

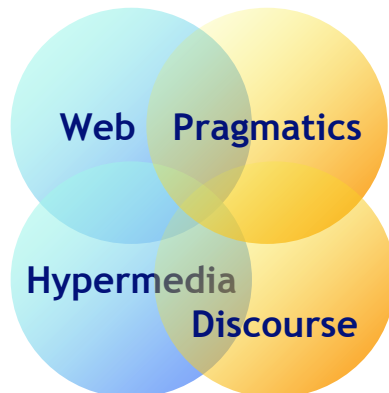


Hypermedia Discourse: Theory & Technology for the Pragmatic Web?

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2nd International Conference on the Pragmatic Web

Tilburg, The Netherlands (22-23 Oct. 2007)
www.PragmaticWeb.info

web pragmatics?

the Pragmatic Web?

pragmatic webs?

“THE PRAGMATIC WEB CONFERENCE is a unique forum to envision and debate how the emerging social, semantic, multimedia Web mediates the ways in which we construct shared meaning. While there is much research and development into topics relevant to this challenge such as collaboration, usability, knowledge representation, and social informatics, the Pragmatic Web conference provides common ground for dialogue at the nexus of these topics.”

CONTEXT

When contexts change, meanings change in conversations, documents, and models of the world. How does this shape our use for formal semantics on the Web?

CONVERSATION

This is how trust is built, and things get done. How do we do this fluently over the web?

**What is the interest
in the
“Pragmatic Web”?**

COMMITMENT / ACTION

How do we support the expression, and coordination, of commitments over the Web?

Pragmatic Web research challenges

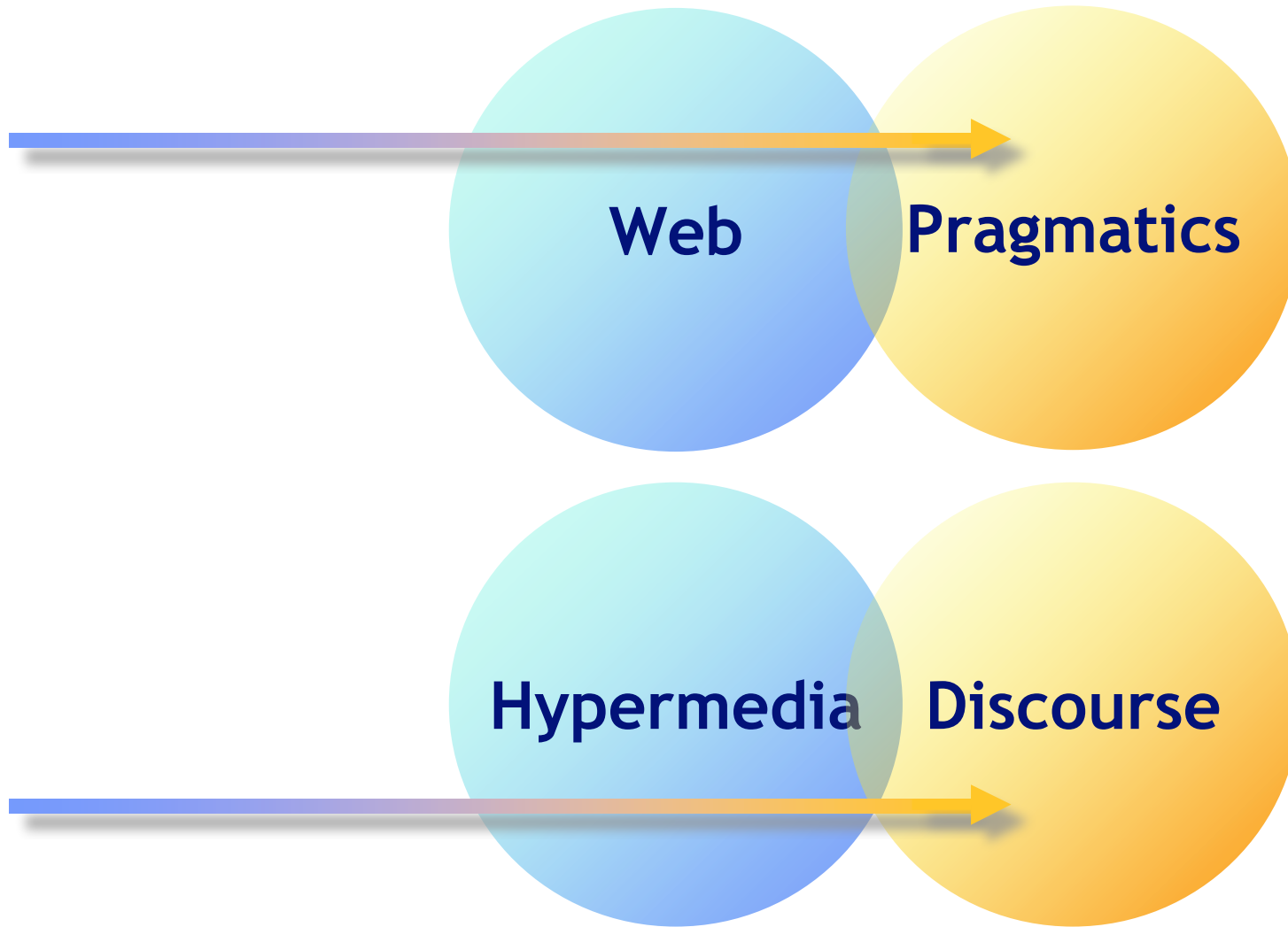
—from the ICPW'07 CfP: www.PragmaticWeb.info

- **How can we better understand the usefulness, and limitations, of a concept such as "Web Pragmatics"**
- **What pragmatic design principles improve websites where trust and commitment to action are central?**
- **What are the tradeoffs for users of more structured Web collaboration media? (e.g. in learnability, scalability, intelligibility)**
- **How can participatory work practices and collaboration tools be orchestrated in the design of the standards, data models and ontologies that underpin data-driven Web applications?**

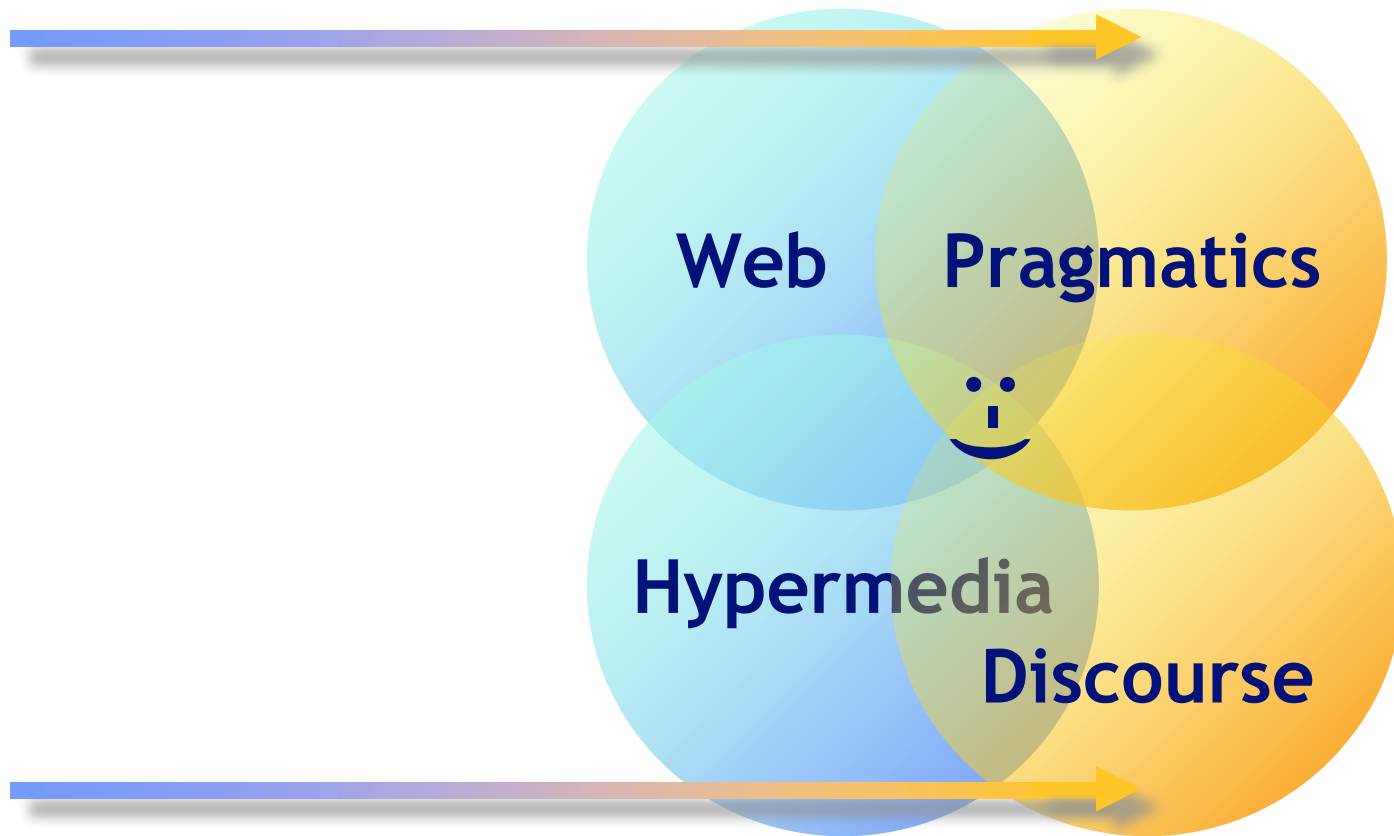
Pragmatic Web research challenges

- **What role does pragmatics play in the design of personalised information and personalised actions channelled through the Web?**
- **What impact (intended or unintended, productive or disruptive) do different levels of computational infrastructure have on Web pragmatics?**
- **How can we clarify our understandings of increasingly important concepts on the Web such as "social ties", "metadata", "knowledge representation", and "transaction"?**
- **If "context" is pivotal in making human interaction meaningful, how can we take context into account to improve Web applications?**

The essence of this talk:



The essence of this talk:



Modelling ~ Discourse

The discourse of modelling:

How can we support the discourse that drives the development and contextualisation of the models underpinning interactive systems?

Modelling discourse:

Can we usefully model (structure) sensemaking discourse, without in the process obstructing it?

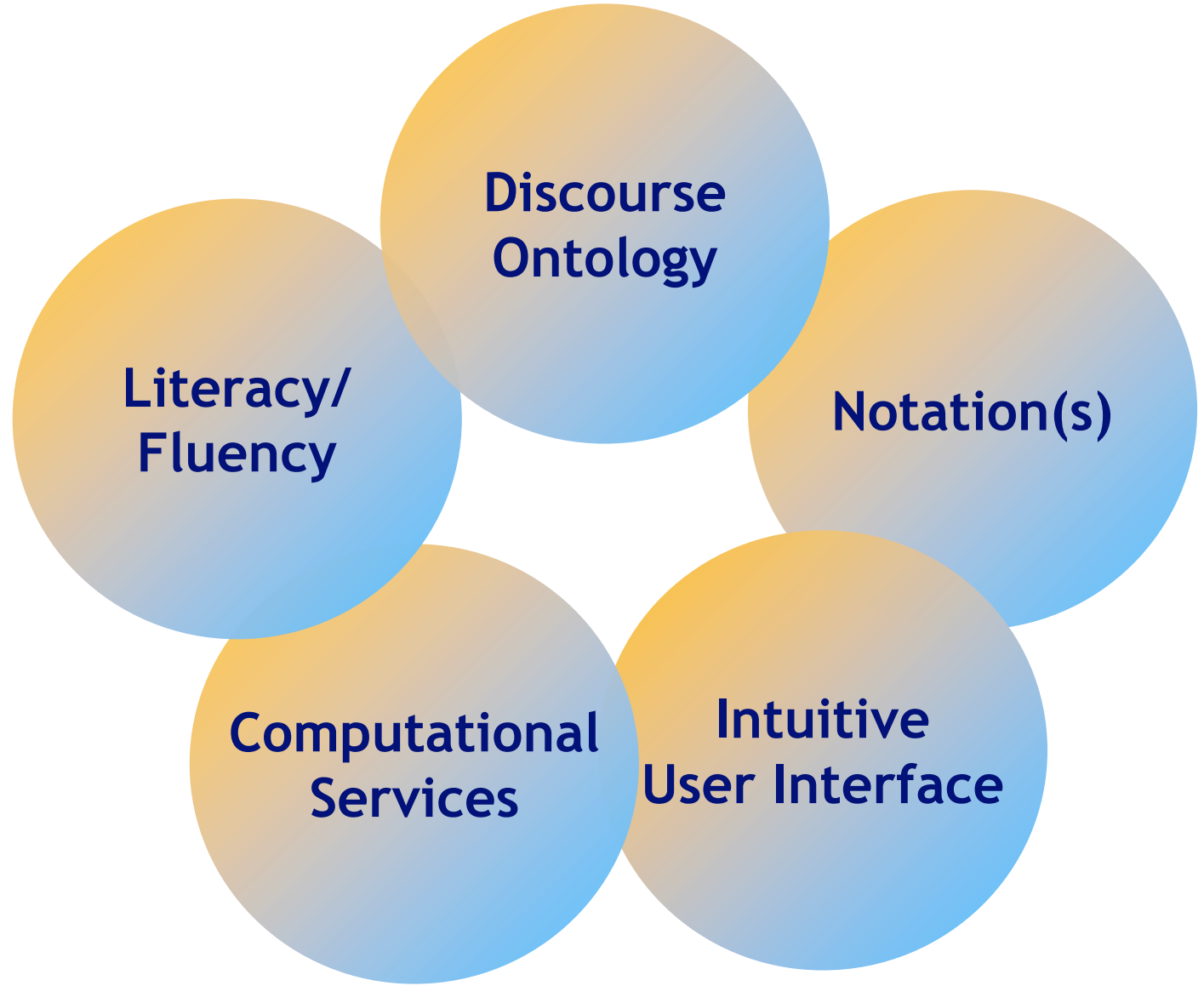
Discourse

- **Verbal and written workplace communication**
- **Discourse communities: “making and taking perspectives”**
- **Dialogue**
- **Argumentation**
- **Claim making**
- **Analytical narrative**
- **Meetings**

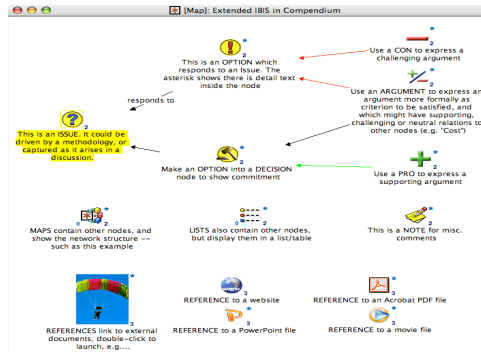
Hypermedia

- **Modelling *discourse relations***
- **Expressing *different perspectives* on a conceptual space**
- **Supporting the *incremental formalization* of ideas**
- **Rendering *structural visualizations***
- **Connecting *heterogeneous* content**

Characteristics of Hypermedia Discourse

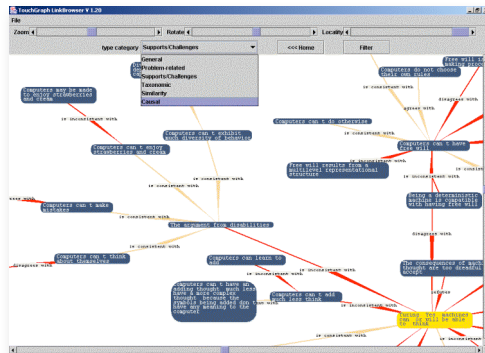


2 examples of Hypermedia Discourse approach and tool support



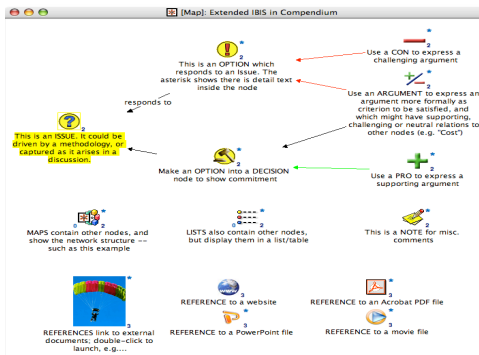
Compendium

- personal or group concept mapping
- real time meeting capture
- participatory modelling
- discourse as semantic hypertext



Scholarly Ontologies Project

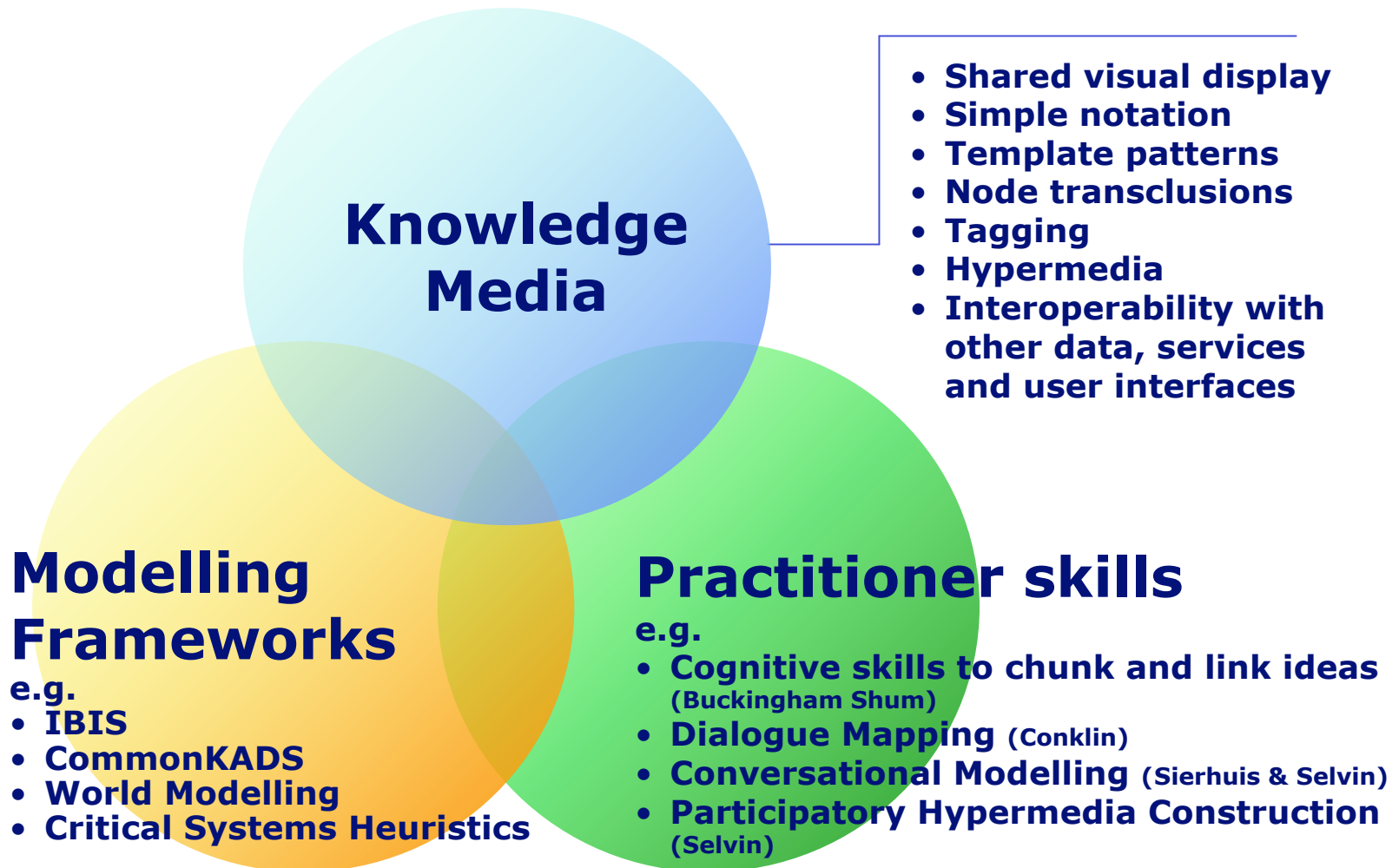
- Web publishing of scholarly claims and argumentation
- discourse as semantic hypertext



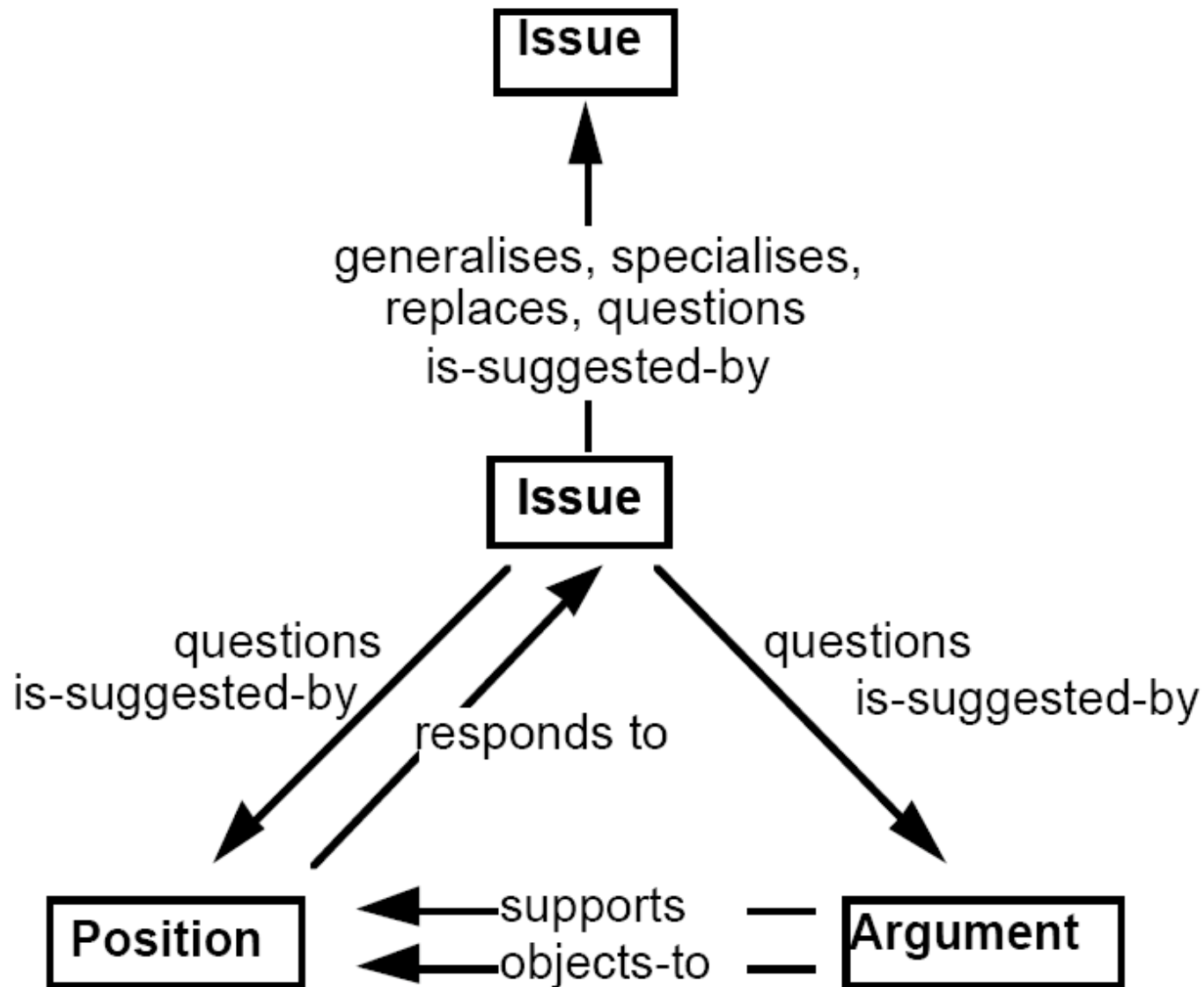
Compendium

- personal or group concept mapping
- real time meeting capture
- participatory modelling
- discourse as semantic hypertext

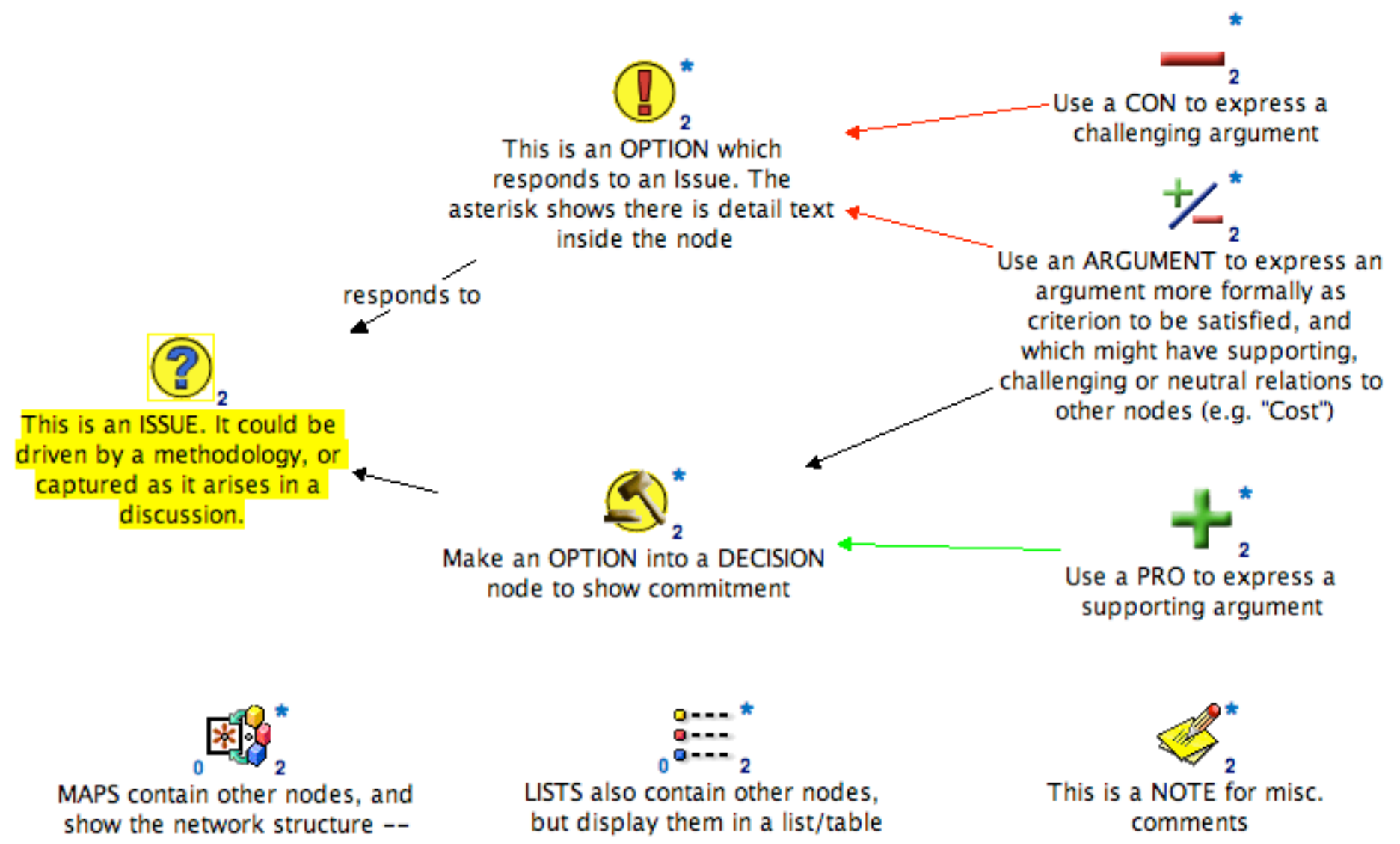
Key elements of Compendium



Discourse grounded in Horst Rittel's IBIS: Issue-Based Information System



Compendium: hypertext discourse mapping/conceptual modelling





MAPS contain other nodes, and show the network structure -- such as this example



LISTS also contain other nodes, but display them in a list/table



This is a NOTE for misc. comments



REFERENCES link to external documents; double-click to launch, e.g....



