

***“A Model of Collaborative  
Knowledge-Building”***

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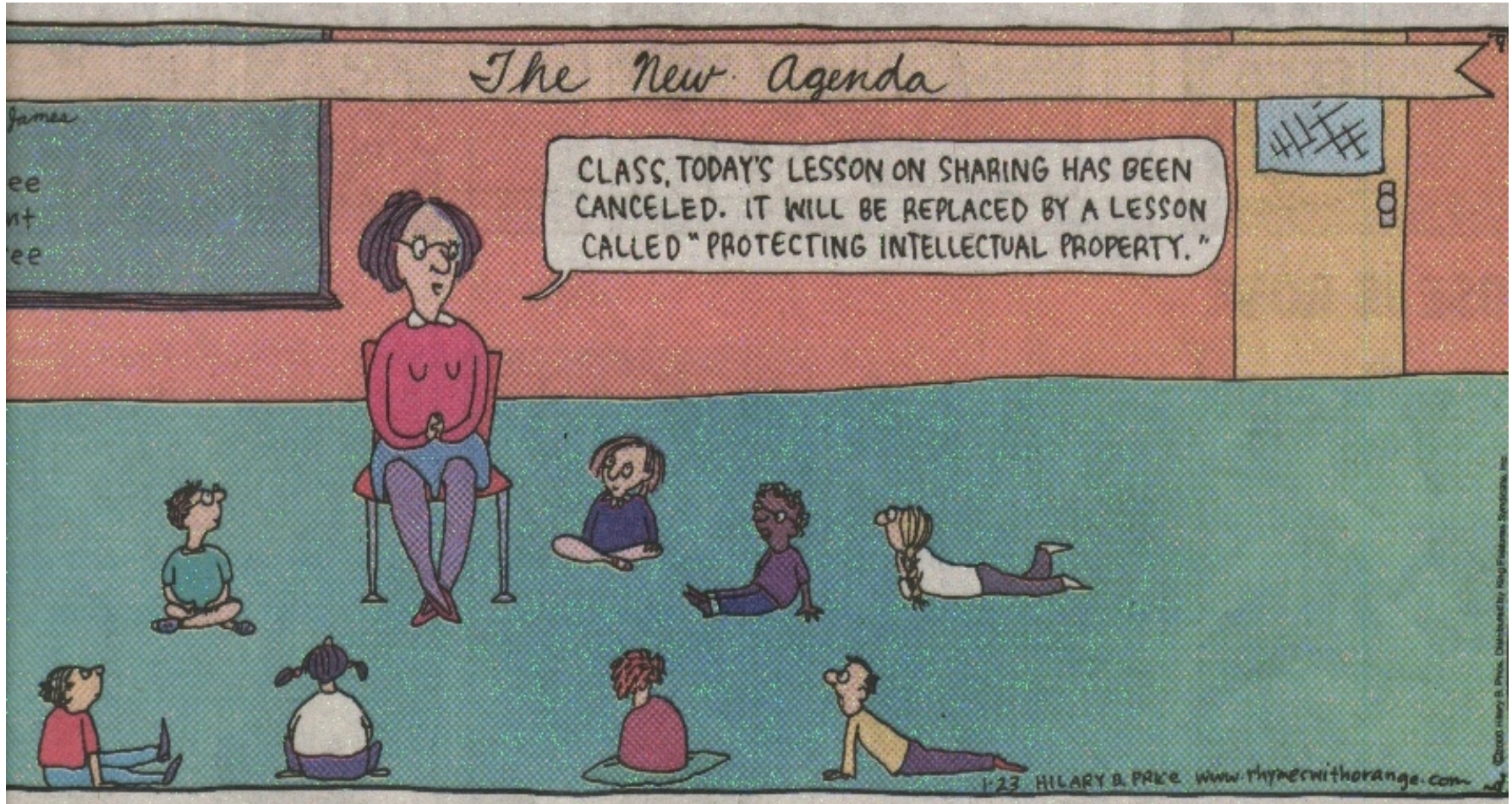
**Gerry.Stahl@Colorado.edu**

