Semantic Email on the Social Semantic Desktop

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Outline...

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    - **Semantic** Email → **Social** Semantic Desktop
- Semantic Email
  - Semantic Annotation
  - Email Ad-hoc Workflows
  - Workflow Example
- Semanta – Your Personal Email Assistant
- Future Work & Conclusion
Semantic Desktop

- **Semantic Web** technology on the **Personal Desktop**
- Objects on the desktop become **Resources** with a URI
- Semantic Web Technologies improve **Data Integration** and **Retrieval**
Social Semantic Desktop

- *Sharing* resources within *Network* of Semantic Desktops
- *Social* aspect of SSD depends highly on *Communication*
- Communication channels need to support *Semantic Knowledge*
Email

- Most popular means of *Electronic Communication*
  - Asynchronous Communication
  - Flexible, dynamic nature

- Email is also a *Virtual Workplace*
  - *Collaborative Environment*
  - Knowledge creation, management and sharing

- Email Problems
  - Email Tracking
  - Email Classification
  - Email Retrieval
  - *Email Overload*
Semantic Email

- Eases *Email Overload* – Classification, Retrieval, Tracking
- Enhances *Data Representation + Unification* on and between SSD’s
- Email Annotation
  i. *Thread metadata* - Email Sequence, Social, Temporal Metadata
  ii. *Content metadata* - Intents and Expectations of written dialogue
Email Speech Acts

- **Speech Act Theory**
- Multiple *Intents* and *Expectations* of an Email’s content
- Email Speech Act Model: \([\text{Action, Object, Subject}]\)

- Example “…Please make sure you have the document ready!…”
Email Ad-Hoc Workflows

- Email Conversations consist of concurrent, implicit, well-formed *Ad-Hoc Workflows*
- Example:
  - Request Meeting
  - Negotiate Different Time
  - Commit to the Meeting
  - Invite additional People
- Email Speech Act = Start/Continuation of a Workflow
- *Workflow Artefacts* – Shared concepts e.g. Events, Tasks, People, Projects…
- Artefacts created *within* Email need to be exported and shared between different SSD’s
Modelling Ad-hoc Email Workflows

Diagram showing various workflow activities such as Suggest Activity, Deliver Data, Propose Activity, Abort Activity, Assign Activity, Request Activity, Collect Feedback, Deliver Feedback, and Manage Activity. The diagram includes nodes for Initiator and Participant, with arrows indicating the flow of activities and interactions.
Workflow Example

How about some dinner tomorrow after work?

Initiator

[Deliver Data]
[Propose Activity]
[Request]
[Assign Activity]
[Abort Activity]
[Suggest Activity]

INITIATE
Workflow Example

How about some dinner tomorrow after work?

Initiator

[Request] -> [Activity] -> [Data]

INITIATE
Workflow Example

How about some dinner tomorrow after work?

Initiator

[Request] -> [Activity] -> Send Request Activity

INITIATE
Workflow Example

How about some dinner tomorrow after work?

Initiator

Send Request Ac

[Request]  [Activity]

INITIATE
Workflow Example

How about some dinner tomorrow after work?

Initiator

[Request] → [Activity] → Send Request Activity → [Amend] [Approve] [Decline] [Ignore] [Other]

Participant

I would love to!
Workflow Example

How about some dinner tomorrow after work?

I would love to!

Initiator

[Request]  [Activity]  Send Request Activity

[Approve]

[Inc. Participant]

[Includes Initiator]

Participant

I would love to!
## Workflow Example

**Initiator**

1. [Request]
2. [Activity]
3. Send Request Activity

**Participant**

1. [Approve]
2. [Inc. Participant]
3. [Includes Initiator]
4. Manage Activity

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**Scenario:**

How about some dinner tomorrow after work?

**Response:**

I would love to!
I would love to!

How about some dinner tomorrow after work?
Workflow Example

I would love to!

How about some dinner tomorrow after work?

Initiator

Participant


Send Assign Activity

INITIATE
Workflow Example

How about some dinner tomorrow after work?

I would love to!

