

Model-based Design of Multimodal Interaction for Augmented Reality Web Applications

The Augmented “Drag-and-Drop”

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2 Overall Research Question

How to model
interactions that
span Modes and
Media ?



<http://www.multi-access.de>

3 Multimodal Interfaces

Which **Media** ?



<http://flic.kr/p/6eeLwg>

Which **Modes** ?



<http://flic.kr/p/6eeLwg>



<http://flic.kr/p/7sZ6ho>

4 Interaction Resources

How ? Interaction Resources

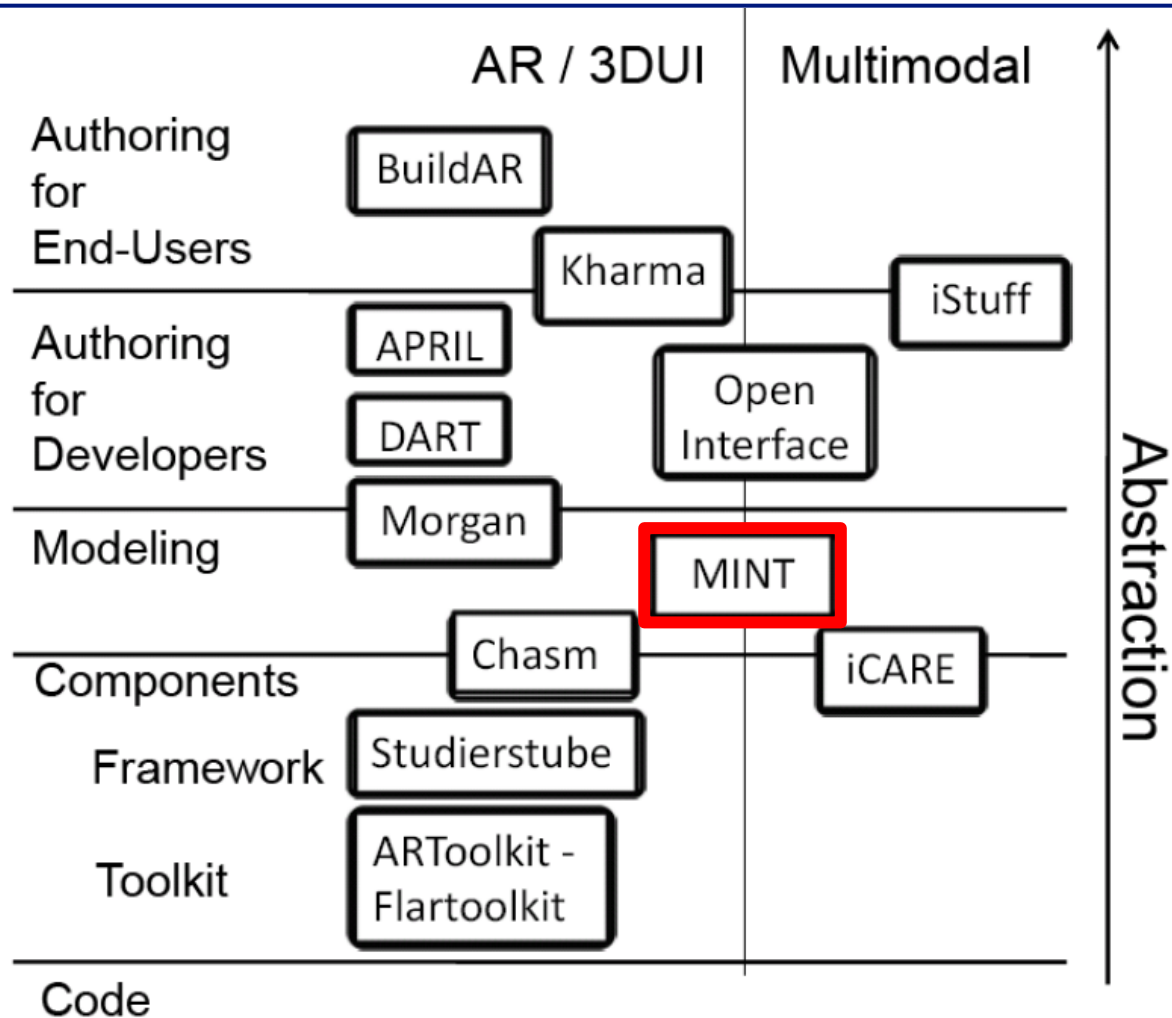


► 5 Why modeling?