**<http://www.cs.colorado.edu/~gerry>**

*beyond discussion & chat*

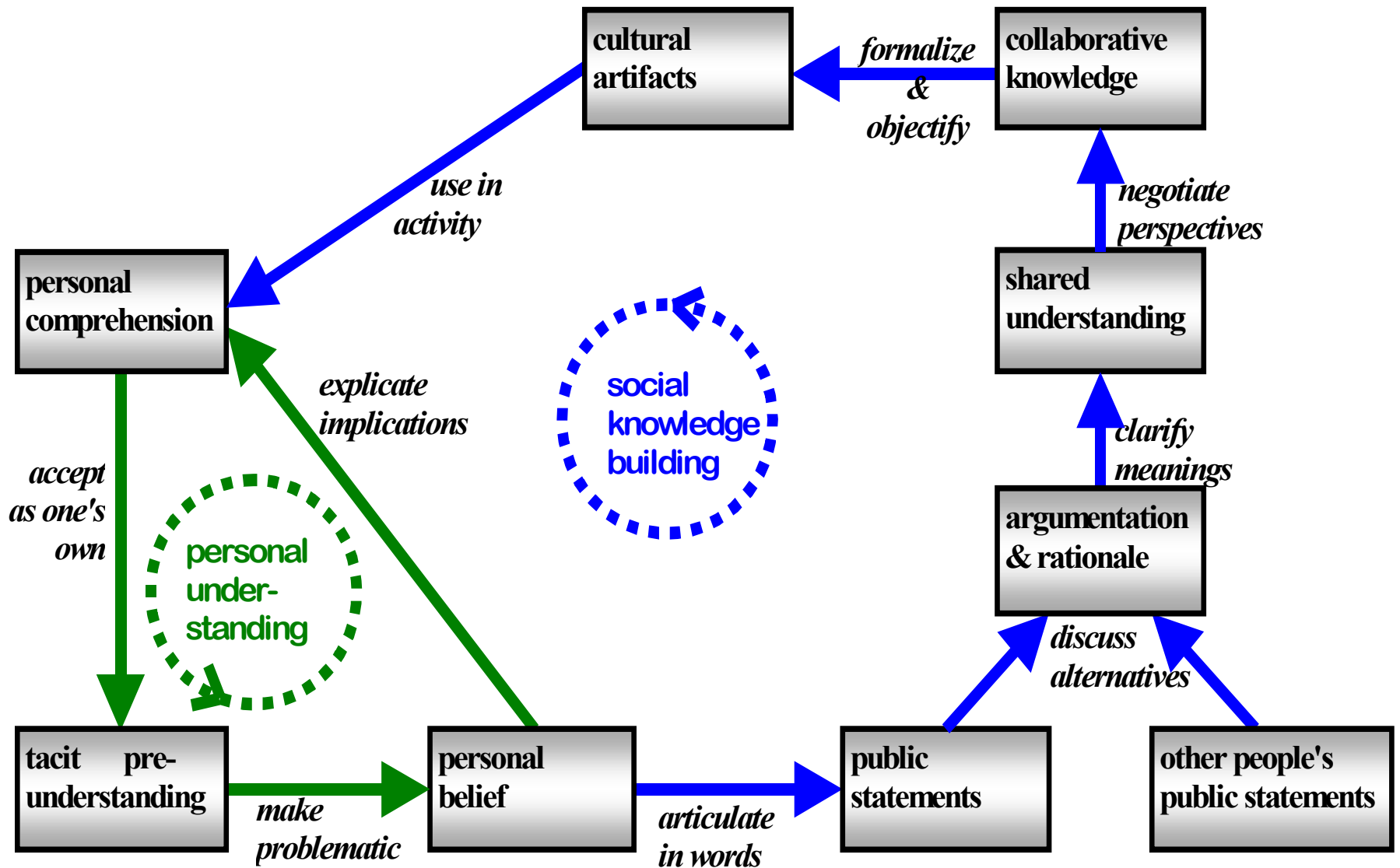
*collaborative knowledge-building  
goes beyond sharing personal  
opinions; it is a complex process  
within community contexts*

# *communities support & restrict collaboration*



*a model of knowledge-building as a  
typical process of social activities*

*interplay of individual cognition &  
social knowledge construction*



*a model of knowledge-building as  
the mediation of individual & group  
activities*

