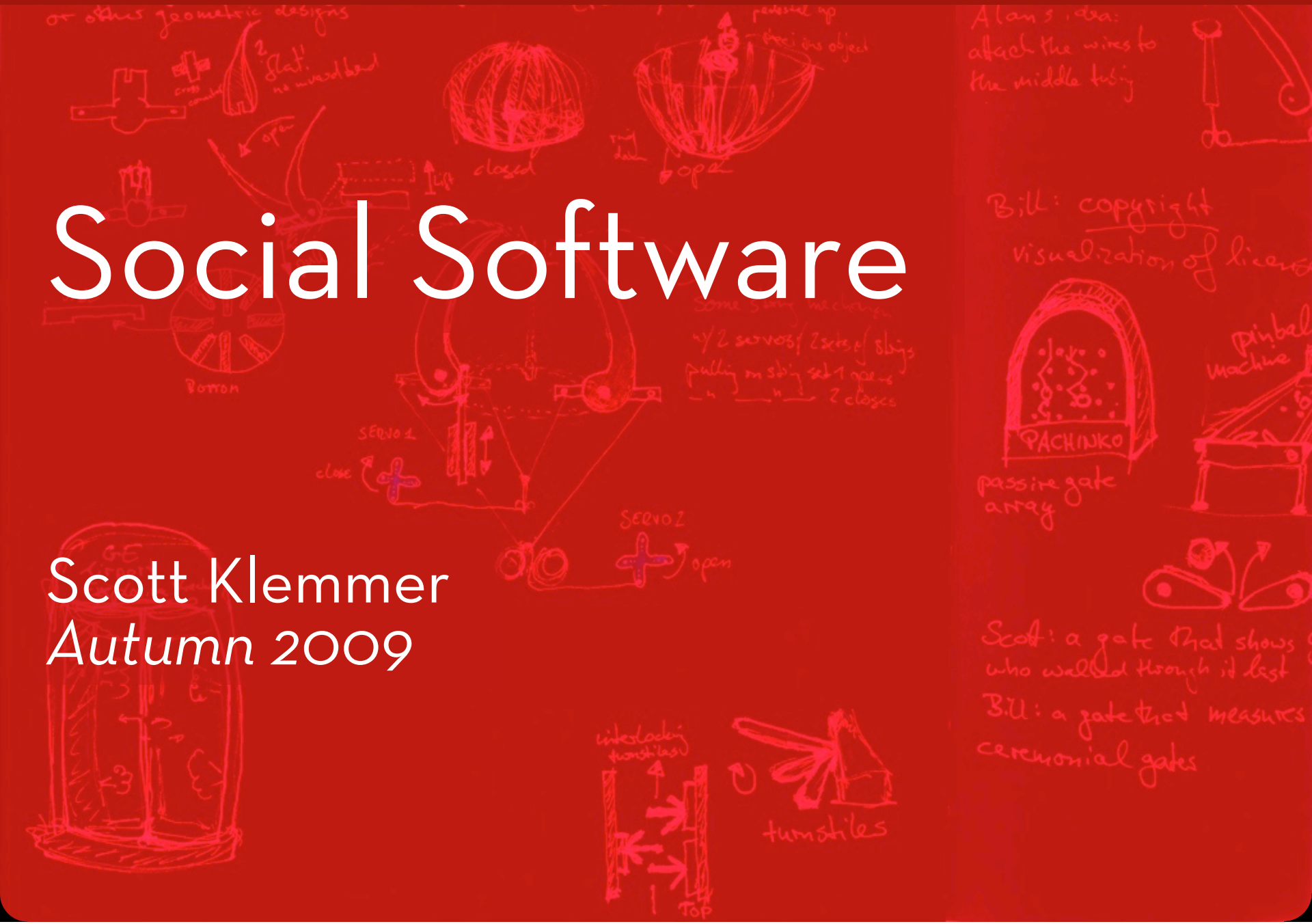
Social Software

Scott Klemmer

