



Personalization and Participation via SCAN-Tools

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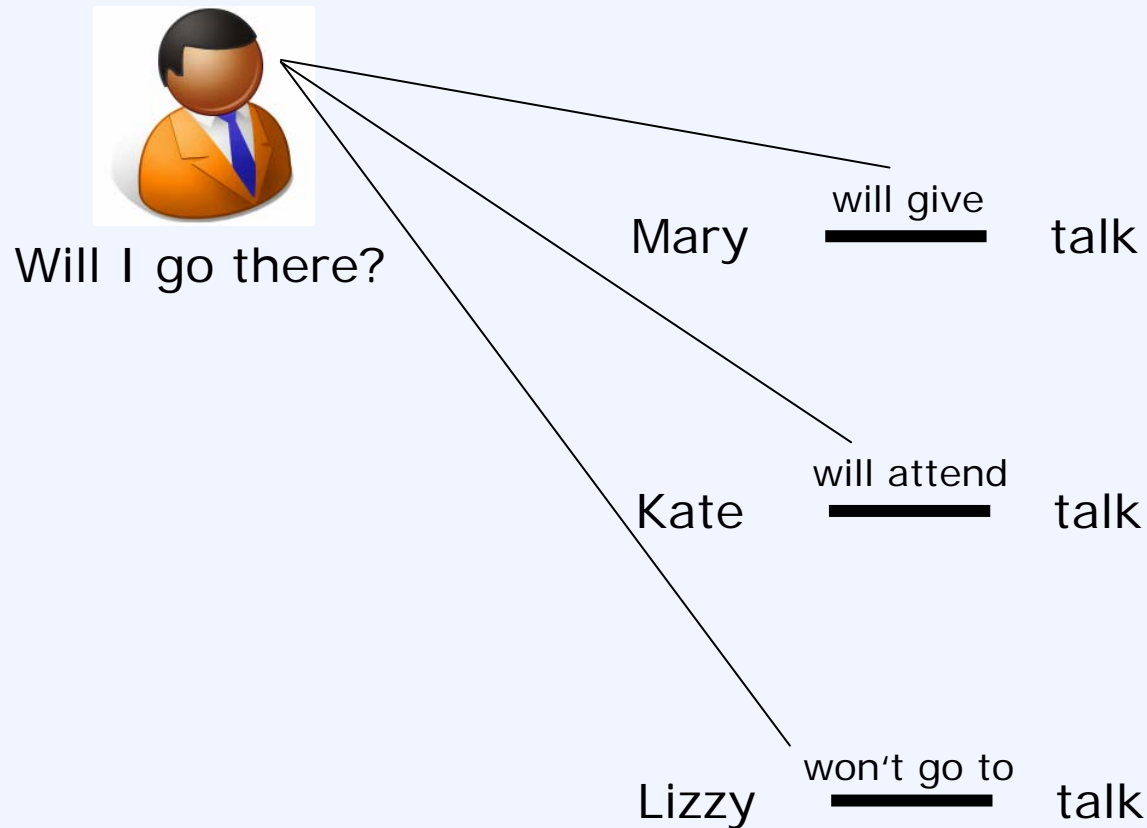