REFERENCE to a website



REFERENCE to a PowerPoint file



REFERENCE to an Acrobat PDF file

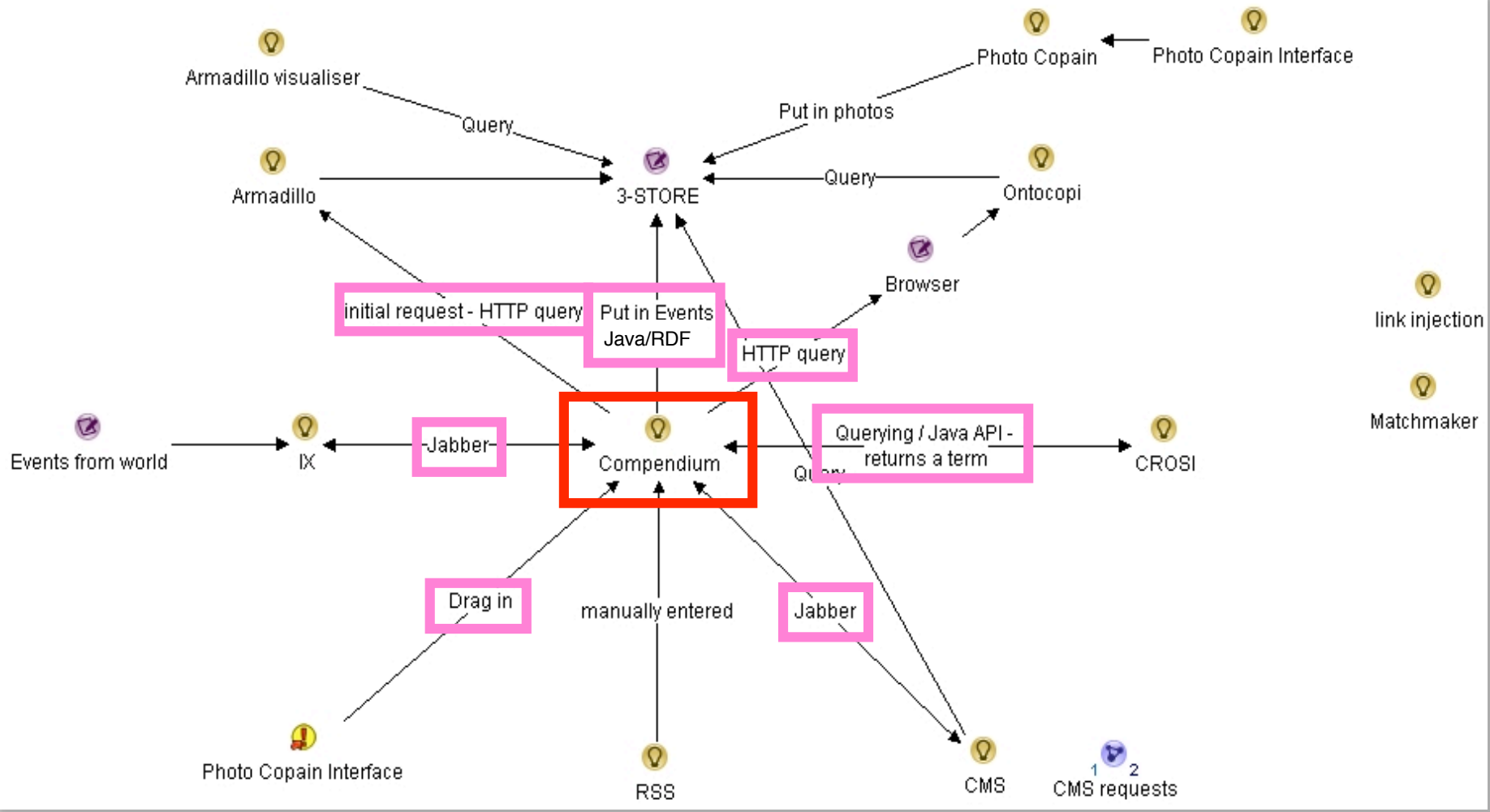


REFERENCE to a movie file

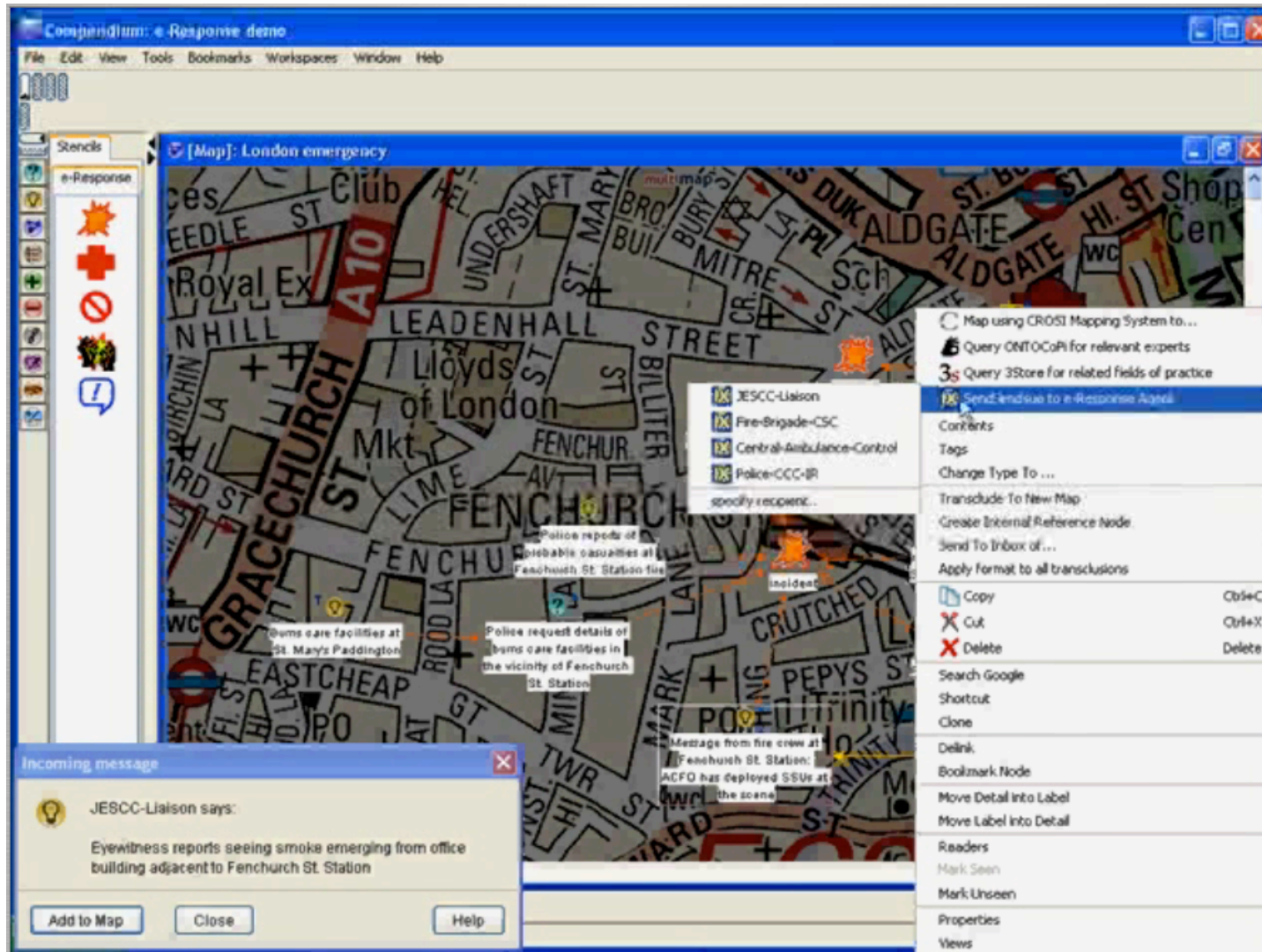
Structure management in Compendium

- **Associative linking**
nodes in a shared context connected by graphical Map links
- **Categorical membership**
nodes in different contexts connected by common attributes via metadata Tags
- **Hypertextual Transclusion**
reuse of the same node in different views
- **Templates**
reuse of the same structure in different views
- **HTML, XML and RDF data exports for interoperability**
- **Java and SQL interfaces to add services**

Compendium as the technical and intellectual 'glue'

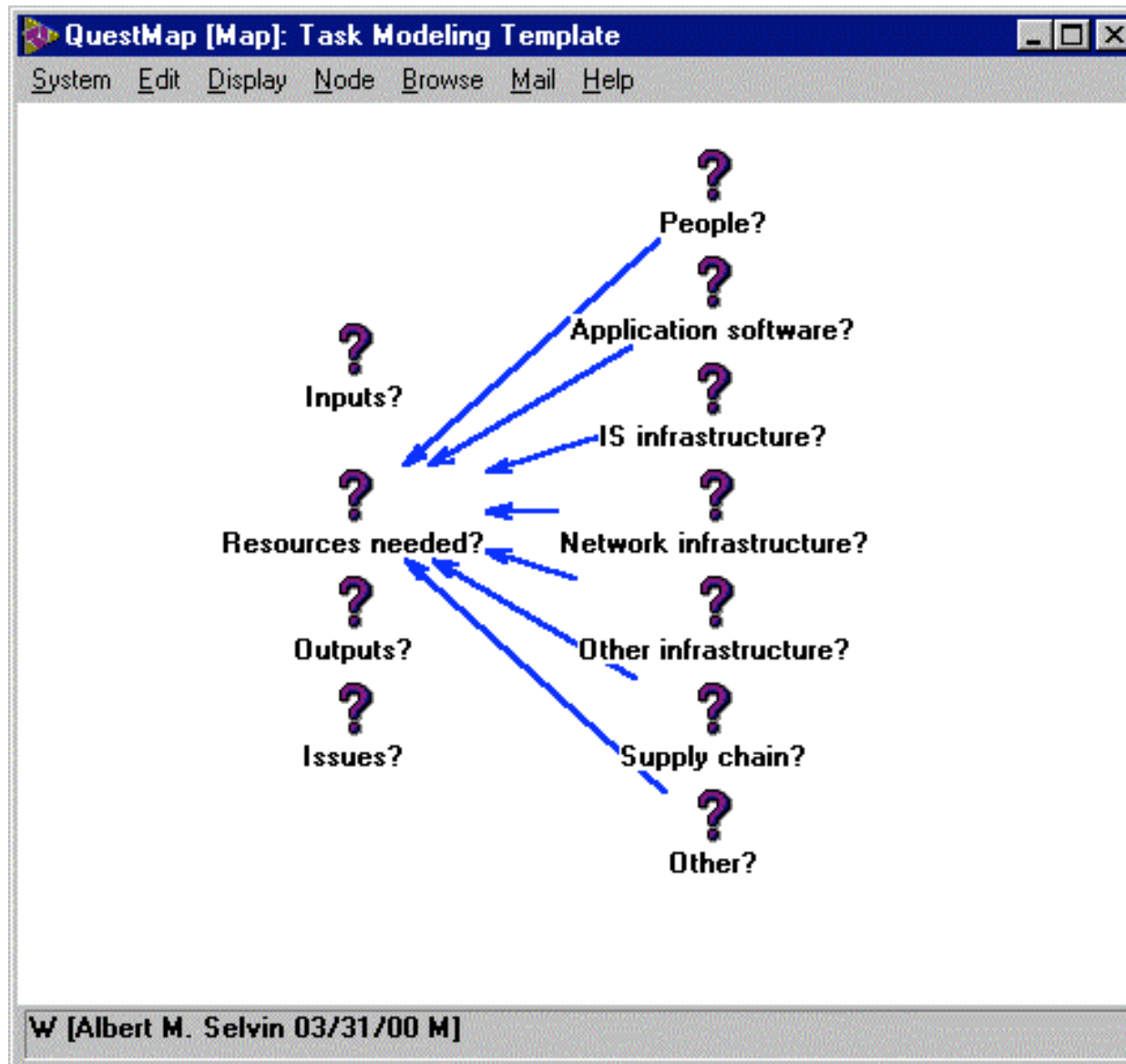


Compendium as sensemaking hub for emergency response semantic web tools

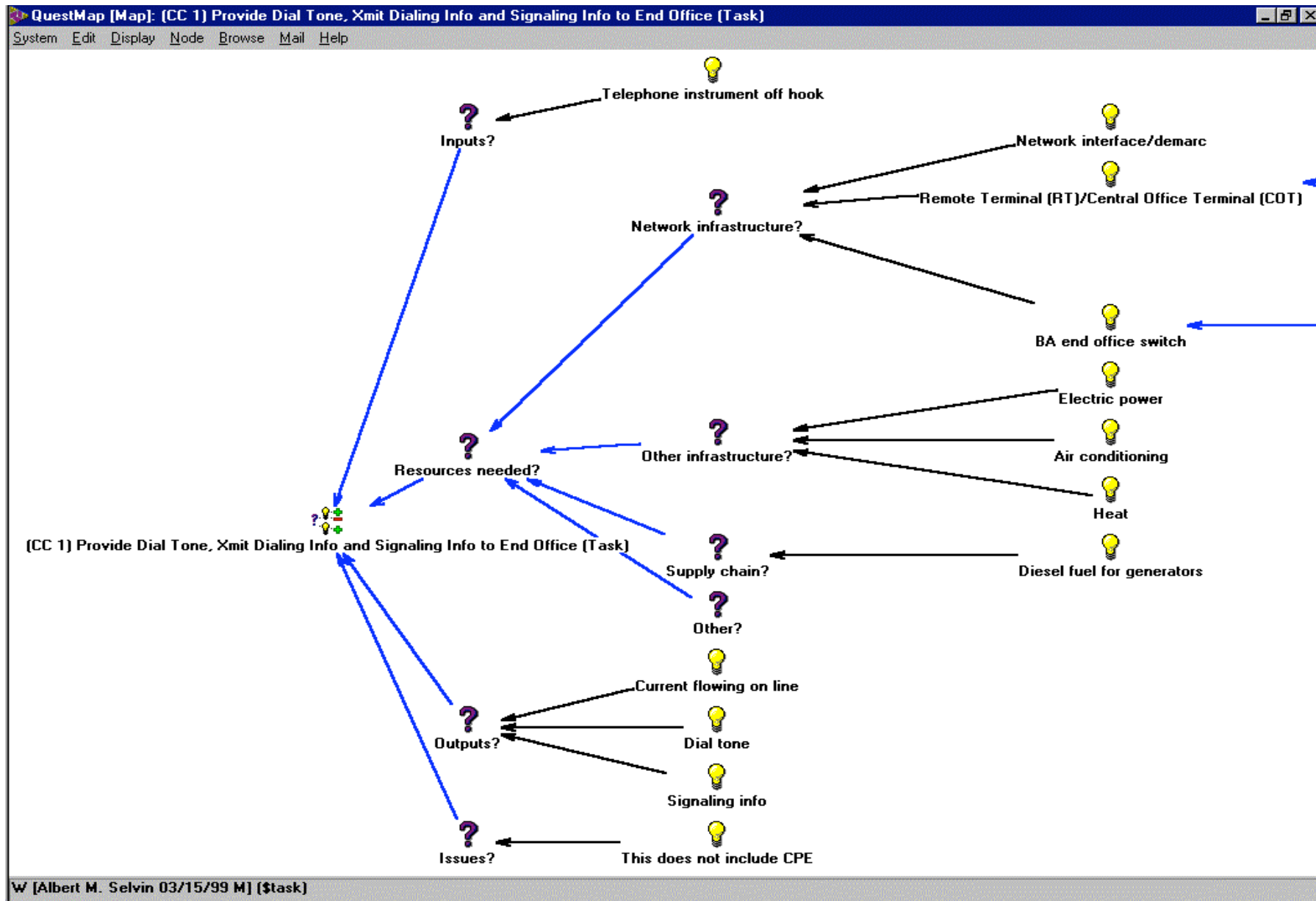


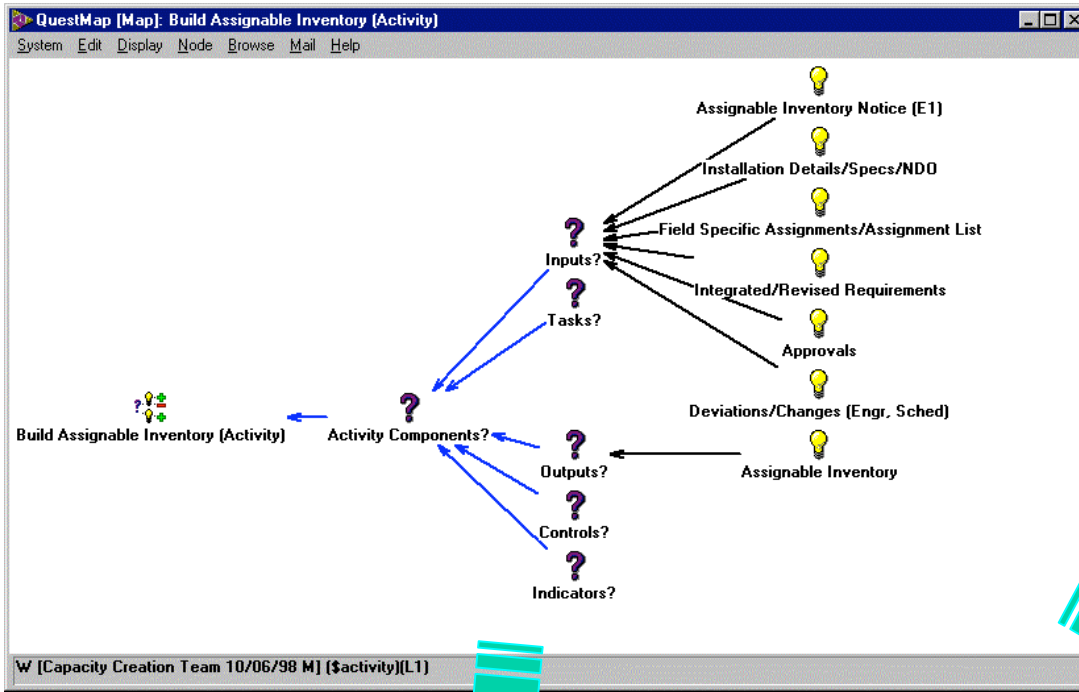
Modelling using Issue-templates

Modelling organisational processes in Compendium using a *Template*

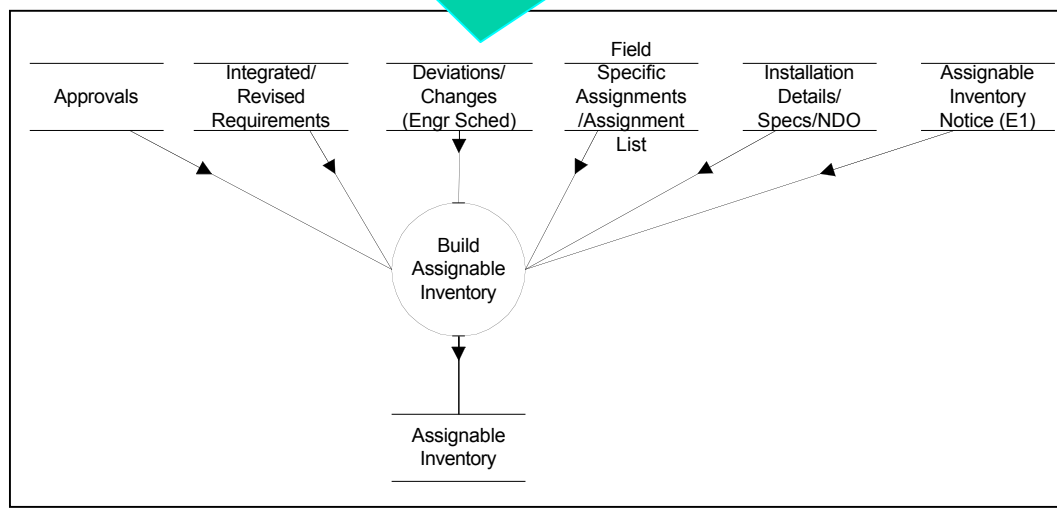
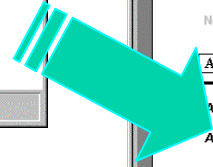


Completing a Compendium template





Generating Custom Documents and Diagrams from Compendium Templates



Microsoft Word - CCPFM0022299.doc

File Edit View Insert Format Tools Table Window Project Compendium Help

© Bell Atlantic

Network Engineering and Planning

Activity: Build Assignable Inventory

Activity Description: (L1)

Activity Components

Inputs	What is provided
	Assignable Inventory Notice (E1) Used to reconcile whether this gets generated in "John's" process or "Jack's" process.
	Installation Details/Specs Engineering vendor's detail engineered specification used by the installation vendor to install/remove equipment.
	Field Specific Assignments/Assignment List Equipment location and assignment termination data. Based on the configuration requested via the CCR and is specific to the equipment placed in the office. Terminations, shams, cable lengths, unusual conditions, DCS, power (train, heat dissipation, etc.). The assignment terminations and equipment locations determined for the ER. Also includes "in-assignments."
	Integrated Requirements Any requirements added to the CCR that weren't there originally associated with or related to the CCR. Revised Requirements or supplements to Requirements that may require pricing of supplements to Previous Pricing or authorizations
	CM Concurred CCR
	Deviations/Changes (Engr. Sched) Schedule, quality, equipment, building, frame, floor space, power. Deviations identified on the job. Unforeseen conditions at the job site or with the job that were identified after the job was engineered or before/after installation start (e.g., building or job-related conditions, customer initiated requests).
Outputs	What is received
	Assignable Inventory

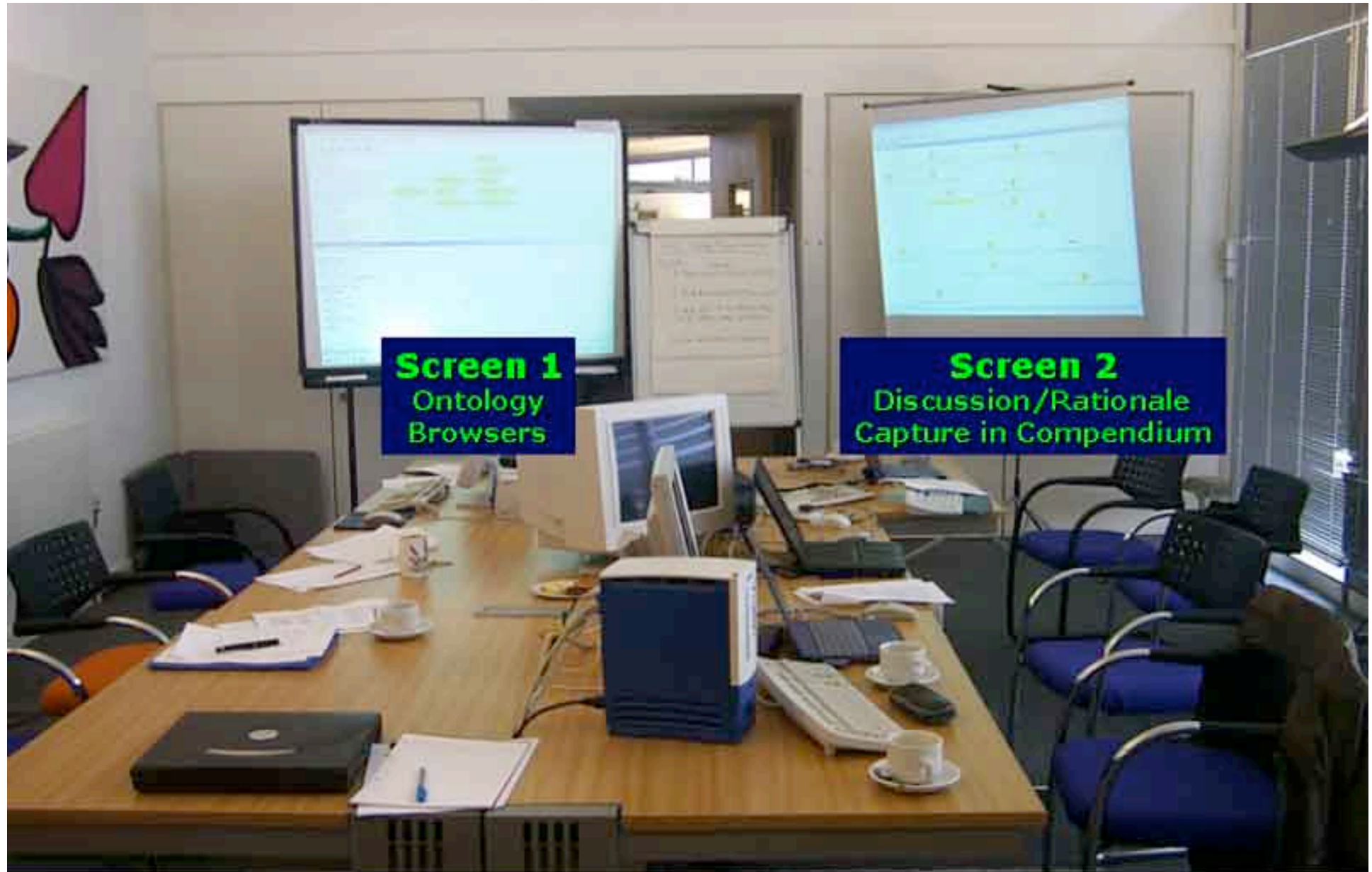
Last Updated: April 11, 1999 Page 67 Capacity Creation FMO

Page 67 Sec 1 67/107 At 5.4" Ln 16 Col 69 REC TRK EXT OVR WPH

Collaborative Ontology Design and Merging with Compendium

Buckingham Shum, S., Motta, E. and Domingue, J. (2002). Augmenting Design Deliberation with Compendium: The Case of Collaborative Ontology Design. in *Workshop on Facilitating Hypertext-Augmented Collaborative Modelling, ACM Hypertext Conference*. [PrePrint: <http://cognexus.org/ht02>].

