

# Mind the gap!

## Bridging from social analyses to system design

Stephen Viller

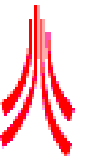
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<http://www.comp.lancs.ac.uk/computing/staff/viller.html>

For a technical report covering the detail of this presentation, see  
<ftp://ftp.comp.lancs.ac.uk/pub/reports/1997/CSEG.7.97.pdf>

NUKAIS/NISG w/s Formalism revisited. York, 8th July 1998

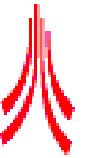


## Overview

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- ⚙ The Coherence project
- ⚙ Using and extending UML
- ⚙ Examples from a case study
- ⚙ Current and future work

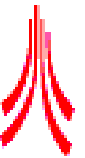




## Coherence aims

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- Develop a methodical approach to analysing social interaction in the workplace
- Explore how this may be integrated with existing system development methods and practice
- Improve integration of results of social analysis into systems requirements

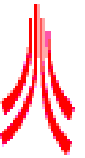


## Ethnography in systems design

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- Ethnographic analysis
  - Various studies building up corpus of fieldwork and analysis relevant to the design of CSCW systems
- Data management for social analysis
  - Using viewpoints to present ethnographic information
- Presentation Framework
  - Presenting fieldwork in terms of *distributed coordination, plans and procedures, and, awareness of work*

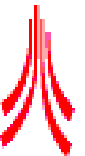




## Viewpoints in RE

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- PREview developed in the REAIMS project for application in dependable systems development
- Recognition that system development involves the recognition and resolution of multiple perspectives
  - stakeholder, other systems, environment, etc.
- Main concepts
  - Concerns—reflect organizational goals
  - Viewpoints—encapsulate the system requirements from a particular perspective

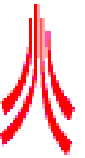


## Approach

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- Adapt PREview process to include social viewpoints and concerns
- Structure social information into three viewpoints derived from presentation framework
- Provide route through to use case and object models in UML

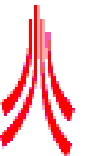




# Unified Modelling Language

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- Convergence of three approaches to object oriented analysis
- Rapidly becoming industry standard—recently adopted by OMG
- Not a method but a notation, independent of process



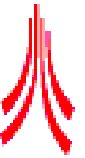
# Extending UML

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- 3 extension mechanisms built into UML's specification: constraints, tagged values, stereotypes
- Explored how UML extensions can be used in order to represent results of social analysis
- Case study of Training centre office returned to (Rouncefield *et al.*, 1995)

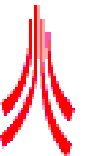
Rouncefield, M., Viller, S., Hughes, J. A., & Rodden, T. (1995). Working with 'constant interruption': CSCW and the small office. *The Information Society*, **11**(3), 173-199.





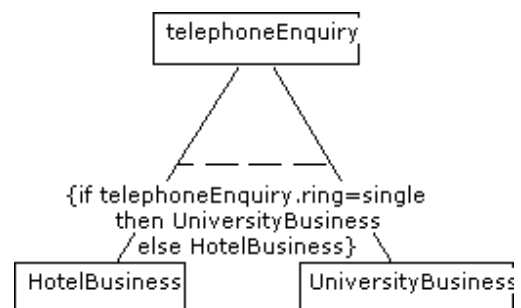
## Focus on awareness

- Feature of a number of ethnographic studies
- Currently fashionable for CSCW systems to implement support for awareness
- Recent use originated in research on media spaces
- One term but many concepts



## Peripheral awareness

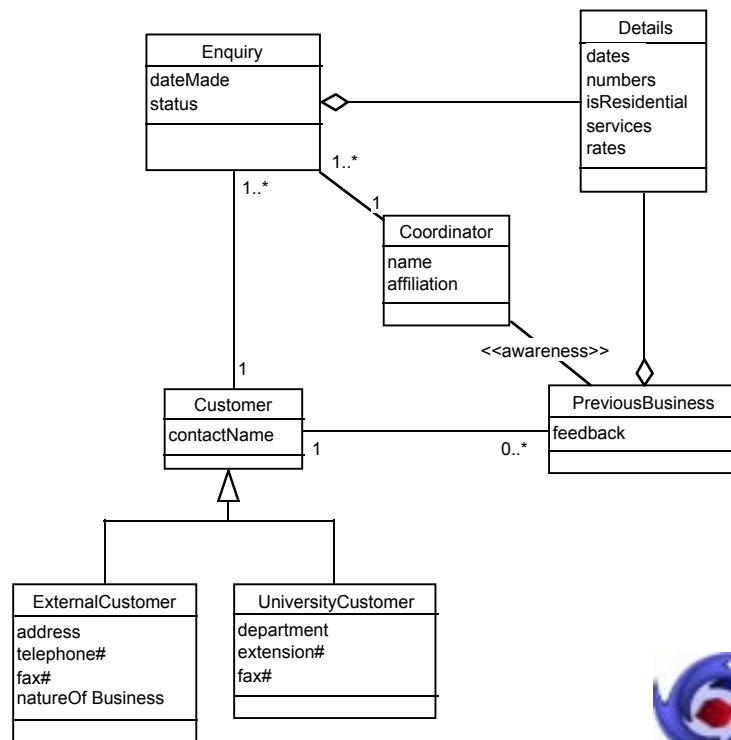
- Constraints used to express environmental information which can act as a resource for people in the workplace





