

# The Markup Way to multimodal toolkits

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IntuiLab

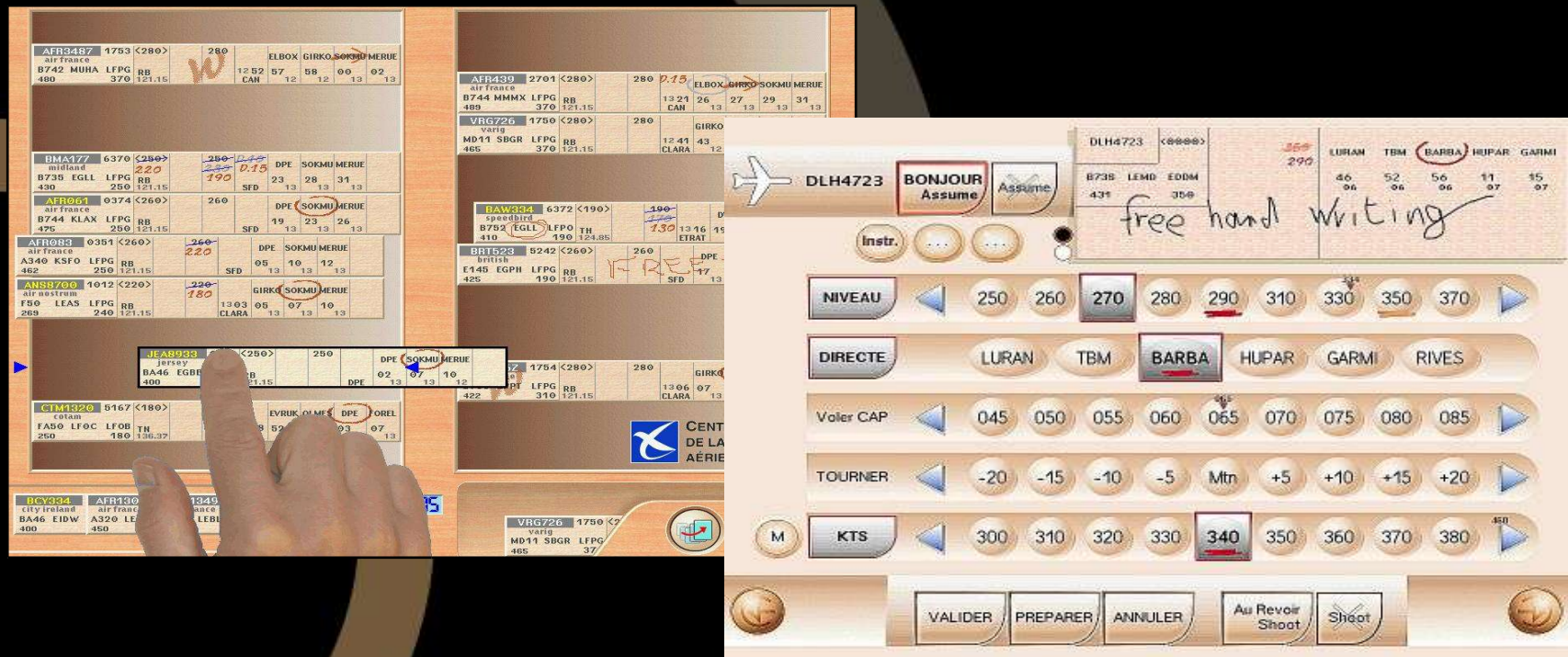
<http://www.intuilab.com>



W3C Workshop on Multimodal Interaction  
INRIA Sofia Antipolis, July 19–20, 2004

# IntuiLab ?

- Foundation:
  - Damien Figarol / Laurent Karsenty / Stéphane Chatty
- Intuitive User Interaction Style



# Portfolio

### ACCIDENT REFXXXX V1

**Origine** Opérateur CRS via Téléphone  
**Début** 14h25  
**Fin prévue** 15h25 Jeu 1 avril 2004  
**Fin réelle** 15h34

**Historique**  
**Localisation**

**Commentaires**  
 Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tution ullam corpor suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis te feugl facilisi. Duis autem dolor in hendrerit in vulputate