Setup for collaborative ontology design and rationale capture




Screen 1
Ontology
Browsers

Screen 2
Discussion/Rationale
Capture in Compendium

Result of initial requirements discussion

 27 2
AKTive Portal - KMi 23.11.01 -
internal discussion


Example queries/inferences to
support?

what technologies has this group developed?



what methods are relevant to K-Capture?



what are this group's latest publications?



what methods were presented at this event?



What knowledge assets do Soton have?

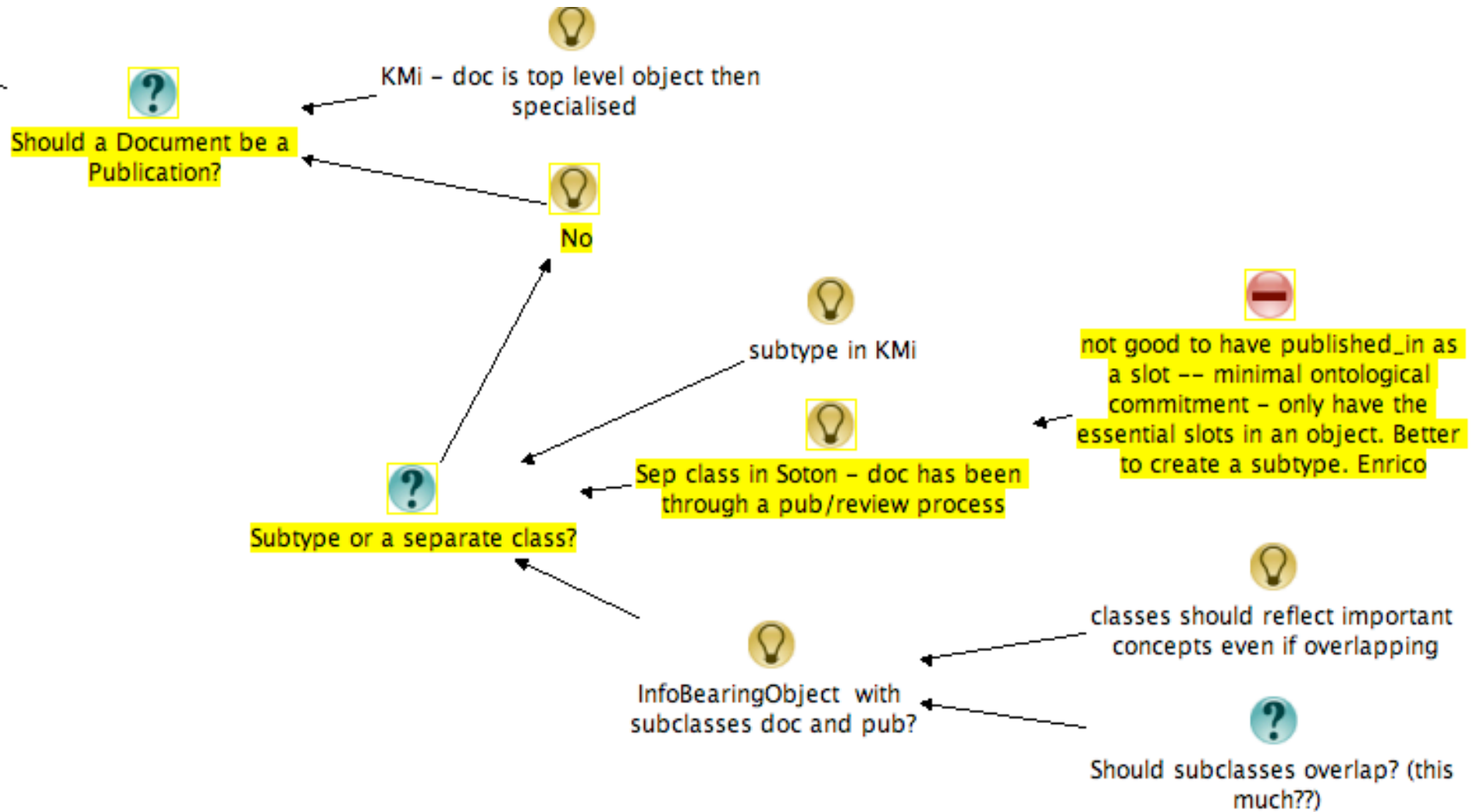


who works on K-Maintenance?

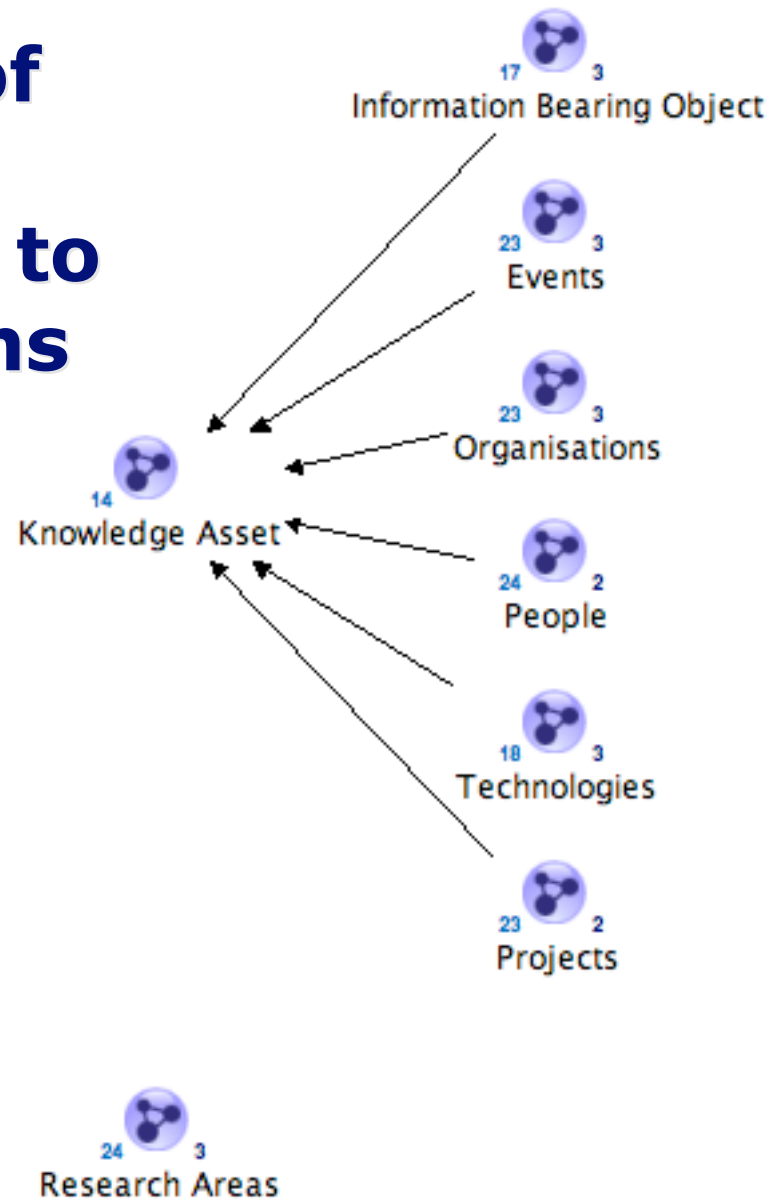


Show me knowledge assets in this research area

Dialogue Mapping informal discussion



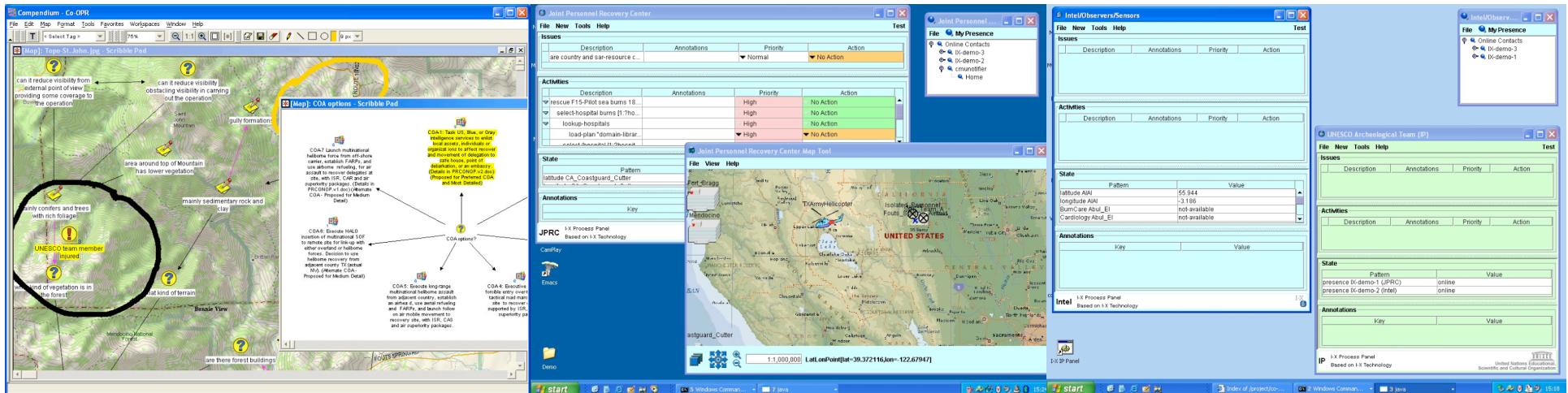
'Home window' of the emerging ontology, linking to design discussions



Using Compendium for personnel recovery planning

Co-OPR Project (with Austin Tate):
<http://www.aiai.ed.ac.uk/project/co-opr>

Co-OPR – Sample Screens

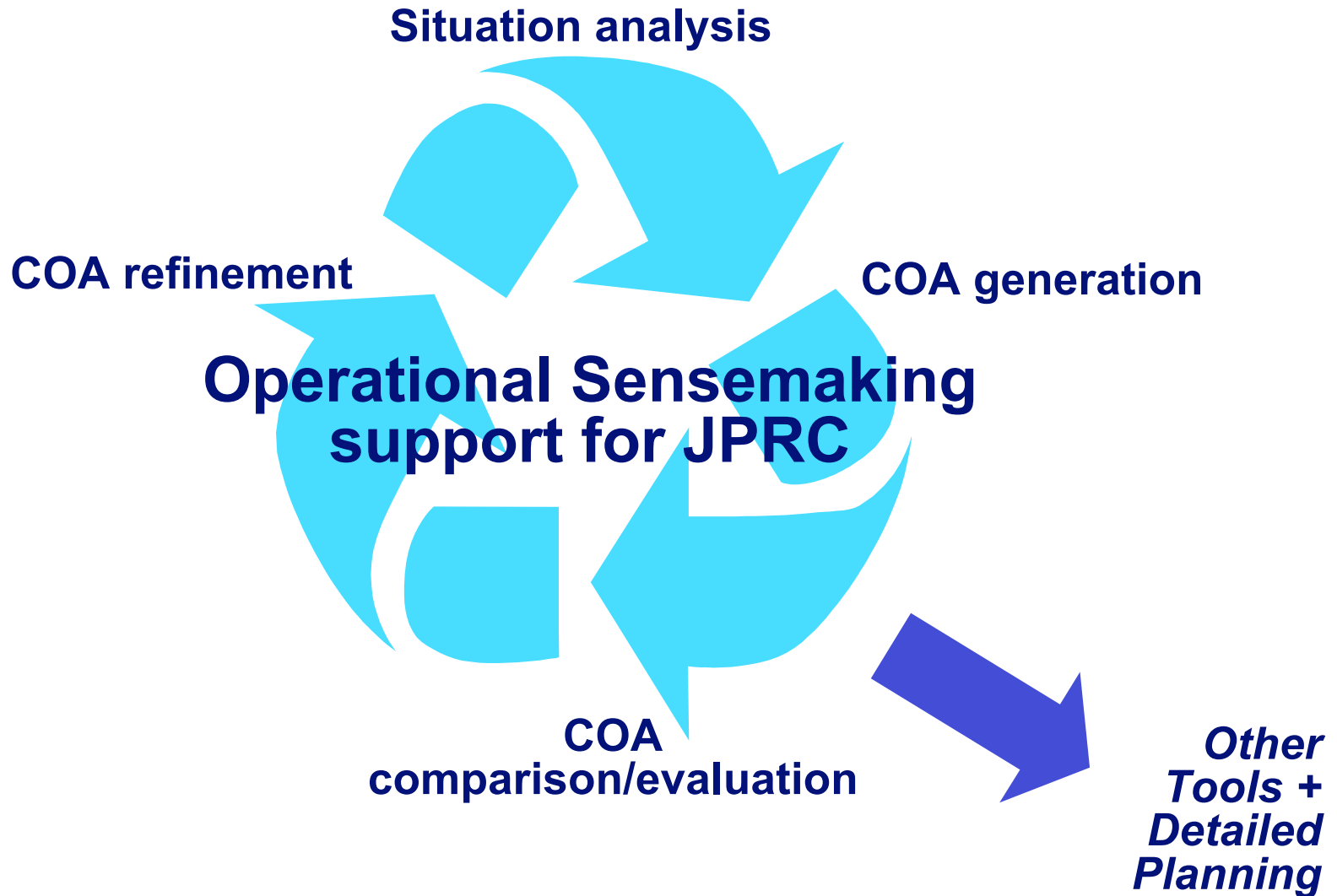


Left screen: Compendium intelligence database and discussion/rationale capture.

Middle screen: I-X Process Panels showing current state of plan execution and situational awareness map

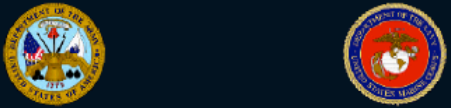
Right screen: I-X Process Panels communicating with the external world, e.g. Isolated Personnel

Co-OPR: Operational Sensemaking




Co-OPR Scenario Information

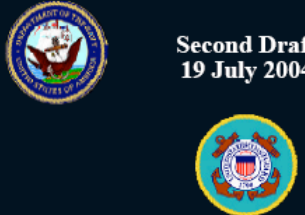
Joint Publication 3-50



Joint Doctrine
for
Personnel Recovery



Second Draft
19 July 2004



KEYNOTE
SPEAKER


LtGen. Zinni's Twenty Lessons Learned
for Humanitarian Assistance and
Peace Operations

Drawing on his experience in complex humanitarian emergencies, Lieutenant General Anthony Zinni took practice to the level of policy by outlining twenty lessons learned. Although these lessons are universal, they are not abstract. Indeed, General Zinni illustrated each with concrete examples drawn from operations in which he has participated. These lessons resonated throughout the conference, as evidenced by the fact that participants in each session, humanitarians as well as military officers, referred to General Zinni's speech—a testament to the respect General Zinni has earned in both communities and of the truth: these lessons hold for both.

General Zinni prefaced his remarks with a pair of caveats concerning humanitarian operations:

- Each operation is unique. We must be careful what lessons we draw from a single experience. In Somalia, for example, the UN and Washington were tempted to apply "the model of forced disarmament" of the population. What worked, said Zinni, was a voluntary approach coupled with increasing regulations on weapons.

17



NAVAL
POSTGRADUATE
SCHOOL

MONTEREY, CALIFORNIA

THESIS

PERSONNEL RECOVERY OPERATIONS FOR SPECIAL OPERATIONS FORCES IN URBAN ENVIRONMENTS: MODELING SUCCESSFUL OVERT AND CLANDESTINE METHODS OF RECOVERY

by
Marshall V. Ecklund
and
Michael A. McNerney


June 2004

Thesis Advisor: David Tucker
Second Reader: Hy Rothstein

Approved for public release; distribution is unlimited

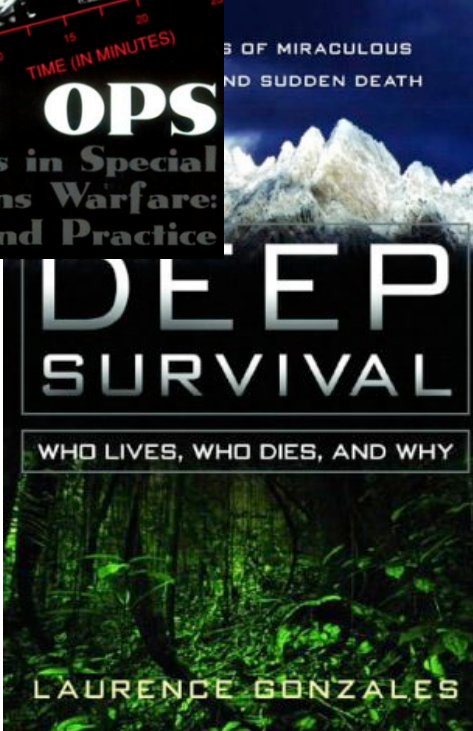
"Distinguished by clear, smooth prose, extensive detail, and great insight, this work is a significant addition to the study of 20th-century military history. This is an informative, engrossing, and unique history."
—Union News Sunday Republic

William H. McRaven



SPEC OPS
Case Studies in Special
Operations Warfare:
Theory and Practice

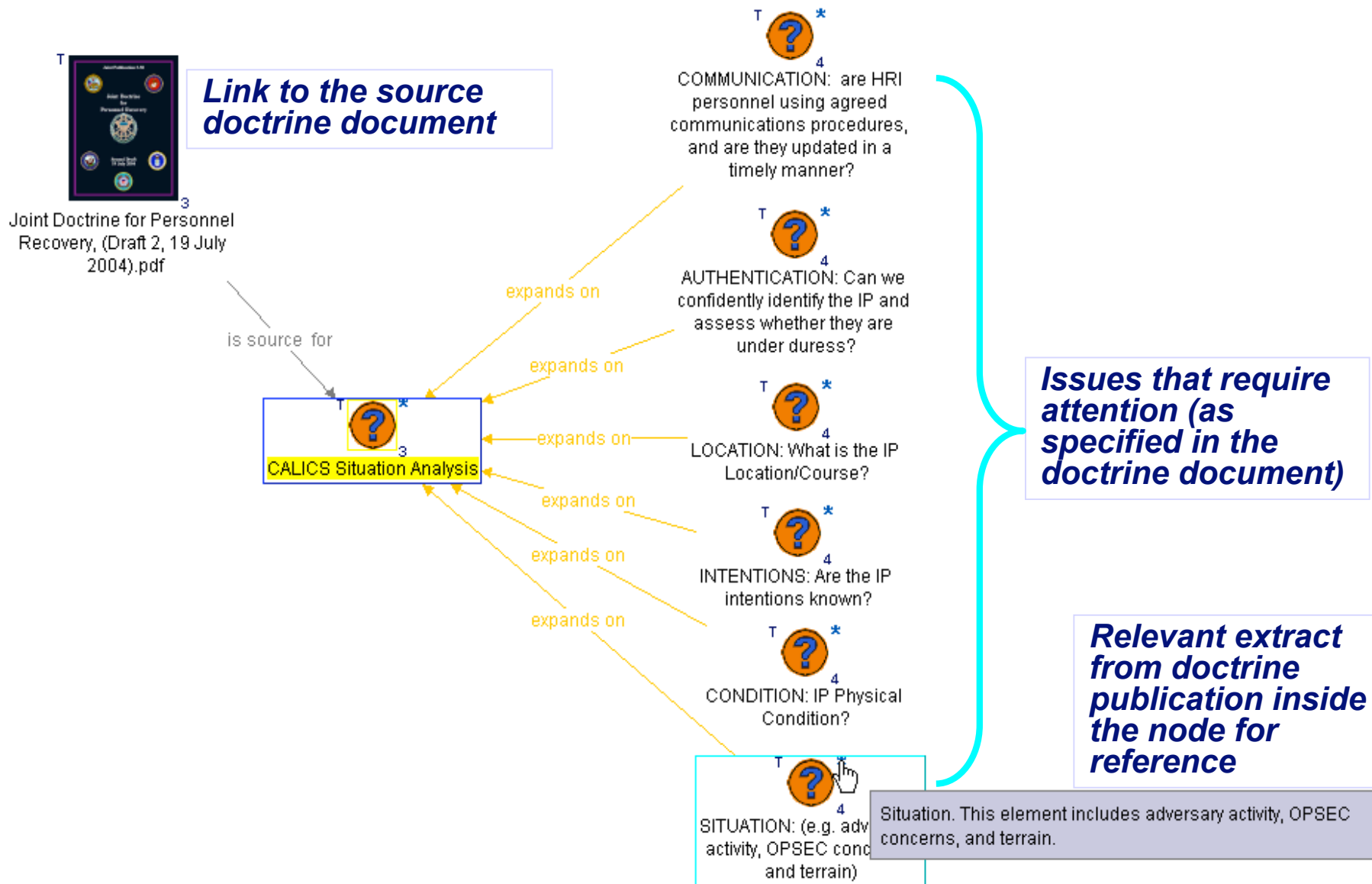
OF MIRACULOUS
AND SUDDEN DEATH



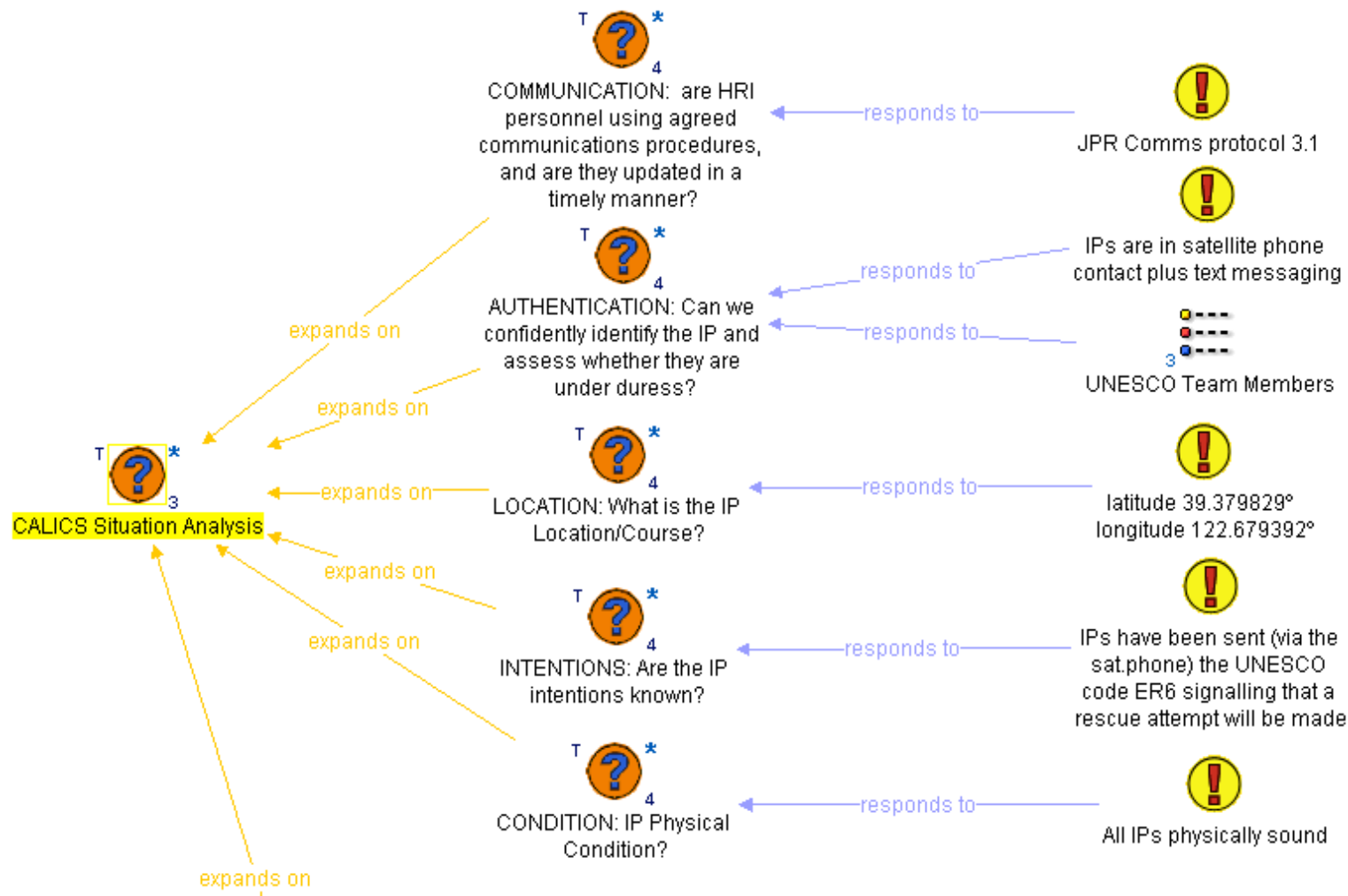
DEEP SURVIVAL
WHO LIVES, WHO DIES, AND WHY

