web of data
web of people
web of action

talis

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and Talis

www.hcibook.com/alan/papers/JWS-2010-world-of-action

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about me

I work at Lancaster
near the Lake District

and Birmingham in
the Midlands of England

… but

although I speak English
I am not English
I am **Welsh**
rydw i'n Cymraeg

… and live …

in Tiree, Scotland
... the sunniest
... and windiest
place in the UK

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today I am not talking about …

- situated displays, eCampus,
  small device – large display interactions

- visualisation and sampling

- fun and games, virtual crackers,
  artistic performance, slow time

- physicality and product design

- creativity and bad ideas
  and modelling dreams and regret!

… or even lots of lights

http://www.hcibook.com/alan/projects/firefly/

... but I am talking about

the web

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data
|
web

- HTML, images, PDF
- hypertext links
- web search

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data

web

people

- web 2.0
- social media
- social networking

vfridge (dot.com)
photolurking

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vfridge ... looking to the web future ... in 1999

in the midst of dot.com years ...

dominant view:
- expecting 'shake out'
- small number of large players
- future of web as TV-style broadcast medium

we thought differently ....

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the websharer vision (1999)

" The web/Internet is not just a medium for publishing, but a potential shared place.

Everyone may be a web sharer — not a publisher of formal public 'content', but personal or semi-private sharing of informal 'bits and pieces' with family, friends, local community and virtual communities ..."

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sounds prescient (web 2.0!)
.... and was translated into a product (vfridge)

sadly the company died ☹
but the you can still play with vfridge today ☺
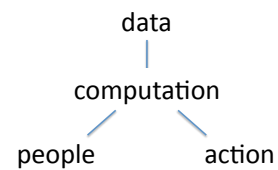
Slide 1:

data

web

people   action

- people want to do things

  Bill Gates: "*The future of search is verbs*."
  Esther Dyson: " *when people search, ...*
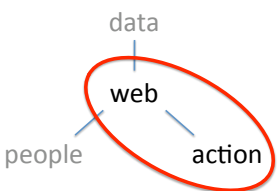   *they are looking for action*"
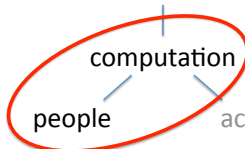
Slide 2:

data

computation

people   action

but must not forget
    that at the heart of the web
        is computation
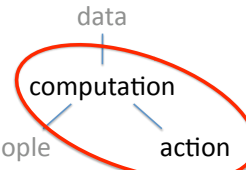
Slide 3:

data

computation

people   action

- semantic web
  – RDF, OWL etc,
    open data, linked data,
    data.gov.uk
    talis
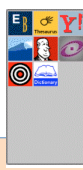
Slide 4:

data

computation

people   action

- semantic web
- recommender systems
  – Amazon for books,
    but now ubiquitous
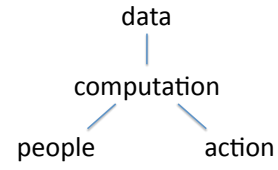
Slide 5:

data

computation

people   action

- semantic web
- recommender systems
- intelligent user interfaces
  – promised long ...

onCue ...
more dot.com tales

Slide 6:

data

computation

people   action

but all fit together

global data + individual interaction => personalised action

focusing on action

how can the system help?

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time to act

- when to act *(initiating action)*
  - detecting loci of action in current activity

- what to act on *(performing action)*
  - suggesting parameters/values in actions

- how to act *(continuing action)*
  - proposing future actions

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when to act

detecting loci of action in current activity

data-driven interaction

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identify loci at point of creation

offer alternative RDF or XML formats

or use markup in web page
- dedicated markup
  - e.g. zLinks
- microformats
  - human readable text ...
    - ... but also machine readable
      - for search engines or plug-ins

zitgist.com/products/zlinks

```
<p class="vcard">Hi, my name is <span class="fn">Jamie
Jones</span> and I dig microformats!</p>
```

microformats.org

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identify loci at point of use – Snip!t

1

users selects in web page and presses "Snip!t" bookmarklet

2

Snip!t pops up page with suggested things to do with the snip (and saves it for later, like bookmark)

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identify loci at point of use – Snip!t

play yourself at www.snipit.org

recognises various things e.g. dates

class of systems 'data detectors'