*artifacts in the world provide  
mediating resources*

## *The mediation of social knowledgebuilding*

### Personal perspective

Tacit understanding of the social lived world

Experiencing breakdowns of understanding

Reinterpreting meaning structures

Articulating one's understanding

Formally structuring knowledge

### Mediating tools and systems

Discussion: verbal statements & visual cues

Representations in communication media

Artifacts: physical, symbolic, cultural

Personal external memory devices

Organizational memory systems

### Synergistic group understanding

Sharing perspectives

Exchanging arguments & rationale

Clarifying meanings

Negotiating conflicts

Formally structuring knowledge

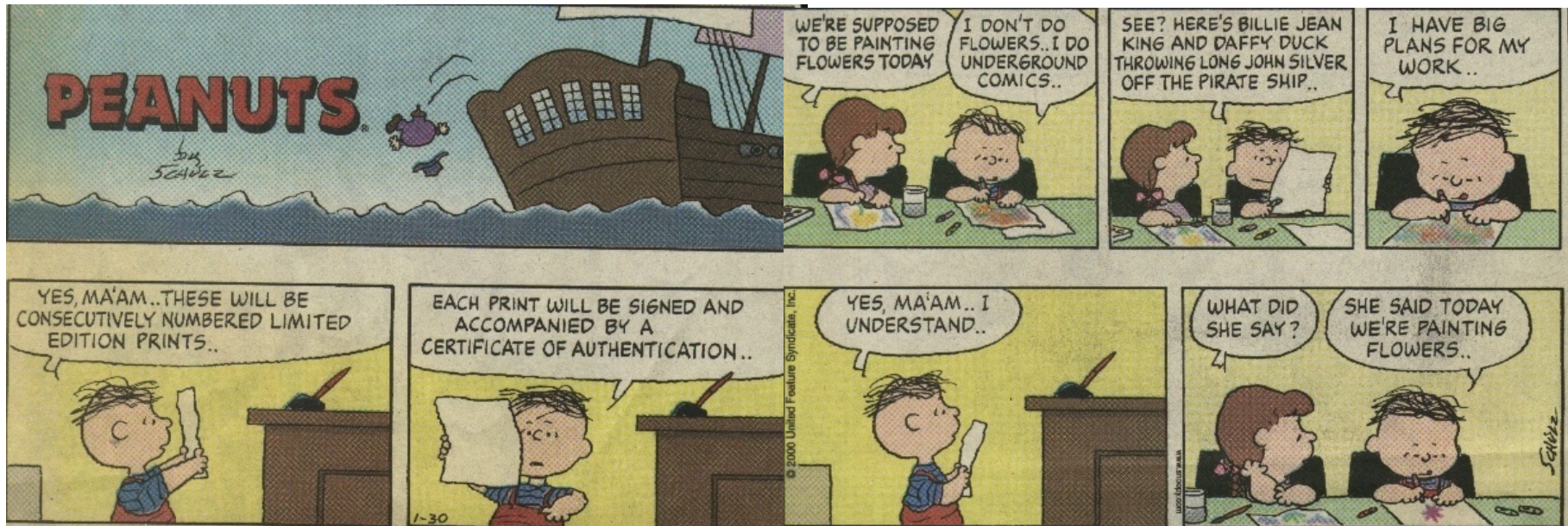


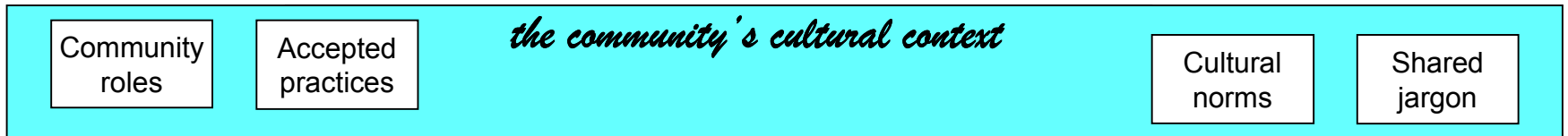
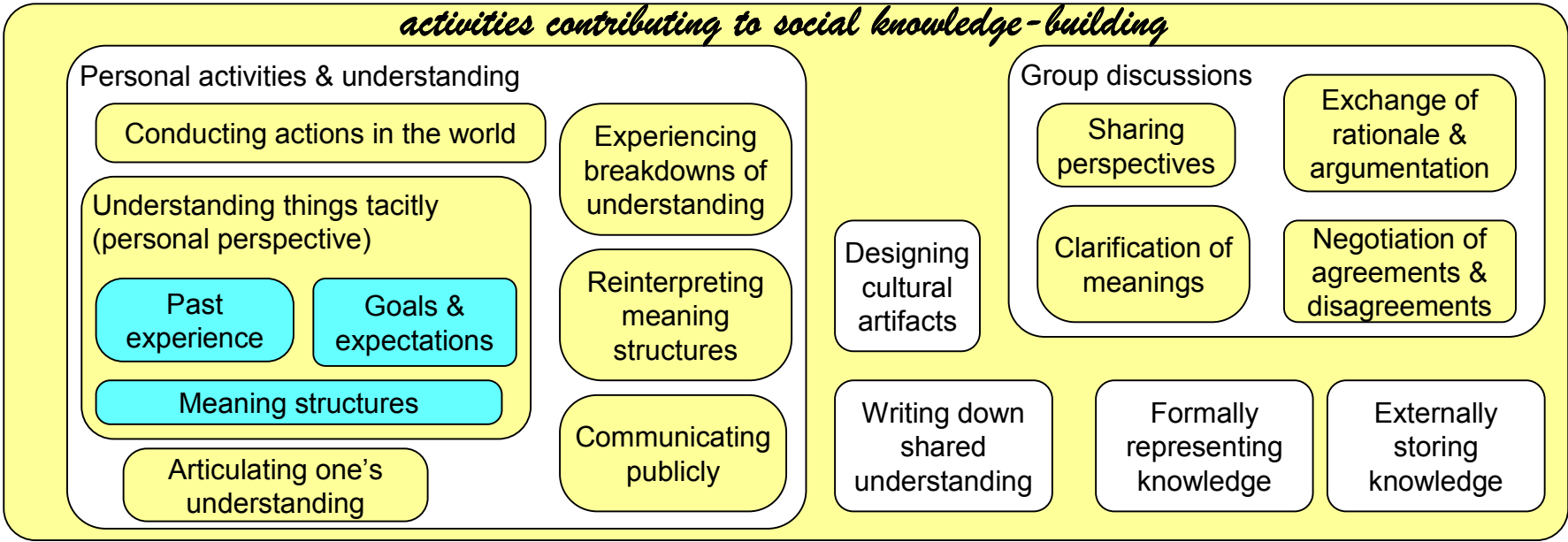
*a model of knowledge-building as  
the use of resources by agents within  
social contexts*

*the local technology, community and  
society define affordances*



# *technology: confined by social practices, subject to negotiation*





*models of knowledge-building can  
provide a framework for software  
design & assessment*

*what activities should collaboration  
software support beyond sharing  
personal opinions & information ?*

# *some technology components of knowledge-building environments*

	<i>Knowledge-building activities</i>	<i>Forms of computer support</i>	<i>Prototype systems</i>
<b>A</b>	<b>articulate in words</b>	<b>discussion forum</b>	<b>DynaClass</b>
<b>B</b>	<b>discuss alternatives</b>	<b>personal &amp; group perspectives</b>	<b>WebGuide</b>
<b>C</b>	<b>argumentation &amp; rationale</b>	<b>argumentation graph</b>	<b>InfoMap</b>
<b>D</b>	<b>clarify meanings</b>	<b>interactive glossary</b>	<b>DynaGloss</b>