LAURENCE GONZALES

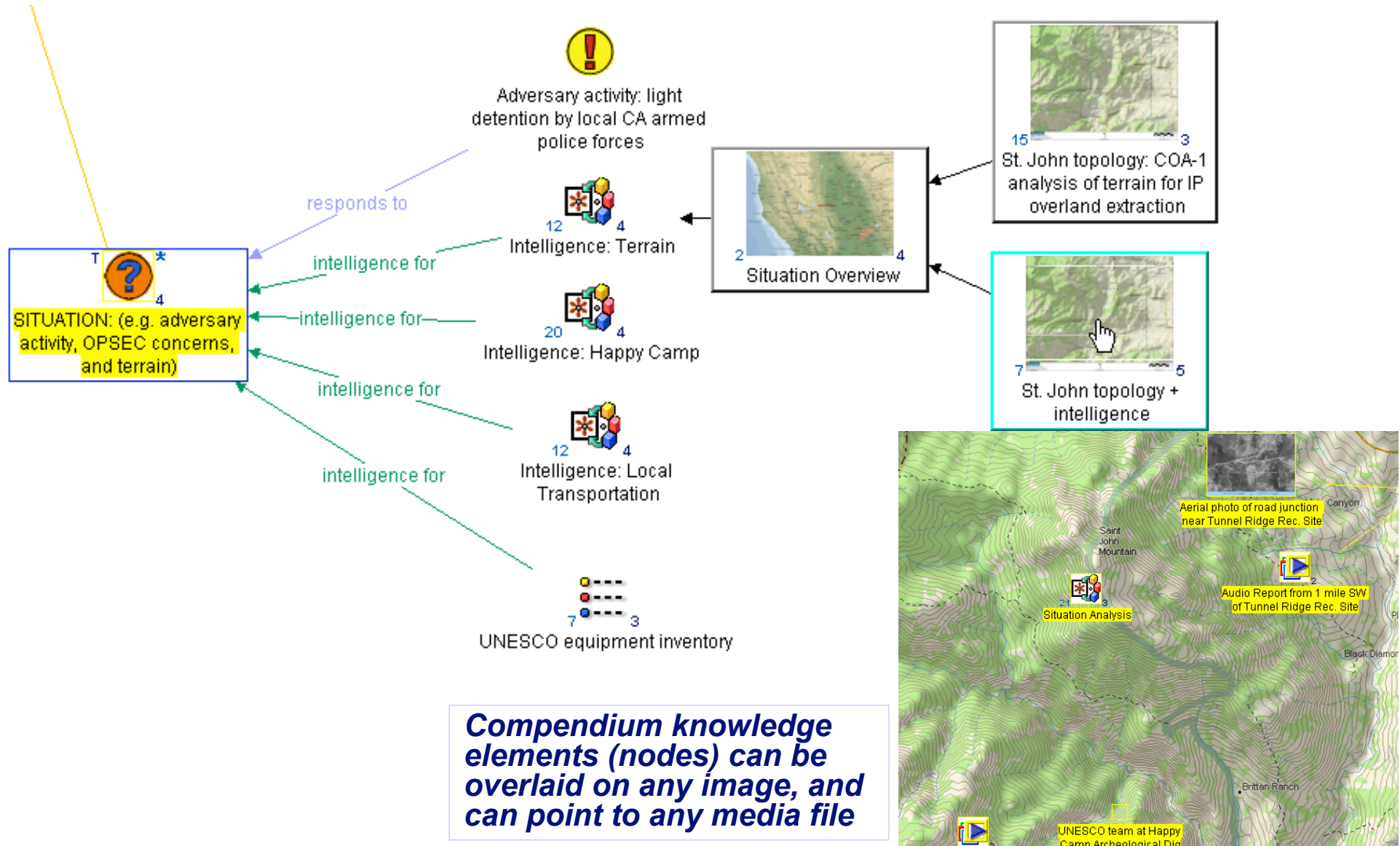
PR Doctrine for Situation Analysis extracted as an Issue Template



Completed Issue Template (1/2)

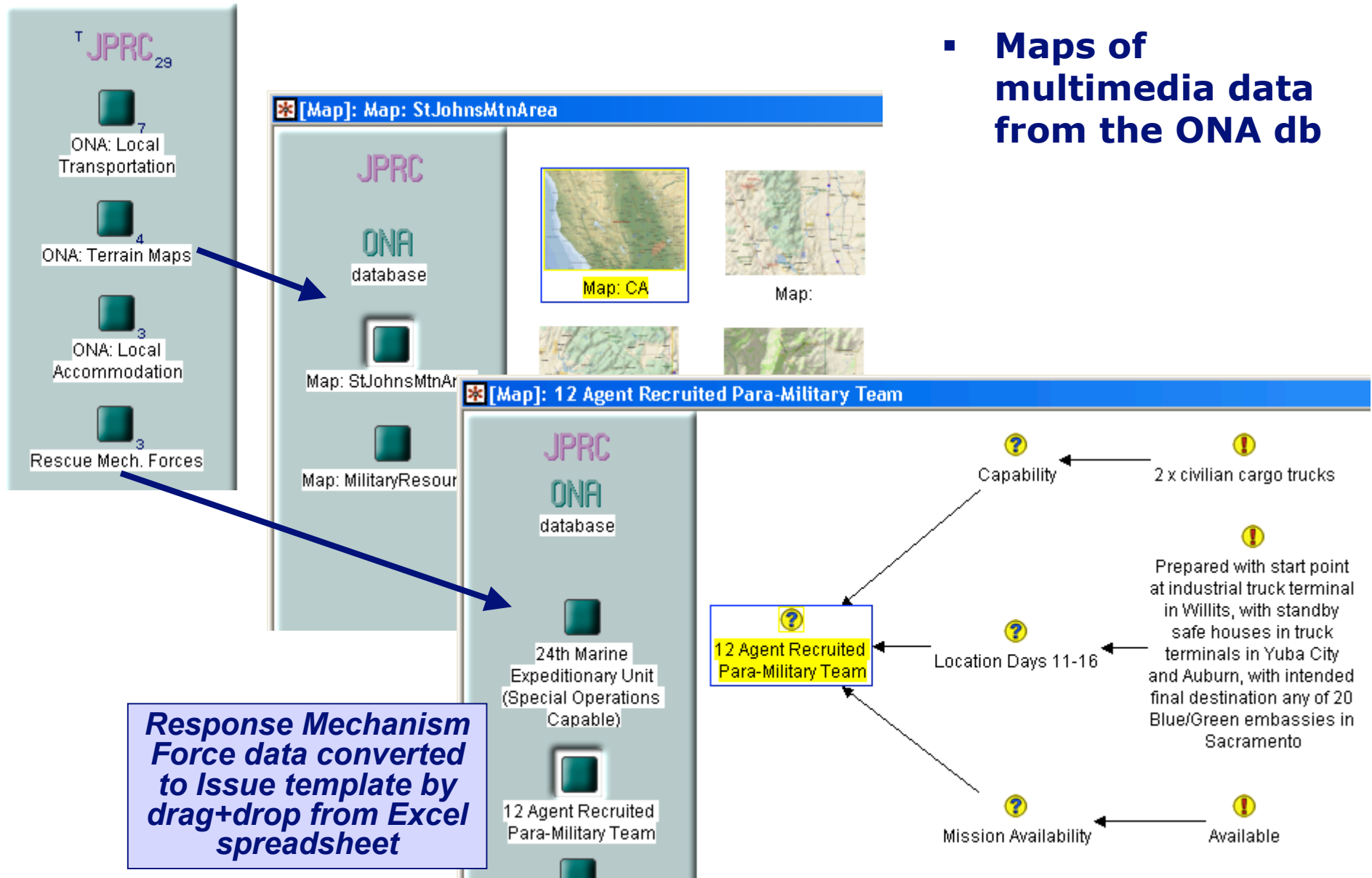


Completed Issue Template (2/2)

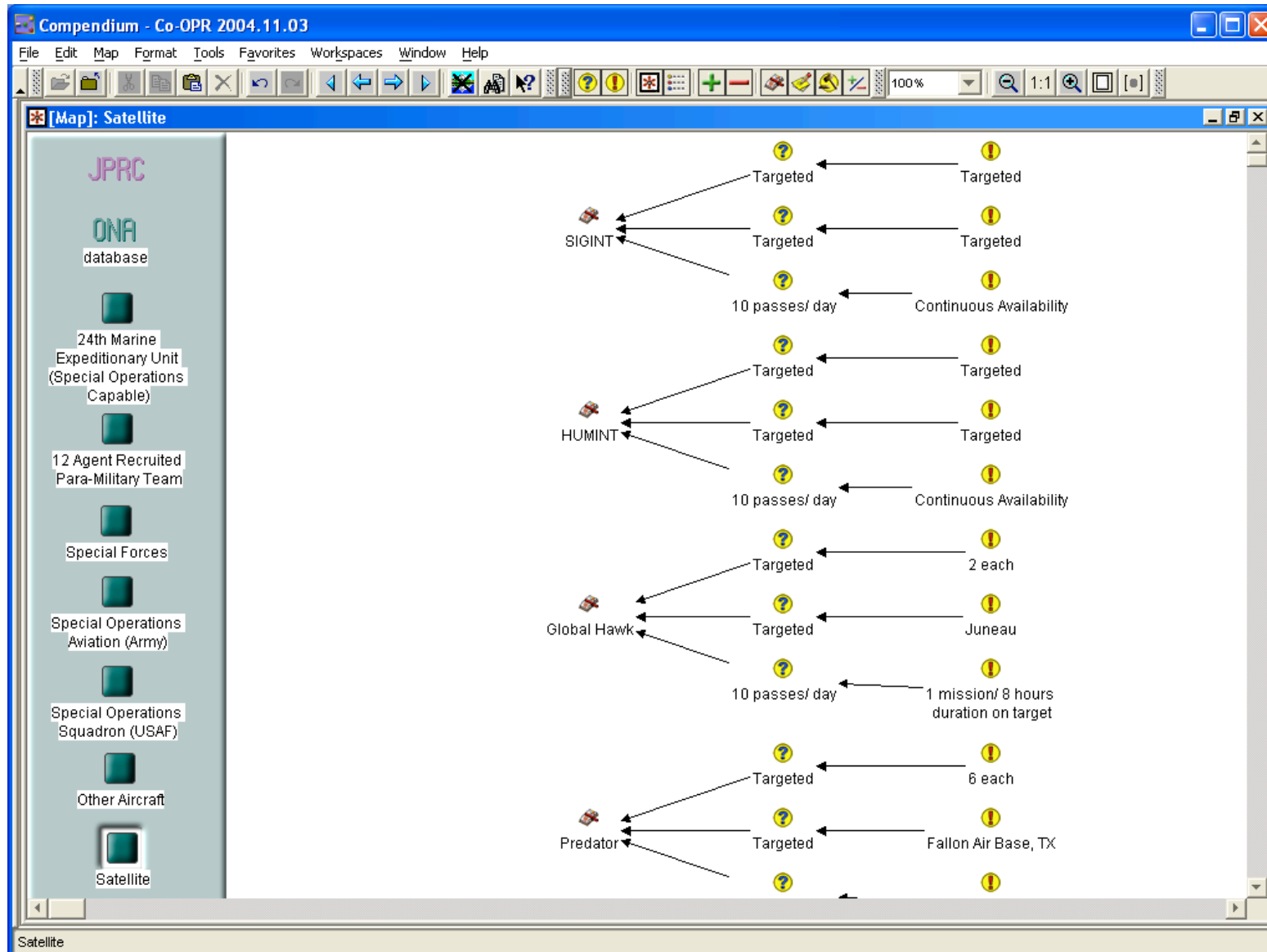


Example ONA database maps

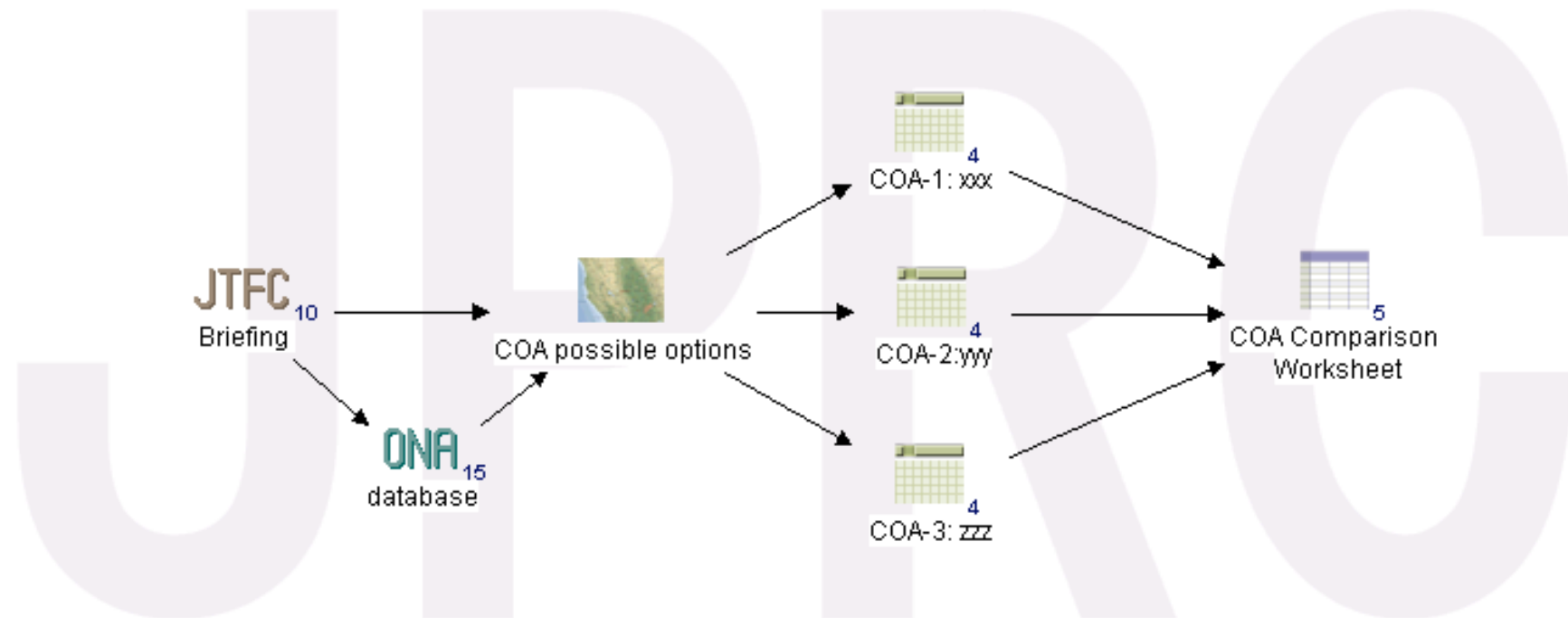
- Maps of multimedia data from the ONA db



Imported database on Blue Forces



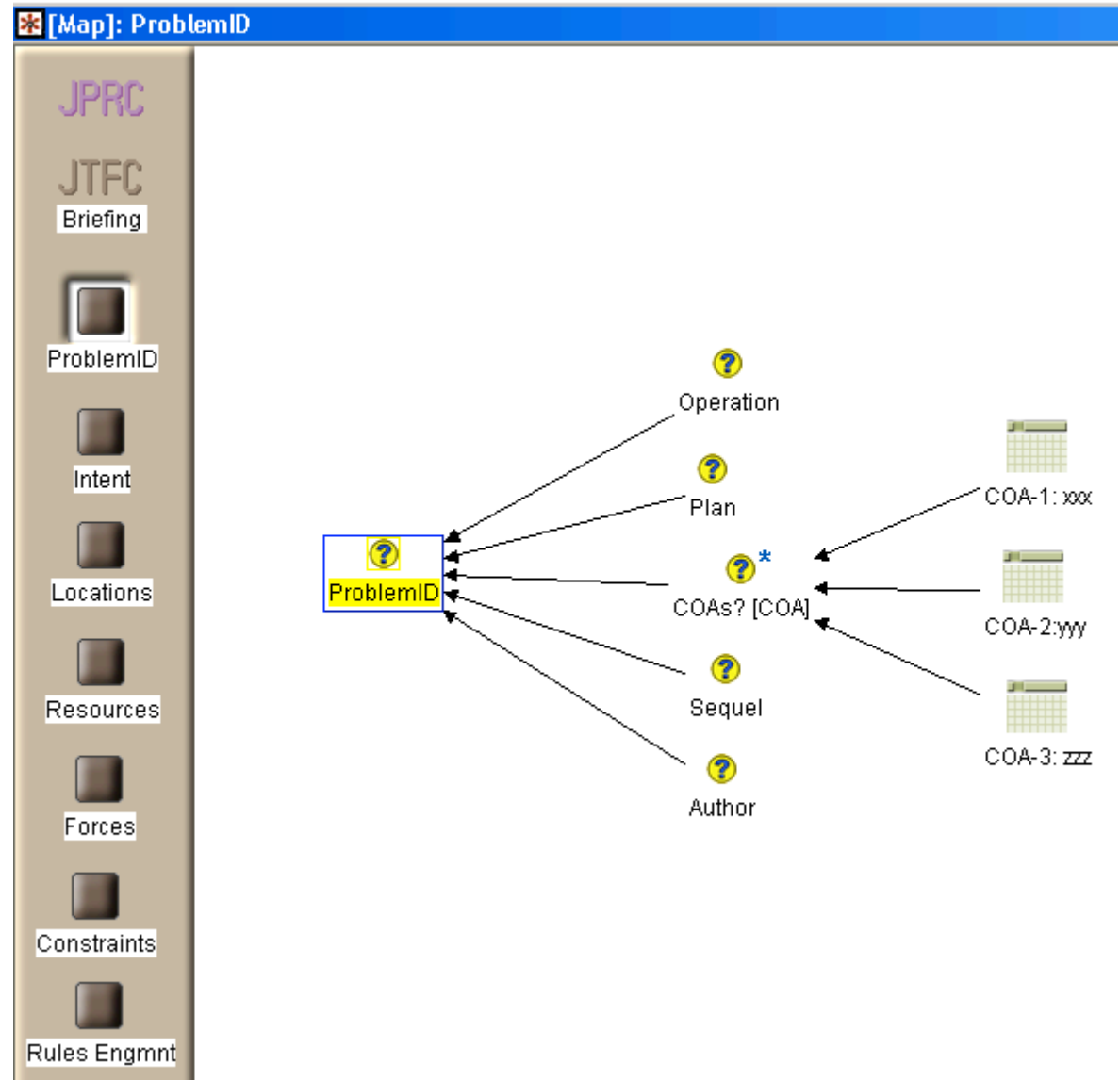
JPRC Compendium Homepage



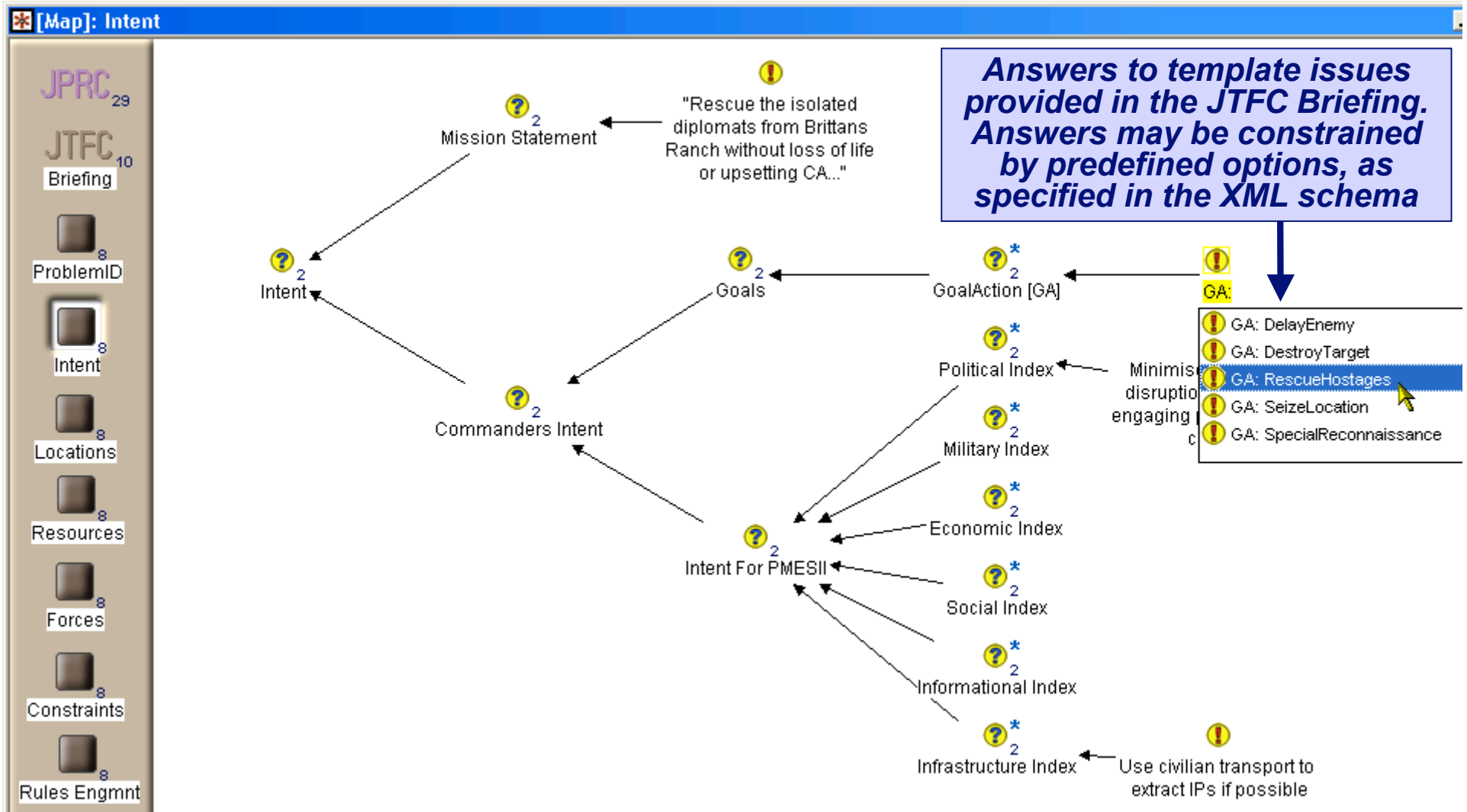
- **Sensemaking workflow: Links start from JTFC Briefing, to use of ONA database, to initial COA exploration, to worksheet analysis, to a COA Comparison worksheet for final briefing back to JTFC**

Issue Templates for JTFC Briefing

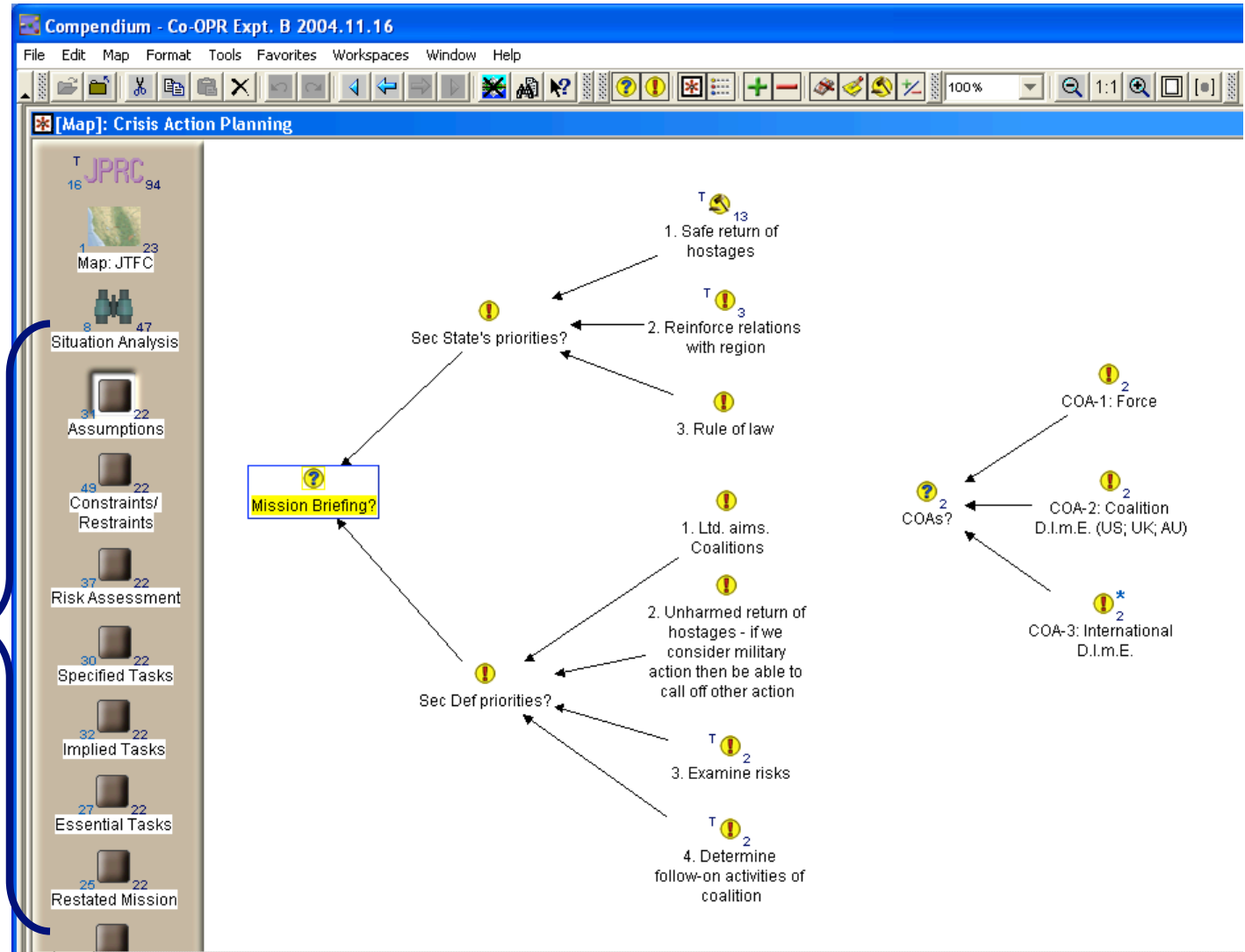
- The JTFC's Briefing is captured in a set of issue templates
- For each category (menu item on left) there are a number of issues awaiting answers



JTFC Briefing: *Intent* template



Crisis Action Planning template built in an hour



Following distribution of the Crisis Action Planning process which was to be followed, a CAP template was created at short notice to support the process

COA Wargame Analysis Worksheet

Links to the Situation Analysis and COA Comparison worksheet

Key Issues from PR Doctrine are listed here

COA Comparison Worksheet

PMESII effects? 4

IP capacity to perform? 5

RM Relative Superiority? 5

Minimise CA political disruption, esp. by not engaging police forces in combat

Use civilian transport to extract IPs if possible

JTFC Constraint: 4

JTFC Constraint: 4

Constraints raised by the JTFC are 'docked' here as visual reminders

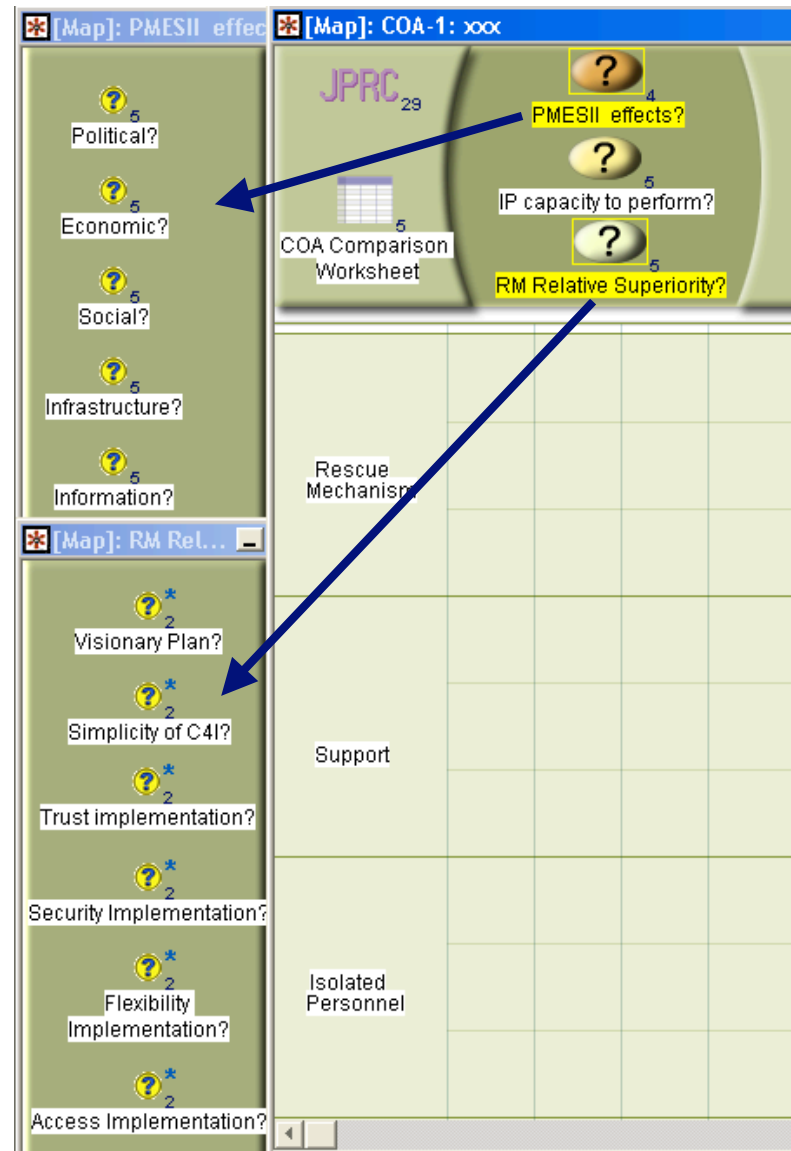
Actors

Rows for recording critical events which provoke discussion

- Rescue Mechanism
- Support
- Isolated Personnel

PMESII and Relative Superiority Issue Palettes

The high level Issues can be expanded if required to see the sub-Issues raised by PR doctrine



Compendium Wargame Analysis Worksheet

The screenshot displays the Compendium software interface for a wargame analysis worksheet. The main window is titled "Compendium - Co-OPR 2004.11.03" and contains a menu bar (File, Edit, Map, Format, Tools, Favorites, Workspaces, Window, Help) and a toolbar. The central workspace is divided into several sections:

- Top Section:** A grid of eight "JTFC Constraint" elements, each with a yellow warning icon and the number "4".
- Middle Section:** A "Rescue Mechanism" section containing a text box with the text "07:20 - SOF dropped to St Johns Mtn" and a yellow box labeled "Risk of detection on CA radar".
- Bottom Section:** A discussion map titled "[Map]: COA1: BLUE: Cons: SOF will be dropped at St Johns Mtn". It features a central yellow box with a question mark and the text "Can we afford to risk this?". This box is connected to other elements:
 - A text box on the left: "SOF will be dropped at St Johns Mtn" (with a yellow icon and number "2").
 - A text box below it: "Aircraft will be vulnerable to radar detection when dropping SOF" (with a red "T" icon and number "3").
 - A text box on the right: "No - political implications of invading CA airspace too high".
 - A text box below it: "Economics Analyst: <input>".
 - A text box at the bottom: "Infrastructure Analyst: <input>".
 Red arrows labeled "challenges" point from the right-side text boxes to the central yellow box.