**Entités impliquées**  
 Véhicules légers 2  
 Petits PL 1  
 Gros PL 3  
 Domaine public **Glissières**

**Risques induits**  
 Pour la circulation **Glissance**  
 Pour les usagers/secours

**Matières**  
 Pharmaceutique - répandu - 80 1824  
 Eléments de grande dimension **oui**

**Personnes transportées**  
 Personnes 8  
 Enfants, handicapés 2  
 Animaux 1  
 Non-francophones **non**

**Victimes**  
 Tués 2  
 Blessés graves 1  
 Blessés légers 7  
 Incarcérés 2

**Moyens d'intervention**  
 DDE **prévenu**  
 CRS **réparti**  
 CODIS **arrivé**  
 Dépanneur PL **prévenu**

**Affichage web**  
 contenu du message à présenter sur le web...

**Axe(s)**  
 A1 Paris - Lille  
 Sens 1

PR 209+0215 - 210+0000  
 CR: 3000 - 50km/h

PR 208+0000 - 209+0215  
 CR: 3000 - 30km/h

Liste

Code	Valeur	Marché
12592	AGF	premier
49107	AGTA RECORD	premier
14197	AIG - AMERICAN	libre
5327	AIGLE	nouveau
3112	AIR FRANCE	libre
12007	AIR LIQUIDE	libre
3460	AIROX	nouveau
5704	AKZO NOBEL	nouveau
18418	ALAIN AFFLELOU	libre
6985	ALAIN MANOUKIAN	libre
13000	ALCATEL	nouveau
7689	BAC MAJESTIC	nouveau

Code	Valeur	Cours	Variation	Div.	+haut	+bas	Volume
7249	A NOYO	1.99	+13.71%	1.74	2.28	1.58	2 576 060
7699	AB GROUPE	9.00	+2.86%	9.10	9.10	9.00	150
3954	AB SOFT	2.00	0.00%	2.00	2.00	2.00	1
7377	ABC ARBITRAGE	1.64	+3.80%	1.64	1.64	1.64	1 090
12817	ABN AMRO	6.00	0.00%	6.00	6.00	6.00	2 288
12818	ADIDAS	0.43	+5.46%	0.65	0.40	0.26	438
6460	ACANTHE DEVELOPPE	5.60	+70.0%	8.40	5.25	3.43	3615
12955	BARRICK GOLD	6.00	+75.0%	9.00	5.62	3.67	6015

acc: LFFFPW **0001** on: 1970/01/01 00:59

Traffic map - image

Signed on 00:59 1970/01/01 REF: 0001

MSK20N LFB/LFMN  
 AFB128 LFB/LFMN  
 IJ567 LFB/LFMN

RBT → → →  
 3' 3' 3'

MSK20N LFB  
 AFB128 LFB  
 IJ567 LFA

RBT → → →  
 3' 3'

MSK20N LFB/LFMN  
 RBT → → →  
 3' 3'

... C2MTL, 10h20 MTL  
 PTV NEV LERGA \*MED  
 ANFOU ARMUS SINRA DRAMO

BJI KL0M POULP \*PDLU FIU VBH  
 \*FIU MOU LEU

Origin Impact Details

12817 ABN AMRO -90%  
 7699 AB GROUPE +90%  
 12955 BARRICK GOLD -30%

Achat : Date : 14/10/02  
 Cours : 6.00 €  
 Quantité : 3675  
 Prix : 22055 €

14-01-00

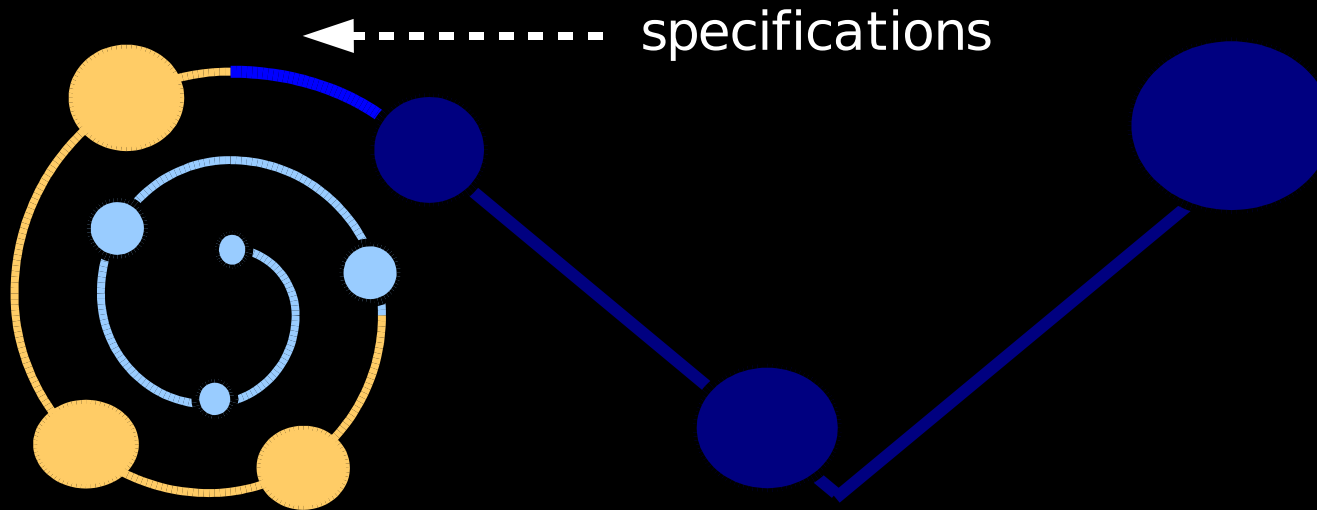
AFR1735 09L A320 H21  
 DLH5736 09L CRJ2 H18  
 AFL251 09L A310 H17  
 EZY1WB 09L B733 H15  
 EIN524 09L A320 H13  
 AFR1981 09L E145 H11  
 BAW312 09L A319 H09  
 BEE3023 09L B463 H06  
 DLH4114 09L B733 H02