Person-Object Relations

Person — Object



Person-Object Relations





Person-Object Relations II

Person X ^{rates 10/10}
—— Blade Runner

Person Y ^{rates 3/10}
—— Blade Runner

Person Z ^{rates 8/10}
—— Blade Runner



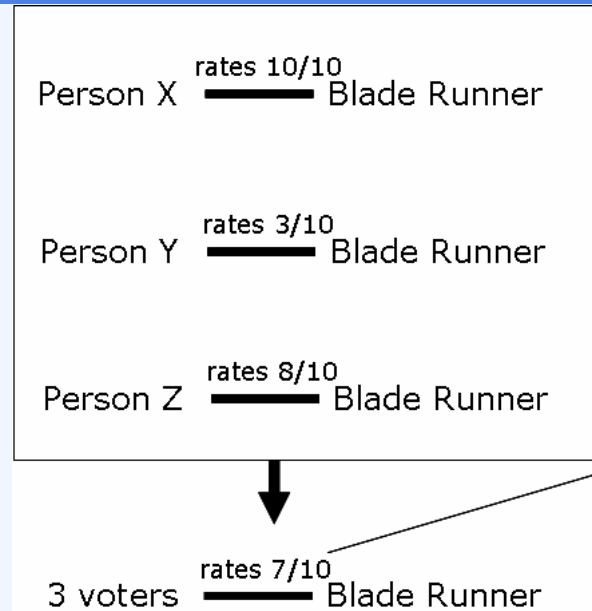
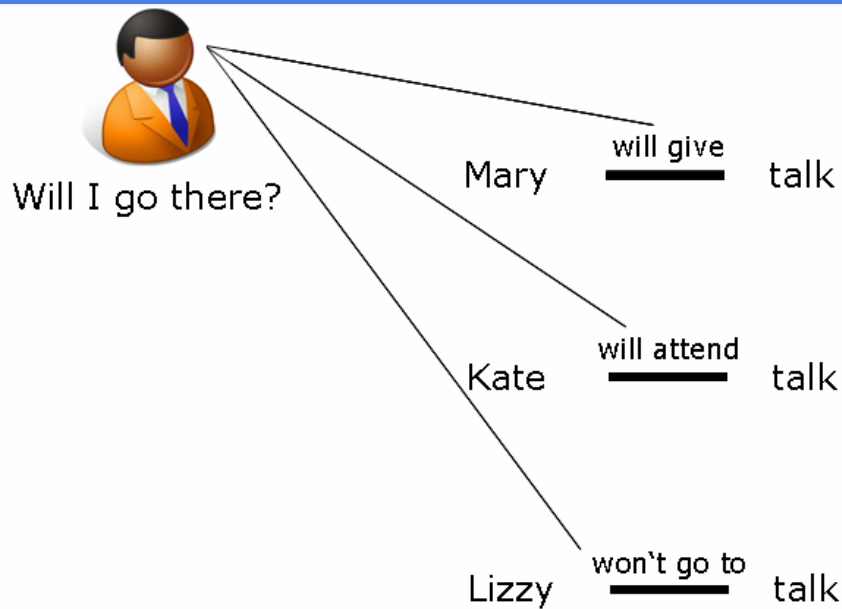
3 voters ^{rates 7/10}
—— Blade Runner



Will I like it?



Group Awareness and Social Navigation



GROUP AWARENESS

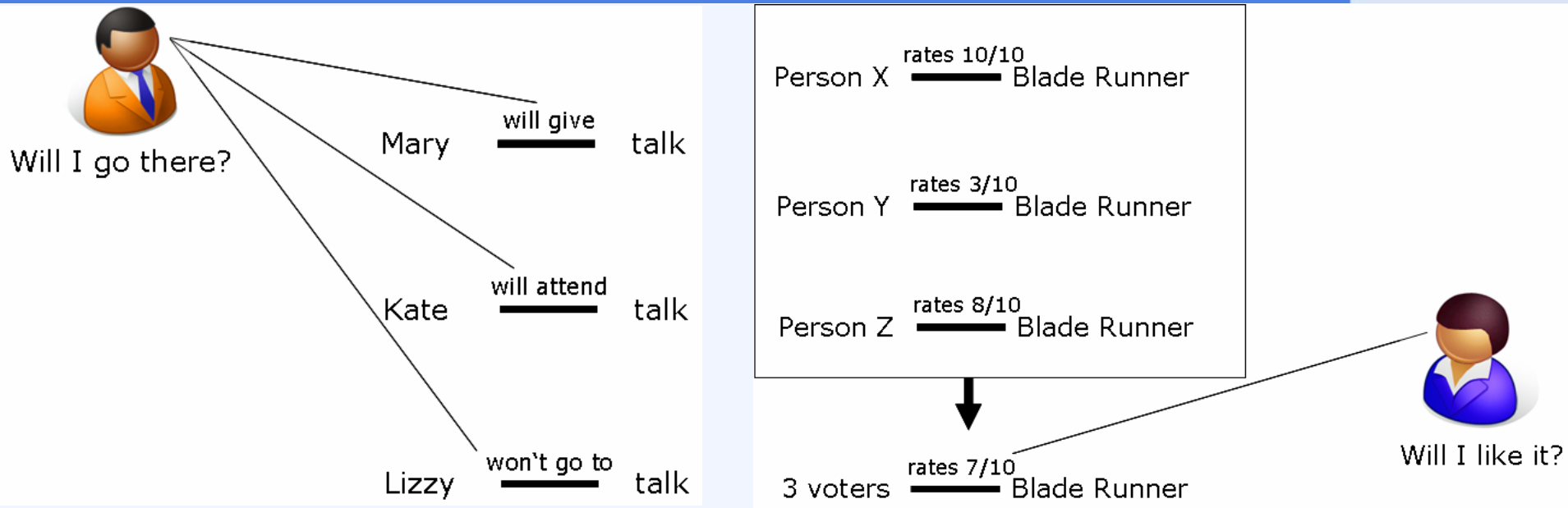
- interacting groups
- behavioral relations
- situational relations
- mirroring