Three blue callout boxes provide additional context:

- Top Left:** "An argument map is dragged from the template when some aspect of the COA provokes discussion". An arrow points from this box to the "Risk of detection on CA radar" box.
- Bottom Left:** "The discussion map 'behind' the cell is then built on the fly". An arrow points from this box to the central yellow box in the discussion map.
- Bottom Right:** "Input from PMESII analysts integrated into the discussion map". An arrow points from this box to the central yellow box.

COA-2.1 Wargaming Worksheet (2/2)

Compendium - Co-OPR Expt. B 2004.11.16

File Edit Map Format Tools Favorites Workspaces Window Help

[Map]: COA-2.1: Coalition D.I.m.E. (US; UK; AU)

JPRC 16 94
 MAP: COA-3
 COA Comparison

PMESII effects?
 IP capacity?
 RM R. Superiority?

1. Safe return of hostages
 Do not destabilize region
 Ensure safe retrieval of hostages
 Maintain good relations with nations
 Reinforce rule of law
 Preserve regional stability
 Be prepared for coalition follow-on
 Do not disturb CA balance of power or govmt structure
 No hostage can be harmed

Need to focus on Cebesoy
 Focus on President Melen
 Contact senior military command structure to exert pressure via State Security Council

Rescue Mech.
 General issues
 Support
 IP

[Map]: Analysis of approaching Cebesoy

Should we approach Cebesoy to bypass the president to defuse the situation?


















Cebesoy has contacts with several ambassadors
 CA has rejected all diplomatic approaches and offers of assistance
 Calif govt lacks lift to move troops: Can we offer CA C130s or large trucks?
 Can we offer economic inducements?
 Tell Cebesoy that we know what he's doing
 Admiral: We can contact Cebesoy and offer him help in
 Cebesoy is not a stable person --

Do we go public about what we know about the conspiracy?
 PoMil: We can't go public outside of notifying President etc.
 Public diplomacy, propaganda would be counter-productive

Dialogue Map capturing the planners' discussion of this option

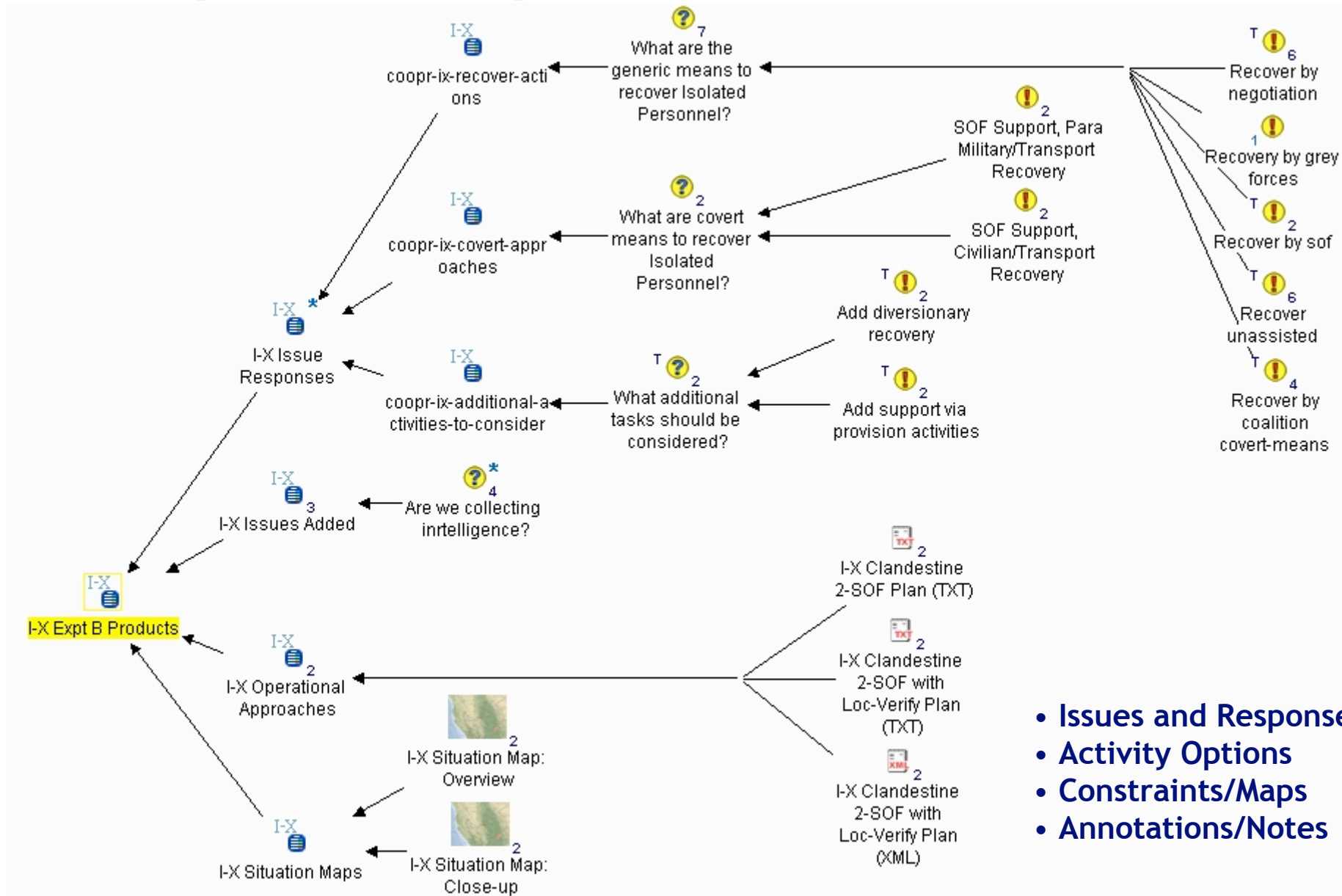
COA Comparison Worksheet

Summary of how COAs trade off against each other

	JPRC ²⁹ JTFC ¹⁰ Briefing	COA-1  COA-1: xxx	COA-2  COA-2: yyy
Constraints			
 ⁵ Political?			
 ⁵ Economic?			
 ⁵ Social?	 ⁵ PMESII effects?	- < Summary of a weakness in the COA. >	+ < Summary of a strength of the COA. >
 ⁵ Infrastructure?	 ⁶ IP capacity to perform?	+ < Summary of a strength of the COA. >	+ < Summary of a strength of the COA. >
 ⁵ Information?			
 ² Visionary Plan?	 ⁶ RM Relative Superiority?	- < Summary of a weakness in the COA. >	- < Summary of a weakness in the COA. >
 ² Simplicity of C4I?	 ³ Minimise CA political disruption, esp. by not engaging police forces in combat	 ² Risk of detection on CA radar	+ < Summary of a strength of the COA. >
 ² Trust implementation?	 ³ Use civilian transport to extract IPs if possible	+ < Summary of a strength of the COA. >	+ < Summary of a strength of the COA. >
Doctrinal Issues can also be displayed if required			
Implementation?	 Support Logistics?	+ < Summary of a strength of the COA. >	- < Summary of a weakness in the COA. >

Grey Matter and Silicon

I-X Inputs to Compendium



- Issues and Responses
- Activity Options
- Constraints/Maps
- Annotations/Notes

Independent evaluation of Co-OPR

		Strongly Agree	Agree	Disagree	Strongly Disagree	No Opinion
1	The tool was easy to use		3	1		2
2	The tool helped me find the information I needed	1	5			
3	The tool helped me understand the situation	1	5			
4	The tool helped me to identify potential COAs	2	3	1		
5	The tool enabled me to explore the consequences of different options	1	3	1		1
6	The tool made me aware of consequences I hadn't thought of	1	2	2		1
7	The tool helped me choose a COA		6			
8	This tool would help JTF CMDs & Staff and should be further developed		6			

Evaluation ratings from six members of the planning cell who were supported by Co-OPR tools in the personnel recovery simulation. (Numbers indicate the number of planners assigning the rating.)

Independent evaluation of Co-OPR

Which Features did you like best?

I-X planning feature allows for drill down into specifics of the COA

[Compendium's] graphic representation, organization, COA comparison information

List features you would add to the tool:

Expand the I-X tool to include response activities beyond Military operations, such as Diplomatic, Informational, and Economic.

Automatic input feeds [to Compendium].

List Features you would remove from the tool:

Limit the operational planning level of the [I-X] tool – too detailed.

Change some [Map View] icons [in I-X].

Comments:

Good [I-X] tool, ability to develop a COA, prompting for choices, and sequencing advice were outstanding.

In the subsequent vignette of the scenario (in which Co-OPR was not due to participate) Compendium was requested to replace (the usual) PowerPoint as the information management tool.

Large scale NASA e-science field trials: Interoperability with other databases, software agents and collaboration tools

Clancey, W.J., Sierhuis, M., Alena, R., Berrios, D., Dowding, J., Graham, J.S., Tyree, K.S., Hirsh, R.L., Garry, W.B., Semple, A., Buckingham Shum, S.J., Shadbolt, N. and Rupert, S. (2005). "**Automating CapCom Using Mobile Agents and Robotic Assistants.**" *1st Space Exploration Conference, American Institute of Aeronautics and Astronautics*, 31 Jan-1 Feb, 2005, Orlando, FL. Available from: AIAA Meeting Papers on Disc [CD-ROM]: Reston, VA, and as Advanced Knowledge Technologies ePrint 375: <http://eprints.aktors.org/375>



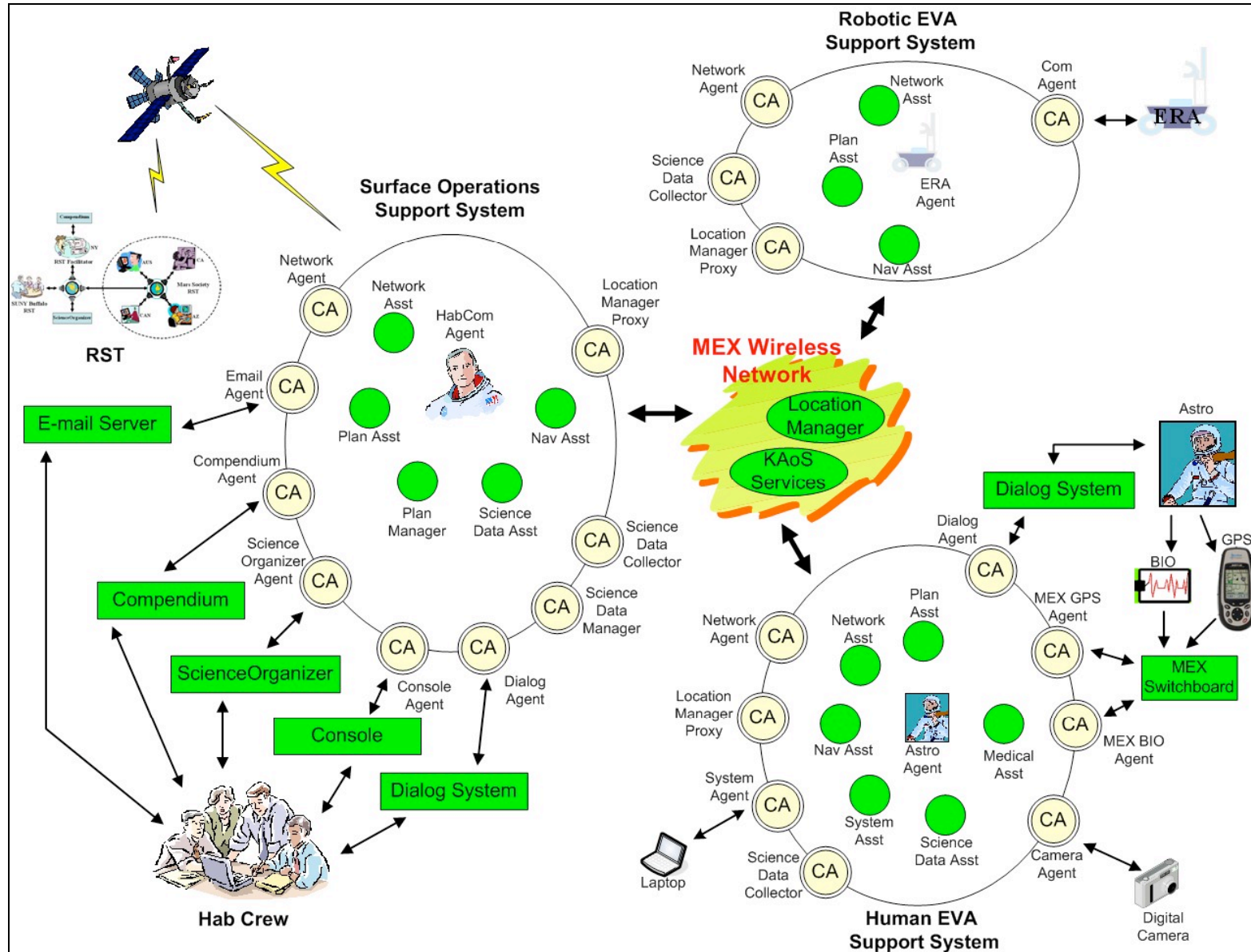
Image Credits--- Mars: NASA/JPL/MSSS; Earth: NASA/JSC; Composite: MSSS

NASA e-science field trials (2004 and 2005)



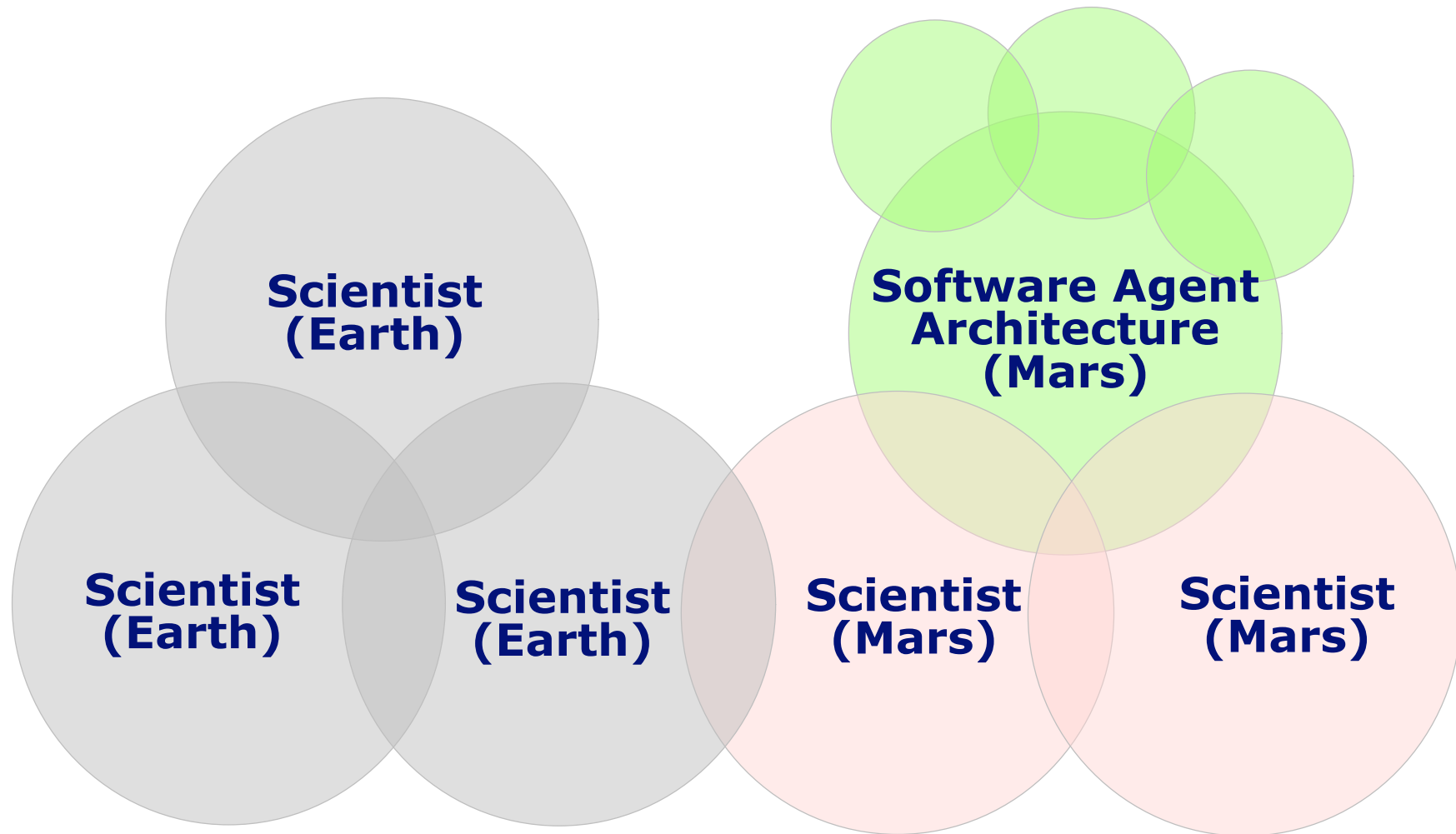
Distributed Mars-Earth planning and data analysis tools for Mars Habitat field trial in Utah desert, supported from US+UK

NASA Mobile Agents Architecture



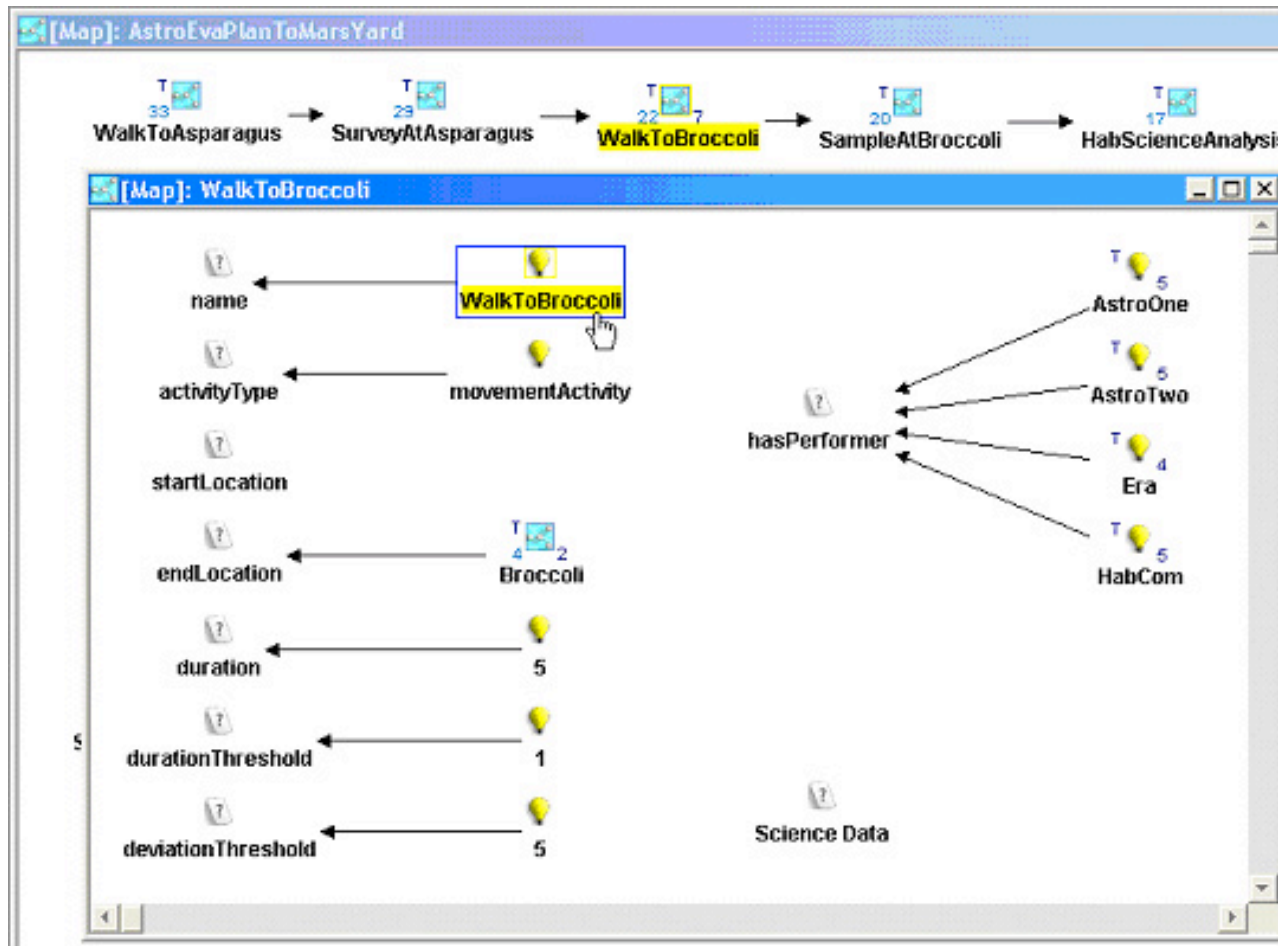
Collaboration Configuration

Compendium used as a collaboration medium at all intersections: *humans+agents, reading+writing maps*



NASA testbed:

Compendium activity plans for surface exploration, constructed by *scientists on 'Earth'*, interpreted by *software agents on 'Mars'*

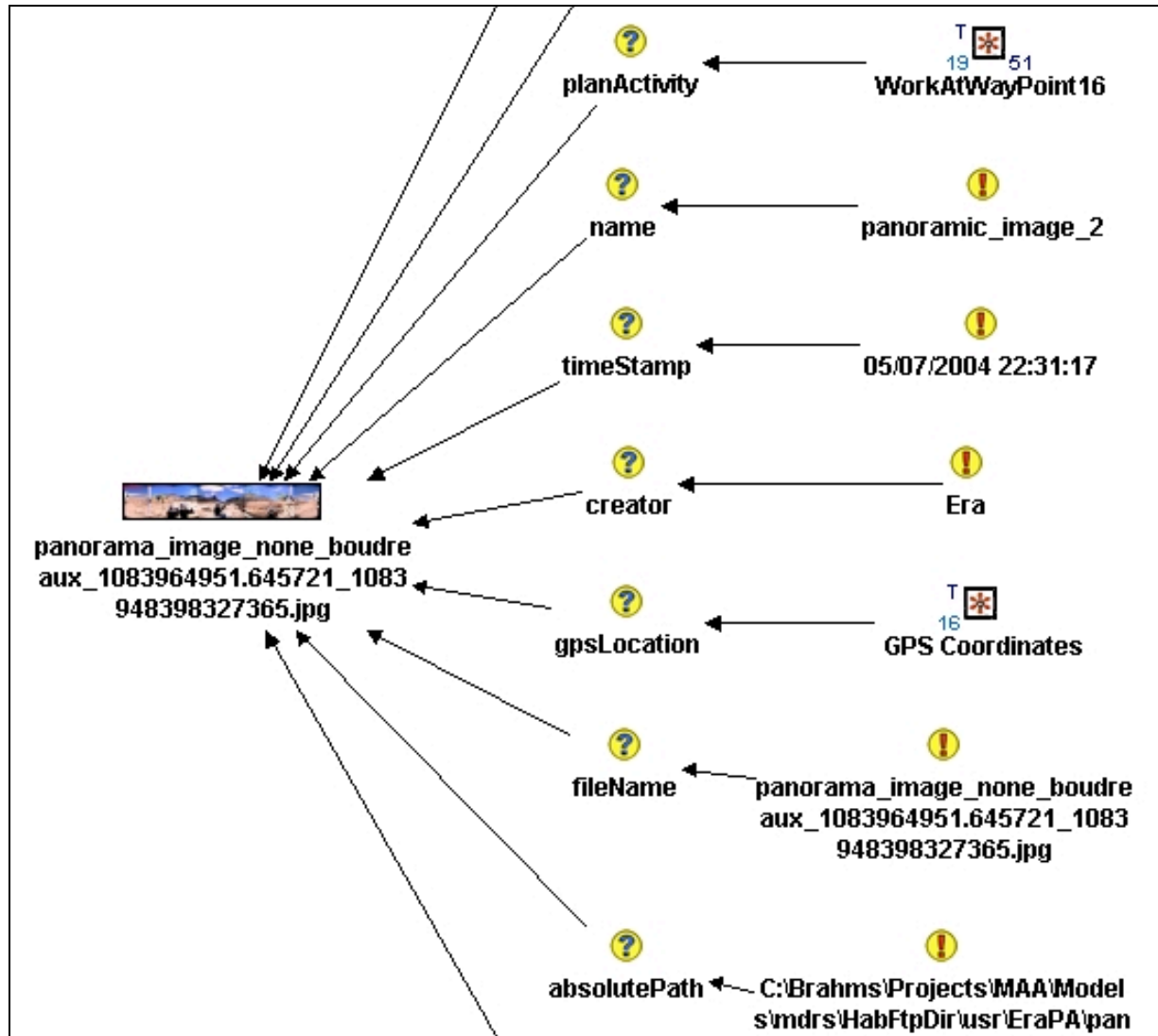


Copyright, 2004,
RIACS/NASA Ames,
Open University,
Southampton
University
Not to be used
without permission

The Compendium nodes and relationships in this plan were interpreted by Brahms software agents for monitoring and coordinating astronaut and robot activity during surface explorations.