AFR438 09L B744 F MMYX E12 Z1 11:53 09L H 18 AMOQA-9G 14 30  
 BAW315 09L A319 M EGL Z2 14 00  
 AFR474 09L A343 F MUHA C05 Z1 11:30 09L H 10 EVX-9G 14 22  
 USA27 09L A333 F KPHL U04 Z2 11:52 09L H 07 EVX-9G 14 17  
 AFR276 09L B744 F PJAA F96 Z1 11:17 09L H 05 NURMO-9G 14 17  
 AFR344 09L A343 F CYUL F74 Z1 11:15 09L H 03 AMOQA-9G 14 15  
 AFR006 09L B744 F ZPK E10 Z1 11:00 09L H 01 EVX-9G 14 13

AFR  
 DLH  
 BAW  
 BEE  
 EIN  
 AFR  
 AFR  
 AFR  
 AFR



# Iterative Design Process



— mockup

— prototype

— development and test

AFR 023	G28	W9	26R	0852	MOUSE
B747	η	LFMN	0832	0848	0801

AFR128	G28	W9	26R	0852	MOUSE
B747	L	LFMN	0832	0848	0901

<b>BMA176</b>	T01	Z2	09L	14 00	OPALE-9G
A320	M	EGLL	13 40	---	14 10

*Example: three stages of a strip for Air traffic Control*

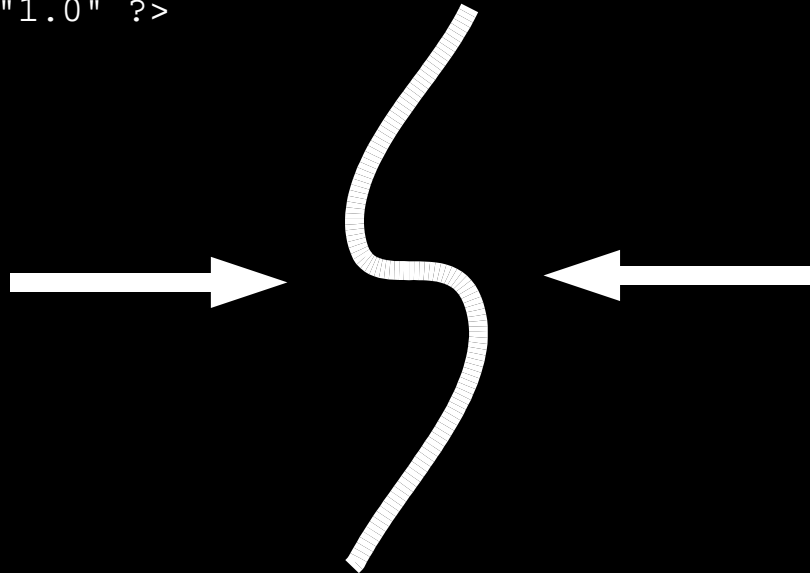


# Model driven approach



```
<?xml version="1.0" ?>  
<svg>  
<defs>  
...
```

WYSIWIG  
editor



```
use IntuiKit::Simple;  
new GUI::Rectangle  
( -width=>50, -height=>100);  
new GUI::Gradient(-spec=>  
'=axial 0|blue |red');  
...
```

