

The Social Semantic Desktop



Handling of Task Hierarchies on the Nepomuk Social Semantic Desktop

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NEPOMUK supports personal knowledge work

- **Knowledge work comprises**

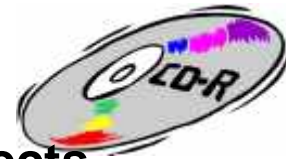
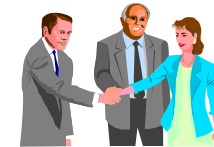
- Collecting, structuring, connecting information
- Articulation of new ideas, observations, insights, thus generating information
- Sharing, exchange, and communication

according to individual goals, perspectives, and processes

- **The personal computer is a work environment which closely reflects the individual way of working in its internal structures**

- Files, folders, bookmarks ...

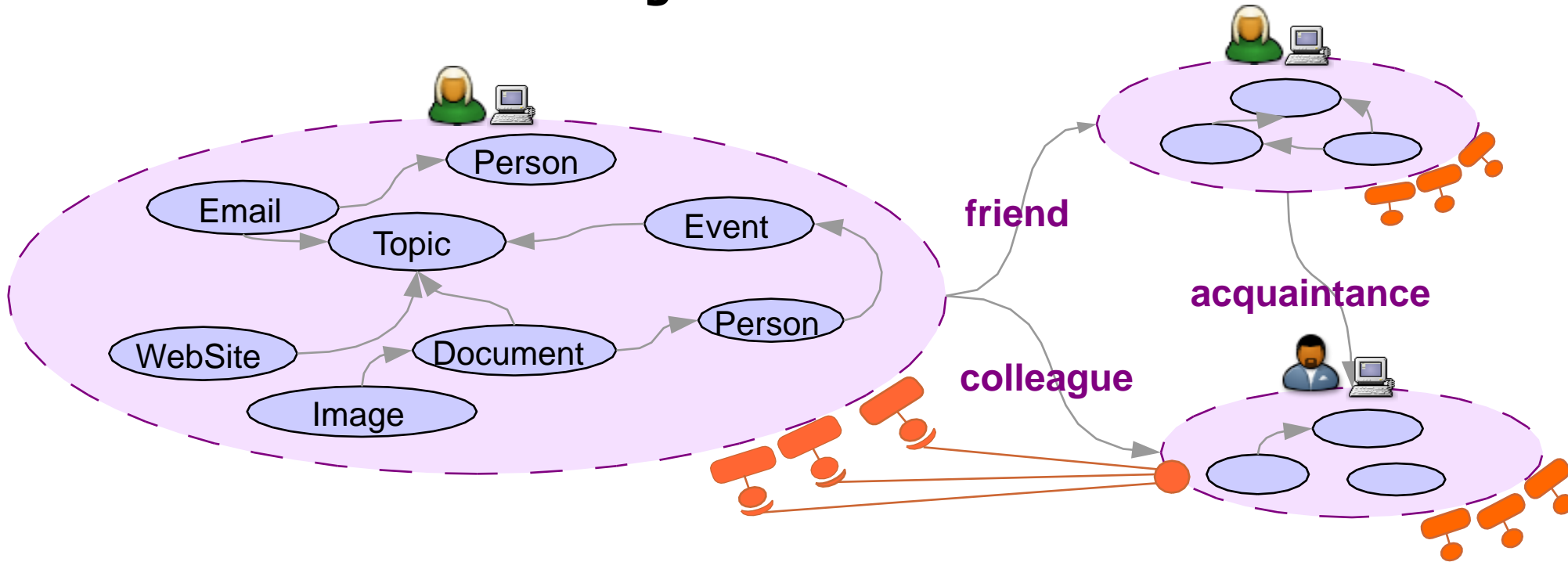
- **Modern work requirements ask for flexibility and collaboration within networks across traditional boundaries**



- How do you manage and structure your **personal information**?
- How do you **share and exchange data & knowledge** with your colleagues?