SOCIAL NAVIGATION

- anonymous collective
- social/cognitive relations
- stable relations
- aggregating



Commonalities

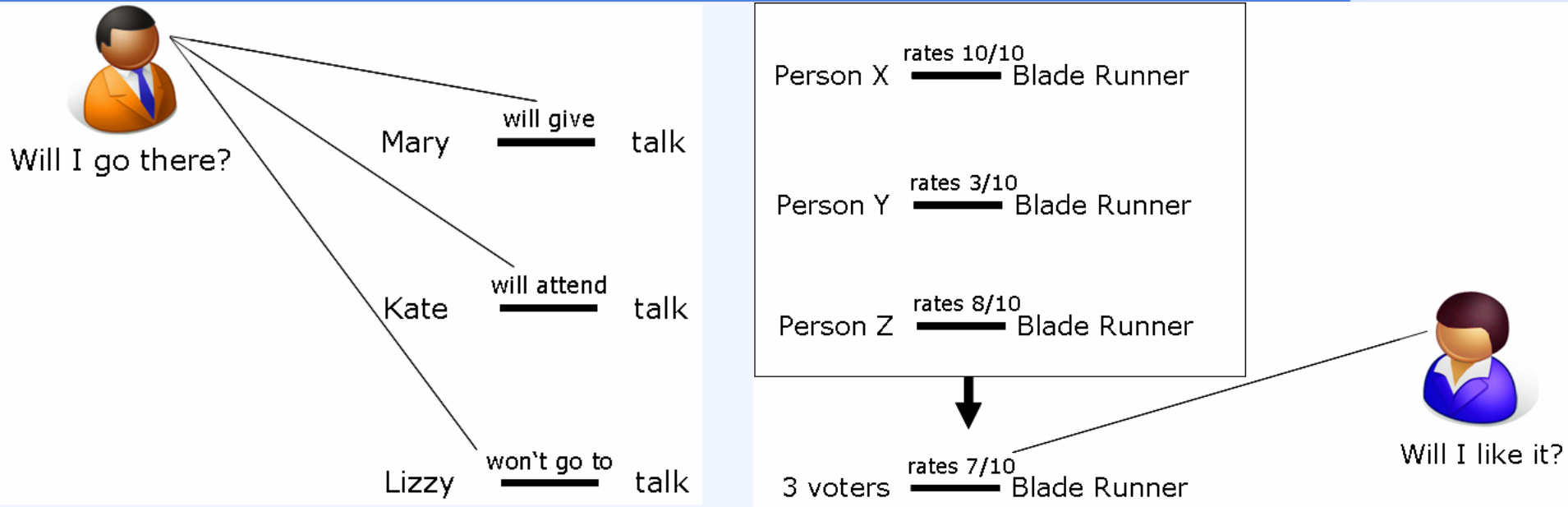


COMMONALITIES

- Feedback about person-object relations
- Knowledge/perception about person-object relations
- Influence on behavior and/or attitude
- must be supported on the Net

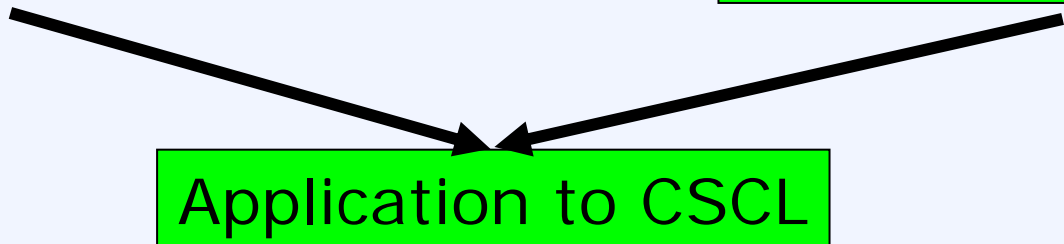


SCAN Tools



S**O****C****I****A****L****E****N****C****E****A****R****E****N****C****E****N****S****A****N****D****N****A****V****I****G****A****T****I****O****N****T****O****O****L****S**

