From E-Relevance to W-Relevance

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Workshop on Mobile Personal Information Retrieval
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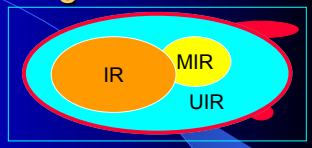
Topic of this talk

- What is relevance in Mobile Personal Information Retrieval?
  - What is Mobile Personal Information Retrieval?
- Not just Mobile Information Retrieval…
  - Mobile devices (cell phones, PDAs, …)
- … but Ubiquitous/Pervasive Information Retrieval
  - Ubiquitous devices accessing/providing information
  - Strongly interconnected with the real, physical world

Warnings!



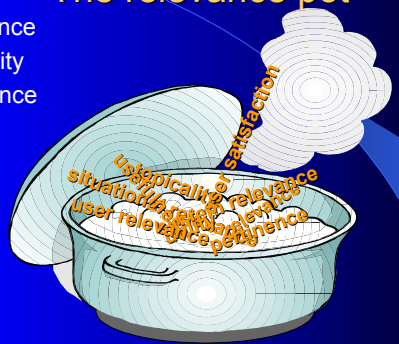
- Preliminary work
- Extremely speculative talk
  - 10 years future
  - Avoid ephemeral technological constraints
  - In 10 years or so, mobile devices and desktop computers might be rather similar
- Brainstorming

Outline

- 1st part: Relevance in classical IR (my previous work)
- 2nd part: Relevance in mobile IR (what/how is different)
- 3rd part: Scenarios (examples to support our view)
- Conclusions

The relevance pot

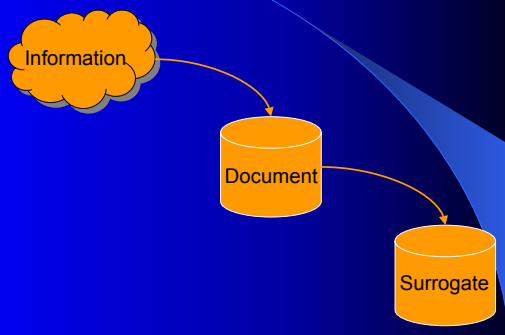
- Relevance
- Topicality
- Pertinence
- Utility
- …



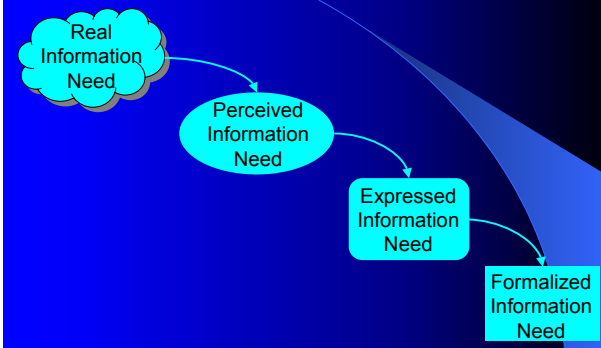
Many relevances

- Classification along 4 dimensions:
  - Information resources
  - User problem representations
  - Time
  - Components

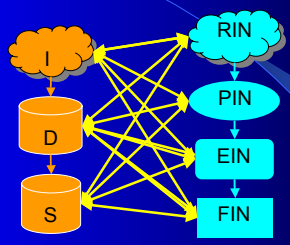
Information resources



User problem representations

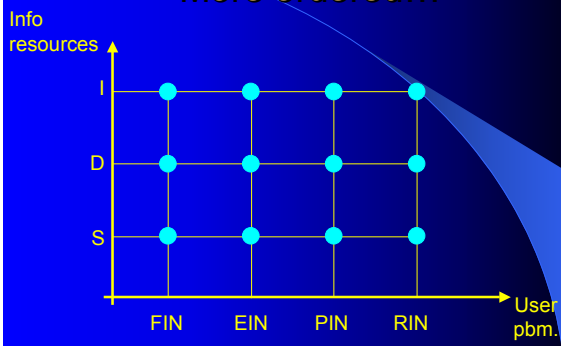


The relevance of "X" to "Y"



The relevance of document to information need

More ordered…



Time

- Even more relevances:
  - The relevance of X to Y at query expression time
  - The relevance of X to Y at the time of the end of interaction with the IR system
  - …

Topicality?

