Reproducible moldable interactions

Master Thesis

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Motivation

DEMO
Motivation

- Sessions are lost on closing
- Sessions cannot be replayed
- Code has to be manually extracted from a session
- Sharing a session requires external tool support
Motivation

- Persist inspection sessions
- Replay sessions
- Generate code from a session
- Share a session with someone else
Challenge

Uniform inspector model
Now: linear inspection session
Now: linear inspection session
Now: linear inspection session
New: tree inspection session
New: tree inspection session
New: tree inspection session
Recording interaction
- a moldable approach
Recording interaction
- a moldable approach

Let the widget decide how it wants to be recorded
Record click on graphical element
Record click on graphical element

How to identify the graphical element?
Record click on graphical element

How to identify the graphical element by position?

Record click: 150@300
Click events

childAt: 4
Click events

childAt: 4
childAt: 1
Click events

- childAt: 4
- childAt: 1
- childAt: 3
Click events

- childAt: 4
- childAt: 1
- childAt: 3
- childAt: 1
Click events

childAt: 4
childAt: 1
childAt: 3
childAt: 1

UI element path
Click events

- `childAt: 4`
- `childAt: 1`
- `childAt: 3`
- `childAt: 1`

Persist UI element path

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*CSS: n-th child*
SubmorphSelection: 4
AttributeSelection: #model
SubmorphismSelection: 4
AttributeSelection: #model
PresentationSelection: ‘Ports’
SubmorphSelection: 4
AttributeSelection: #model
PresentationSelection: ‘Ports’
SubmorpSelection: 4
AttributeSelection: #model
PresentationSelection: ‘Ports’
PortSelection: #text
SubmorphSelection: 4
AttributeSelection: #model
PresentationSelection: ‘Ports’
PortSelection: #text
AttributeSelection: #value
SubmorphSelection: 4
AttributeSelection: #model
PresentationSelection: ‘Ports’
PortSelection: #text
AttributeSelection: #value

Customized UI element path

fallback to child selection if no customization available
Inspection session
gtInspectorItemsIn: composite
  <gtInspectorPresentationOrder: 0>
  ^ composite table
    title: 'Items';
    column: 'Index' evaluated: [ :value :index | index asString ];
    column: 'Item' evaluated: [ :value | value printString ];
    rowSelectAction: [ :value :index | (IndexSelectionAction withIndex: index) ].
Inspector model

UI recording
Tool model

UI recording
Future work

- More custom recording steps
- Add features to new inspector
- More custom presentations
- Improve code generation
Summary
Manually redoing inspection sessions makes developers waste time during development.

Allow graphical objects to decide how interactions will be recorded (fall back to #childAt:).
FolderSelection: main
ArchiveSelection: archive.zip
FileInArchiveSelection: pharo-city.png
ModelSelection: Glamour

Query:: #allClasses

ClassSelection: GLMAction

CodeQuery
CategorySelection: Mondrian

ExampleSelection: InnerAndPopup

MethodSelection: RTArc>>#initialize
glamourModel := MooseModel root allModels detect: [ :each |
    each name = 'GlamourModel' ].

actionClass := glamourModel allModelClasses detect: [ :each |
    each name = 'GLMAction' ].

methods := actionClass methods select: [ :m |
    m outgoingInvocations size > 0 ]