- **interacting groups**
- behavioral relations
- anonymous collective
- **social/cognitive relations**





Some Design Principles of SCAN Tools

- Spatial Arrangement of Relations
- Aggregation of Relations
- Prediction of Relations
- Historization of Relations



Spatial Arrangement of Relations

Mary's Movie List

Blade Runner	10
Minority Report	9
City Lights	9
Brazil	8
The Usual Suspects	6
12 Angry Men	5

(Sorted) List by Objects

Ratings for Blade Runner

Mary	10
Clancy	10
George	9
Linda	8
Timothy	7
Rosalynn	2

(Sorted) List by Persons

	Blade Runner	Minority Report	City Lights	Brazil
Mary	10	9	9	8
Clancy	10	7	4	7
George	9	9	10	9
Linda	8	10		7
Timothy	7		8	5
Rosalynn	2	3	8	6

Tabular Display

Centrality Graph Blade Runner



Graphical Display



Spatial Arrangement of Relations

- Benefits
 - instigates social comparison processes
 - shows differences among individual conceptualizations
 - instigates object comparison
 - helps in identifying appropriate objects (social navigation)



Spatial Arrangement in CACL tools

iwm
Institut für Wissensmedien
kmrc
Knowledge Media Research Center

Studie - Virtuelle Lerngruppe

Lernpartner C

<p>Immunsystem</p> <p>Aufgabe <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> unspezifisch <input type="checkbox"/> spezifisch <input type="checkbox"/> zellulär-humoral</p> <p>Komplementsystem</p> <p>Fremderkennung <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> Zytolyse <input type="checkbox"/> Markierung <input type="checkbox"/> Antikörperergänzung</p> <p>T-Lymphozyten</p> <p>Reifung <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> Peptiderkennung <input type="checkbox"/> Reaktion <input type="checkbox"/> Notwendigkeit</p> <p>T-Killer und T-Helferzellen</p> <p>Differenzierung <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> T-Killerzellen <input type="checkbox"/> T-Helferzellen <input type="checkbox"/> HIV</p> <p>Antikörper</p> <p>B-Lymphozyten-Aktivierung <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> Antikörper-Produktion <input type="checkbox"/> B-Gedächtniszellen <input type="checkbox"/> Antikörper-Wirkung</p> <p>Phagozytose</p> <p>Phagozyten <input type="checkbox"/> C <input type="checkbox"/> B <input type="checkbox"/> Erkennung <input type="checkbox"/> Prozess <input type="checkbox"/> Antigenpräsentation</p>	<p>Antikörper</p> <p>B-Lymphozyten-Aktivierung Zur Produktion von Antikörpern werden B-Lymphozyten benötigt, die wie Phagozyten antigen-präsentierende Funktion haben. B-Lymphozyten sind Träger der spezifischen humoralen Immunantwort. B-Lymphozyten detektieren Antigene mit ihren Rezeptoren. Wenn neben der Detektion von Antigenen noch T-Lymphozyten Zytokine ausschütten, werden B-Lymphozyten aktiviert.</p> <p>Antikörper-Produktion Aktivierte B-Lymphozyten teilen sich mehrfach. Die Mehrzahl der entstehenden Zellen sind Plasmazellen (ca. 500 je B-Lymphozyt), die Antikörper produzieren (je Plasmazelle ca. 2000 Antikörper pro Sekunde). Antikörper sind frei abgegebene lösliche Formen der B-Zell-Rezeptoren.</p> <p>B-Gedächtniszellen Der Rest der Zellen geht in einen Ruhezustand über, speichert Informationen und stellt einen Teil des immunologischen Gedächtnisses (B-Gedächtniszellen) dar. Bei späteren Kontakten mit diesem Pathogen erfolgt die Produktion von Antikörpern schneller und stärker, da Antigene sofort erkannt werden.</p> <p>Antikörper-Wirkung Die produzierten Antikörper (im Bild blau) besetzen das Antigene (im Bild rot) am Erreger, wobei Antikörper auf spezifische Antigene ausgerichtet sind. Dadurch wird der Abbau des Antigens durch Komplement beziehungsweise durch Phagozytose beschleunigt.</p> <div style="text-align: center;"> </div> <p>-----</p> <p>Schreibe bitte Deine Erklärung zum angegebenen Thema für Lernpartner B in das Textfeld!</p> <p>1. Bitte erkläre das Thema T-Lymphozyten</p> <p>*Erklärung <input style="width: 250px; height: 40px;" type="text"/></p> <p><input type="button" value="abschicken"/></p>
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Partner Knowledge Awareness Tool (Dehler et al., 2007)