<b>E</b>	<b>negotiate perspectives</b>	<b>negotiation support</b>	<b>WebGuide</b>
<b>F</b>	<b>formalize &amp; objectify</b>	<b>interactive bibliography</b>	<b>DynaSource</b>

# WebGuide: supporting discussion, reflection, negotiation, knowledge management, in perspectives

The screenshot displays the WebGuide web application interface. The top navigation bar includes 'Login', 'Discussions', 'Perspectives', and 'Map of Discussion'. Below this, there are tabs for 'group', 'discussion', 'negotiate', 'personal', 'comparison', 'archive', and 'perspective: Gerry's personal'. The main content area shows a tree view of discussions under 'Gerry's personal'. A specific comment is highlighted: 'comment: Group project on WebGuide negotiation (by: Gerry in: group on: 03/23/2000)'. To the right, a detailed view of this comment is shown, including the author's name 'Gerry Stahl' and a list of actions: 'discuss', 'new note', 'edit note', 'delete note', 'move note', 'copy note', 'link note', 'copy to home', 'link to home', 'email from note', 'select second note', 'private note', 'proposal', and 'vote'. The bottom part of the screenshot shows a Microsoft Internet Explorer browser window displaying the detailed view of the comment. The browser's address bar shows 'http://webguide.cs.colorado.edu/2000.html'. The page content includes the title 'Group project on WebGuide negotiation' and a paragraph of text: 'A group of students in Tammy Sumner's User Interface Design course is working on designs of negotiation support in WebGuide. They should be coming up with some interesting ideas in the next week. They can respond to this comment by clicking on the Discuss button and filling out the title and content of their comments.' The browser's status bar shows 'Warning: Applet Window' and 'Applet started.'

