

The Future of Inclusive Design Online

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**A new paradigm for
accessibility is emerging.**

What is it?

**What will it mean (opportunities
and challenges)?**

How do we need to respond?

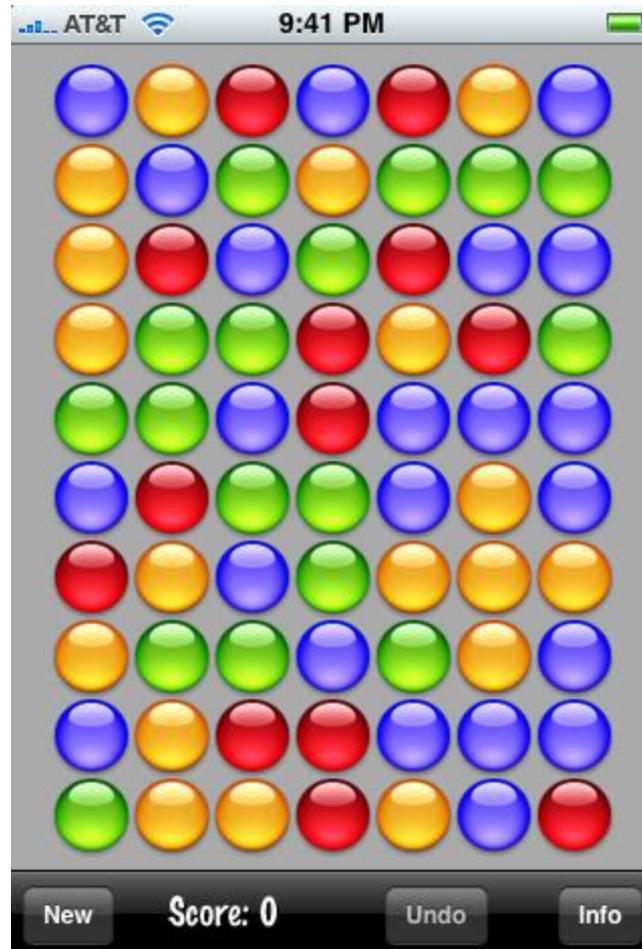
The Raman Principle

"The way to think about the visual system is as a way to ask questions about a spatial database. If you give someone another way to ask the questions and get the answers, they don't need vision."

--T V Raman

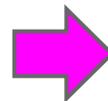
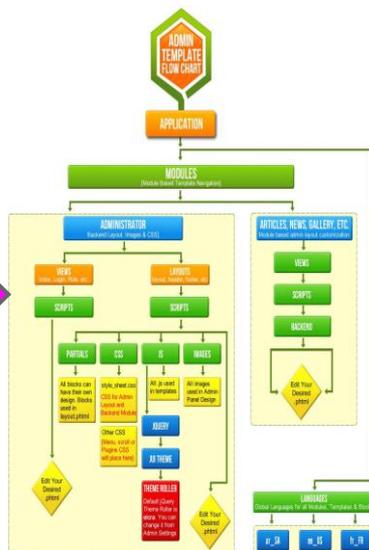
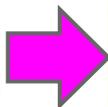
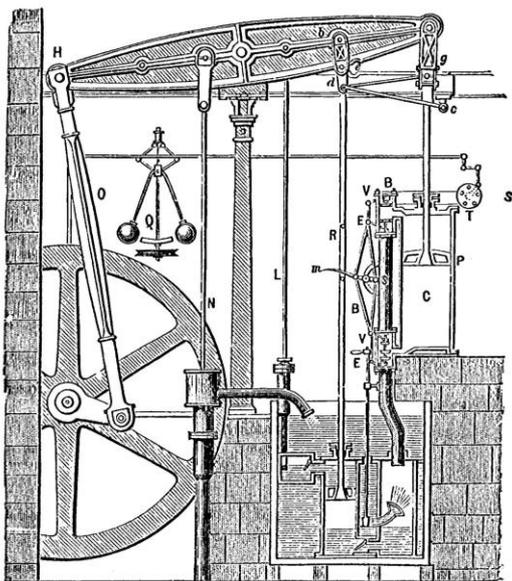


Jawbreaker Demo (Raman and Chen)