Autumn 2009

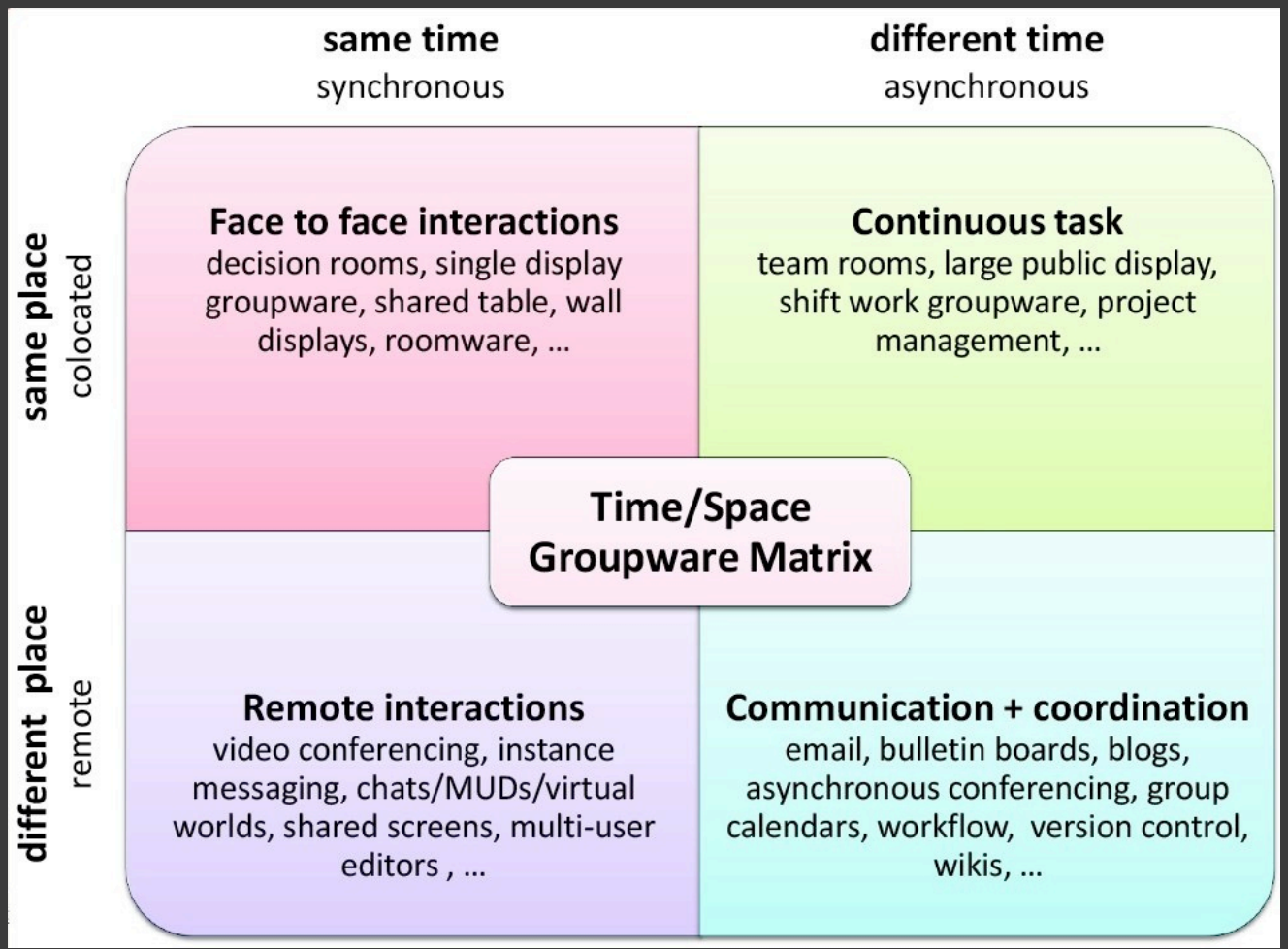


What is CSCW?