Initiator

- [Request]
- [Activity]
- Send Request Activity
- [Approve]
- [Inc. Participant]
- [Includes Initiator]
- Manage Activity

Participant

- [Acknowledge]
- [Ignore]
- [Other]
- Send Assign Activity

Enabling networked knowledge.
Workflow Example

How about some dinner tomorrow after work?

I would love to!

Initiator

[Request] [Activity] [Acknowledge]

Request Activity

[Inc. Participant] [Includes Initiator]

Send Assign Activity

Participant

[Approve]

[Inc. Participant] [Includes Initiator]

Manage Activity

I would love to!
Workflow Example

How about some dinner tomorrow after work?

I would love to!

**Initiator**

- [Request]
- [Activity]
- [Acknowledge]

**Participant**

- [Approve]
- [Inc. Participant]
- [Includes Initiator]
- Manage Activity

Sent Assign Activity

I would love to!
Workflow Example

How about some dinner tomorrow after work?

I would love to!

Initiator

- [Request]
  - [Activity]
  - [Acknowledge]
  - [Inc. Participant]
  - [Includes Initiator]
  - Manage Activity

Participant

- [Approve]
  - [Inc. Participant]
  - [Includes Initiator]
  - Send Assign Activity
  - Manage Activity

I would love to!
Workflow Example

How about some dinner tomorrow after work?

I would love to!

Initiator

<table>
<thead>
<tr>
<th>[Request]</th>
<th>[Activity]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Request Activity]</td>
<td>[Approve]</td>
</tr>
<tr>
<td>[Acknowledge]</td>
<td></td>
</tr>
<tr>
<td>[Include Participant]</td>
<td></td>
</tr>
<tr>
<td>[Includes Initiator]</td>
<td></td>
</tr>
</tbody>
</table>

Participant

| [Include Participant] |
| [Includes Initiator] |
| [Manage Activity] |
| [Send Assign Activity] |

I would love to!
Workflow Example

I would love to!

How about some dinner tomorrow after work?

**Initiator**

- [Request]
- [Activity]
- [Inc. Participant]
- [Includes Initiator]
- Manage Activity

**Participant**

- [Approve]
- [Inc. Participant]
- [Includes Initiator]
- Send Assign Activity
- Manage Activity

Workflow Example

How about some dinner tomorrow after work? I would love to!
Workflow Example

How about some dinner tomorrow after work? I would love to!

Initiator

Send Request Activity

[Request]

[Activity]

[Acknowledge]

[Inc. Participant]
[Includes Initiator]

Manage Activity

Participant

[Approve]

[Inc. Participant]
[Includes Initiator]

Send Assign Activity

Manage Activity

TERMINATE

I would love to!
Workflow Example

How about some dinner tomorrow after work?
I would love to!

Initiator

[Request] — [Activity] — Send Request Activity

[Approve] — [Inc. Participant] — [Includes Initiator] — Manage Activity

[Inc. Participant] — [Includes Initiator] — [Acknowledge]

Participant

Initiate

Terminate

I would love to!
Workflow Example

How about some dinner tomorrow after work?

I would love to!
• Knowledge Integration **Within** the Personal Semantic Desktop

How about some dinner tomorrow after work?

I would love to!
Workflow Example

- Knowledge Integration **Within** the Personal Semantic Desktop
- Data Unification **Among** the Social Semantic Desktops

How about some dinner tomorrow after work?

I would love to!
Semanta

• Applications

  - Email *Tracking*
  - Email *Classification*
  - Email *Retrieval*
  - *Personal Information Management*
  - Email ↔ Desktop *Knowledge Integration*
Semanta

- Semi-automatic Annotation

- Email Flagging
Semanta

• Support for Email Action Items (Annotations)

• Exporting Email Artefacts
Future Work

• Extending domain of application to other *Electronic Communication Media* (e.g. Instant Messaging)

• Extending Features – e.g. Social Relationships

• Combining our technology with related and relevant work (e.g. GTD - Getting Things Done)

• Evaluation of Semanta’s User Interface
Conclusion

- The *Social* aspect of SSD depends on *Communication*
- Email’s *flexibility* is also the source of *Email Overload*
- *Semantic Email*

- Knowledge Integration *Within* the Personal Semantic Desktop
- Data Unification *Among* the Social Semantic Desktops