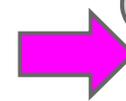


**This idea shifts our focus from
making *presentations* accessible to
making *content* accessible.**

Beyond the Screen Reader (more Raman)



screen reader

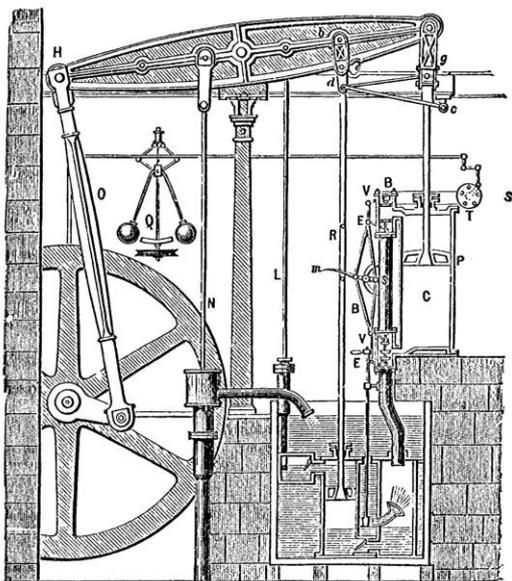


non-visual presentation of visual presentation

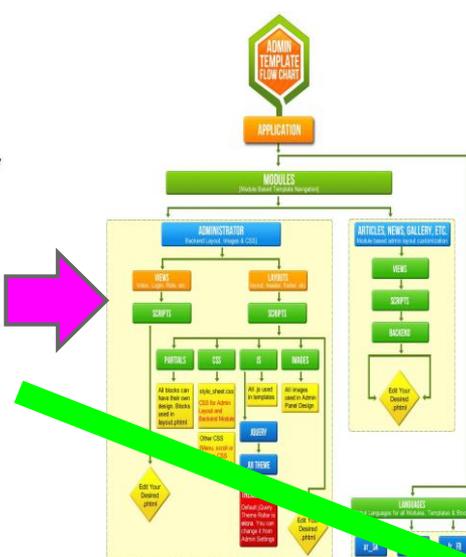
something you need to understand and work with

visual presentation

Beyond the Screen Reader (more Raman)



something you need to understand and work with

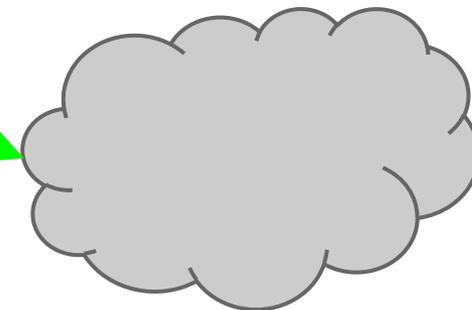


visual presentation

screen reader



non-visual presentation of visual presentation



non-visual presentation of what you need to understand and work with

The new paradigm (Raman, 2013)

Providers of content and services will provide APIs (application program interfaces)...

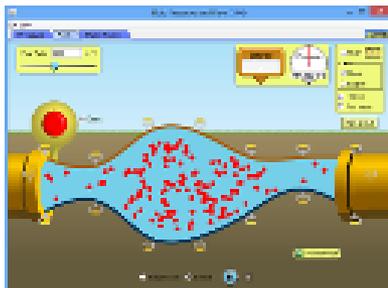
... to which a wide variety of clients can be connected...

... that serve the particular needs of users.