- Desktop:** Help individuals in managing information on their PC
- Semantic:** Make content available to automated processing
- Social:** Enable exchange across individual boundaries



Personal Semantic Web: *a semantically enlarged intimate supplement to memory*

Social protocols and distributed search

NEPOMUK enabled peers



NEPOMUKs goal: Realize the Social Semantic Desktop

The first society-scale semantic web application



Driven by today's needs, in the spirit of seminal visions



Memex (Vannevar Bush)

A memex is "a device in which an individual stores all his books, records, and communications []".



Open Hypertext System (Doug Engelbart)

"The open hyperdocument system (OHS) is a standards-based, open source framework for developing collaborative, knowledge management applications."



WWW (Tim Berners-Lee)

"There was a second part of the dream[...] we could then use computers to help us analyse it, make sense of what we re doing, where we individually fit in, and how we can better work together."

Today necessary technologies & communities exist:

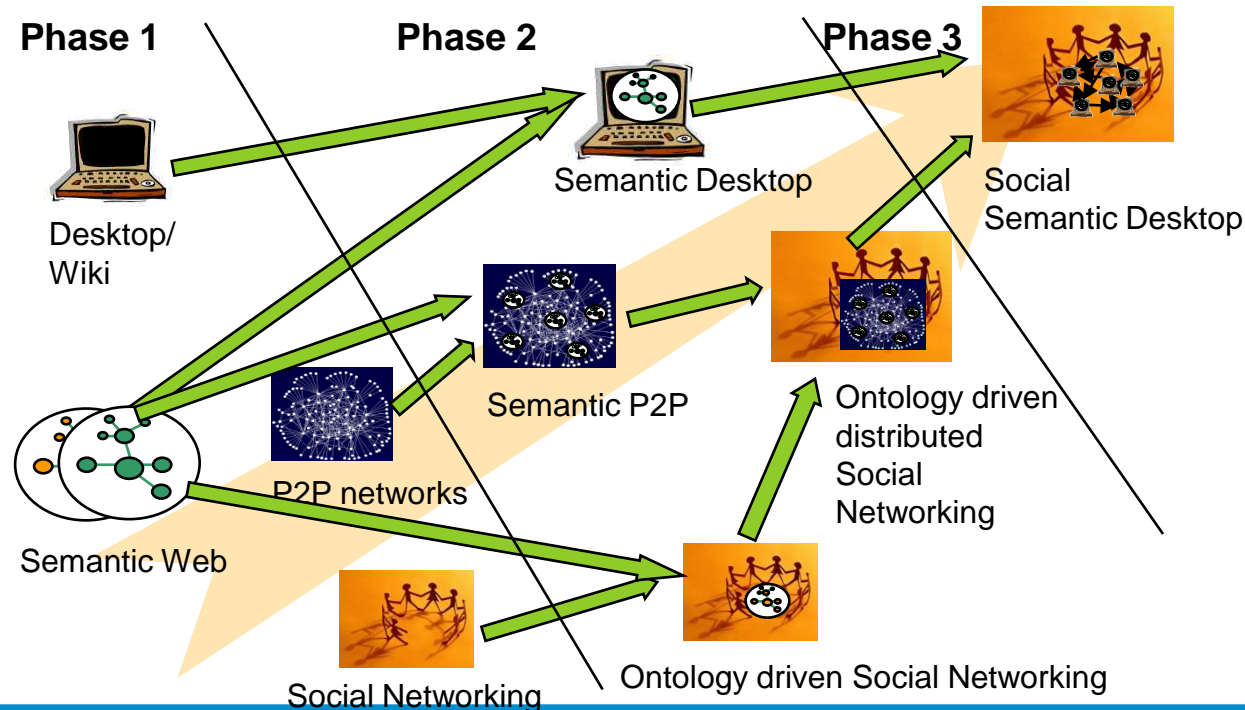
Standardized metadata: Semantic Web

Scalable distributed infrastructure: P2P Computing

Knowledge articulation and interaction: Desktop Technology

Human centric information exchange: Online Social Networks

Challenge: Extension & merging of research streams

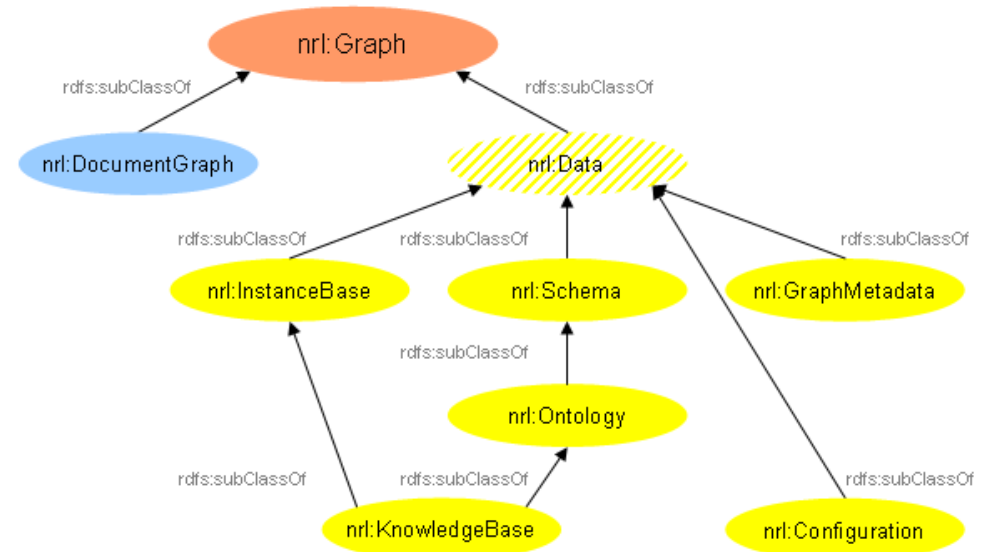
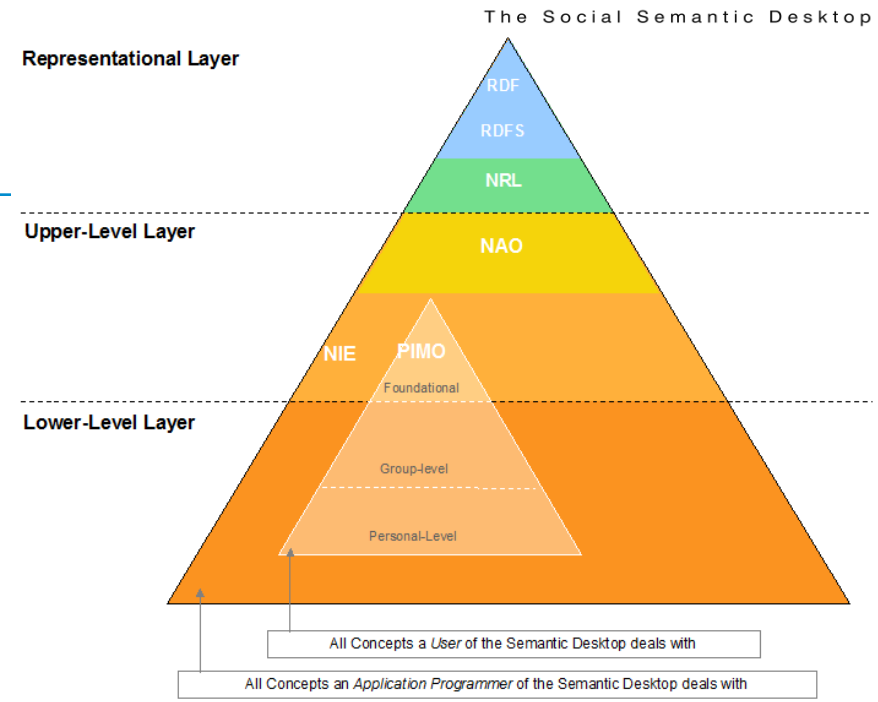