- Learners in dyads assess their understanding of text passages prior to discussion
- → leads to better audience design



Spatial Arrangement in CACL tools

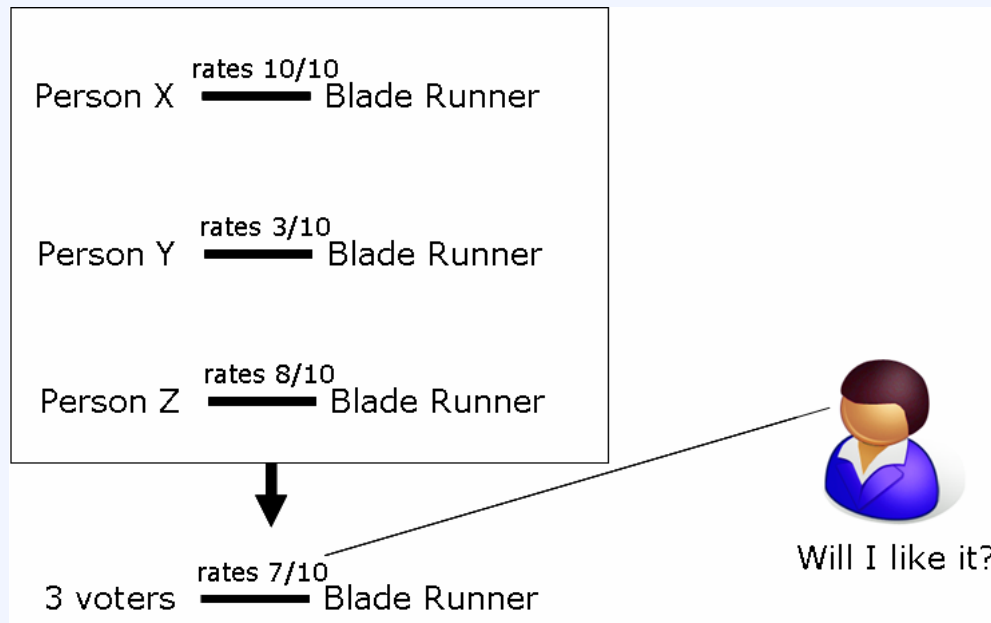


Collaborative Integration Tool (Bodemer, 2007)

- Dyadic learners individually drag and drop content elements into a diagram; tool makes conflicts visible
- → more discussion about conflicting issues



Aggregation of Relations



- Benefits
 - glimpse into group cognition („How does the group as a whole thinks about it?“)
 - social comparison („How do I compare to the group?“)



Aggregation in CACL tools

Not everything that is observable might be interesting; and not everything that is interesting might be observable

Focusing on observable interaction is desirable, however, it can never explain the whole story. Just as environmental variables are an inextricable context for individual thought, individual thought is an inextricable context of collective action. Par [More...](#)

Agreement: Relevance: Degree of Conflict:

Transferable learning

Individuals are parts of numerous small groups, and it would not be helpful to think that learning gained during an interaction with group A does not transfer to interaction with group B. To bridge thi [More...](#)

Agreement: Relevance: Degree of Conflict:

“Naive” assumptions about mental representations

The observation that individuals do not know for certain about internal mental states of others does not mean that they do not have assumptions about such states. For this reason an hermeneutic approach focusing o [More...](#)

Agreement: Relevance: Degree of Conflict:

Tools for group cognition

Support for group cognition requires more than just media for exchange of messages. That might suffice under a rationalist theory, but group cognition requires support for group interaction phenomena like referencing, sequentiality, indexicality, decision making [More...](#)

Agreement: Relevance: Degree of Conflict:

Agenda Generator (Buder, 2007)

- Group members individually formulate statements that are rated by others
- Tool sorts statements, computes new variables (e.g. variance of agreement ratings → degree of conflict)



Aggregation in CACL tools

VisualGroup Client

VisualGroup Select: Send:

Contribution Visualization

high ↑

Relevance

low Conflict high

Show already rated contributions (●) and to be rated ones (●)

Show my own contributions (●) and other person's ones (●)

Go: View:

Topic: Computer with AI (Artificial Intelligence) as a replacement of humans someday??
intelligence. One solution would be to have the PCs networked, where each pc act as a neuron and each network connection a pathway.