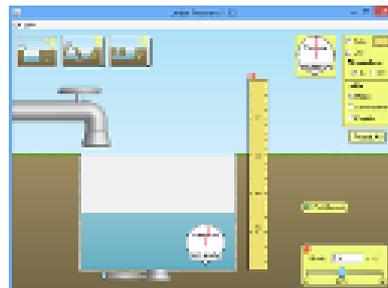
Opportunities

superior access can be provided

making interactive simulations accessible



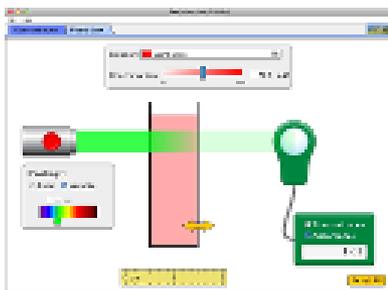
Fluid Pressure and Flow



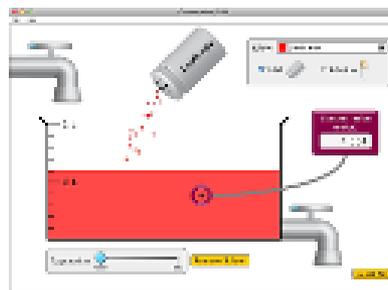
Under Pressure



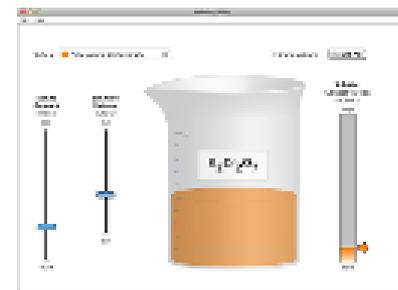
Normal Modes



Beer's Law Lab



Concentration



Molarity

Creative Technology for People with Disabilities: Visual Programming?

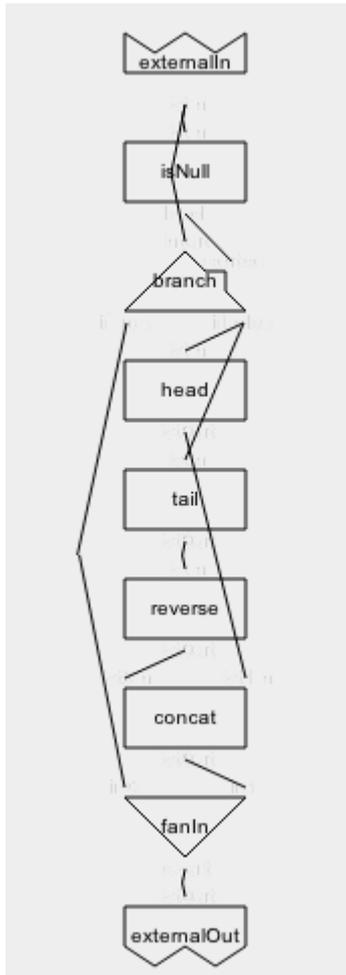


Jamal Mazrui



Gregg Vanderheiden

Non-Visual Visual Programming



```
{ "functionName": "isNull",  
  "in": { "listIn": "listIn" },  
  "out": { "bool": "b0" } },
```

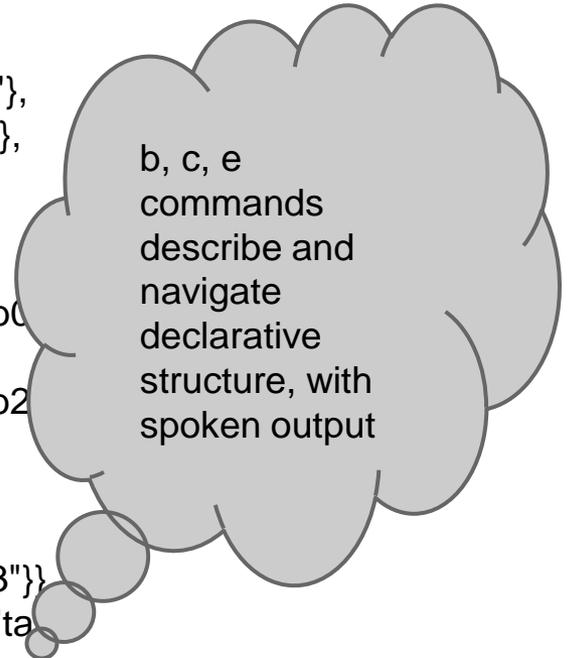
```
{ "functionName": "branch",  
  "in": { "input": "listIn", "control": "b0" },  
  "out": { "ifTrue": "b1", "ifFalse": "b2" } },
```

```
{ "functionName": "head",  
  "in": { "listIn": "b2" },  
  "out": { "listOut": "b3" } },  
{ "functionName": "tail",  
  "in": { "listIn": "b2" },  
  "out": { "listOut": "b4" } },
```

```
{ "functionName": "reverse",  
  "in": { "listIn": "b4" },  
  "out": { "listOut": "b5" } },
```

```
{ "functionName": "concat",
```

```
  "in": { "list0In": "b5", "list1In": "b3",
```



```
  "out": { "list": "b2" } }
```

commands can traverse **logical structure** of
program, not just **layout order**

The Grand Strategic Trend

from presentation to content



John Seely Brown, 1984: WYSIWYG is a
bad idea!