CoAKTiNG NASA testbed:

Compendium science data map, generated by *software agents*, for interpretation by *Mars+Earth scientists*



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Open University,
Southampton
University
Not to be used
without permission

The Compendium maps were autonomously created and populated with science data by Brahms software agents that use models of the mission plan, work process, data flow and science data relationships to create the maps.

CoAKTiNG NASA testbed: Compendium-based photo analysis by *geologists* on 'Mars'

Compendium - NASA MDRS Crew29 FINAL

File Edit Map Format Tools Favorites Workspaces Window Help

75% 1:1

[Map]: Brent's Analysis

(In Brent's map) Please verify that the Rock and Back Hill location names are correct, as Sci Org says they are Red and Rock

LOCATION: Rock Hill

LOCATION: Gap between Rock Hill and Back Hill

LOCATION: Back Hill

Mosaic of Rock Hill w/ Abby and Boudreaux for scale

voice_note_2004-3-29_22-40-25.wav

Summary of Field Work at Rock Hill

(In Abby's map) Which of these 4 samples came from the rock perspective photo in Brent's map?

OBSERVATION: Rock Hill looks to have two layers not three as observed in Panoramas

Did not get to sample the reddish hills off to the north (left side in photos)

Context photo of Sample RK/M1/01 (SEE TAG for more detail)

This photo is v good - links Outcrop to the Rock perspective, and we are excited to incorporate it into the methodology :-)

Context photo #2, similar to above

Not a good photo - sampling area is out off

Close up photo of sample RK/M1/01

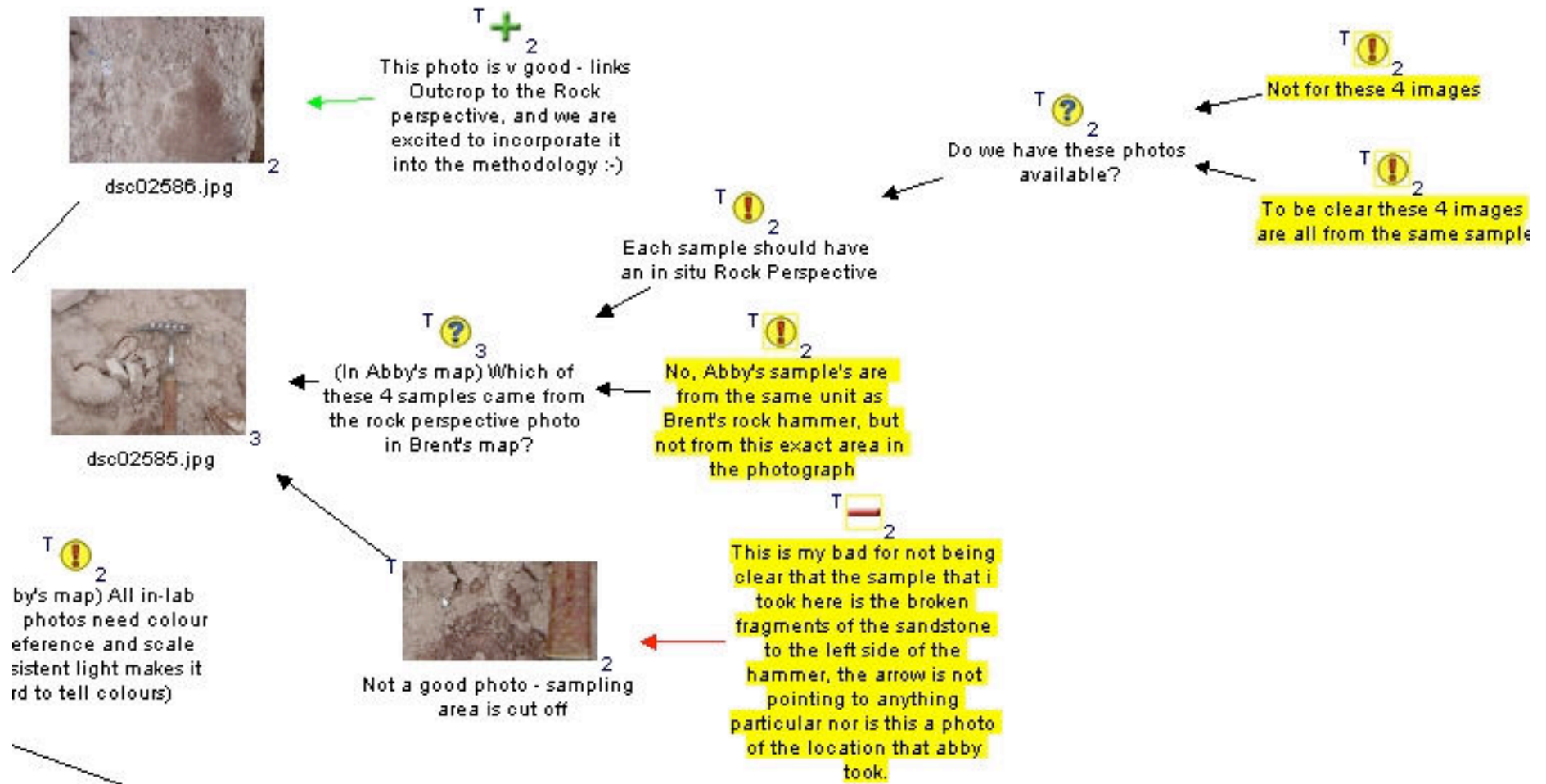
NOTE ON SAMPLE BAG Naming:

This is my bad for not being clear that the sample that i took here is the broken fragments of the sandstone to

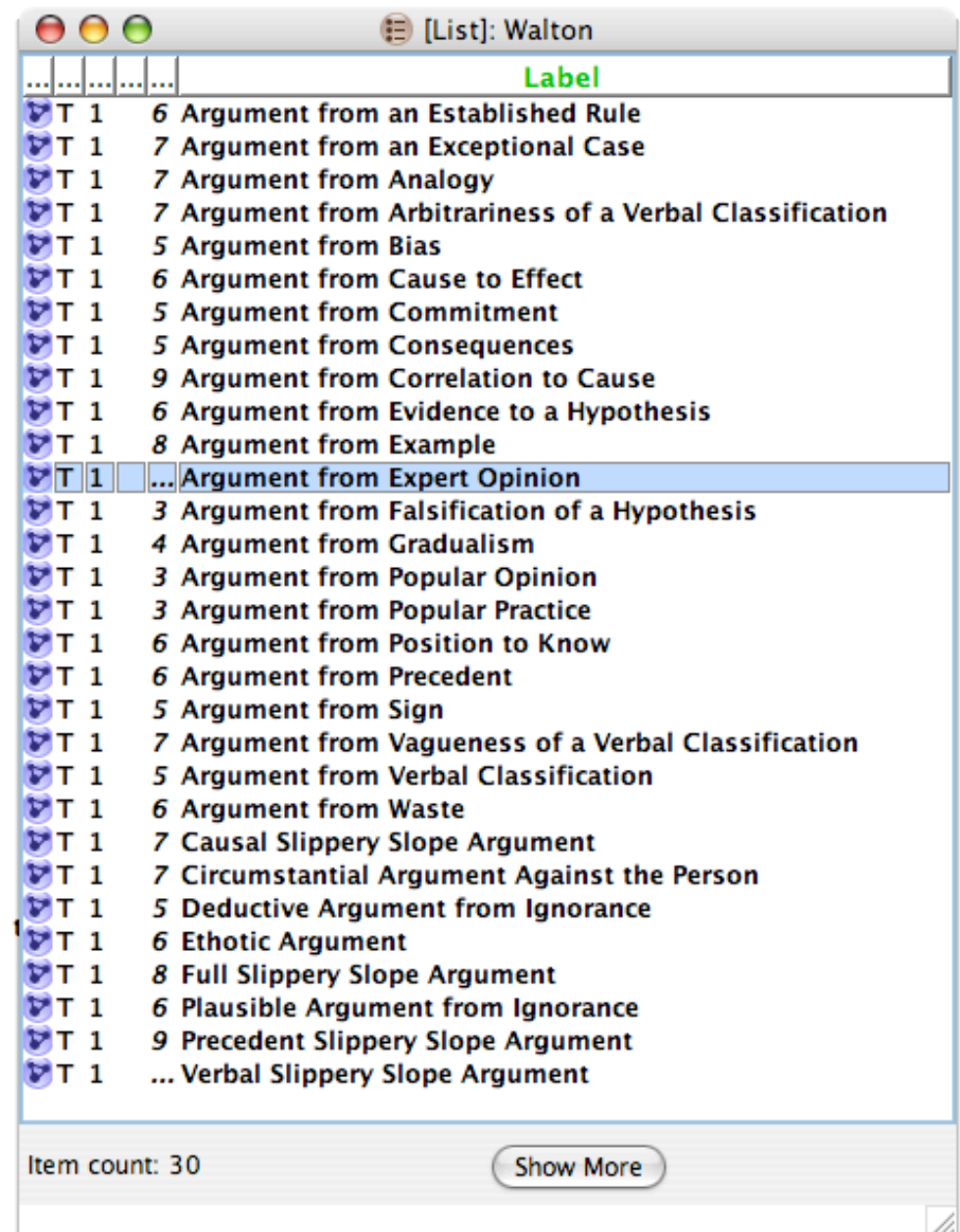
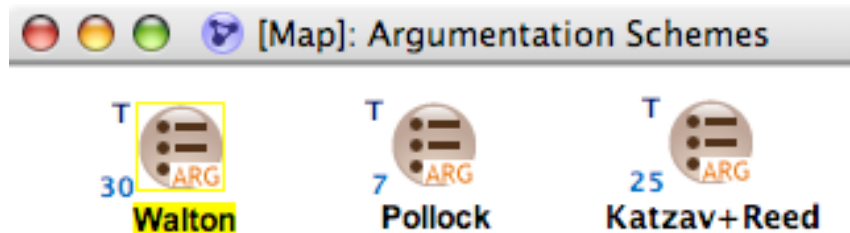
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University
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NASA testbed:

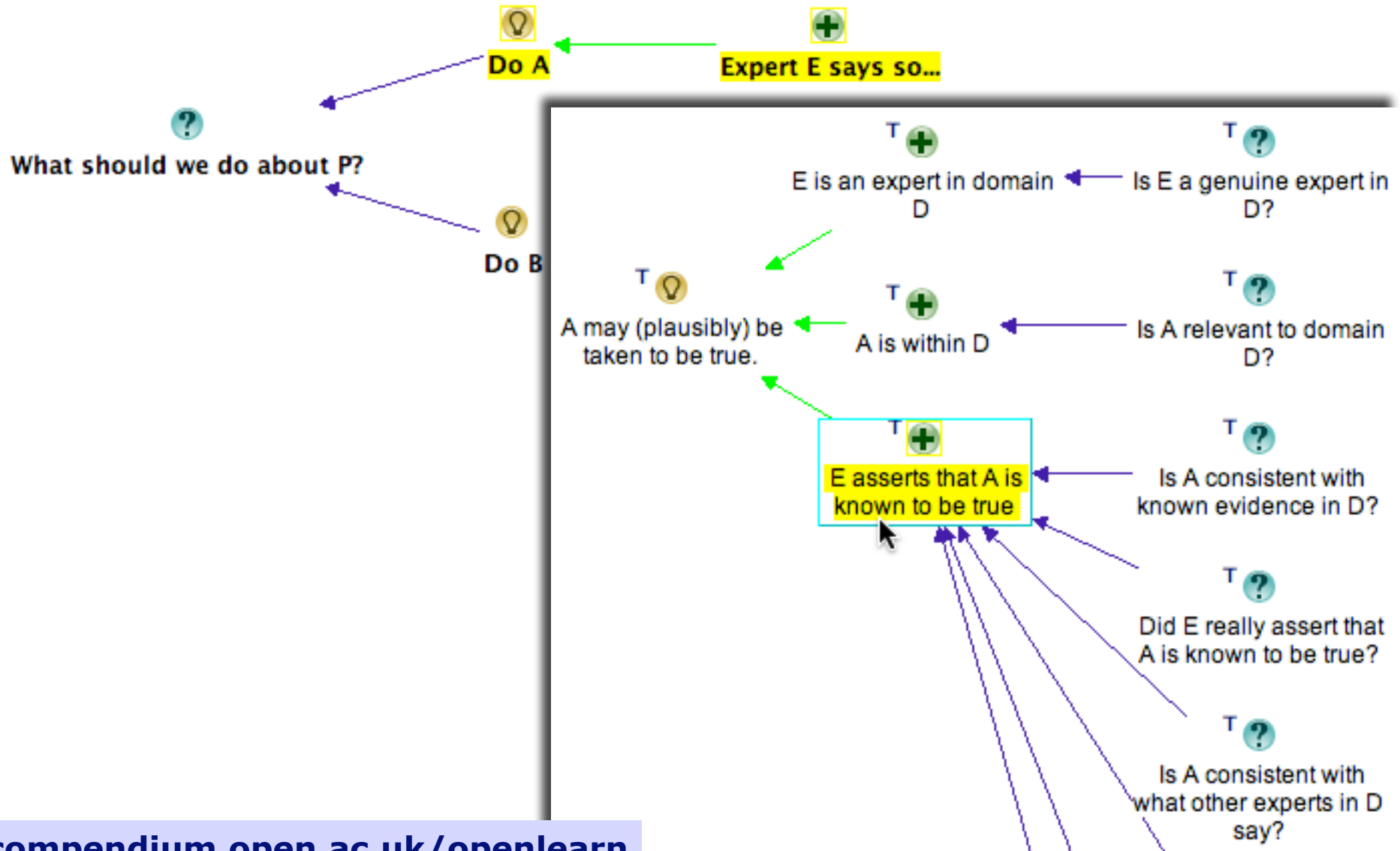
Compendium scientific feedback map *from Earth scientists to Mars colleagues*



Importing an Argumentation Scheme as an IBIS template



Importing an Argumentation Scheme as an IBIS template



Using Compendium to map and automatically index replayable video conferences

CoAKTinG Project: www.aktors.org/coakting

Memetic Project: www.memetic-vre.net

Collaborative sensemaking in e-Science: Meeting Replay tool for *Earth scientists*, synchronising video of *Mars crew's* discussion as they annotate their mission plans

[Map]: Lith Canyon EVA Segment 1 Crew Planning Meeting 05/03/04

Title: Lith Canyon EVA Segment 1 Planning Meeting - 3rd May 2004
Date: Tue May 4 00:37:00 2004
Participants: [Maarten](#), [Brent](#), [Abigail](#), [John](#)

Current Speaker: Maarten
Nodes: Make sure that Boudreaux is in line of sight from AstroOne. Thus move it to WP 2 and 3 at appropriate times

Video Playing 00h 29m 09s Pause

Group Sync Offline Online
Mode Master Slave
Receiving Yes No

Timeline: A horizontal timeline showing activity for participants: Agendis, Compendium, Abigail, Brent, John, and Maarten. A vertical line indicates the current time in the meeting.

NASA MR Clip: 00:50

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RIACS/NASA Ames,
Open University,
Southampton University
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permission

Memetic Meeting Replay

The CoAKTiNG project's results are now mainstreamed in the Access Grid by the JISC Memetic VRE project

The screenshot displays a Memetic Meeting Replay interface. On the left, a grid of video windows shows participants: *R* RS Sla..., *R* Univer..., *R* Manch..., and *R* Simon ... On the right, a large window titled 'ScreenStreamer: Compendium' displays a diagram titled '[Map]: 2.0 Memetic interface mockup (Clara's email of 14 Dec)'. The diagram includes nodes like 'Can we parse blank lines to identify agenda items?', 'More usable initially', 'How to make agenda items editable easily', 'Ben: We will make entry of agenda items free text, separated by a blank line...', 'Good to have the record controls here', 'Pressing Play will launch MR, filling the screen...', 'Clara: The video controls on Record page should be just Record and Stop, and on the Replay page should be just Play and Stop', 'If user has Web Launched Compendium, or Compendium already running, then connect to the jabber group for MR communication', 'What should happen with Compendium when you press play?', and 'In Comp for convenience'. The bottom panel contains a control area with a back button, title 'Memetic Meeting 2005-12-15 (Imported)', date '15 Dec 2005, 09:37', participants list, speaker 'Ben Jubly', agenda '2.0 Memetic interface mockup (Clara's email of 14 Dec)', events 'Selecting node', and nodes 'How to make agenda items editable easily?'. A table below the control area shows the agenda for various participants, with a vertical line indicating the current time. The table is as follows:

Participant	Agenda
Compendium	[Colorful bars]
Michelle Bachler	[Colorful bars]
Simon Buckingham Shum	[Colorful bars]
Ben Jubly	[Colorful bars]
Clara Mancini	[Colorful bars]
Danius Michaelides	[Colorful bars]
Andrew Rowley	[Colorful bars]
Roger Slack	[Colorful bars]

Additional controls include a video player (00h 36m 22s / 02h 06m 12s), GroupSync (Offline/Online), Mode (Master/Slave), Receiving (Yes/No), and buttons for 'sync node' and 'create node'. A 'memetic' logo and 'About Help' link are also present.

Compendium 'literacy'?

**...understanding how to write, read,
talk and think in hypermedia IBIS**

**...approaches from consultancy in
the field, and video analysis in the
lab...**

Literacy: significant user community

www.CompendiumInstitute.org

The image displays two overlapping browser windows. The left window shows the main website at <http://compendiuminstitute.org/>. The right window shows a specific workshop page at http://kmi.open.ac.uk/projects/compendium/workshop2005/Home_19216811001132060158877.html.

compendium institute
Home | Tools | Library | Training | Community | Download | Developers | Support

Compendium Institute
The Compendium Institute is an open forum for the ongoing development of the Compendium methodology. We are currently investigating support our activities. These currently include the maintenance of semiformal gatherings of the community, the development of certification, and the authorship of...

Compendium Institute Workshop 2005
[2005.09.22] **Compendium 1.4** is a single click installation, power mapping, transclusion navigation and more...

About Compendium
Compendium has three key elements and analyzed, a methodology that allows of tools for quickly and easily sharing group. The process enables people to participate in the discussions, and share representative practice -- an approach crucial in keeping...

The Community Showcase
Visit the Community Showcase

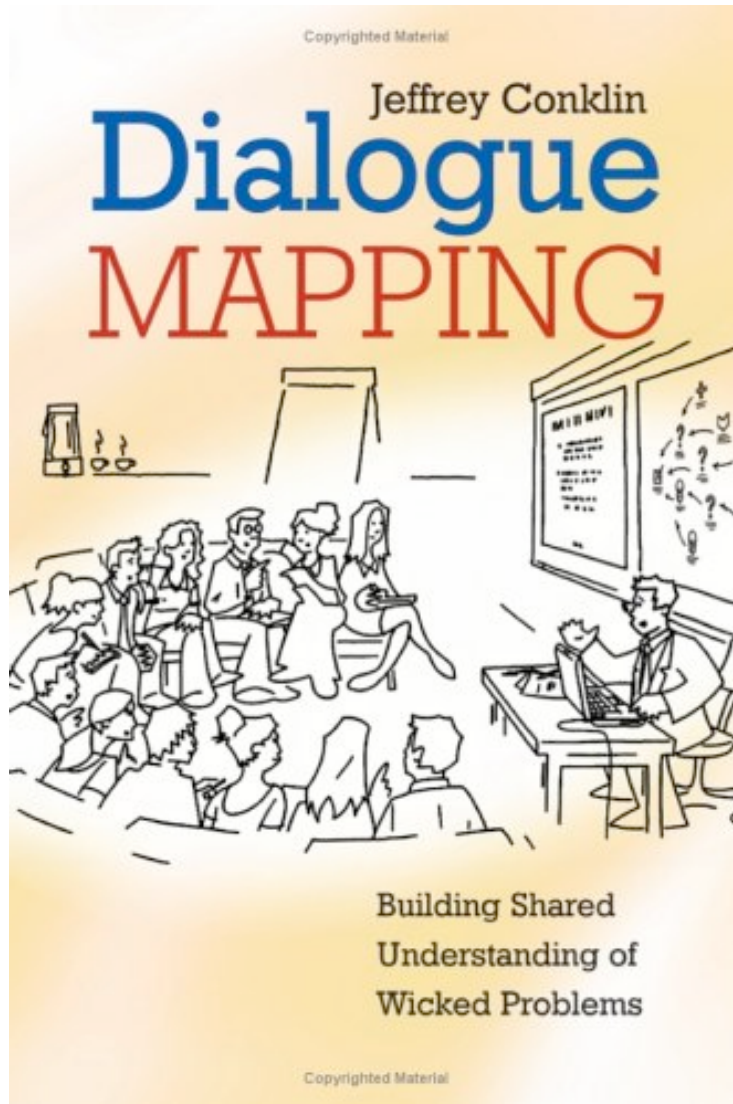
Compendium Institute Workshop 2005
Day 1
Day 2

The workshop page features a grid of 12 photographs showing participants in a classroom setting, engaged in presentations and discussions. The photos are arranged in three columns and four rows, capturing various moments from the workshop, including presentations and group interactions.

Literacy: Cognitive task analysis

- **Cognitive tasks involved in using a graphical argumentation scheme** (Buckingham Shum 1996)
- **Affordances of graphical DR for coordinating group design** (Buckingham Shum et al 1997)

Literacy: the craft skill of IBIS mapping in meetings: “Dialogue Mapping”



Jeff Conklin:
CogNexus Institute:
www.CogNexus.org

Literacy: expertise analysis

(Albert Selvin)

- *What is the nature of expert human performance in creating and modifying real time conceptual structures for groups?*

- **The NASA knowledge mapper role:**

- Listening and interpreting
- Intervening in 'normal' conversation flow
- Getting validation for captured material

} Conventional
facilitation
skills

- Building hypertext representations on the fly
- Interrelating data and objects
- Adding metadata
- Software-specific skills

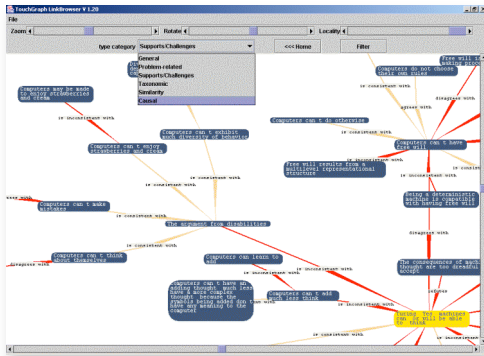
} Knowledge
media
facilitation
skills

Compendium literacy: expertise analysis

Selvin 2005

Practitioner stances

- **The position of the practitioner with regard to the current activity:**
 - Knowledge Navigator
 - Facilitator
 - Participant
 - Technical Expert
 - Editor



Scholarly Ontologies Project

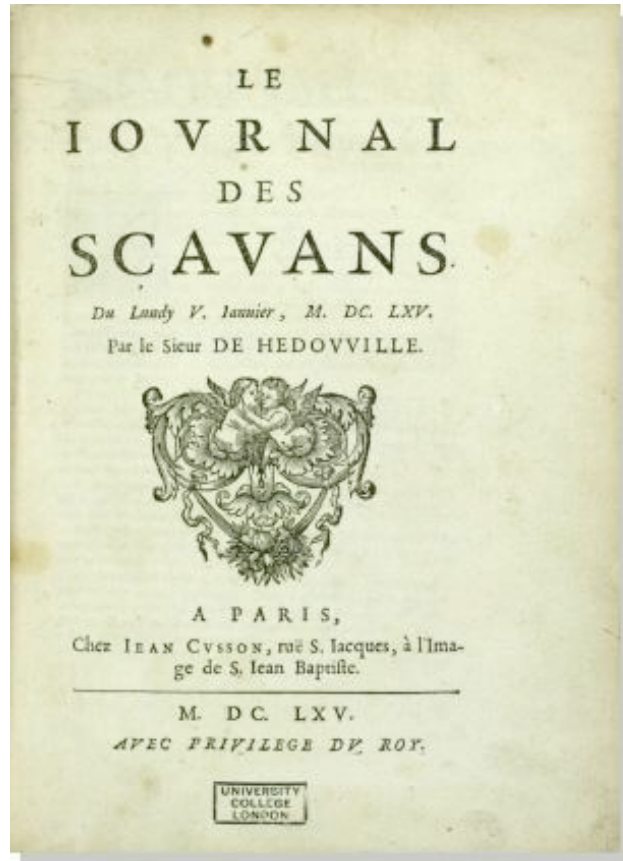
- Web publishing of scholarly claims and argumentation
- discourse as semantic hypertext

Will scientific publishing in 2020 still depend solely on the reading, writing, and discovery of written texts?