- CSCW [is] a generic term, which combines the understanding of the way people work in groups with the enabling technologies of computer networking, and associated hardware, software, services and techniques.
- A.k.a. Groupware

Source: Wikipedia

CSCW Matrix



Source: Wikipedia. Johansen, 1988 in Baecker, R.M.; Others, (1995). Readings in human-computer interaction: toward the year 2000. Morgan Kaufmann Publishers.

We can begin by taking a look at the design space for computer-mediated cooperation. While most of the work in CSCW and social software has been in the lower-right quadrant, all four have potential for interesting apps.

Why is CSCW design hard?

- Multiple users
- "Virtual" (not physical) presence
- The Network

- Virtual presence could be "Beyond Being There"
- Some distinguishing features of CSCW:
  - asynchronous communication
  - anonymous communication
  - automatically archive of communication

Source: Hollan, Jim and Stornetta, Scott. "Beyond Being There." CHI 1992.

Different time / different place

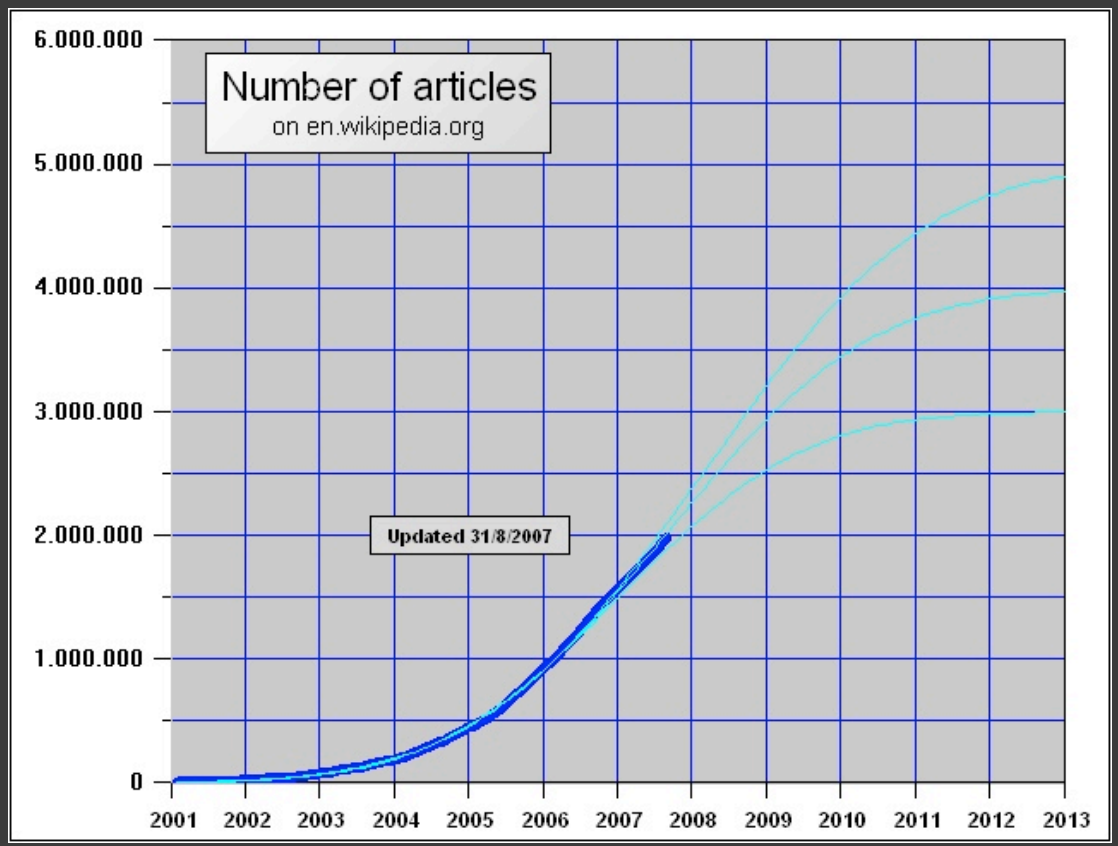
- Communication + Coordination
- Wiki
- Blogs
- Workflow
- Version Control

- Shared participation over time
- Geographically world wide

Source: Wikipedia.

