TAMPEREEN YLIOPISTO

Task-based information interaction

Sanna Kumpulainen

Finna Usability workshop 30.9.2014

SIS
INFORMAATIOTIETEIDEN YKSIKKÖ

TAMPEREEN YLIOPISTO

About me

Contact:
sanna.kumpulainen@uta.fi

- Now working as a university teacher at University of Tampere
- Doctoral dissertation about information access in molecular medicine (2013)
- Interested in task-based study of information access and how to use that knowledge in creating better systems
- Next: study of humanities scholars' task-based information interaction

SIS

Task-based information access

- An attempt to integrate the traditions of more system oriented IR and more behaviour oriented IS
- Both traditions see task as a central concept to information access
- Tasks as triggering force behind the information need leading to information behaviour
- Therefore, information in sought in order to obtain assistance in performing the task

Task-based information interaction

- How people interact with information – despite of the systems (cf. Blandford and Attfield 2010)
- Basically the same as TBIA, but emphasizing more the USE aspect
- Facilitates studying what pieces of information are actually used, how and for what purposes

Main research questions

- Information environment: what they think they use?

- Information interaction within it:
  - Which systems are used during task performance?
  - How they are used during task performance?
  - How does task complexity affect the searching?
  - What kinds of barriers to IA there are?
  - How do they search, i.e. What kinds of search tactics they employ during task-based information access?

Implementation

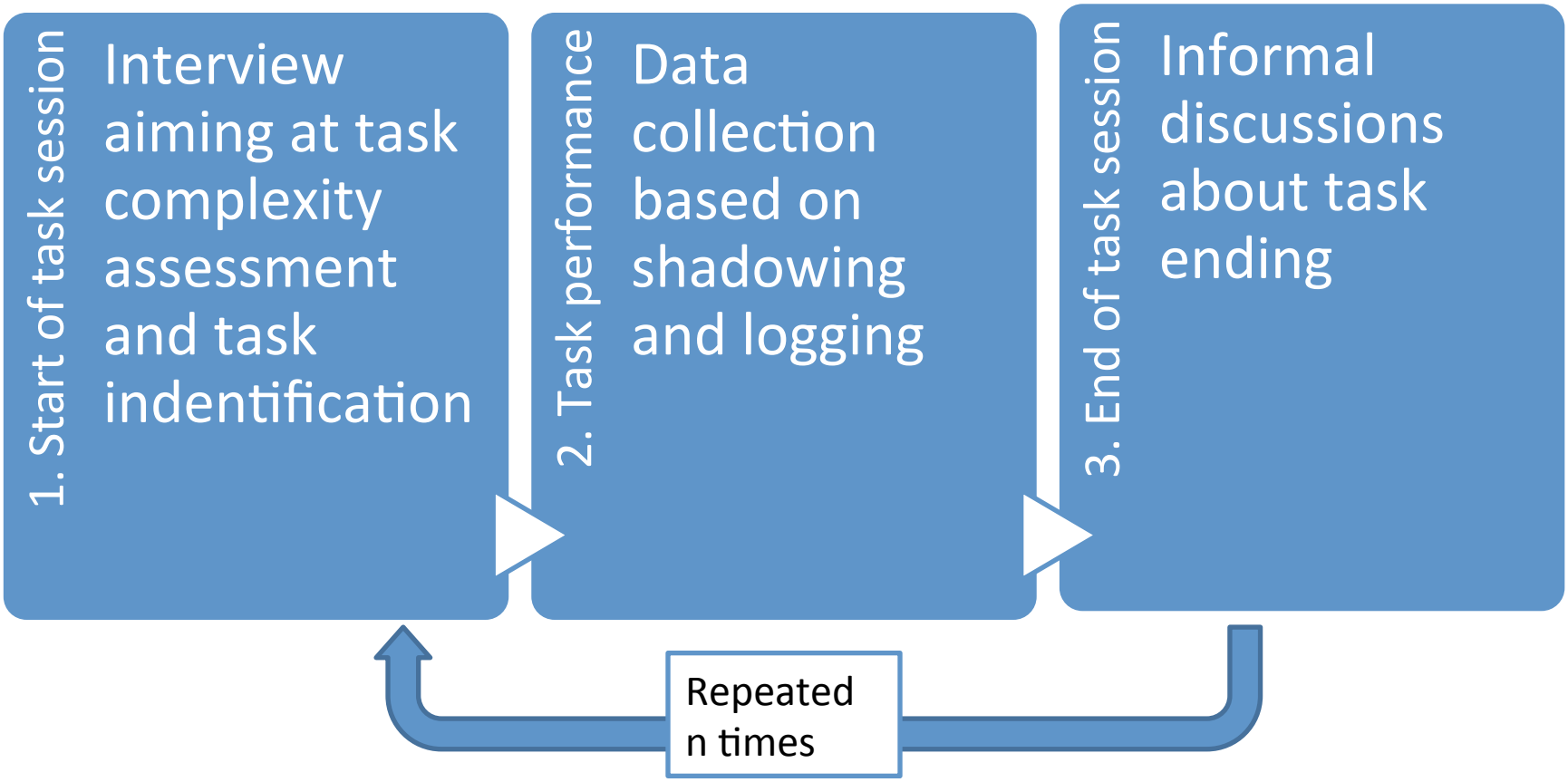
- Several phases, including a survey
- Main data were collected by *shadowing* triangulated with interaction *logging*, *interview* data and *photographic* surveillance (”lifelogging” with SenseCam)
- Task performance in ”the wild”
- Six participants, six months of data collection
- During years 2007-2008