- Not mentioned yet…
- …we need another dimension
- Components:
  - Topic
    - What the document/need is about
  - Task
    - What the user has to do with the retrieved info
  - Context (… everything else!)
    - Everything else (previous knowledge, …)

So, many relevances

- The relevance of **the surrogate** to **the query** at **query expression time** for what concerns the **topic** only
- The relevance of the **received information** to the **real information need** at the **end of the interaction with the IR system** for what concerns **topic, task, and context**
- Beyond-topical relevance criteria

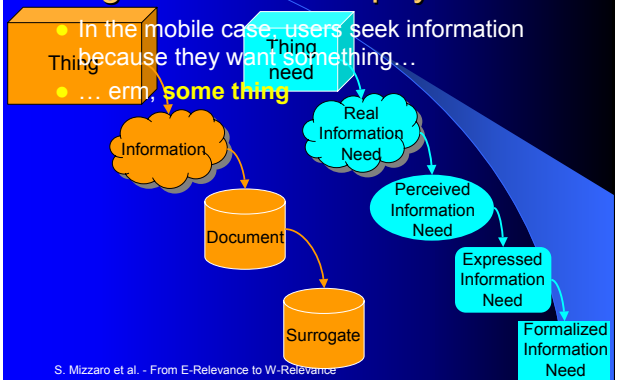
Summary

- 1st part: Relevance in classical IR (my previous work)
  ⇒ There are many relevances ⇐
- 2nd part: Relevance in mobile IR

Mobile/wireless/ubiquitous/…

Stronger link with the physical world

- In the mobile case, users seek information because they want something…
- … erm, **some thing**



Link with the physical world: Time

- Users need "quick and dirty" information
- Carpe diem!
  - Things change (faster?)
  - Replication is difficult
  - What is relevant now will not be relevant later
- "Precision is more important than recall"
- The DB is mobile *vs.* my device is mobile

Components: Task and context

- Task & Context are not only inside user's mind…
- …they are also about the real world:
  - Location, direction, speed, …
  - Noise, light, …
  - What I'm doing while seeking info (concentration/attention level, …)
- Beyond-topical relevance criteria: more important

Summary

- Physical world is more important
- Thing & thing need: more relevances
- Time: is more important
- Automatic query generation (IR, not IF!)
- Beyond-topical relevance criteria are more important
  (i.e., topicality only? Forget it!)

- 3rd part: scenarios

Scenario 1: Catching the train

- …In a taxi, arriving at the railway station in a hurry…
- I don't want that @#%$§ long list of connections!!!
- Just give me a seat on the first train to Milano. And book/buy it!!

Scenario 1: Catching the train

- Topic (in part from the real world): trains from Udine to Milano
- Task & context (from the real world)
  - In a hurry (taxi speed…)
  - Time of the day
  - My wife is with me. Does she need a ticket too?
  - The first train on the timetable is fully booked
  - My credit card details might be available (erm…)
  - …

Scenario 2: Driving to SIGIR 2012

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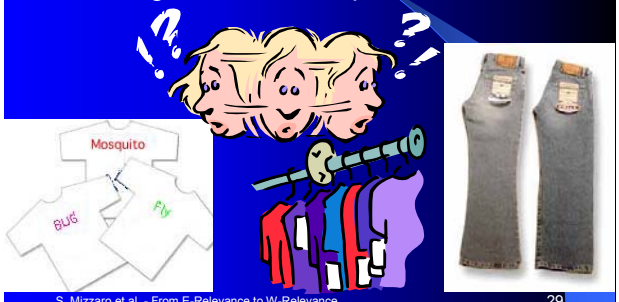
Scenario 2: Driving to SIGIR 2012

- Topic:
  - Tampere, Helsinki, trip, route, …
- Task:
  - Driving to Tampere, conveniently
- Context:
  - A friend of mine (address book, agenda,…)
  - Not a good driver at all, very old car (world)

Scenario 3: E-Commerce

- Trendy girl in a commercial center looking for a new Mosquito T-shirt



Scenario 3: E-Commerce

- You submit a query to shops database
- You do not want
  - E-Bay catalogues
  - A full description of Mosquito t-shirt
- You do want:
  - Price, availability of size (label on my dress)
  - Do I have enough time? (position, speed,…)
  - See/try/book/buy it now!

Scenario 4: Museum application

- Why is Van Gogh painted with a bandaged ear?

Scenario 4: Museum application

- You do not need to be shown the picture itself
- You need textual background information
- Context:
  - I'm in front of the picture…
  - … the query might be automatically generated

Conclusions (Summary)

- "Mobile" IR with the relevance glasses
- Different from classical IR
- Stronger link with the real world
- Increased importance of beyond-topical relevance criteria (future work…)
  - Task and context are out there in the world, not hindered inside user's mind
  - Part of the query can (should) be derived automatically

I knew you would have asked…

- E-relevance:
  - Electronic relevance
  - Irrelevance
- W-relevance:
  - Wireless relevance
  - World relevance
  - Double u(ser) relevance

Further issues

- Database – World Consistency
- Indexing vs. High rate of change
- Retrieval vs. filtering vs. access…
- Integration with other applications…

… "Is mobile IR about IR or rather about device and mobility issues: user interfaces, HCI, security, location sensitivity and similar?"