Example: growth of different time / different place

Wikipedia



Wikipedia growth

Source: Wikipedia.

Document Collaboration

- How many of you have used Google Docs to collaborate on document?
- Can range from same time to different time, depending on use case
- Challenge: make it more than just Microsoft Word with the network added

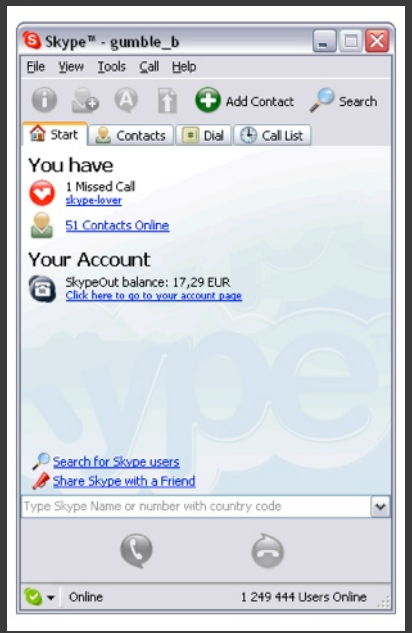
Same time / different place

- Remote interaction
- Video-Conferencing,
- Real-time groupware
- Messaging (Instant messaging, Email)
- Virtual worlds
- Multi-User editors
- Shared Screen (vnc)

- Multi-user participation
- Nonverbal cues

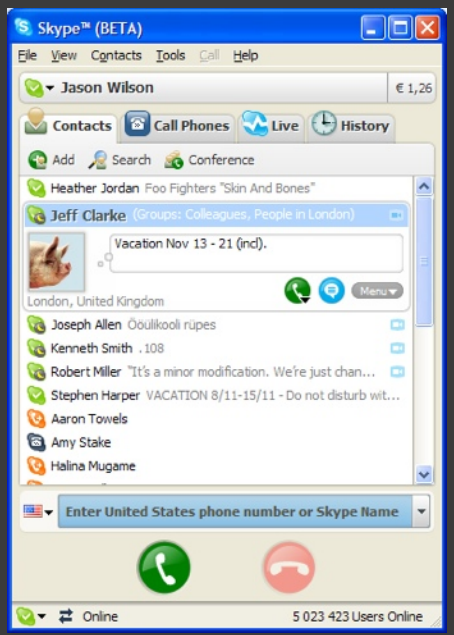
Source: Wikipedia.

Example: recent enhancements in same time / different place



Skype 1.0

Skype



Usage and traffic

Date	Total user accounts *in millions*	Skype to Skype minutes *in billions*	Skype Out minutes *in billions*	Net revenue USD *in millions*
Q1 2006	95	6.9	0.7	35
Q2 2006	113.1	7.1	0.8	44
Q3 2006	135.9	6.6	1.1	50
Q4 2006	171.2	7.6	1.5	66
Q1 2007	195.5	7.7	1.3	79
Q2 2007	219.6	7.1	1.3	90

As of June 30, 2007, Skype had a cumulative number of unique user accounts of 220 million. Users may register more than once, and as a result, may have more than one account.

It was reported that nine million concurrent Skype users were online as of January 29, 2007.[13]

Date	[14] Users online	Days
2007-01-29	9,000,000	82
2006-11-08	8,000,000	71
2006-08-29	7,000,000	155
2006-03-27	6,000,000	66
2006-01-20	5,000,000	92
2005-10-20	4,000,000	155
2005-05-18	3,000,000	93
2005-02-14	2,000,000	117
2004-10-20	1,000,000	418
2003-08-29	0	-

Source: Wikipedia.

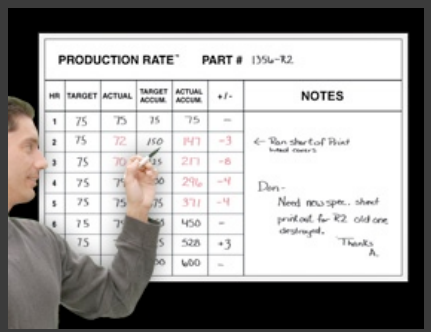
Different time / same place

- Continuous task
- Team rooms
- Large displays

Source: Wikipedia.