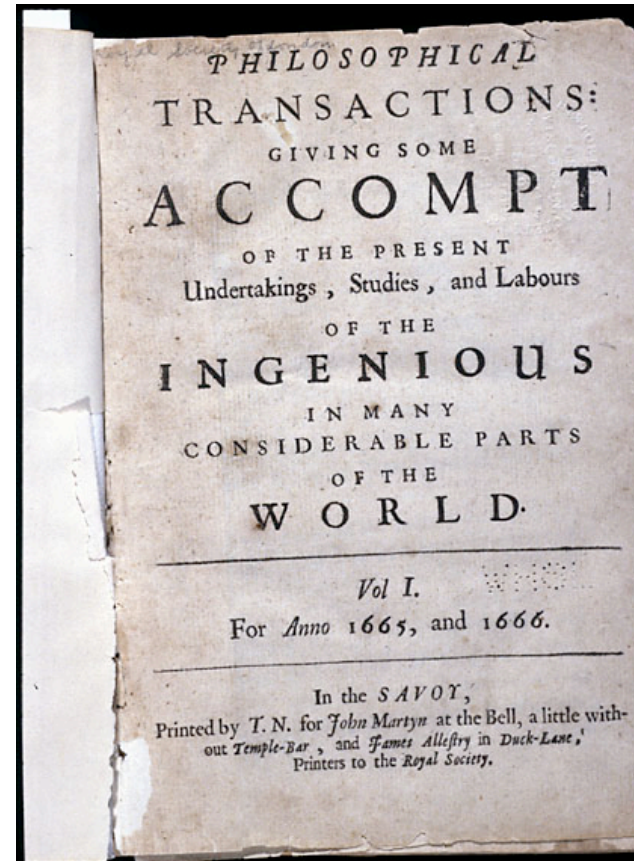
What might a more network-centric complement look like?

In Gutenberg's shadow (or standing on his shoulders)

Newspapers + Invisible Colleges = Scholarly Journals



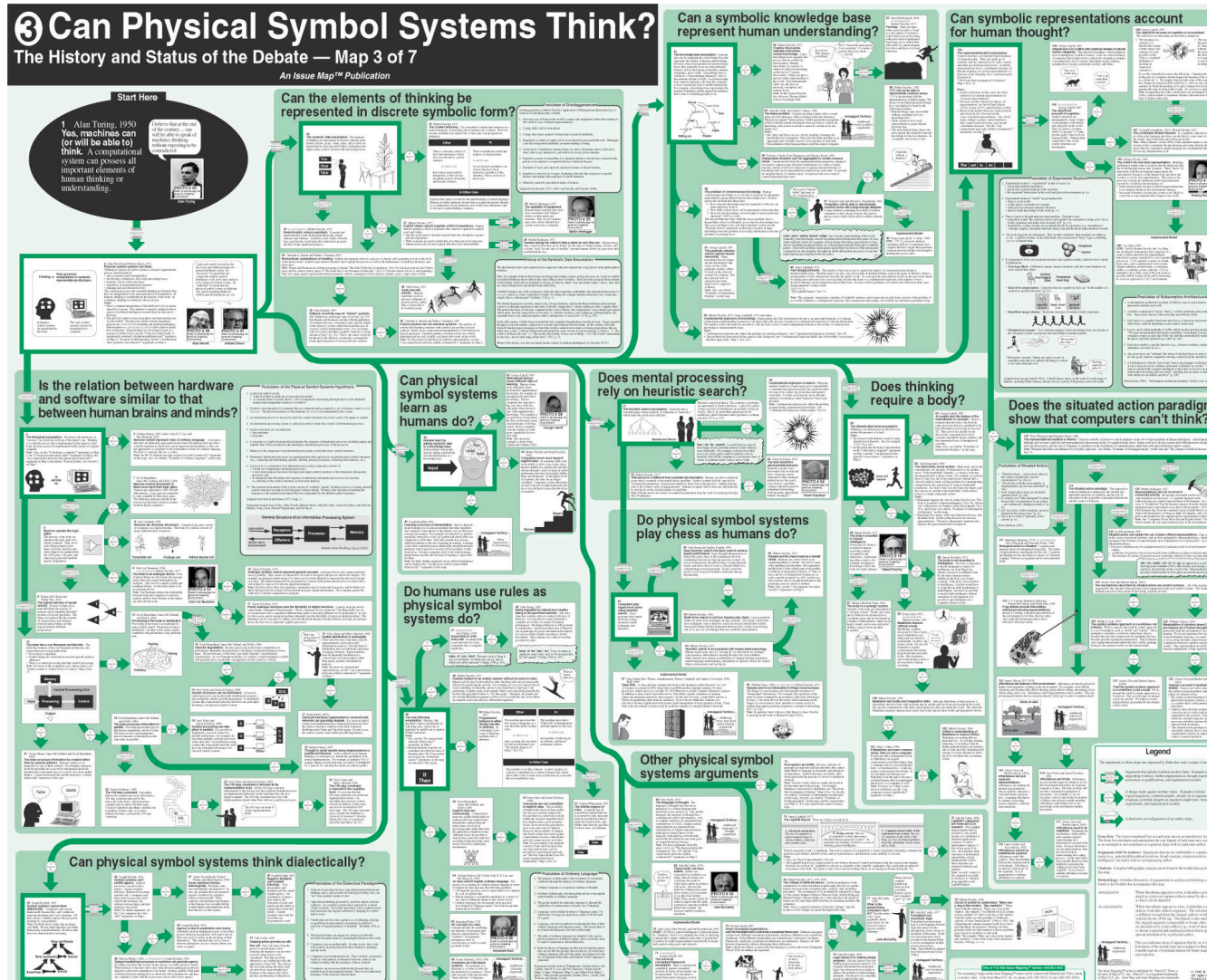
**Le Journal des Scavans
January 1665**



**Philosophical Transactions of the Royal Society of London
March 1665**

What if we could get search results like this?...

"What is the Turing Debate?"



One of seven maps in the *Mapping Great Debates: Can Computers Think?* Series. MacroVU Press. www.macrovu.com (Horn, 2003; Yoshimi, 2006)

Can Physical Symbol Systems Thin?

The History and Status of the Debate — Map 3 of 7

An Issue Map™ Publication

Start Here

1 Alan Turing, 1950
Yes, machines can (or will be able to) think. A computational system can possess all important elements of human thinking or understanding.

I believe that at the end of the century ... one will be able to speak of machines thinking without expecting to be contradicted.



PHOTO # 50
Alan Turing

Can the elements of thinking be represented in discrete symbolic form?



22 The symbolic data assumption. The elements of thinking are represented in discrete symbolic form (trees, chairs, tables, chairs, tables, etc.) and are linked together in a network that represents the knowledge base.

Either	Or
There is a discrete content of the knowledge which has no reference to a physical medium.	There is an abstract content that implies an inorganic, physical medium.
It is which one?	we do not need to separate a set of facts that have that content, or a set of facts that have that content. This is not an either/or.

23 In a discrete content for the content of a set of facts that have that content because they are represented in a combination of physical medium and a set of facts that have that content.

Postulates of Discreteness

1. The basic unit of being in the world is copying with equipment rather than thinking or feeling.
2. Copying skills can be automated.
3. Copying skills require a background of power of identity.
4. The basic unit of copying itself is not identical at any particular time. Thinking skills are backgrounded.
5. On the basis of identity, being being able to describe what is represented, what is represented, and what is to be represented.
6. Regular copying of copying to a regular medium is not but has occurred in the past in a way that is a response that has occurred in the past.
7. Symbolic to be used must be applied to some of these facts.
8. Together to be used in a copy, regular copying with equipment to provide identity and copying with equipment to provide identity.
9. Machines must be specified in terms of facts.



PHOTO # 23
Marvin Minsky

24 Marvin Minsky, 1957
The capacity of equipment. Human beings require space from their equipment and "know" when to stop and think. They do not require space from their equipment.

26 Marvin Minsky, 1957
Human beings are called to take a stand on who they are. Human beings take a stand on who they are for being. The idea of being a human being, and being a human being, is a human being.

History of the Symbolic Data Assumption

The idea that the world can be reduced to a set of discrete elements has a long history in the philosophy of science.
For example, the idea that the knowledge of physics, biology, the social sciences, and the other sciences can be reduced to a set of discrete elements has a long history in the philosophy of science.
The idea that the world can be reduced to a set of discrete elements has a long history in the philosophy of science.
The idea that the world can be reduced to a set of discrete elements has a long history in the philosophy of science.

2. Allen Newell and Herbert Simon, 1956

Physical symbol systems can think.

Thinking is a physical symbol system in which computer-like processes are carried out by:

- information symbol manipulation
- the structure of information from logic knowledge bases
- knowledge search and data structures
- operations on representational systems
- planning and problem-solving activity

The symbolic systems that can think are based on the fact that the knowledge of any particular problem is contained in the computer, thinking is carried out in the structure of the knowledge, and the knowledge is contained in the computer.

25 Allen Newell and Herbert Simon, 1957
Physical symbol systems can think. Thinking is a physical symbol system in which computer-like processes are carried out by:

- information symbol manipulation
- the structure of information from logic knowledge bases
- knowledge search and data structures
- operations on representational systems
- planning and problem-solving activity

The symbolic systems that can think are based on the fact that the knowledge of any particular problem is contained in the computer, thinking is carried out in the structure of the knowledge, and the knowledge is contained in the computer.

34. Christiaan B. Skarda and Walter J. Freeman, 1977

Emergent properties of thinking. Thinking is a process of discrete self-organizing activity at the level of the neuronal system. Symbolic and coded activities are not planned in advance but emerge from the system.

35 John Denker, 1977
Discrete symbolic activity. Thinking is a process of discrete self-organizing activity at the level of the neuronal system. Symbolic and coded activities are not planned in advance but emerge from the system.

36 Christiaan B. Skarda and Walter J. Freeman, 1977
Emergent properties of thinking. Thinking is a process of discrete self-organizing activity at the level of the neuronal system. Symbolic and coded activities are not planned in advance but emerge from the system.

37 Marvin Minsky, 1957

Explicit systems cannot organize a field of experience. Human beings require space from their equipment and "know" when to stop and think. They do not require space from their equipment.

38 Marvin Minsky, 1957
Human beings are called to take a stand on who they are. Human beings take a stand on who they are for being. The idea of being a human being, and being a human being, is a human being.

39 Marvin Minsky, 1957
Human beings are called to take a stand on who they are. Human beings take a stand on who they are for being. The idea of being a human being, and being a human being, is a human being.

40 Marvin Minsky, 1957

The capacity of equipment. Human beings require space from their equipment and "know" when to stop and think. They do not require space from their equipment.

41 Marvin Minsky, 1957
Human beings are called to take a stand on who they are. Human beings take a stand on who they are for being. The idea of being a human being, and being a human being, is a human being.

42 Marvin Minsky, 1957
Human beings are called to take a stand on who they are. Human beings take a stand on who they are for being. The idea of being a human being, and being a human being, is a human being.

Is the relation between hardware and software similar to that between human brains and minds?

3 The biological assumption. The brain is the hardware on which the mind operates.

Postulates of the Physical Symbol Systems Hypothesis

1. A physical symbol system is a physical system that is a set of components functioning together to carry out symbolic processes that are similar to those of a human mind.
2. Symbolic processes are those that are carried out and processed by a physical symbol system.
3. An information processing system is a physical symbol system that carries out symbolic processes.
4. An information processing system is a physical symbol system that carries out symbolic processes.

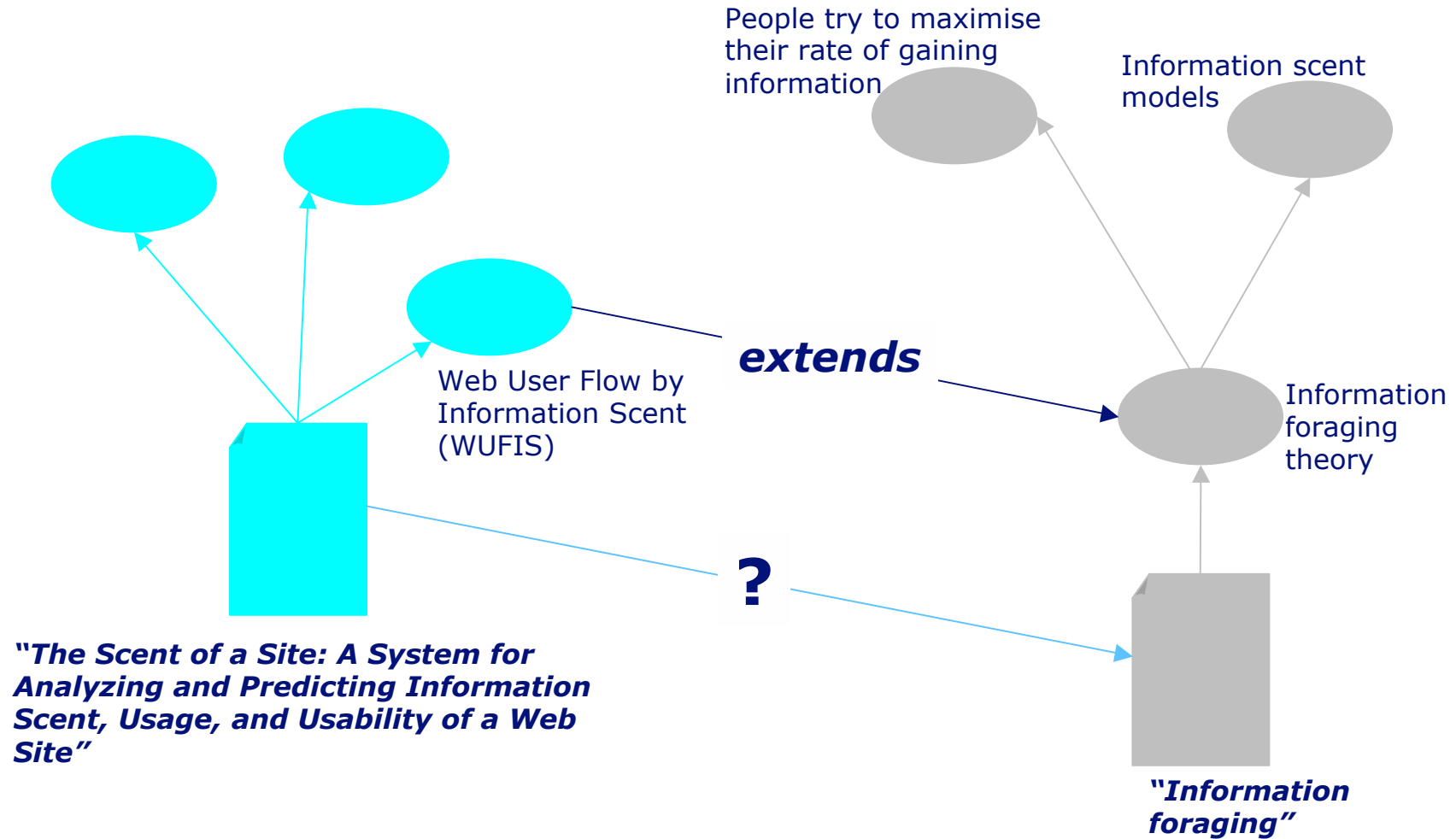
Can physical symbol systems learn as humans do?

43 Marvin Minsky, 1957
Human beings are called to take a stand on who they are. Human beings take a stand on who they are for being. The idea of being a human being, and being a human being, is a human being.

Does it rely on hardware?

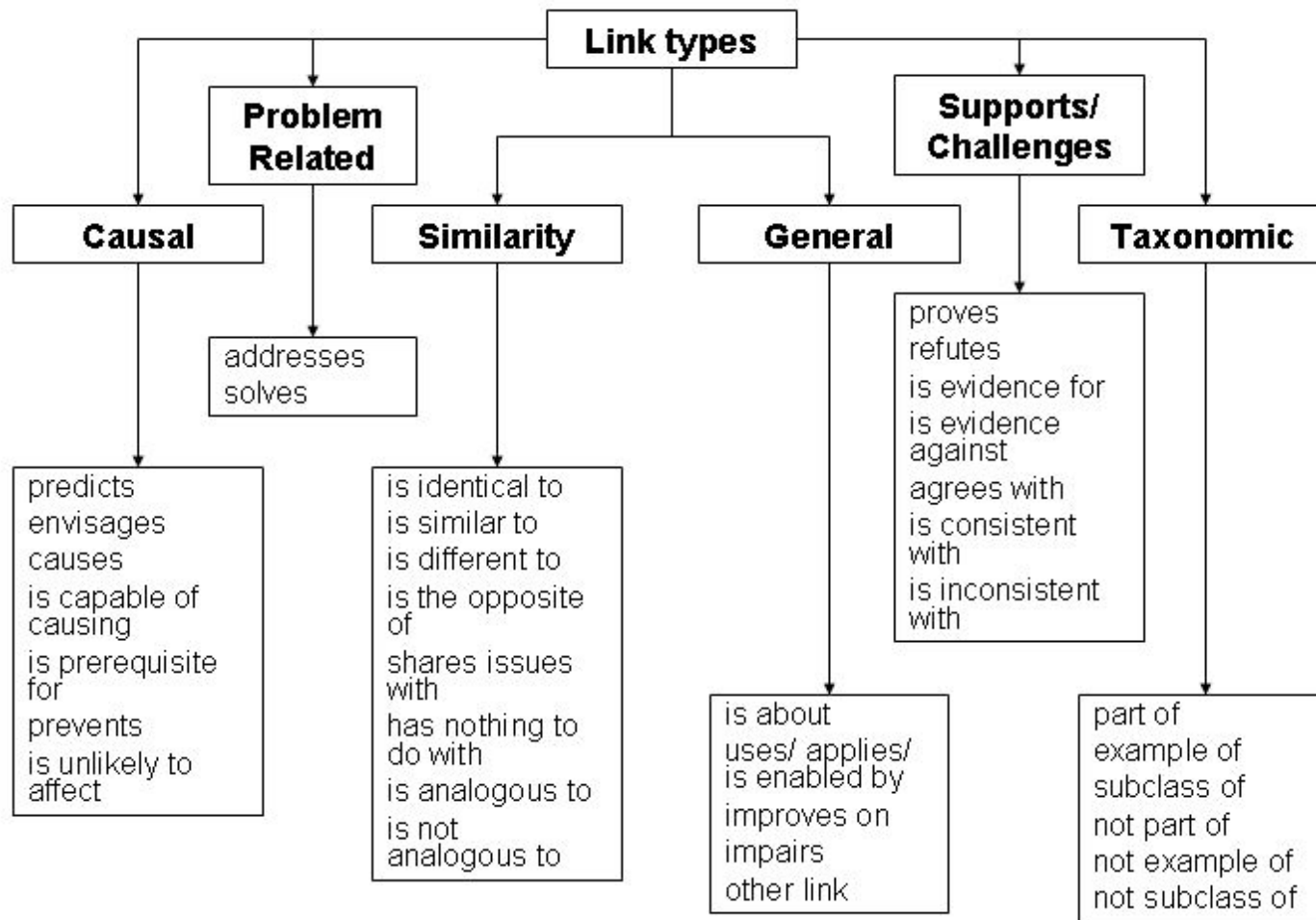
44 Marvin Minsky, 1957
Human beings are called to take a stand on who they are. Human beings take a stand on who they are for being. The idea of being a human being, and being a human being, is a human being.

Going beyond citations...

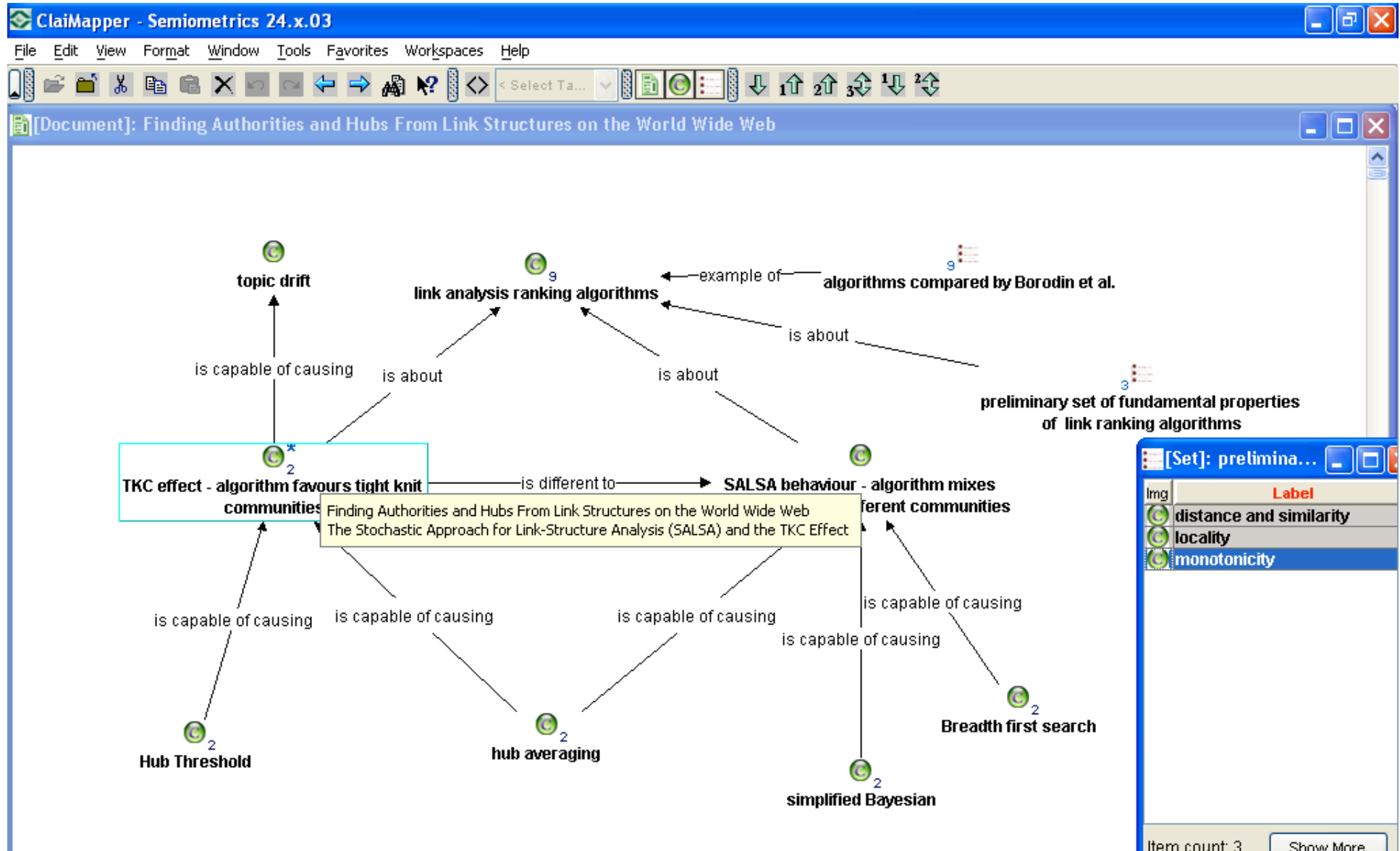


Combining formal relations with the expressive freedom of 'folksonomies'

Relational classes and dialects (KMi Scholarly Ontologies project)



If we model concepts in a literature as concept maps... (KMI's ClaiMapper, built on Compendium)



“Semantic del.icio.us”: KMi’s ClaimSpotter assigning *and* linking freeform tags

The screenshot displays the ClaimSpotter 0.4.5 web interface. The browser address bar shows the URL: `http://127.0.0.1/claimspotter/0.4.5/index.php?user=1&document=1#section-H-1`. The interface includes a navigation menu with options like 'Login', 'History', 'Add a document', 'Standard', 'Alternate', '.dot Export', 'Help', and 'About'. Below this, there are filters for 'More Ideas', 'Concepts' (set to 'All'), 'Relations', 'Argument Zones', and 'Importance' (set to '>5'). The search bar contains the term 'trust' with 'find', 'clear', and 'Reset' buttons.

The main content area shows a document titled 'source based on the annotations of many individuals. Our work builds on the Semantic Web and presents a tool that helps users create annotations that are in a mix of formal and human language, and exploits the formal representations to derive measures of trust in the content of Web resources and their original source.' The document is divided into sections: 'Document', 'TABLE OF CONTENTS', 'INTRODUCTION', and 'References'. The 'INTRODUCTION' section is currently visible, containing text about the Semantic Web and the Web of Trust.

On the right side, there are two panels for managing annotations. The 'concepts' panel shows a list of concepts with columns for 'Type', 'Label', and 'Copy in...'. The 'claims' panel shows a list of claims with columns for 'Source', 'Relation', and 'Destination'.

concepts	Type	Label	Copy in...
remove	n/a	Trellis	[X...] [...X]
remove	n/a	ix of formal and human language	[X...] [...X]
remove	n/a	Representing trust	[X...] [...X]
remove	n/a	Semantic Web	[X...] [...X]
remove	n/a	measures of trust in the content	[X...] [...X]
remove	n/a	Trusting different information sou	[X...] [...X]

claims	Source	Relation	Destination
	Trellis	is about	Trusting different information
	n/a		n/a
	Concept		Concept
	some evidence	is evidence against	[claimNumber29
	n/a		n/a
	Concept		Link

Sereno, B., Buckingham Shum, S. and Motta, E. (2007). Formalization, User Strategy and Interaction Design: Users’ Behaviour with Discourse Tagging Semantics. Workshop on Social and Collaborative Construction of Structured Knowledge, 16th Int. World Wide Web Conference (WWW 2007), Banff, 8-12 May 2007. http://www2007.org/workshops/paper_30.pdf

“Semantic Google Scholar” KMi’s ClaimFinder

find **discover** **advanced** **claiMaker**

machine learning

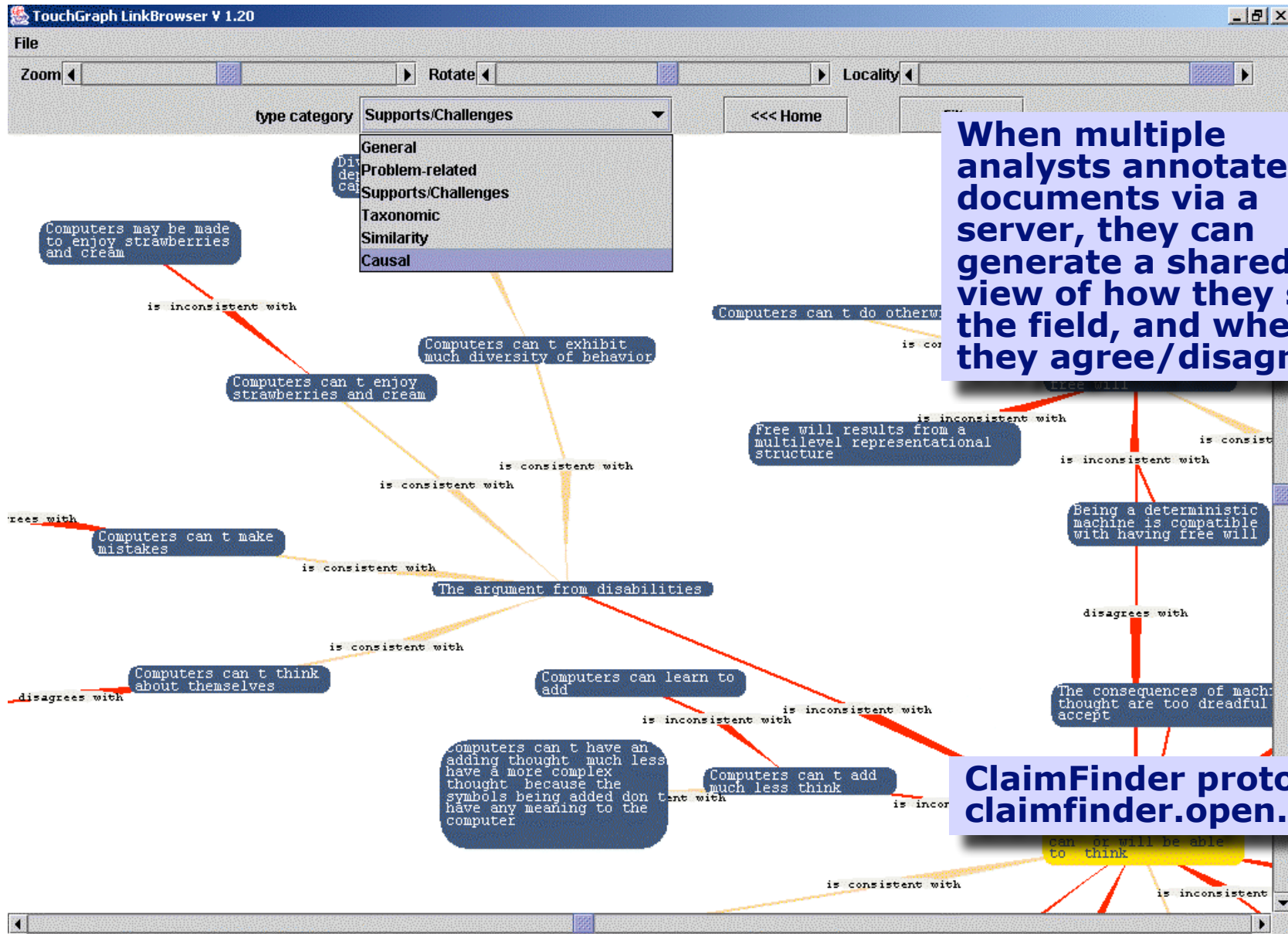
Perspective In contrast agree

Neural network text categorizer Depth

machine learning Depth

[About](#) - [ClaiMaker](#) - [Problems](#) - [Help](#)

Visualising claims and arguments





















When multiple analysts annotate web documents via a server, they can generate a shared view of how they see the field, and where they agree/disagree




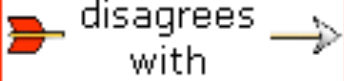





ClaimFinder prototype:
claimfinder.open.ac.uk

“What papers contrast with this paper?”

