Common ground and intersubjectivity

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Outline

• Intersubjectivity: Sub processes in cooperative work and collaborative learning
• Explicating tacit knowing
• Expansive grounding
• Paper on intersubjectivity
• Open issue for discussion
Key process in CMC, CSCW and CSCL

• Intersubjectivity is a prerequisite of mutually intelligible communication
• Also known as common ground or grounding in communication by Clark et al. (see paper 1 today)
• First proposed for f2f situations, later extended and applied to computer mediated communication
• It defines a “shared space” (overlapping individual perspectives) to explicate tacit knowing and develop shared understanding
• This space is expansive in multiple dimensions
• The greater the space of intersubjectivity the easier it is to understand each other, and a smaller space increases the chances for misunderstanding
Paper

Setting for study

• Open source software development
• Mod_perl module of Apache web server software
• A 6 month study of project developers mailing lists
• The study was a case in the PhD project of Pål Fugelli (finished 2010)
Rommetveit’s notion of shared prolepsis

- Prolepsis comes from old Greek and means “anticipation”
- It entails that some information relevant to a conversation enters indirectly, triggered by vague utterances, incomplete sentences or more or less deliberately inserted cues or hints
- What is incomplete is of such nature that it invites to co-construction of new meaning
- It expands the space of common understanding
Example given by Rommetveit

• "Today, I walked with one of the psychologists here past the Mayflower cinema in Eugene, where Bergman’s latest film movie is being shown. He asked me whether I had seen it. I said no, and asked if he had. He said yes, he had. I asked him how he liked it, and he said ‘I liked it very much, but Mary Ann did not’

• Here it is implied that the friend has a wife and her name is Mary Ann

• It illustrates a “proleptic instance,” which is knowledge constructed in the situation, but not explicitly stated

• It points towards a future event (a meeting of three)
Another example from cinema

• In some movies, there are peripheral cues embedded in the script (an artifact or an act) that hints towards a future event (later scene)
• Sometimes referred to as “flash-forward”
• The cues are deliberately inserted, but will often be perceived as subtle or invisible by the viewers (unless trained to discover them)
• Shared prolepsis has the same function in speech: adding something to a conversation that indirectly informs about another situation
Adoption of shared prolepsis for computer-mediated communication

- Theoretical framework proposed by Fugelli (2010) in his thesis

- For simplicity, one dimension is about “CSCW” and the other “CSCL”
Application of the theory

• The extended framework for intersubjectivity makes claims regarding the relation of complex (distributed, knowledge intensive) work and learning
  – Not all knowledge can be stated explicitly
  – It requires “situated” knowledge construction

• Roughly speaking, the vertical axis aligns with CSCW (e.g. mapping the groupware time/place matrix), and the horizontal axis CSCL (evolution of a shared knowledge object)
Comparison of two approaches

- How is Rommetveit’s theory of intersubjectivity different from Clark’s theory of grounding
  - Rommetveit adopts a combination of pragmatic and phenomenological perspectives, e.g:
    - Intersection of a mind and physical object (James), or the integration of Popper’s world 1 and world 2 objects
    - Husserl’s notion of ‘extended present’
  - Rommetveit uses shared prolepsis as the focal point for expanding the space of intersubjectivity
- Intersubjectivity is ‘expansive grounding’
How can this help TEL research

• The study shows that complex, distributed work (OSD) involves “knowledge work” and two types of knowledge work was identified in the paper
  – Learning to become a member in the project
  – Learning to sustain membership in the community

• Methods employed
  – Mixed methods approach
    • Quantitative method: Social network analysis
    • Qualitative method: Message content analysis
Data analysis

• 215 members in the mod_perl project
• Of them, 202 were peripheral participants (learners, less experienced developers)
• 13 were core members (expert developers, some also good educators)
• 6 months data collection period
• 1154 postings during that time
Overall pattern

• Findings
  – The two groups (core and periphery) were quite stable and distinct
  – Questions (problem descriptions) were the main form of communication from peripheral to core group members
  – There were more communication among core group members than among peripheral members

• Content analysis by selecting postings from core group (n=2) and peripheral group (n=10)
Degree centrality: The most active members in the mod_perl community

<table>
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<th>Participant</th>
<th>OutDeg</th>
<th>InDeg</th>
<th>NrmOutDeg</th>
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<tr>
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</tbody>
</table>

From: Fugelli (2010)
Sociogram ego network of dev-12

From: Fugelli (2010)
Message content analysis

• To supplement the structural information (how the network is organized and flows) with qualitative (micro level) data, content analysis was performed on selected messages.

• It revealed two main roles of participants:
  – issuer of initial problem (iiP), and
  – more competent practitioner (mcP).

• The often vague or imprecise postings by iiPs triggered knowledge construction by mcPs:
  – reformulating the vague questions
  – filling in the blanks, picking up the ‘cues’
Extract 1 (cut for space reasons, see paper)

Message from dev-186, 13 Feb 2008 14:09 GMT

1-2 Hello @all,

3-5 we are just transferring our Intranet Server which used Apache 1.3 and mod_perl1 from SLES8 to SLES10 with Apache2 and mod_perl2.

6-7 The switch has to go quick and we can’t redesign all of our old mp1 programs to mp2, so we try to use the compat module. But I have no luck with it.

8-10 I tested my config with SELS10, Opensuse 10.3 and Ubuntu but i hit everytime the same problem. I searched the Mail Archive and the Documentation, but no luck.

11-13 [code]

14 I get the following output:

15-16 Software error:

17 Can’t locate object method "request" via package "Apache" at /usr/lib/cgi-bin/test1.pl line 4.
Summary of findings

• The study corroborate findings reported in the OSD literature:
  – Two distinct groups of participants
    • Peripheral participants (novice developers)
    • Core members (expert developers)
  – The findings differ from previous studies
    • Two types of roles associated with the groups
      – Identifying problems with the software as seen from use (download and install)
      – Solving the problems and extending shared knowledge
      – Proleptic instances as triggers of knowledge construction
  • Little cross over from peripheral to core group
    – Steep learning curve
Open issue for in-class exercise

- Can you think of a situation where intersubjectivity is minimally present, and a situations where it is maximally present

- *Note*: According to Rommetveit, intersubjectivity is always partially present (never completely lacking and never completely fulfilled) as we aim to share our tacit backgrounds and reach into the private worlds of each other