„The personal workspace supports and reflects the individual way of information processing, thought articulation, and knowledge sharing“

- **Build a comprehensive solution: The Social Semantic Desktop**
 - Standardized, open-source architecture & implemented middleware for the Social Semantic Desktop
 - Desktop aspect
 - Annotate & link; Articulate & visualize ; Integrate into work processes
 - Social Aspect
 - Relation building and knowledge sharing; Distributed search and storage

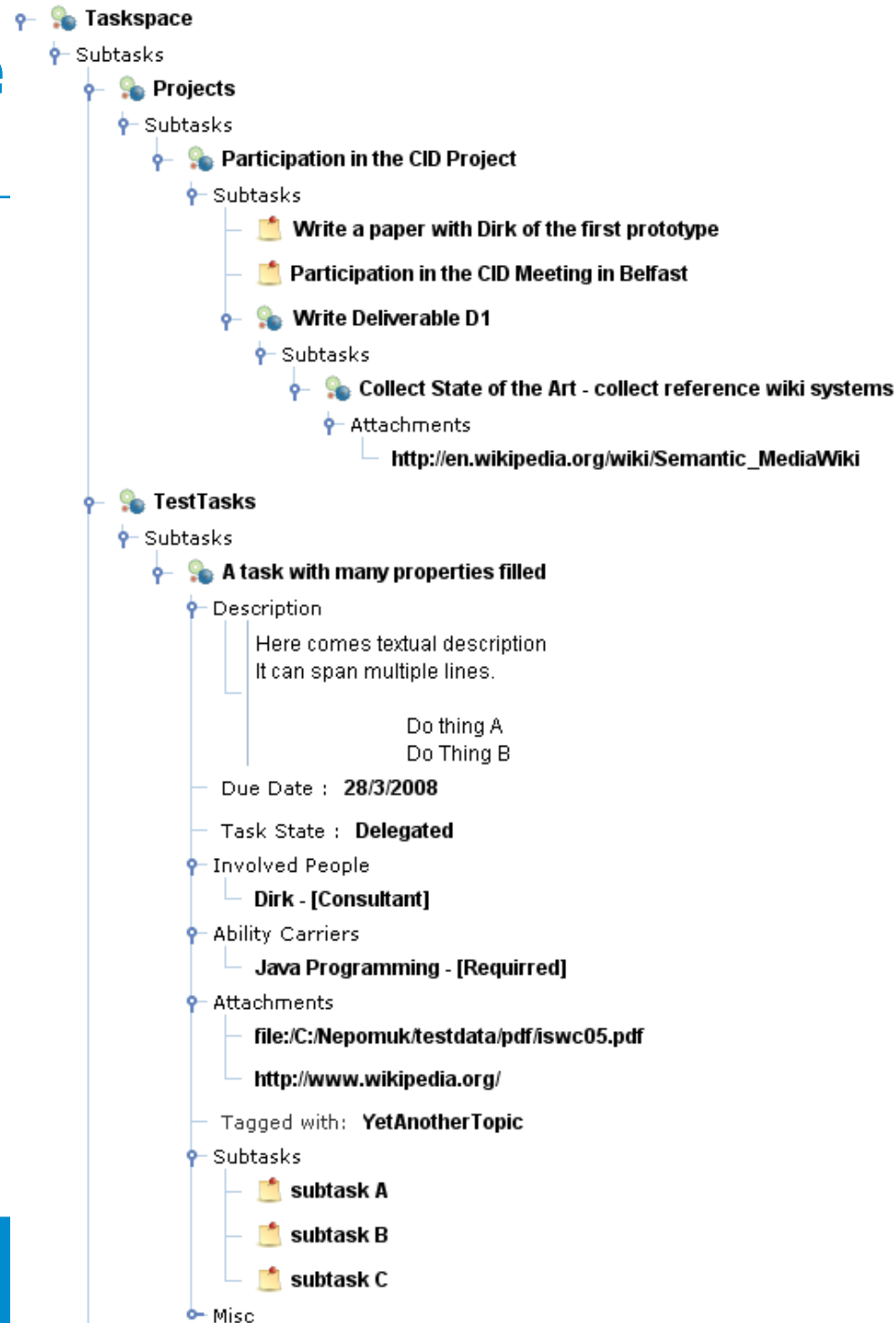
NEPOMUK Ontologies (cont.)