Your ratings ... Relevance: Agreement:

Contribution # 6

I agree that human intelligence is even more ingenious than what we usually think - you can try to start and think about it if you imagine what it takes just to - for example - make a cup of coffee. All the eye-hand coordination, knowing where the sugar is, knowing that the boiling water shouldn't go on your hands etc. However, I don't see how networking all the computers achieve a breakthrough in machine intelligence. It would bring together great computational power and resources, but can that be equated with intelligence?

Your ratings ... Relevance: Agreement:

Contribution # 7

We should distinguish here between two separate questions, which tend to get mixed up. The first question is: When will we succeed in creating a computer program that will be able to fool people into believing they

Augmented Group Awareness Tools (Buder & Bodemer, 2008)

- Group members mutually rate contributions from online controversies on two dimensions
- Tool visualizes group averages of contributions
- → positive impact on social influence processes



Prediction of Relations

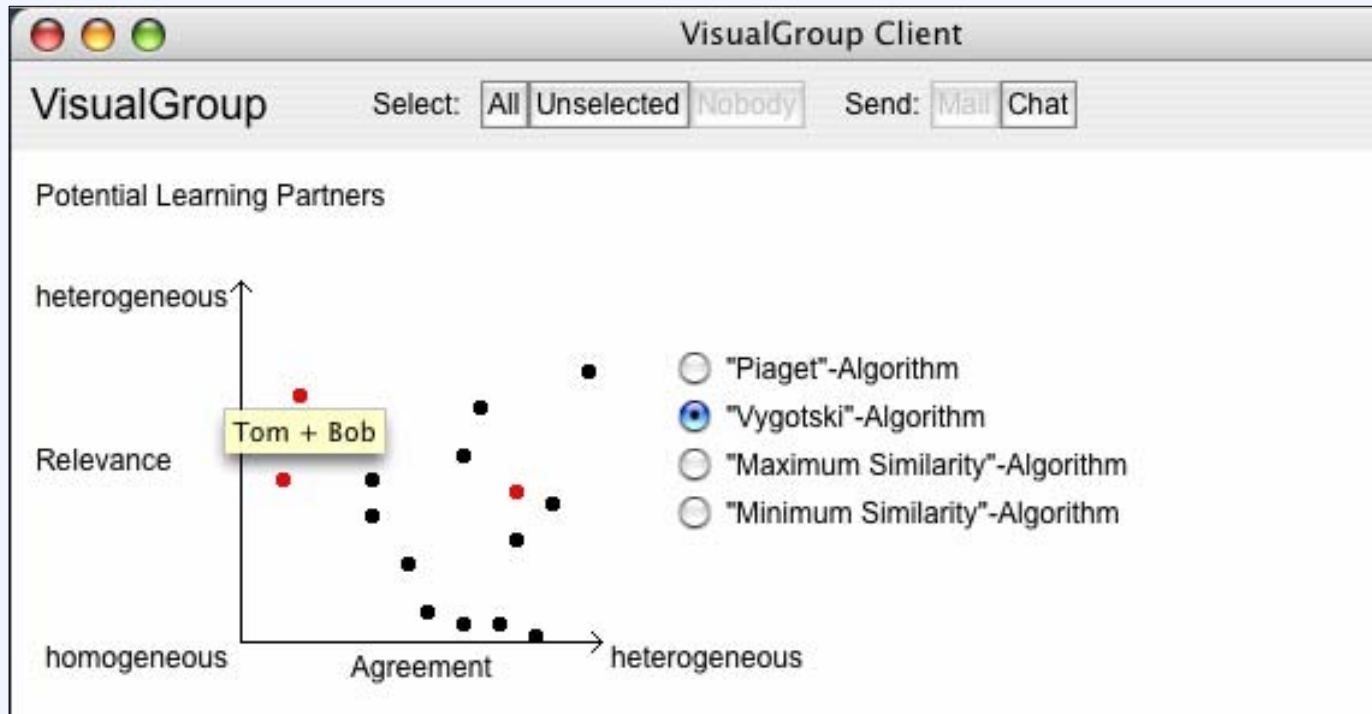
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George	9	9	10	9
Linda	8	10		7
Timothy	7		8	5
Rosalynn	2	3	8	6