Why modeling?

- One specification that
 - is declarative and exact
 - discuss & execute & store & share
 - add **new forms** of interaction
 - no code but model changes

6 Related Work



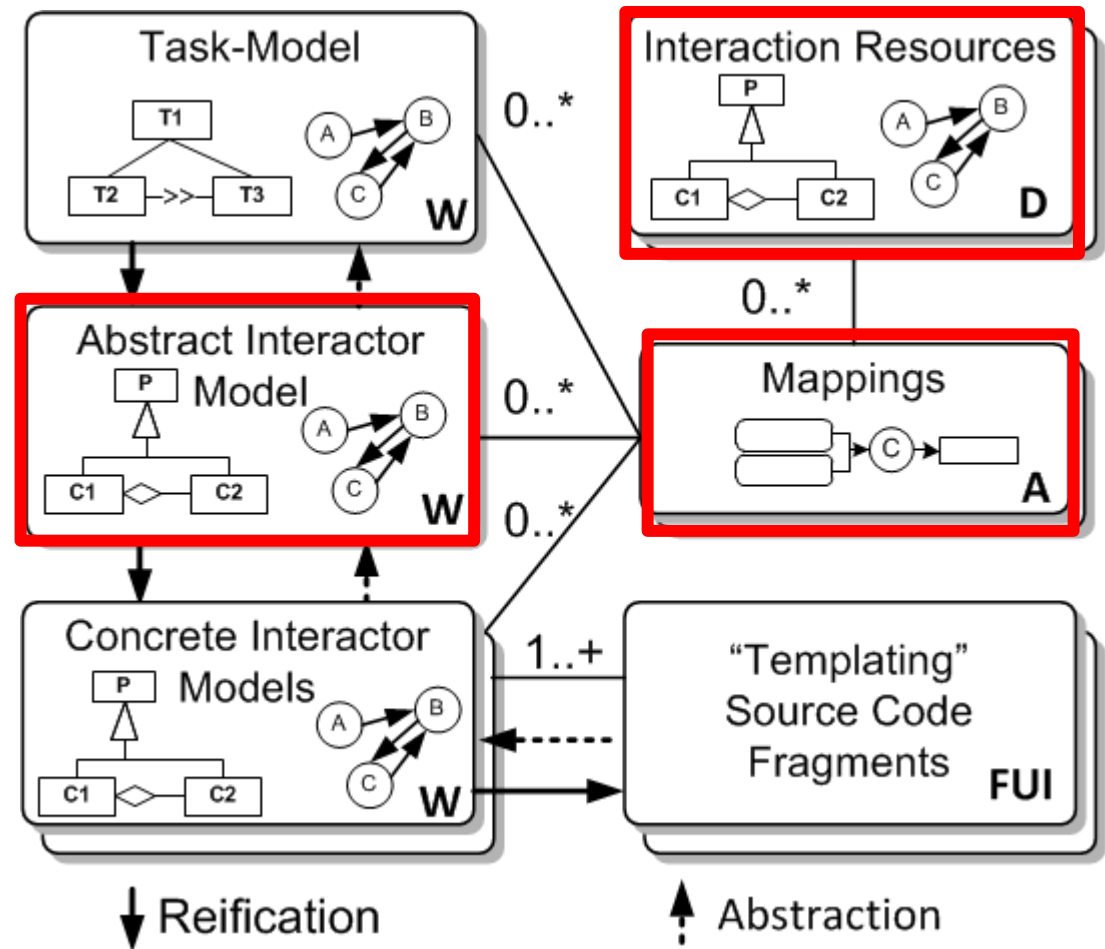
7 Use Case: Augmented Drag and Drop



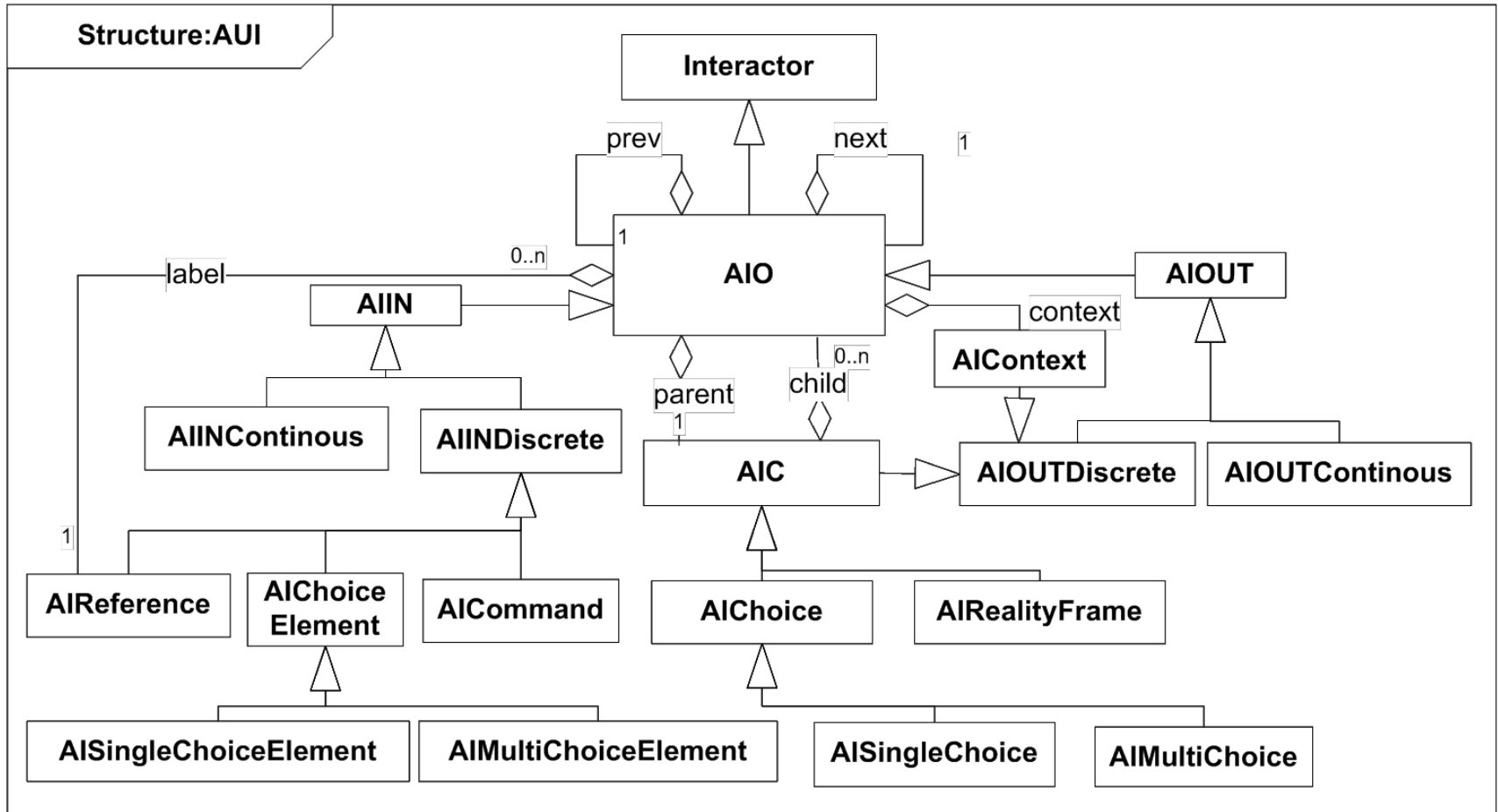
- ▶ Buying Furniture
 - ▶ Shopping Cart
- ▶ Drag and Drop
 - ▶ Into **my environment**