Example: ideas for different time / same place

Lean Manufacturing:
Visible System Metrics



Machine Number	Next Job SKU#	Current Job%	OEE %
15	1531	75%	72%
17	1572	95%	77%
21	1514	44%	82%
22	1499	15%	93%
23	1528	26%	63%

Location	Flow Rate	Temperature	PPM Emission
Area 1	245	355	11000
Area 2	355	400	12000
Area 2A	423	350	12500
Area 3	564	275	13000
Area 4	343	320	11500
Area 5	250	330	11000
Area 5A	452	390	15500
Area 5B	356	345	11750
Area 6	475	400	12000
Area 6A	276	275	12000
Area 6B	285	275	13500

Source: http://www.magnatag.com/, http://www.adaptivedisplays.com/

Same time / same place

- Face to face interaction
- Roomware
- Shared tables, wall displays
- Group Decision Support Systems (GDSS)
- Single display groupware

Source: Wikipedia.

Example : same time / same place

Microsoft Surface

Source: Microsoft Surface, http://www.microsoft.com/surface/

Challenges in Implementing CSCW

Table 1. Eight challenges for groupware developers

1. **Disparity in work and benefit.** Groupware applications often require additional work from individuals who do not perceive a direct benefit from the use of the application.

2. **Critical mass and Prisoner's dilemma problems.** Groupware may not enlist the "critical mass" of users required to be useful, or can fail because it is never to any one individual's advantage to use it.

3. **Disruption of social processes.** Groupware can lead to activity that violates social taboos, threatens existing political structures, or otherwise demotivates users crucial to its success.

4. **Exception handling.** Groupware may not accommodate the wide range of exception handling and improvisation that characterizes much group activity.

5. **Unobtrusive accessibility.** Features that support group processes are used relatively infrequently, requiring unobtrusive accessibility and integration with more heavily used features.

6. **Difficulty of evaluation.** The almost insurmountable obstacles to meaningful, generalizable analysis and evaluation of groupware prevent us from learning from experience.

7. **Failure of intuition.** Intuitions in product development environments are especially poor for multiuser applications, resulting in bad management decisions and an error-prone design process.

8. **The adoption process.** Groupware requires more careful implementation (introduction) in the workplace than product developers have confronted.

Source: Grudin, Jon. "Eight Challenges for Groupware Developers". CACM, 1994.

3 Principles for CSCW

- It's not good enough to just replicate offline experiences online; we have to go 'beyond being there'
- CSCW systems where the cost to participants is high, and the system's benefit is mostly to someone else (their supervisors, for example), will fail (Grudin)
- In the (near) future, almost everything will be a CSCW application, so it pays to get this right.

New collaborative apps are changing CSCW

Source: 37 Signals

A Brief History

- BBS systems (ask your older friends)
- Message boards and instant messaging (ICQ)
- Early ‘social networks’ (The WELL)
- Maturing services (MySpace, AIM)
- Current, “Web 2.0” services (facebook, flickr, twitter)

Challenges (*from Grudin*)

- Disparity of Work and Benefit
  Groupware applications often require additional work from individuals who do not perceive a direct benefit from the use of the application

Challenges

- Critical Mass and Prisoner's Dilemma
  Groupware may not enlist the "critical mass" of users required to be useful, or can fail because it is never to any one individual's advantage to use it

Group Calendaring

A related issue is that people use diff't infrastructures – e.g., Google, Outlook, & Stanford