group

discussion

negotiate

personal

comparison

Gerry's personal

heading: DISCUSSIONS (in: group on: 03/21/2000)

comment: Switching from Title View to Content View doesn't work properly

\*comment: Do not forget to "refresh" the display. (by: Gerry in: group on: 03/21/2000)

comment: That's a nice feature. But how does it work? (by: Marcel in: group on: 03/21/2000)

\*comment: It is a "new" feature (by: Gerry in: group on: 03/29/2000)

heading: PROPOSALS (in: group on: 03/21/2000)

heading: Negotiation (by: Group in: group on: 03/21/2000)

comment: Student project in Dortmund (by: Gerry in: group on: 03/23/2000)

comment: Group project on WebGuide negotiation (by: Gerry in: group on: 03/23/2000)

heading: Other new features (by: Group in: group on: 03/21/2000)

heading: New components (by: Group in: group on: 03/21/2000)

resource: Persona component (by: Group in: group on: 03/21/2000)

resource: Glossary component (by: Group in: group on: 03/21/2000)

resource: Bibliography component (by: Group in: group on: 03/21/2000)

resource: Perspectives component (by: Group in: group on: 03/21/2000)

heading: New functionality (by: Group in: group on: 03/21/2000)

comment: Email (by: Group in: group on: 03/21/2000)

comment: Printing (by: Group in: group on: 03/21/2000)

comment: User Manual (by: Group in: group on: 03/21/2000)

show title  show content

discuss

new note

edit note

delete note

move note

copy note

link note

copy to home

link to home

email from note

select second note

private note

proposal

vote

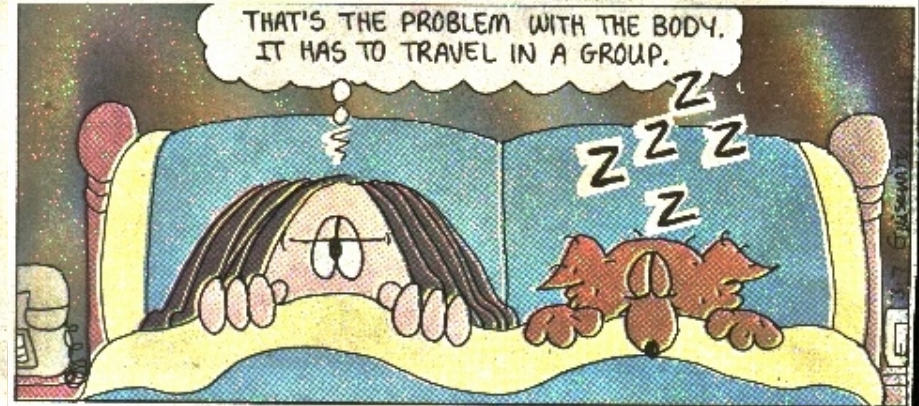
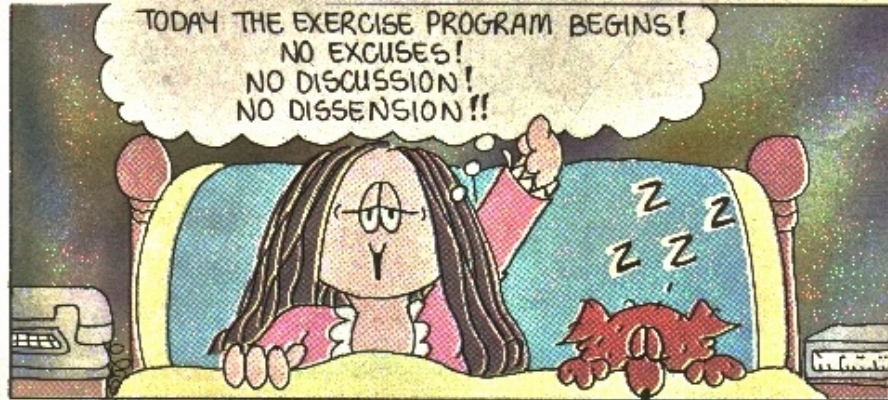
*representing perspectives: personal,  
small team, whole group*

*support for discussion among  
perspectives, comparisons,  
negotiation, group knowledge  
management*