8 How to model?

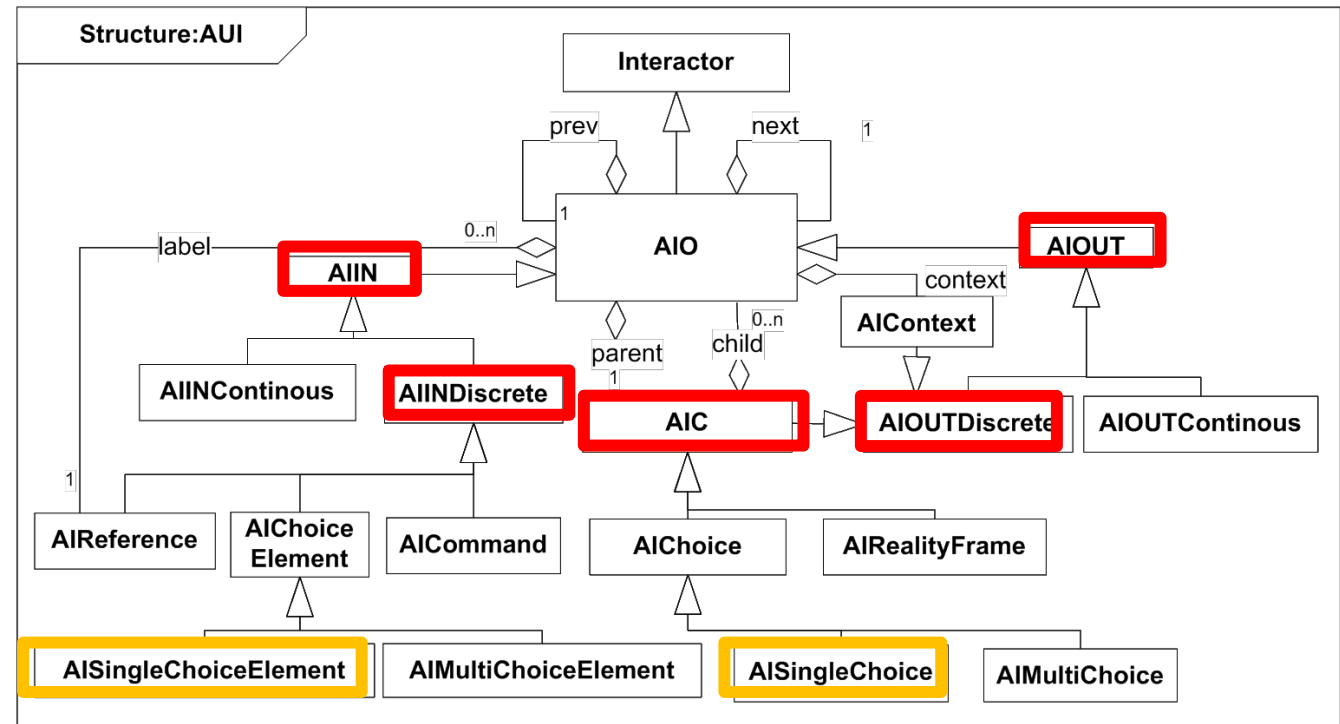
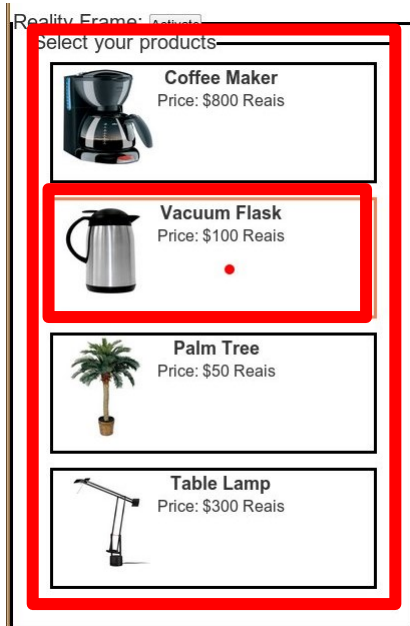
- ▶ Cameleon Reference Framework
- ▶ W3C MBUI
 - ▶ Task Model
 - ▶ Abstract UI
- ▶ Custom
 - ▶ Interaction Resources
 - ▶ Mappings



