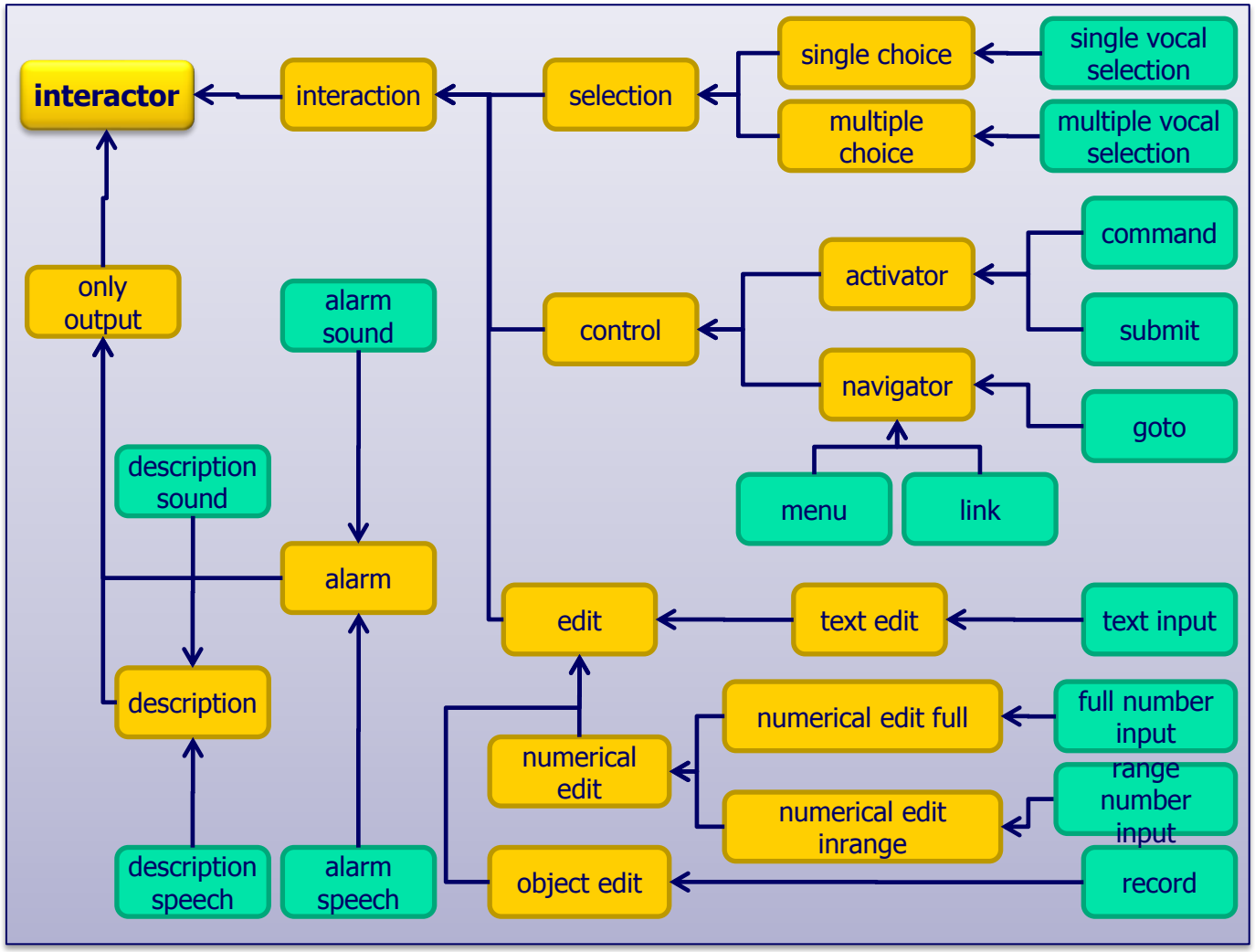


Vocal Concrete





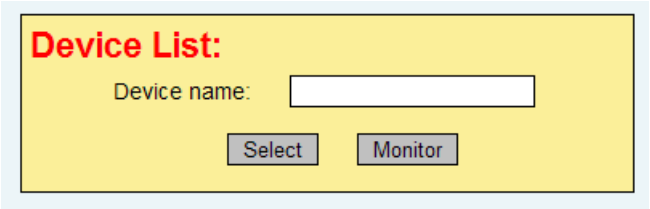
Vocal Concrete

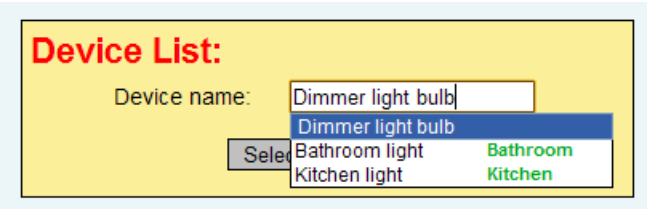


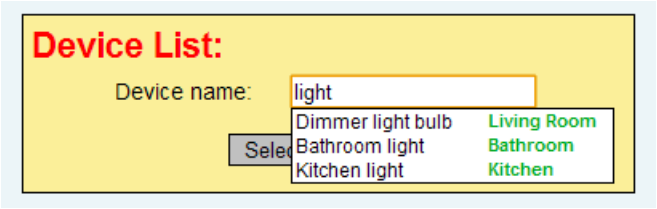
MARIA Current State

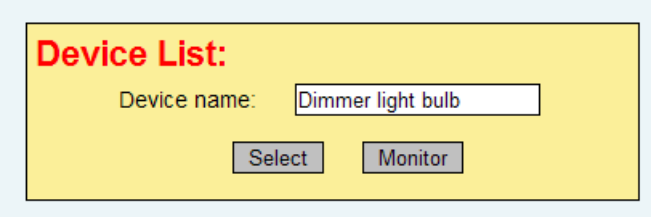
- Concrete Languages: Vocal, Desktop, Smartphone with touch, Mobile, Multimodal desktop, Multimodal mobile
- Implementation languages: XHTML, SMIL, VoiceXML, X+V – Working on HTML 5

MARIA AUI Example









- When *value changed event* of the text_edit interactor occurs
- A function is called using an abstract script, which retrieves relevant values that populate *the suggestion data*
- And the *hidden* property of the single choice interactor is changed to false, thus visualising the suggestions
- When *value selected event* occurs then the choice hides itself and the input of the text_edit is completed with this value
- When *selected element* in text_edit changes, two activators (Select and Monitor) are enabled to access further detail

MARIA Example