- late 1990s
  - Intel selection recognition agent
  - Apple Data Detectors (Bonnie Nardi)
  - CyberDesk (Andy Wood led to onCue)
- recently
  - Microsoft SmartTags
  - Google extensions
  - Citrine – clipboard converter
  - CREO system (Faaberg, 2006)
- way back
  - Microcosm (Hypertext external linkage)

syntactic / regexp

'semantic' / lookup

Snip!t uses combination

architecture

Snip!t – server-side 'intelligence'
(onCue – was client-side – internet speed at the time!)

recognisers + services (inherited from onCue):
- recognisers:
  - scan text for potential data
- services:
  - match data to actions

architecture

representation vs. semantics very important

simple recognisers
- regular expressions, table lookup
  e.g. postcodes, personal names from census data

different kinds of recogniser chaining:
- from semantics to wider representation
  e.g. postcode suggests look for address
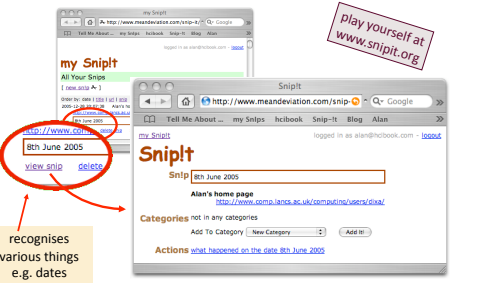- from semantic to semantic
  e.g. domain name in URL
- from semantic to inner representation
  e.g. from Amazon author URL to author name

what to act on

suggesting parameters/values in actions

personal ontologies

- all use 'general' categories:
  - post code, name, place
- linking to personal ontology
  - users own entities and categories
- how to build?
  - by hand (during useful interactions)
  - automatically (mining files, emails, etc.)
    - e.g. Gnowsis and other semantic desktop projects

spreading activation over ontology

context in forms

Hotels R Us

Name | Alan Dix
Org. | Lancaster Univ.

entry of first field sets
context for rest of form

but what is the relationship?

maybe semantic markup on form
  – good SemWeb style ... but not very personal

... or more inference ...

context in forms - inference

Hotels R Us

Name | Alan Dix
Org. | Lancaster Univ.

name_of — Person: ADix — colleague
Person: Devina
member
name_of — Inst: ULanc — member

match terms in form to ontology

look for 'least cost paths'
  • number of relationships traversed, fan-out

context in forms - inference

Hotels R Us

Name | Akrivi Katifori
Org. | Univ. of Athens

name_of — Person: Vivi
member
name_of — Inst: UoA

match terms in form to ontology

look for 'least cost paths'
  • number of relationships traversed, fan-out

later suggest based on rules

how to act

proposing future actions

single step – next action

seen it already ...

• markup or data detectors -> loci

• find web services that use the data

• strongly typed data is the link

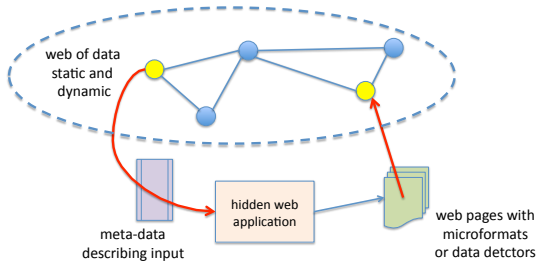## locating web services for data type

many web services designed for human use

add meta-information to services
  – internal (semantic page markup)
  – external (e.g. Snipit, Milan Search Computing)

```
<urlservice>
  <type>name</type>
  <title>switchboard.com</title>
  <descpattern>lookup US person $name at switchboard.com</descpattern>
  <urlpattern>http://www.switchboard.com/bin/cgiqa.dll?
SR=&amp;MEM=1&amp;LNK=33:4&amp;F=${forename}&amp;L=${surname}</urlpattern>
</urlservice>
```

www.snipit.org

reweaving the hidden web through user interaction

web of data static and dynamic

hidden web application

meta-data describing input

web pages with microformats or data detctors

proposing sequences of actions

- long history (lots of work early 1990s)
- limited success
  - interleaved tasks
  - generalisation
- data ontology helps :-)
  - input/output links like 'string of pearls'
  - ontology type allows single step learning
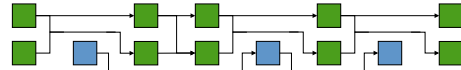
how to get links?

- user interaction:
  - drill-down from previous values

- system inference:
  - same form-field linking as before

so what?