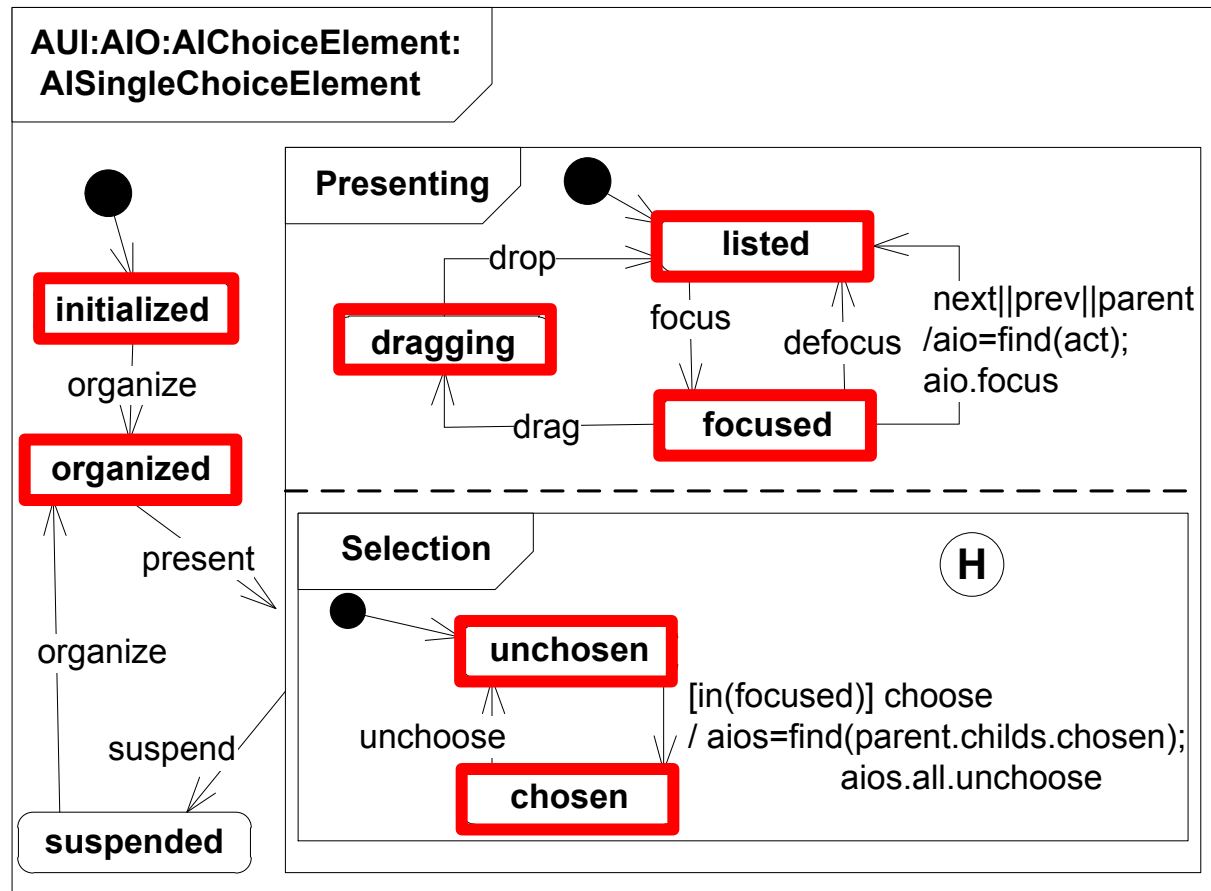
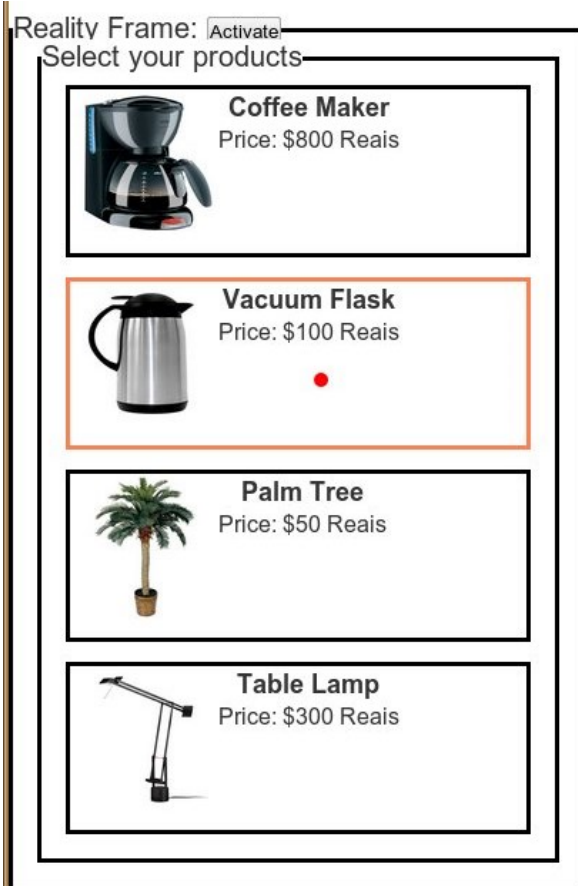
9 Abstract User Interface Model