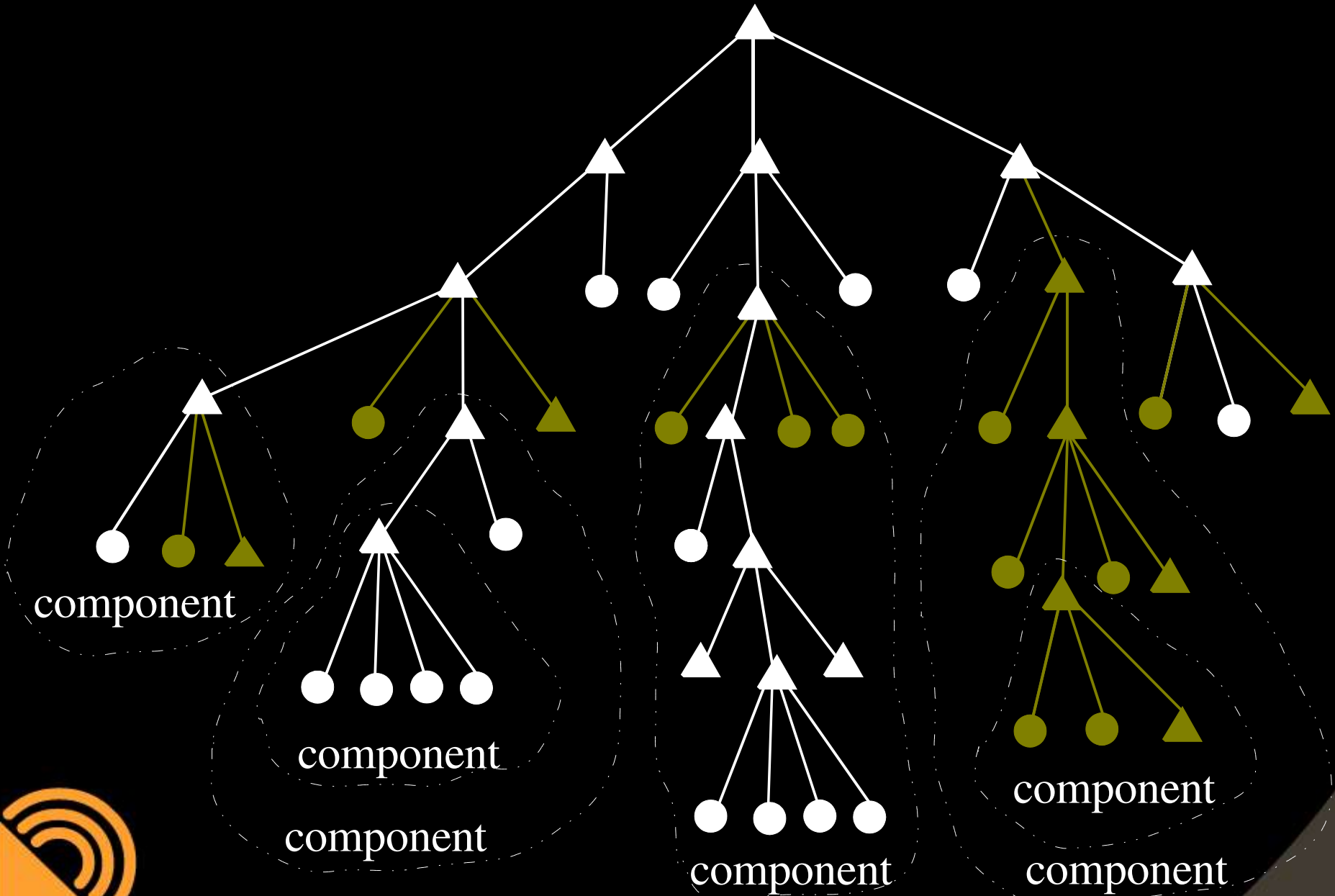
PROGR.  
LANGUAGE

- Markup benefits
  - team work support
  - specialized editors (WYSIWIG)
  - thin and fat client deployment





# Component Tree



# Component services

- Properties
  - Customization
- Code execution
  - event handlers vs. methods
- Events
  - input vocabulary
  - output vocabulary
- Behaviour
  - State information and control structures





# Well covered with W3C Markup

- Properties
  - CSS
- Graphics
  - SVG with transformations and animations
- Bindings
  - XML Events
- Speech Grammars