# *knowledge-building as multiple perspectives interacting*

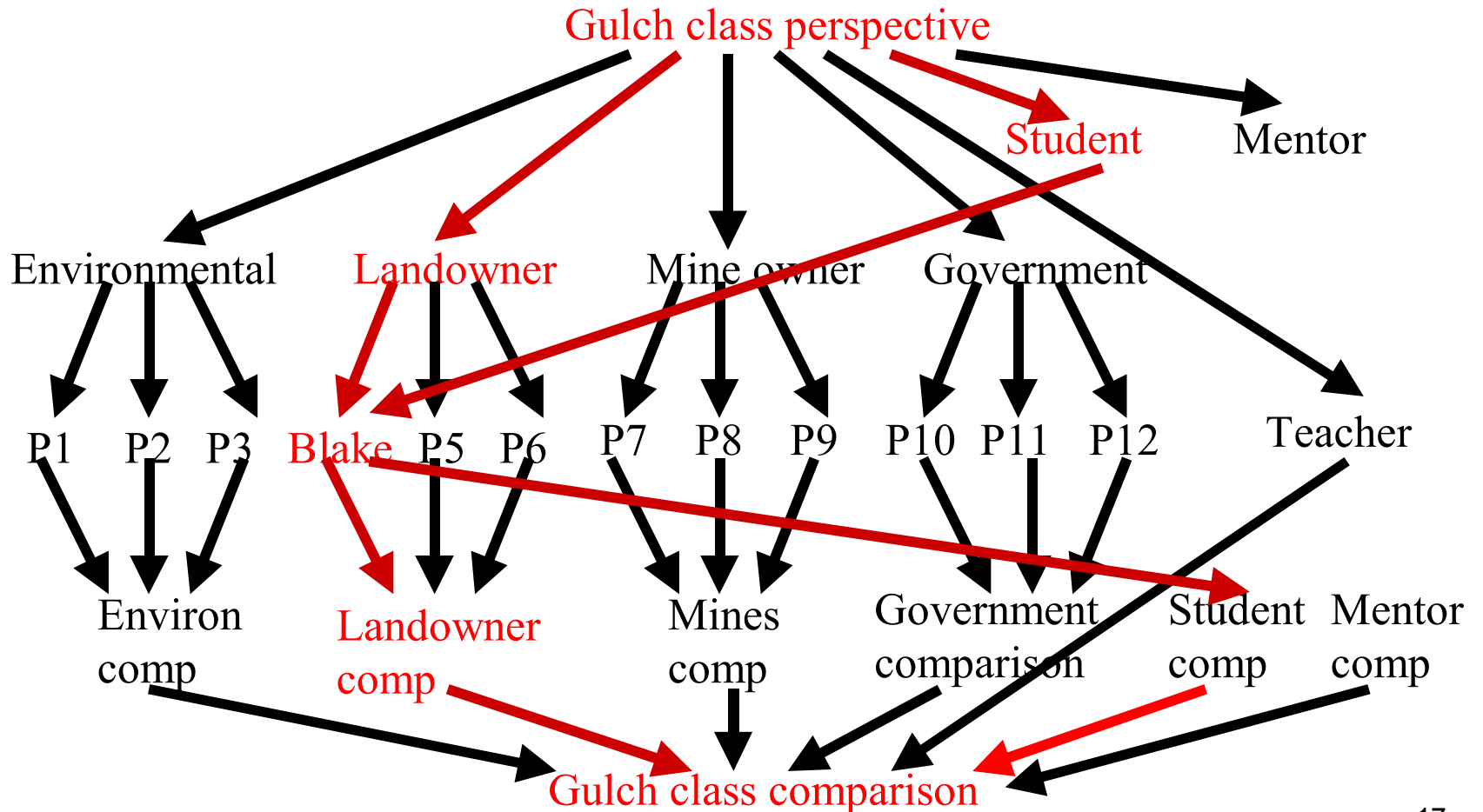
**CATHY**



By Cathy Guisewite

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# *web of perspectives: a flexible hierarchy of computational sharing among groups & individuals*



*future work: system building*

*integration of computer support for  
discussion, perspectives, negotiation,  
bibliography, glossary, scaffolding,  
simulations, ....*

*future work: collaboration analysis  
& system evaluation*

*micro-ethnographic analysis of  
videos of classrooms engaged in  
collaborative knowledge-building,  
with & without technology*

*for further information:*

*Gerry.Stahl@colorado.edu*

*[http://www.cs.colorado.edu/~gerry/  
publications/conferences/2000/](http://www.cs.colorado.edu/~gerry/publications/conferences/2000/)*