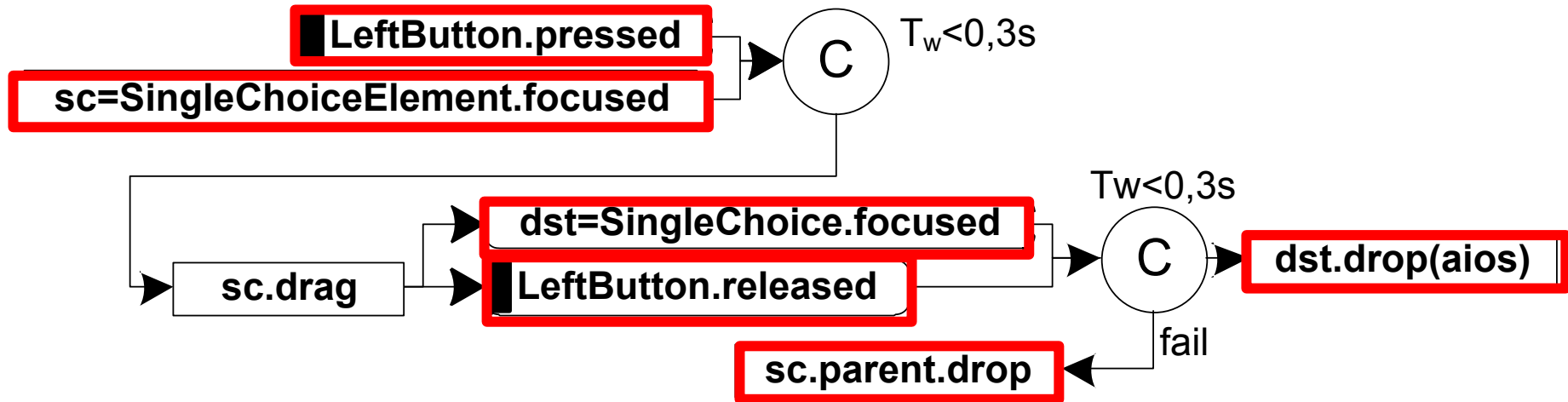
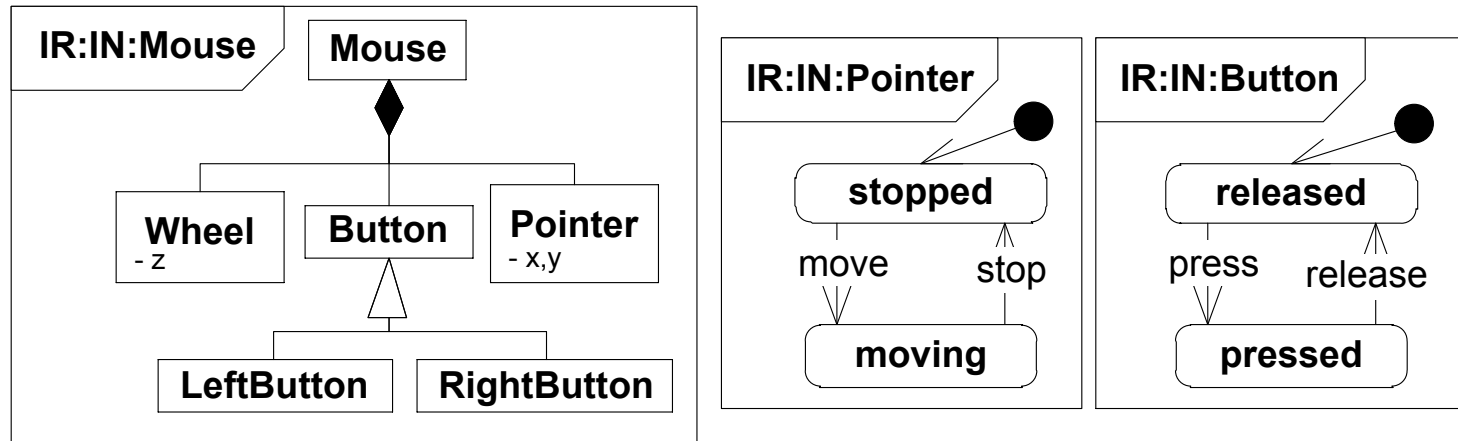
10 Abstract User Interface Model