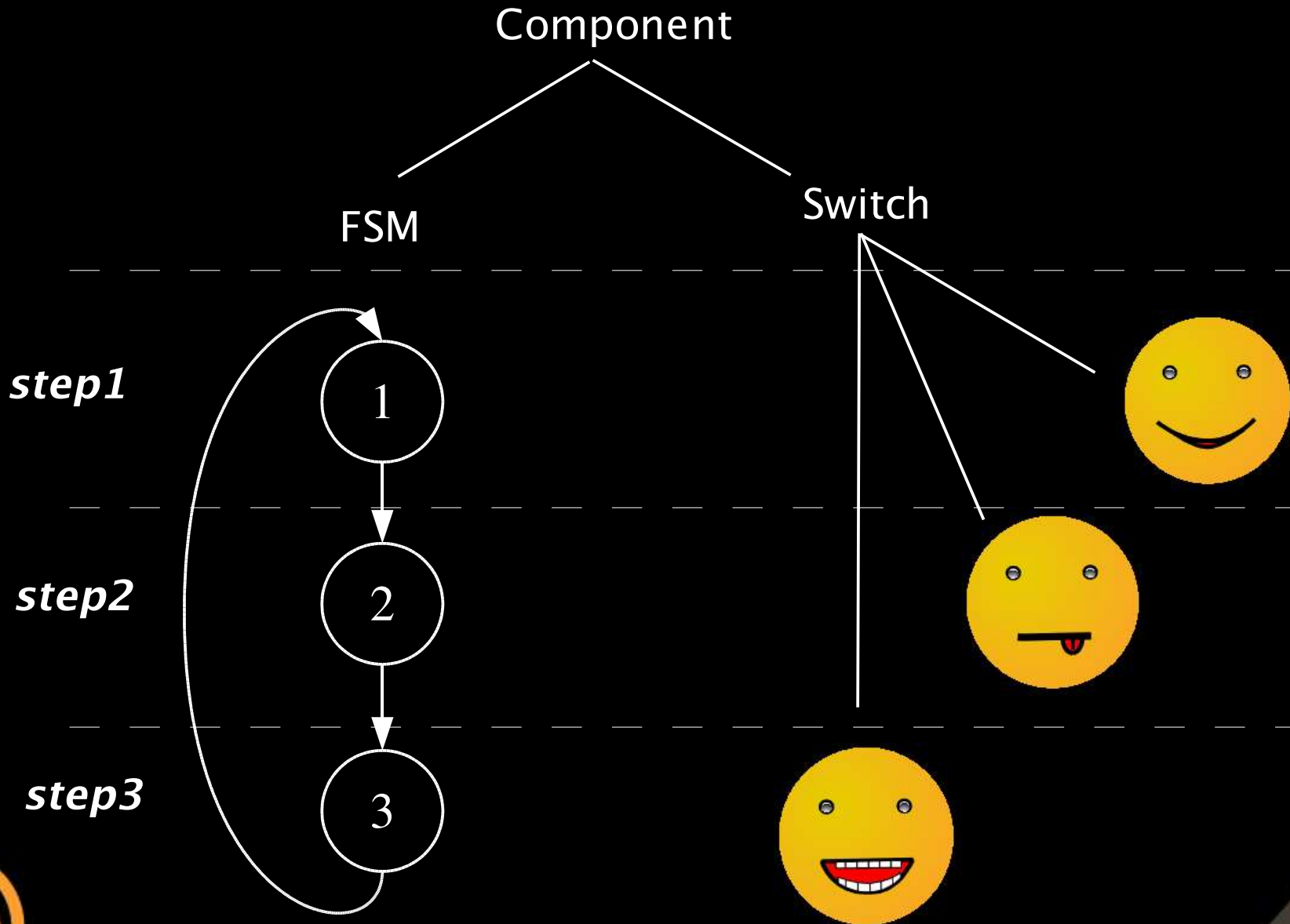


# Less covered with W3C Markup

- Control structures
  - distributed flow of control
  - FSM and Switch
- Core architecture
  - IntuiKit::Component and IntuiKit::Element
  - definition vs. instantiation
- Gestures
- Events
  - EMMA ?



# Sample control structure



# Core architecture

*component definition* →

↓ *component instantiation*

	XML	Progr. Language
XML	Markup Only	Code Behind
Progr. Language	Markup Behind	Code Only



# Discussion

- Do we need a component model ?
  - XUL/XBL
  - SVG RCC for Xforms rendering
  - XAML: code behind
- Do we need more advanced control structures ?
  - How to represent the distributed flow of control ?