We have accessibility problems everywhere today because people are creating *presentations rather than content.*

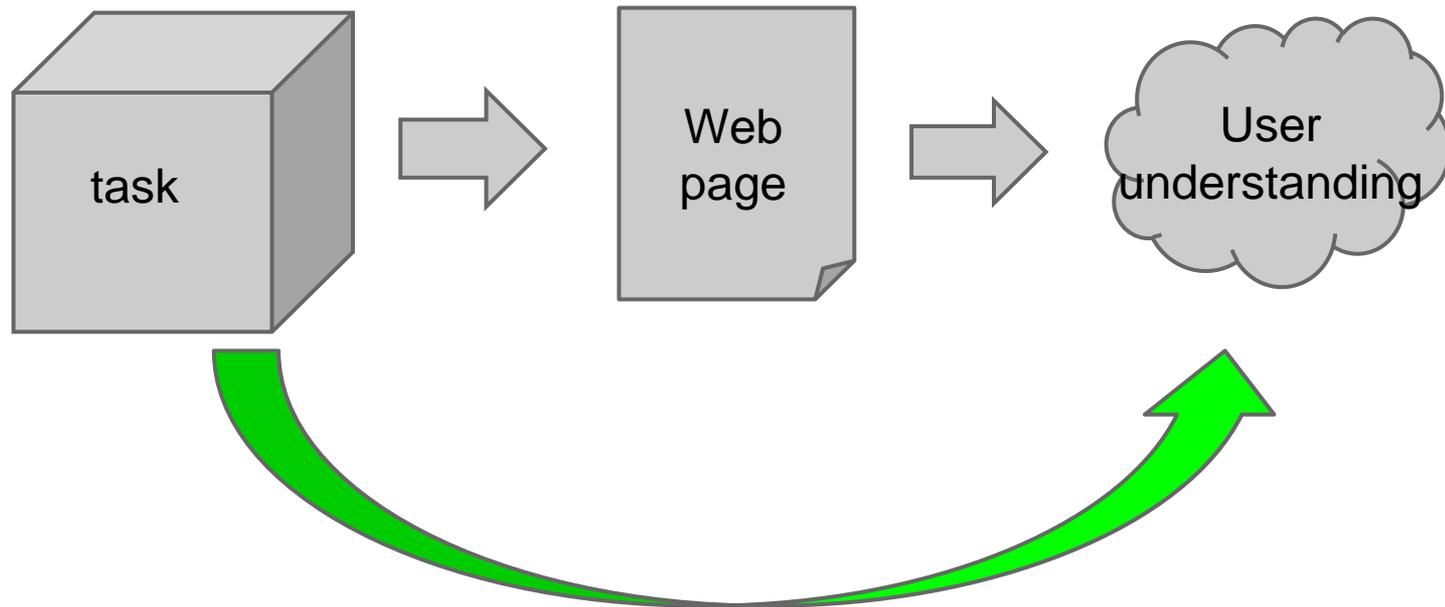
We have to replace presentation-oriented tools by content-oriented ones.

This is happening, eg CSS, CMS, but we need to push much harder... it's been almost 30 years since 1984



Pushing the Raman Principle Farther

How does the principle apply to cognitive limitations?



Pushing the Raman Principle Farther

How does the principle apply to cognitive limitations?



Bob Williams
Associate
Commissioner
SSA

We can ask not "How can we make this page easier to understand?"

but

"How can we make this task easier to perform?"

- Use Choice Architecture (cf Thaler et al.)
- Use *personalization* to simplify the task

Challenges

New division of labor

Agency that produces content may not produce the clients...

... so who is responsible for accessibility?

VA Blue Button may illustrate this issue:

VA produces content (as plaintext dump), not client viewers of the content.

New software tools

- tools for publishing *content*, not Word documents or pdfs
- tools for creating clients, flexibly, quickly, inclusively, and cheaply
 - this is part of the Mazrui Challenge
 - it also connects to the shift from *mass production* to *mass customization*

Progress on Client Creation

Work within the Global Public Inclusive Infrastructure Initiative (GPII.net) is promising

- emphasis on maximum configurability of software
- uses declarative representation of programs, and advances on program merging and integration
- see fluidproject.org

How we need to respond

Plan and carry out needed changes in public policy

- not only accessibility (sec 508) but also intellectual property law may be affected

Promote advances in software tools

Thank you!





**Just Say *No!* to
Native Apps!**