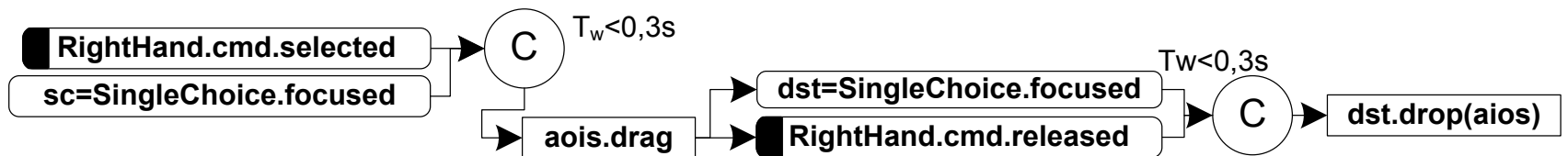
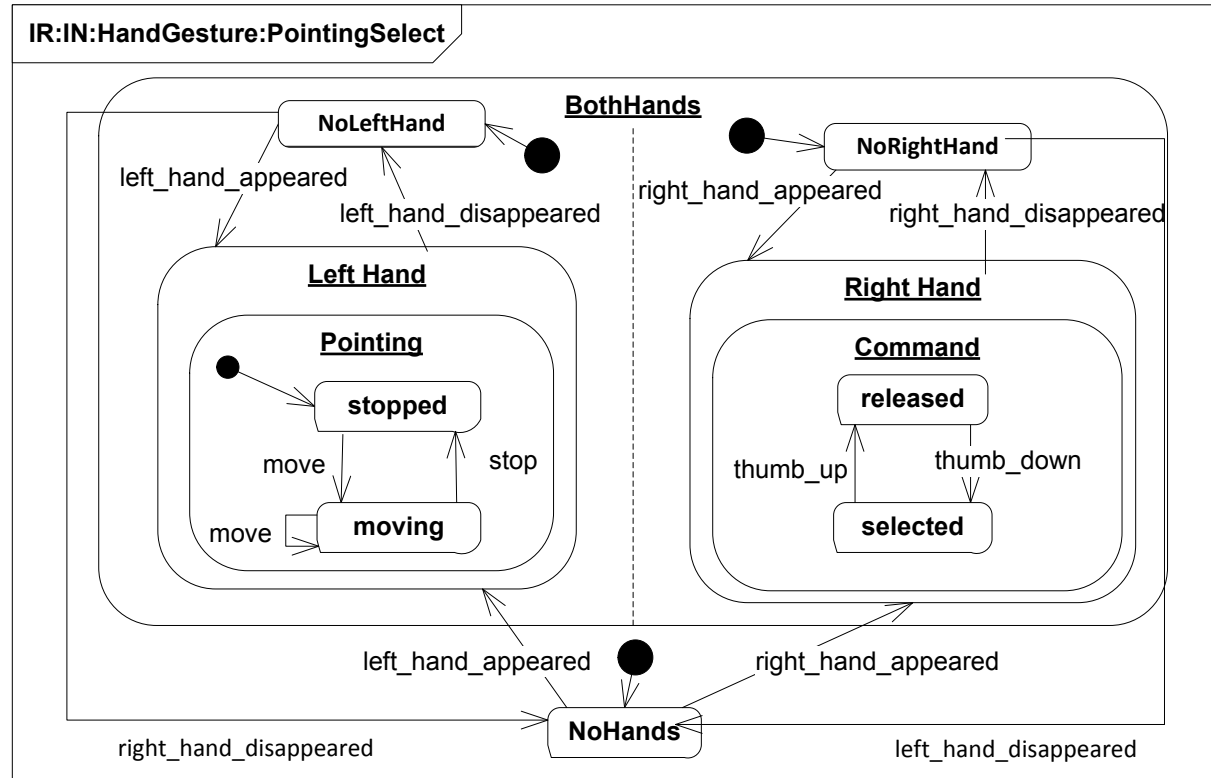
11 Abstract Behavior Model



12 Multimodal Mapping: The Mouse-based Drag-and-Drop



Hand Gesture Resource Interactor



▶ 14 Video: Connecting the Web with AR



► 15 Conclusions & Future Work

- Detailed, declarative modeling of multimodal interactions
- We can combine modes and media by mappings and bridge realities
- All models are interpreted and can be changed while running
 - What`s still missing is a tool / editor
- We intend to contribute to
 - W3C-MMI WG
 - W3C Ubiquitous Application Design CG

▶ 16 Questions ?

Thanks for your attention

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