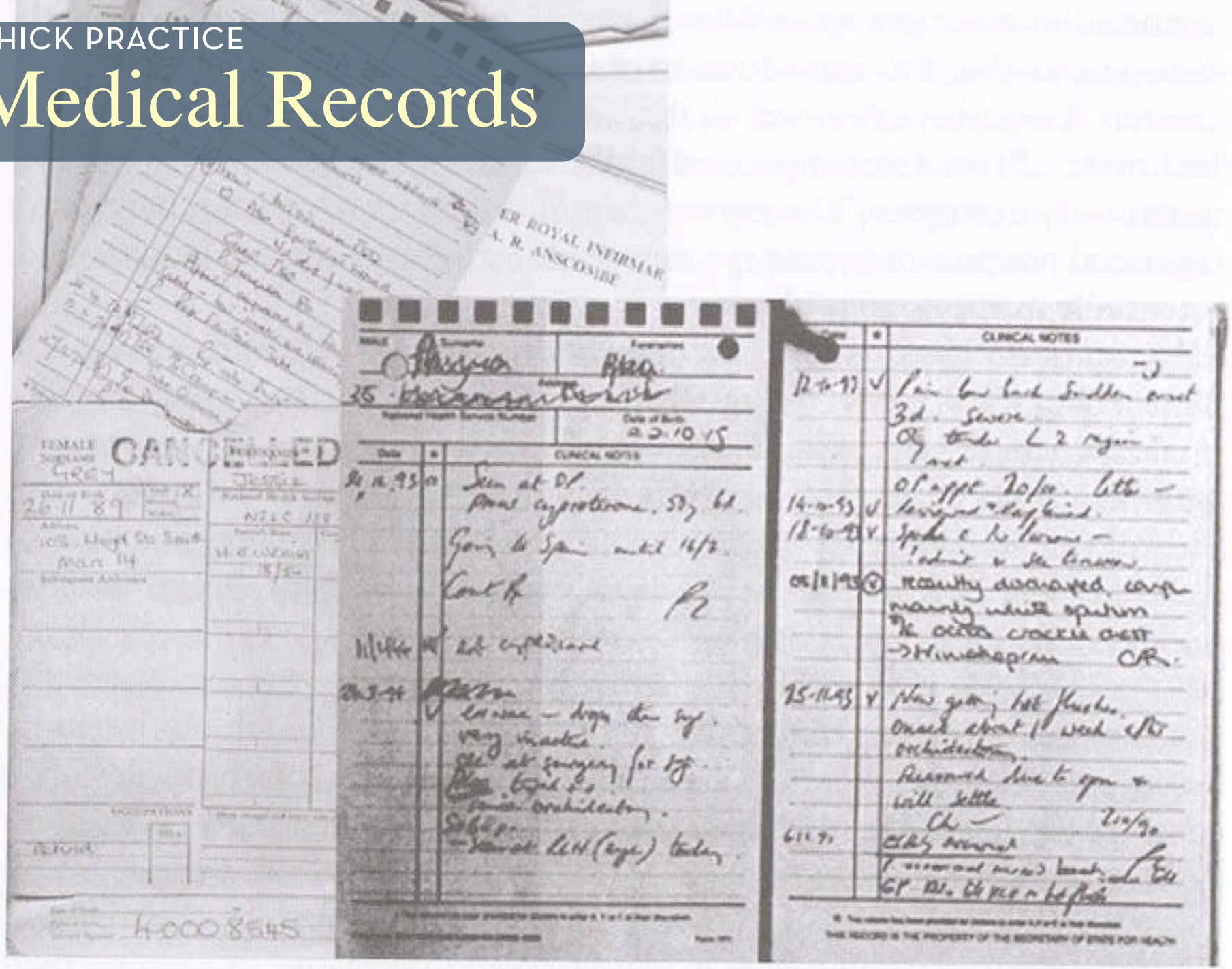
-- potentially one could cast this last problem as one of data integration

Challenges

- Disruption of Social Processes
  Groupware can lead to activity that violates social taboos, threatens existing political structures, or otherwise demotivates users crucial to its success

Challenges

- Exception Handling
  Groupware may not accommodate the wide range of exception handling and improvisation that characterizes much group activity



interfaces that *are the real world* can obviate many of the difficulties of attempting to *model all of the salient characteristics of a work process as practiced*. This argument builds on Weiser's exhortation to design for "embodied virtuality" rather than virtual reality [72]. Designing interactions that *are the real world* instead of ones that simulate or replicate it hedges against simula-cra that have neglected an important practice.