Predicted value: 7

- Benefits
 - being informed about new person-object relations
 - lower information load through explicit recommendation



Prediction in CACL tools

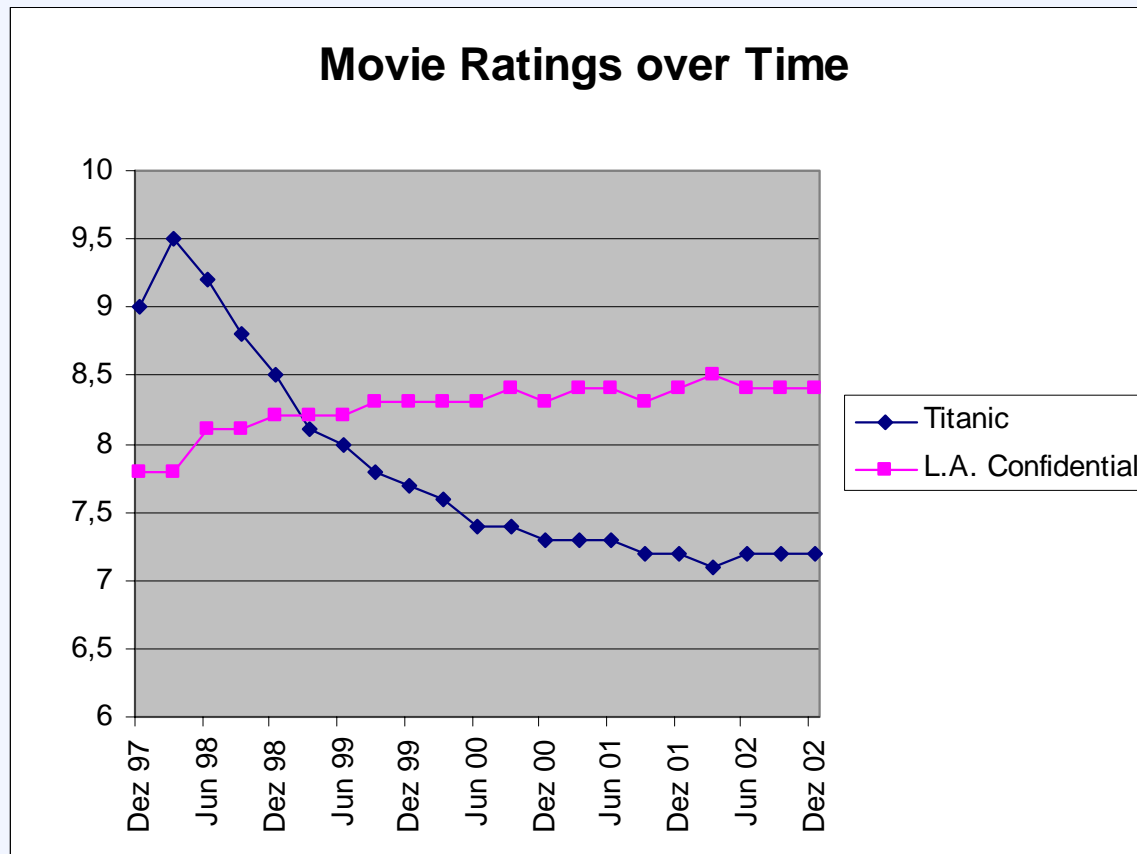


Matching of Learning Partners

- Dyadic learning partners are matched according to similarity or dissimilarity of rating patterns