Purposeful sampling

- Six participants were selected based on answers to a questionnaire and PI interviews
- Two research groups were selected based on their interest on the questionnaire
- The PI's of the groups were interviewed on their conceptions about the research processes in the group and suitable candidates for the shadowing
- Participation was "voluntary"

Shadowing ”Protocol”

Every participant was interviewed at the start of the shadowing about their overall research projects, topics and the phases of their projects



Main results

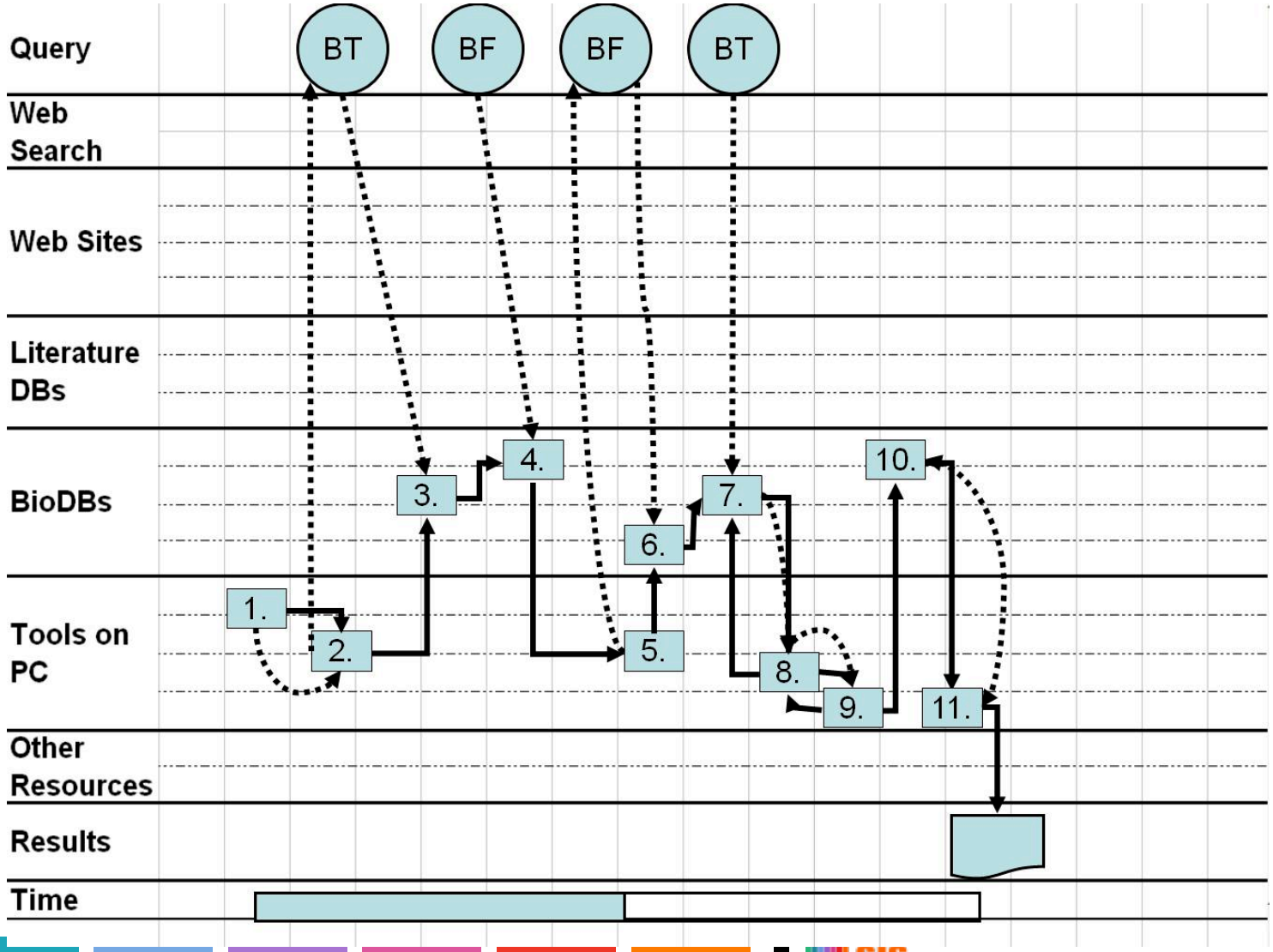
- **Information environment:**
  - Very heterogeneous, various systems and repositories are used
  - The number of information service portals and other integrated resources was substantial
  - interpersonal communication seemed effective in providing information on procedural matters.
  - Systems were hard to use, data problems, annotation problems

- How users' expectations challence our metadata practices?