- **Representation Language (NRL)**
 - built on top of RDF/S
 - RDF triple, Named Graph and Graph Views
 - Graph Roles Vocabulary
- **Annotation Ontology (NAO)**
 - Tagging, semantic annotation, *nao:hasTag, nao:hasTopic, nao:isRelated, ...*
 - Graph Metadata Vocabulary
- **Information Elements (NIE)**
 - files (Word documents, images, PDFs), address book, entries, emails, etc.
- **Personal Information Model (PIMO)**



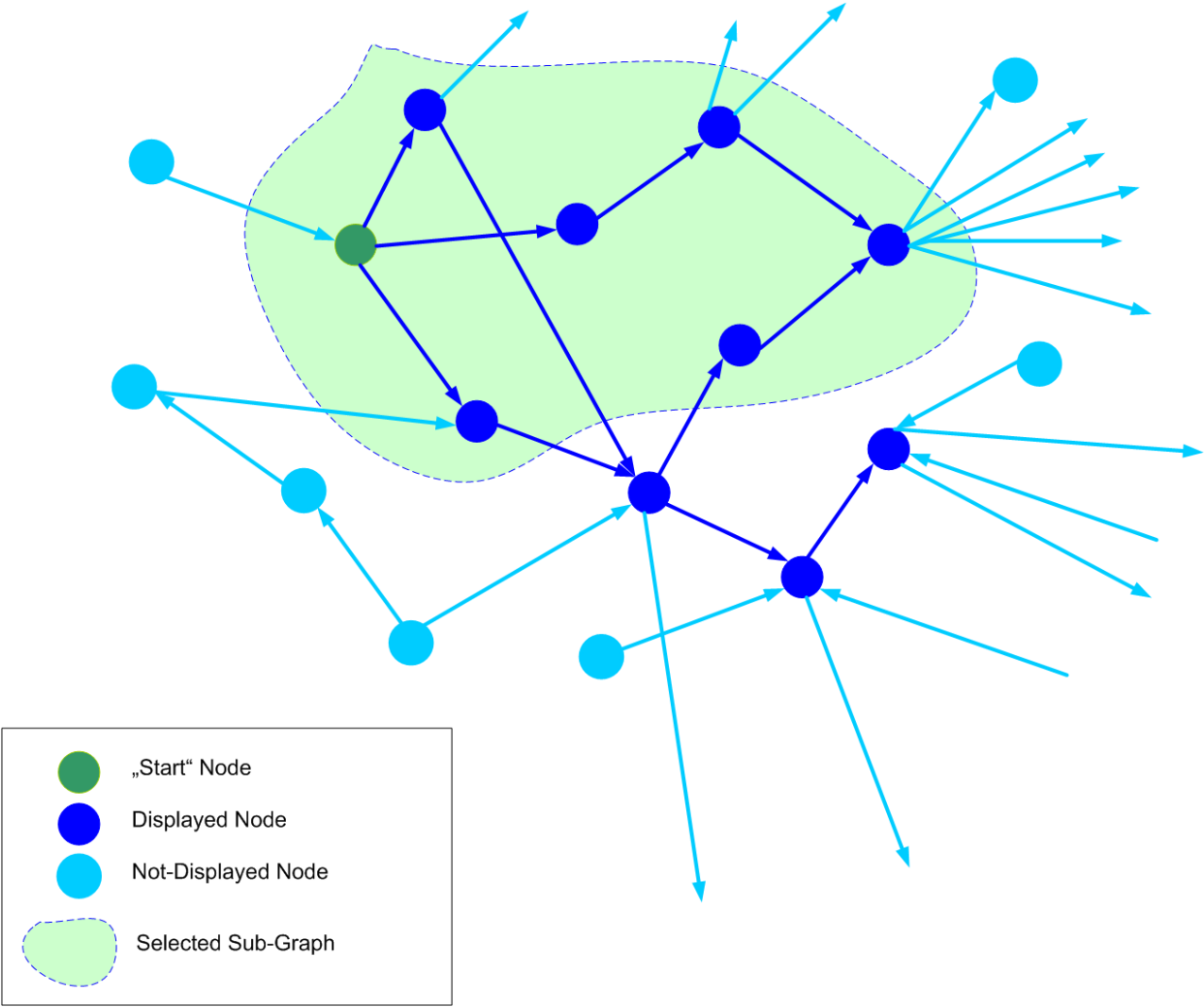
- **Connections to other ontologies**
 - Enhances PIMO
- **Properties for:**
 - Name, description, goal
 - Subtasks (→ Hierarchical task)
 - State, Due date
 - Attachments
 - Involved Persons (initiators, collaborators, consultants)
 - Involved Ressources (skills, roles, organizational units)
 - Priority, importance, delegateability
 - Dependencies (Precursor, Succesor)
 - ...