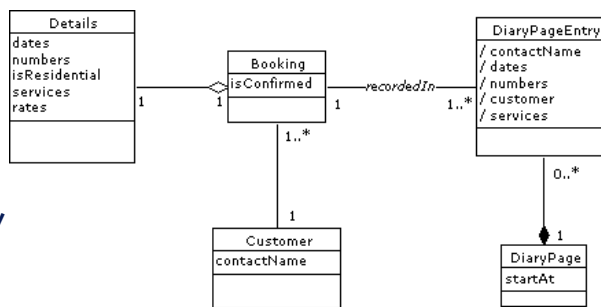
# Awareness of history

- ⚙️ A stereotyped association adds semantics to the model and can represent 'organizational memory' features such as knowledge of previous business



# Paperwork (i)

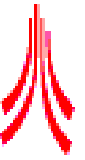
- ⚙️ Comments can be used to contain information in any format or media. This is useful for incorporating scanned images of forms, etc. in order to illustrate how they afford being annotated with comments and so on which may support the work in unanticipated ways.



Sample DiaryPage

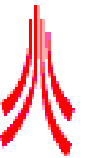
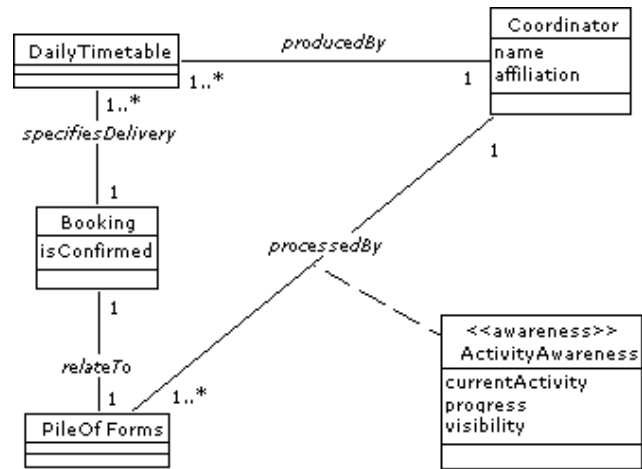
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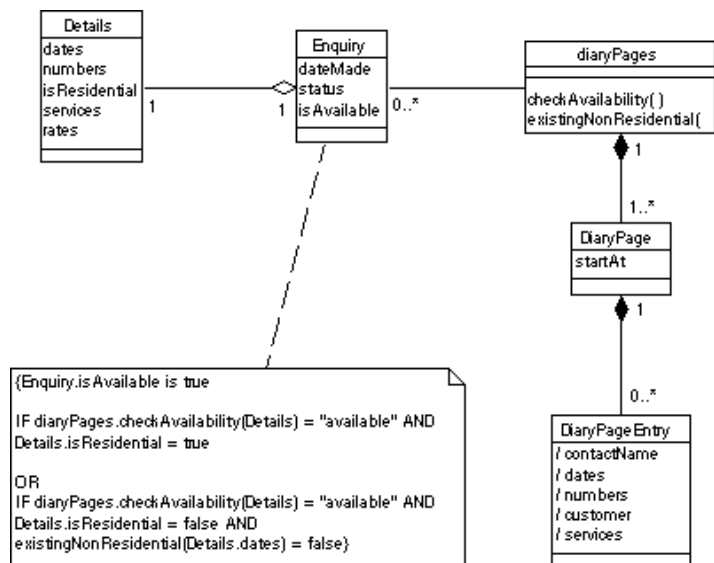
# Paperwork (ii)

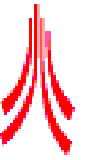
- Stereotypes present the opportunity to represent information pertaining to objects and relationships that results from ethnographic study



# Business rules

- Constraints can be used to express rules of thumb which may not be formally expressed elsewhere

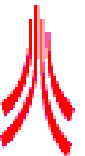




# Current & future work

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- Focusing on process
- ATC example
- Links to use case models

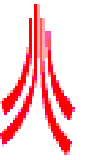


# Links to use case models

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Actor	Interactor Identified and then used to generate VP.
Use case	Use case descriptions generated by <i>plans</i> & <i>procedures</i> VP
Problem domain object model	Problem domain objects identified by <i>distributed coordination &amp; awareness of work</i> VPs
Object model	Fragments of model generated by <i>awareness of work</i> VP
Interface descriptions	Not directly addressed by Coherence, but can be recorded in UML





# Summary

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- ⚙ Social analyses poorly taken up in industry
- ⚙ Coherence project bringing together and progressing work on ethnographically informed design and viewpoint-oriented development
- ⚙ Providing bridge to conventional development methods by links to use case and object models