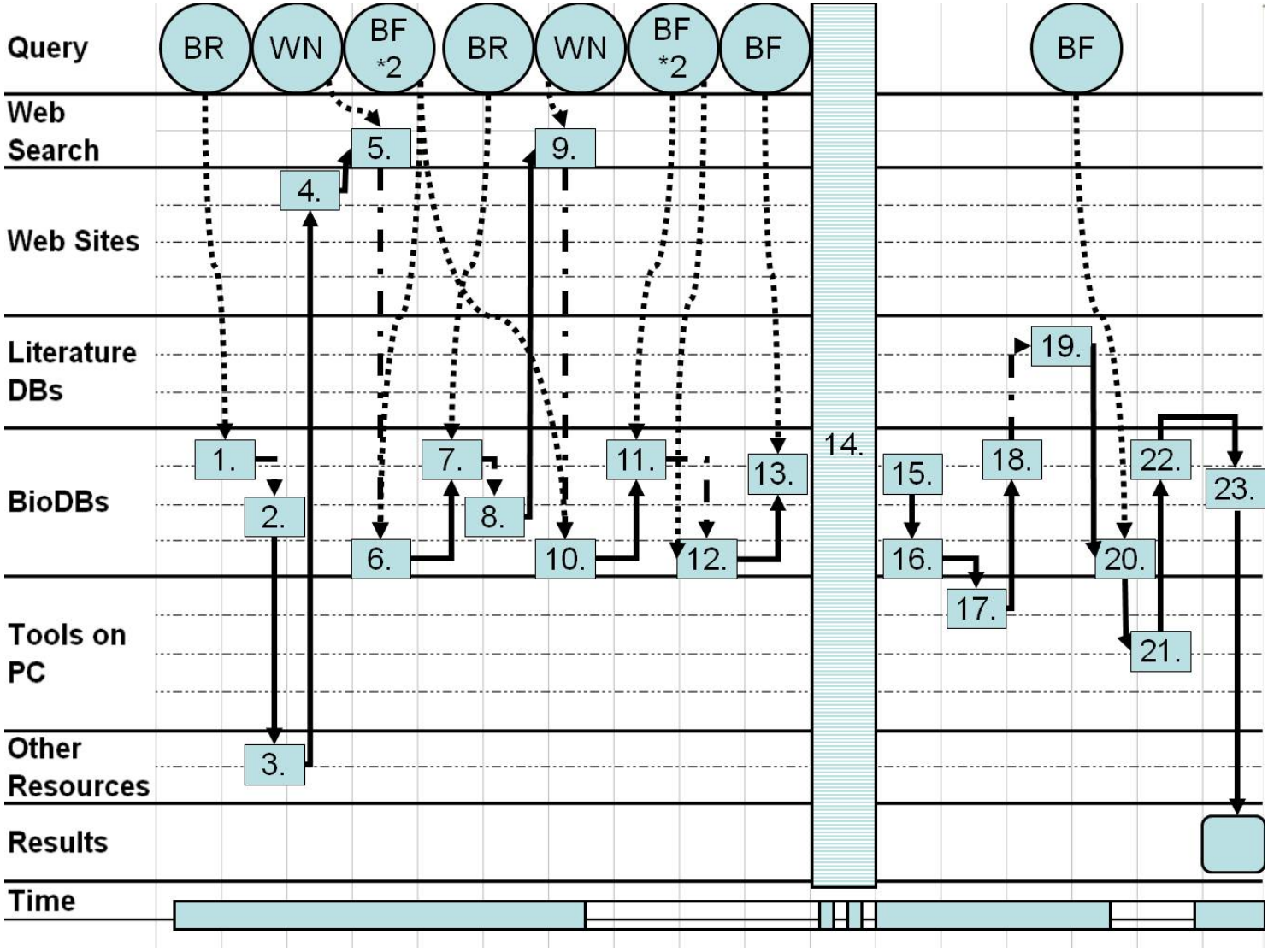
Results

- **Information interaction**:
- integrated use of multiple systems;
- Systems are integrated either manually, semi-automatically or automatically
- The more complex the task is the more varied the system use is; all types of search tools are used.
- Query analysis: in simple tasks more *resource* queries, whereas in complex tasks there are more *factual* and *topical* information goals.