- **Many properties available**
 - Only small number of available properties explicitly set - on average
 - Sparse property usage
- **Traditional form based UI?**
 - **almost all fields are empty**

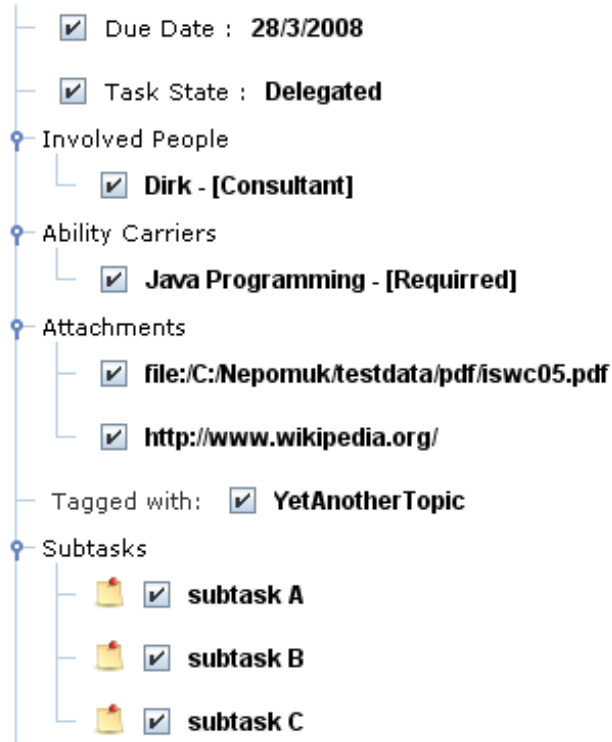


- **Collaborative tasks**
 - ad-hoc sharing of tasks
- **RDF Graph**
 - scoping of the parts to be shared is a challenge
 - Fixed closure/boundary is not feasible - exceptions expected
 - determining an appropriate sub-graph

Graph-SubGraph



What You See Is What You Share - WYSIWYS



- **unfolding (expanding) and folding (collapsing)**
 - scope broadened and narrowed by a all children of a node
- **checking (selecting) and / unchecking (unselecting)**
 - scope on the properties and individual children

- **PIM**

- Find/Search vs. Structure
- Sense making
 - Ease Drag&Drop - Rearrangement
 - Grouping/Clustering - human cognition – chunk size

- **Property Sparseness**

- **Sharing – WYSIWYS**

- Addresses humans privacy concerns – facilitate sharing

- All core parts of NEPOMUK are open source
- Developer portal:
 - <http://dev.nepomuk.semanticdesktop.org>
- Try a Nightly Build
 - <http://dev.nepomuk.semanticdesktop.org/download>

The Social Semantic Desktop



Questions?