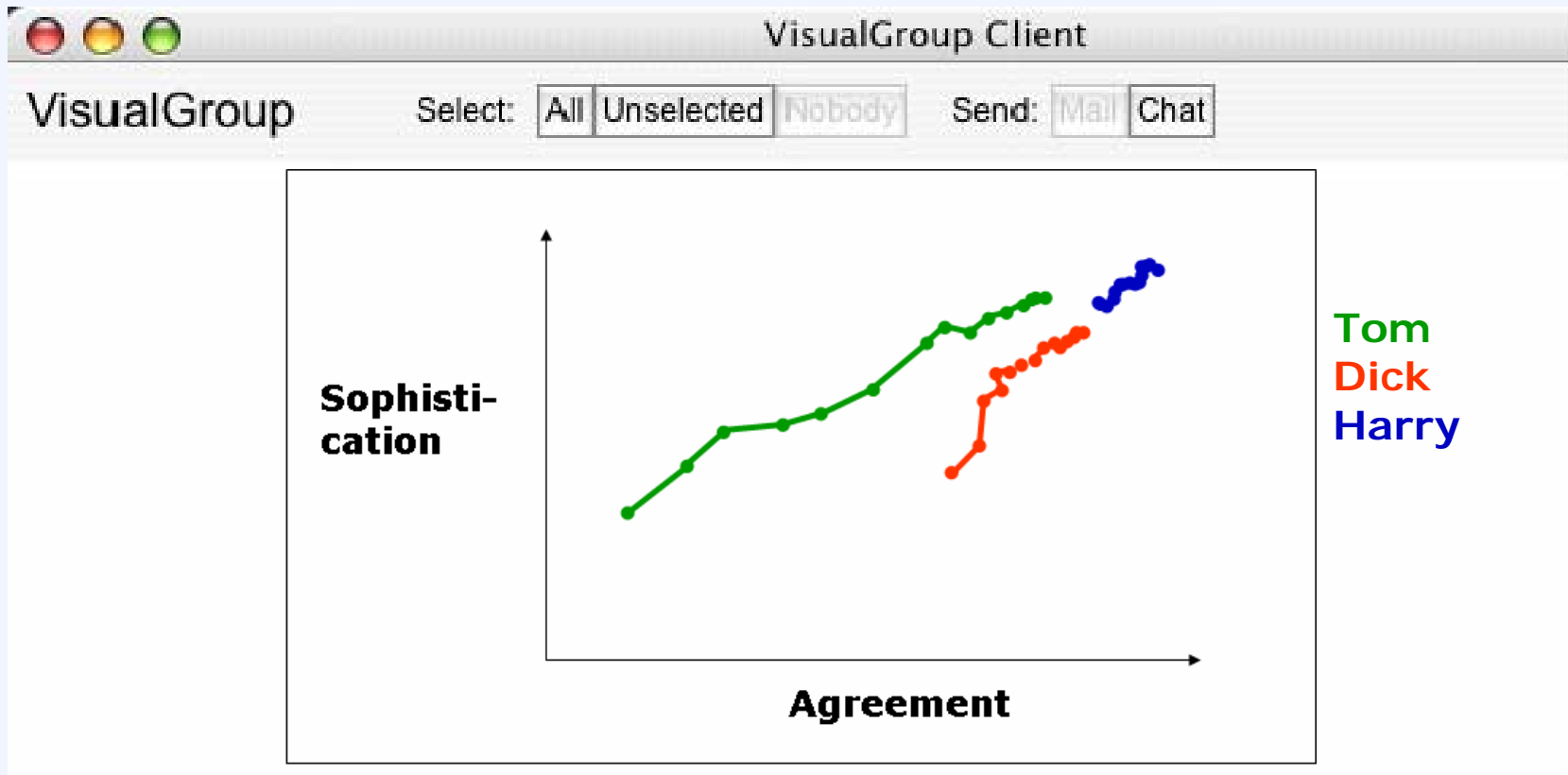
Historization of Relations



- Benefits
 - awareness of developmental features
 - reflection about mechanisms leading to change



Historization in CACL tools



Negotiation Spaces

- Tool plots recent ratings for recent discussion contributions
- → dynamic display of convergence



SCAN Learning Environment

- A complete SCAN Learning Environment would also include modules for non-collaborative activities
 - Rating of source material (e.g. texts)
 - Collective highlighting
 - Rating of presentation slides
 - Expertise mapping
 - Mutual assessment of student products (summaries, Wiki entries)



Personalization and Participation

- SCAN tools are personalized
 - adapted to the learners
 - situationally flexible
 - Person-object relations embody the principle of personalization
- SCAN tools offer new forms of participation („low-level participation“)
 - learners contribute to knowledge building
 - much lower threshold for participation
 - → higher turnout → better picture of „group cognition“
 - → better feedback for collaborators and teachers



Thank you.