A workflow chart of a simple task



Workflow of a complex task



Barriers

- 18.4% of the barriers arose within the *work task*, 20.1% in the *integratio*n, and 40.1% in the *system* context
- (20 % in the organizational context)
- conceptual, syntactic, and technological type
- **Help:** attention to the integrated use of multiple systems at least for the most frequent uses.
- means of standardization and harmonization of the data and
- by taking *the work task level* into account in system design and development.

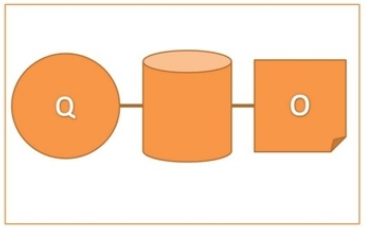
Search trails:

- *manual* integration patterns of information items across the information environment
- Single
- List
- Chain
- Branch
- Berrypicking

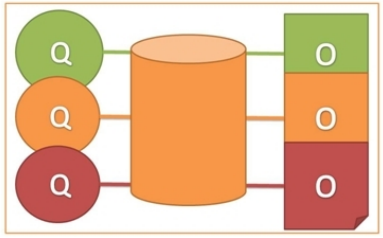
- *Automatic integration* was perceived by the searchers as singles, they did not even necessarily think about the integration

Search trails

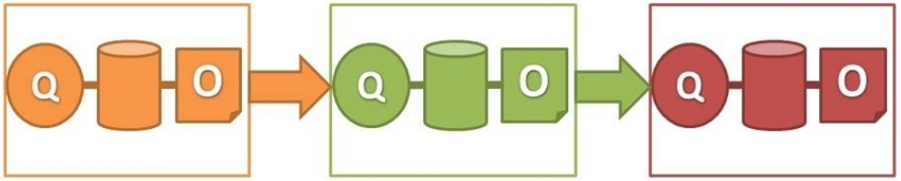
(a)



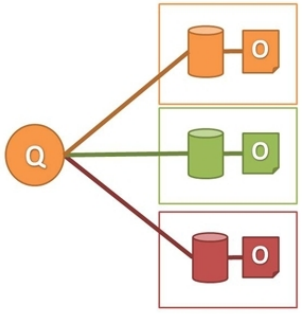
(b)



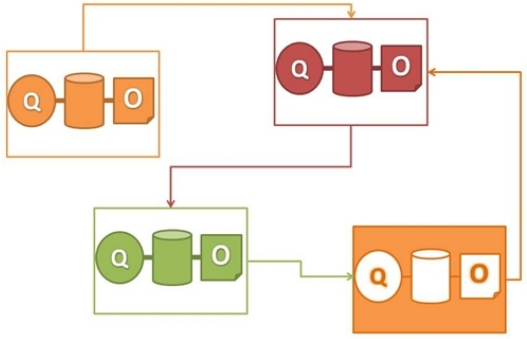
(c)



(d)



(e)



Implications

- In order to support task perfomance, IR systems should support achieving the goals of the task
- This can be done by building the search trails into the systems, by standardization and data harmonization, links (semi-automatic), suggesting suitable ”handles” to information
- More transparent systems
- Providing the searchers a sense of the system’s information content or functions
- Collaborating systems: systems must interact with each other and adapt to each other

Bibliography

- Kumpulainen, S. (2013). Task-based information access in molecular medicine : task performance, barriers, and searching within a heterogeneous information environment, Tampere University Press, Tampere. Available at: http://urn.fi/URN:ISBN: 978-951-44-9287-7.

- Kumpulainen, S. (2014). Trails across the heterogeneous information environment: manual integration patterns of search systems in molecular medicine. Journal of Documentation, 70(5).

- Kumpulainen, S. and Järvelin, K. (2012). Barriers to task-based information access in molecular medicine. Journal of the American Society for Information Science and Technology, 63: 86-97. doi: 10.1002/asi.21672.

- Kumpulainen, S., Järvelin, K. (2010). Information Interaction in Molecular Medicine: Integrated Use of Multiple Channels. Information Interaction in Context Symposium 2010. New Brunswick, NJ, USA, August 18-22 2010. (Best Paper Award, IIiX'10).

- Kumpulainen, S., Järvelin, K., Serola, S., Doherty, A., Byrne, D., Smeaton, A. F & Jones, G. F. J. (2009). Data Collection Methods for Analyzing Task-Based Information Access in Molecular Medicine. MobiHealthInf 2009 - 1st International Workshop on Mobilizing Health Information to Support Healthcare-related Knowledge Work, Porto, Portugal, 16 January 2009.

TAMPEREEN YLIOPISTO

Thank-you!

SIS