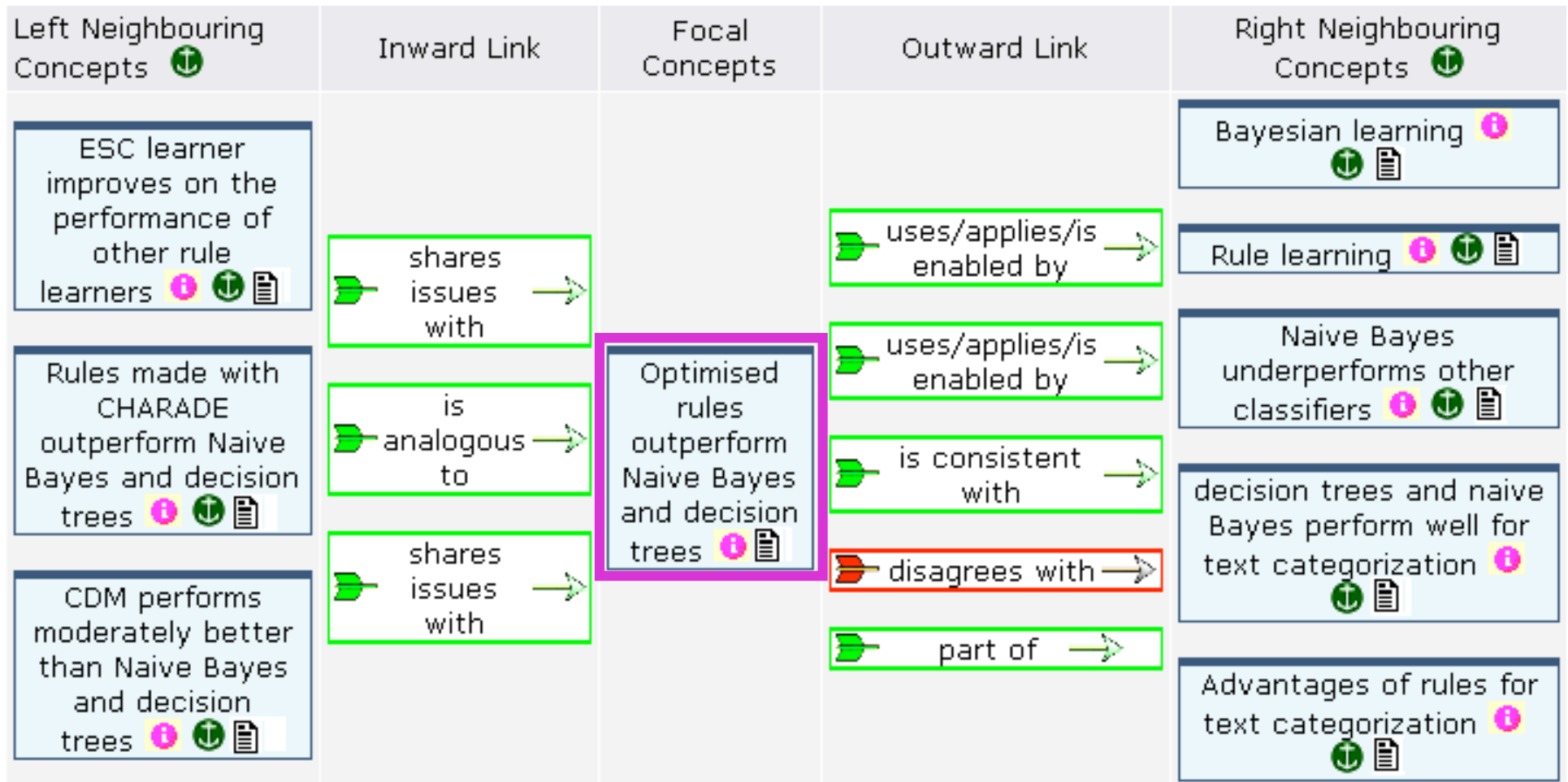
1. Extract concepts for this document
2. Trace concepts on which they build
3. Trace concepts challenging this set
4. Show root documents

The key issues you are concerned with:	
445	Decision Forest classifier   
446	Decision Forest classifier improves on C4.5 and kNN   

The related issues you may be concerned with:	
446	Decision Forest classifier improves on C4.5 and kNN   
515	Instance based learning   
511	Decision tree learning   
277	decision trees and naive Bayes perform well for text categorization   

The following claims disagree ...				
1	Optimised rules outperform Naive Bayes and decision trees   		decision trees and naive Bayes perform well for text categorization   	 3621  2

Focusing on a concept incoming+outgoing links



“Semantic Google Scholar” KMi’s ClaimFinder

find **discover** **advanced** **claiMaker**

machine learning

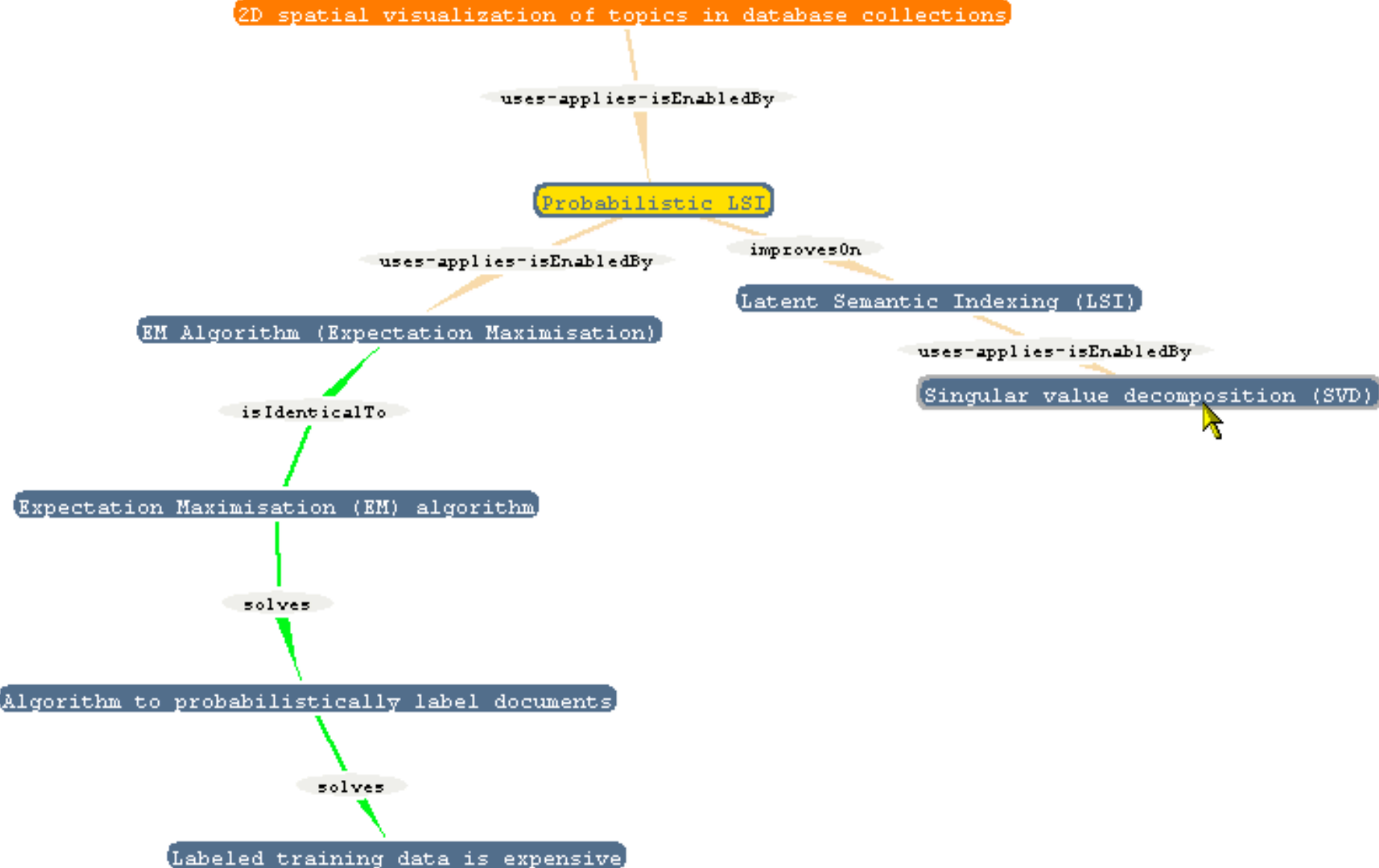
Perspective In contrast agree

Neural network text categorizer Depth

machine learning Depth

[About](#) - [ClaiMaker](#) - [Problems](#) - [Help](#)

Lineage tree (the roots of a concept)



Indicators of ClaiMaker literacy?

expert user makes more extensive use of Claimaker's semantic structures in interrogating the network than novices

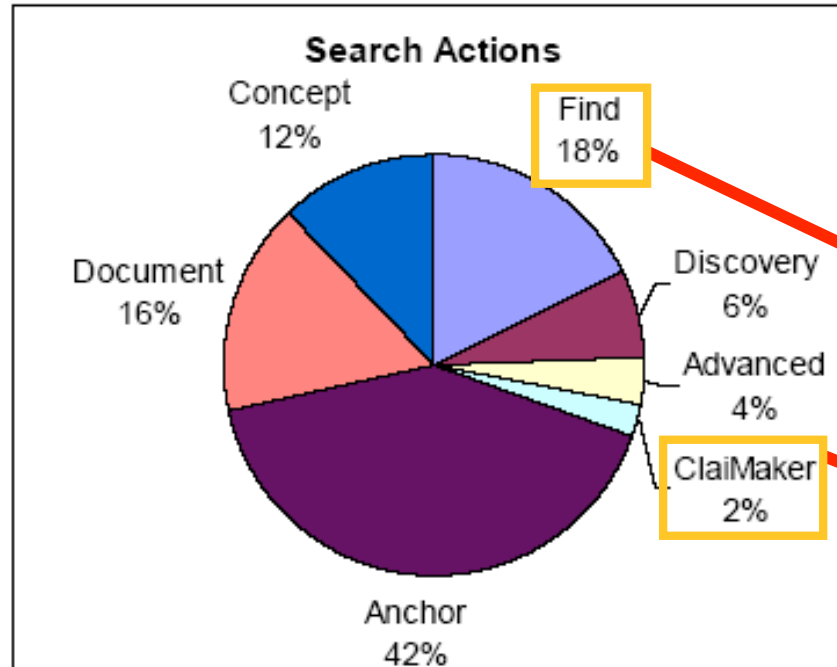


Figure 19: Breakdown of search actions by type (totals for Claim Network)

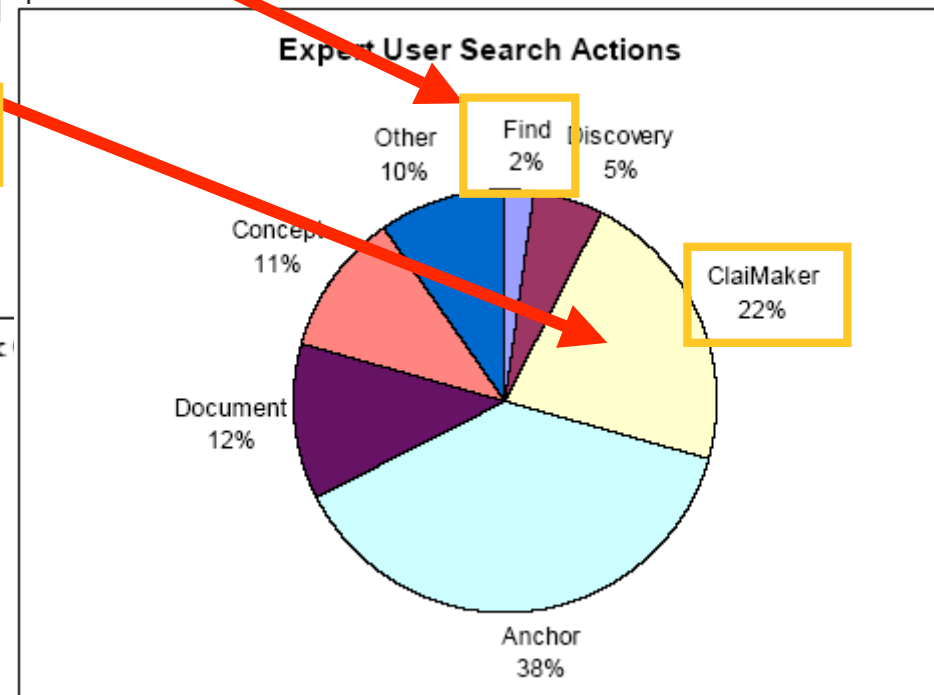
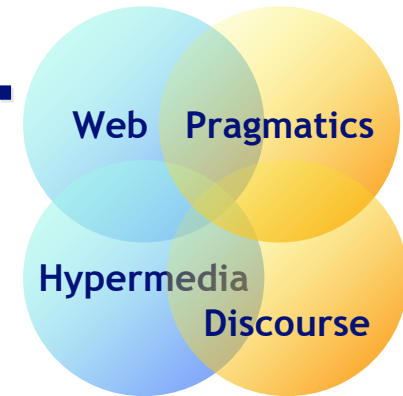


Figure 20 Breakdown of expert user search actions

Some answers to our questions...



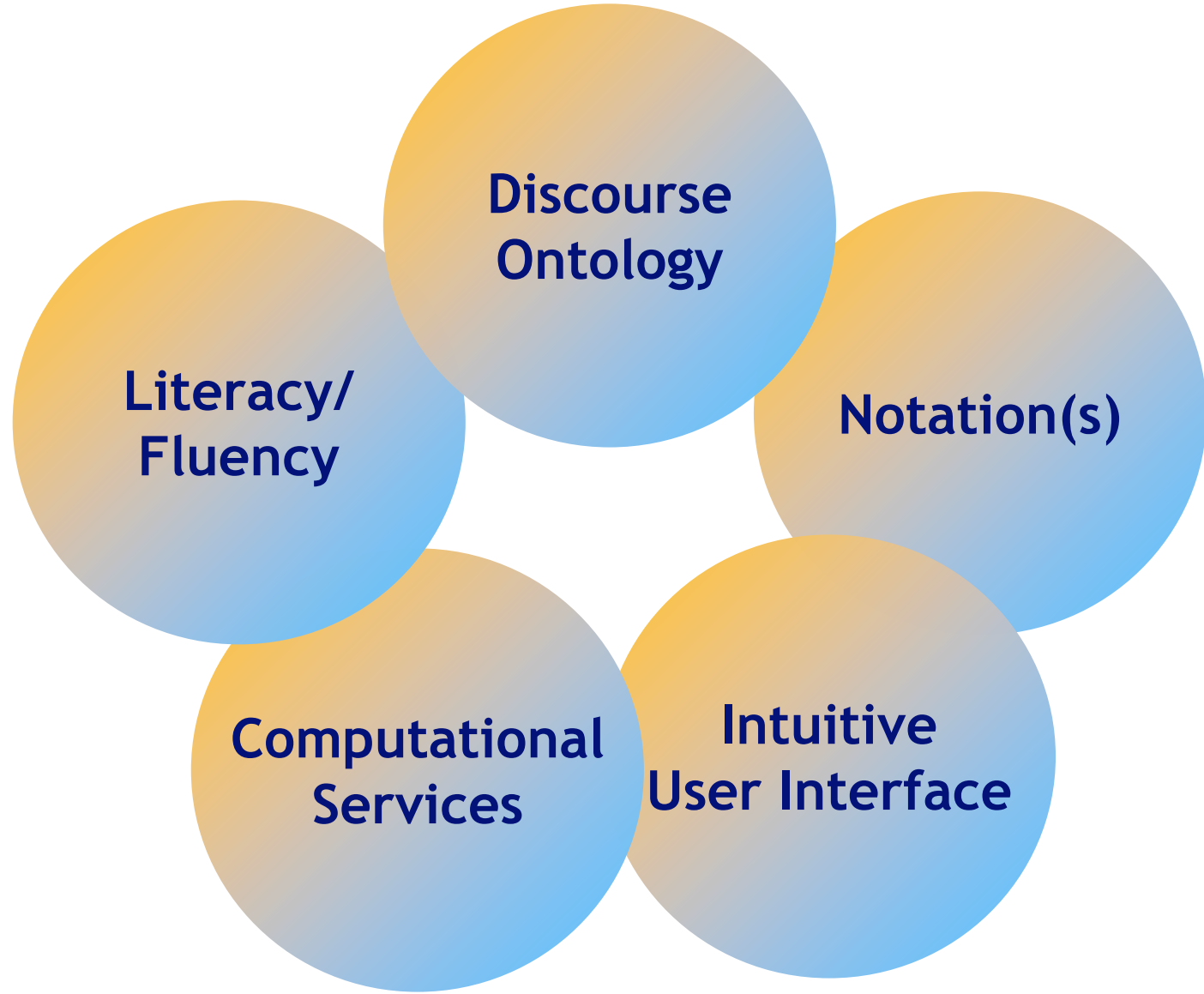
The discourse of modelling:

Compendium+IBIS can support many forms of discourse and rationale capture throughout the design lifecycle, from early requirements through to maintenance

Modelling discourse:

It is possible to co-evolve discourse schemes, tools and literacy to mediate sensemaking discourse. Strong evidence for Compendium, emerging evidence for ClaiMaker

Hypermedia Discourse tools:



**Discourse
Ontology**

**Literacy/
Fluency**

Notation(s)

**Computational
Services**

**Intuitive
User Interface**

***Common Ground* between Pragmatic Web and Hypermedia Discourse perspectives**



Ongoing work...

Social bookmarking as semiosis

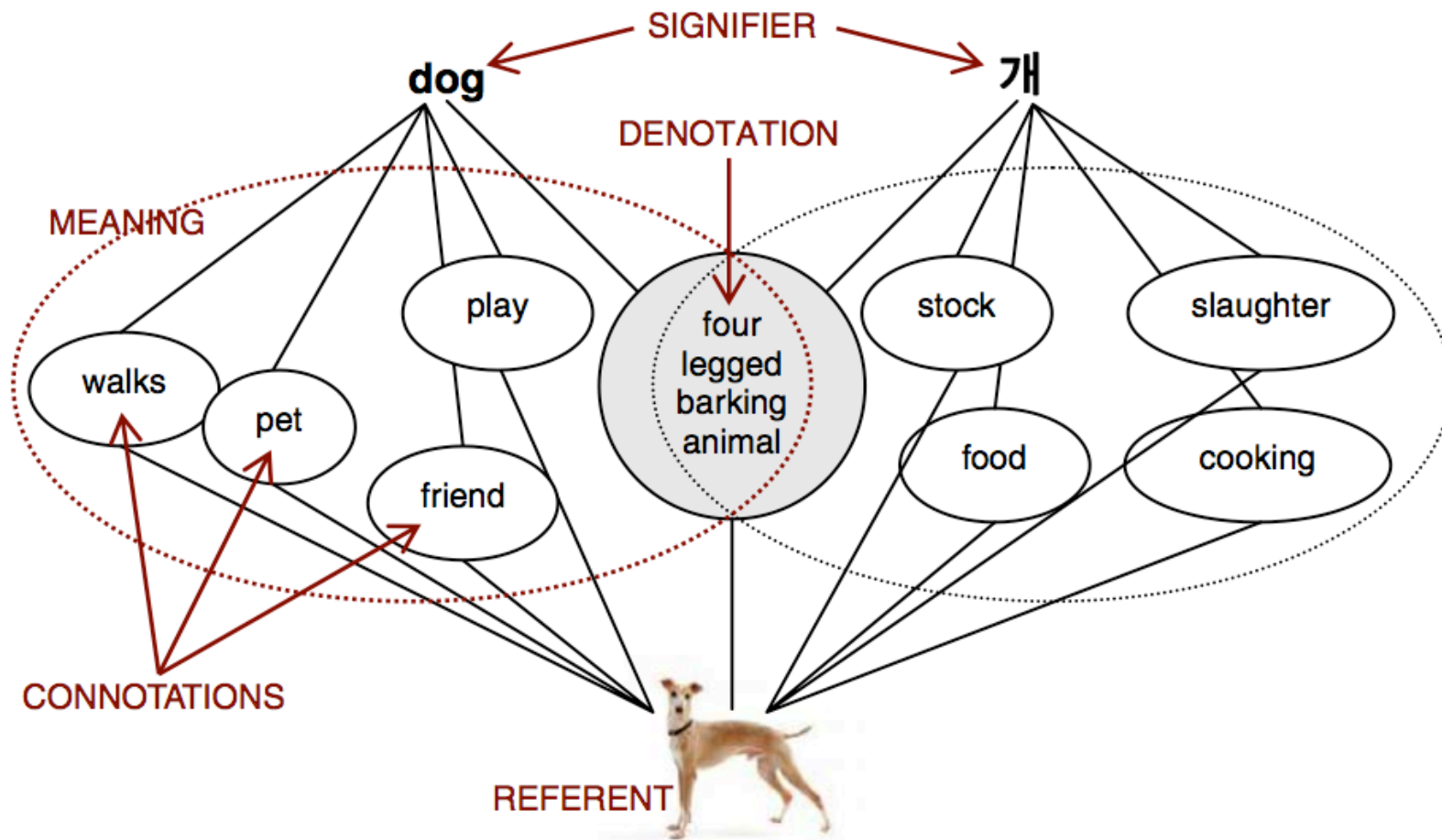


Fig. 1. The components of a sign system.

Annotation as semiosis in the Scholarly Ontologies project

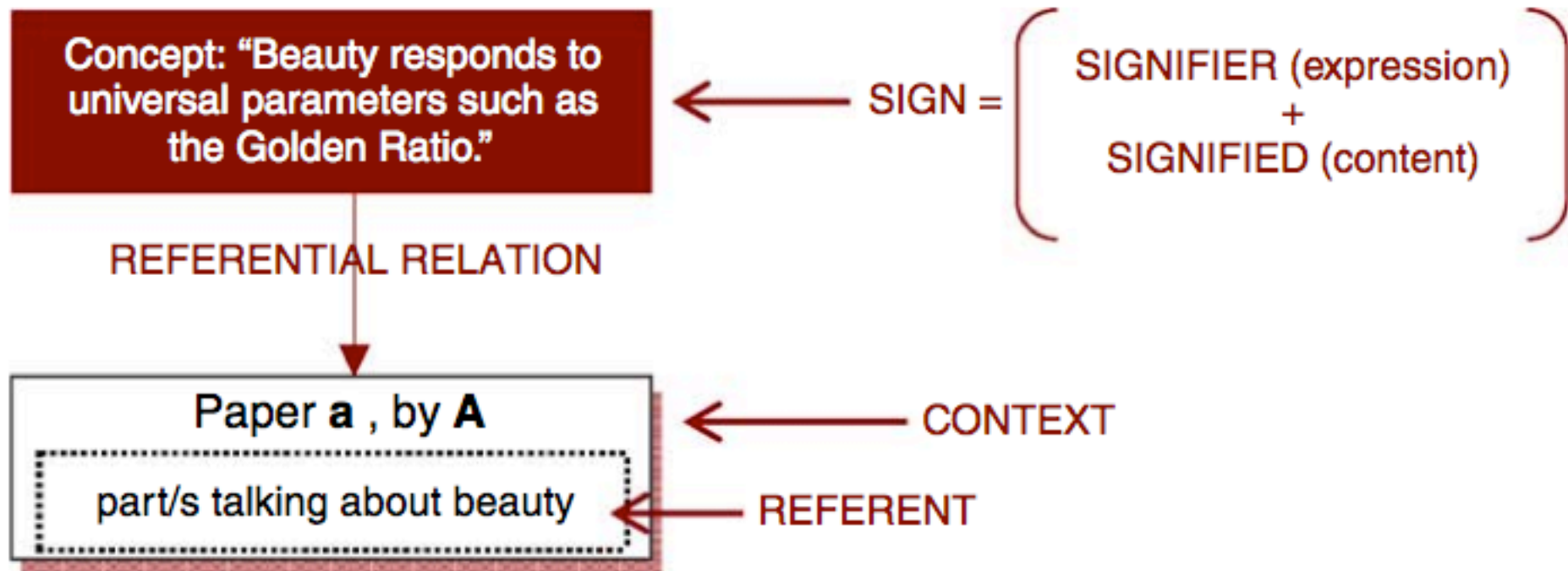


Fig. 4. Semiotic analysis of a ClaiMaker's primary claim.

Making primary and secondary claims as semiotic and discourse moves

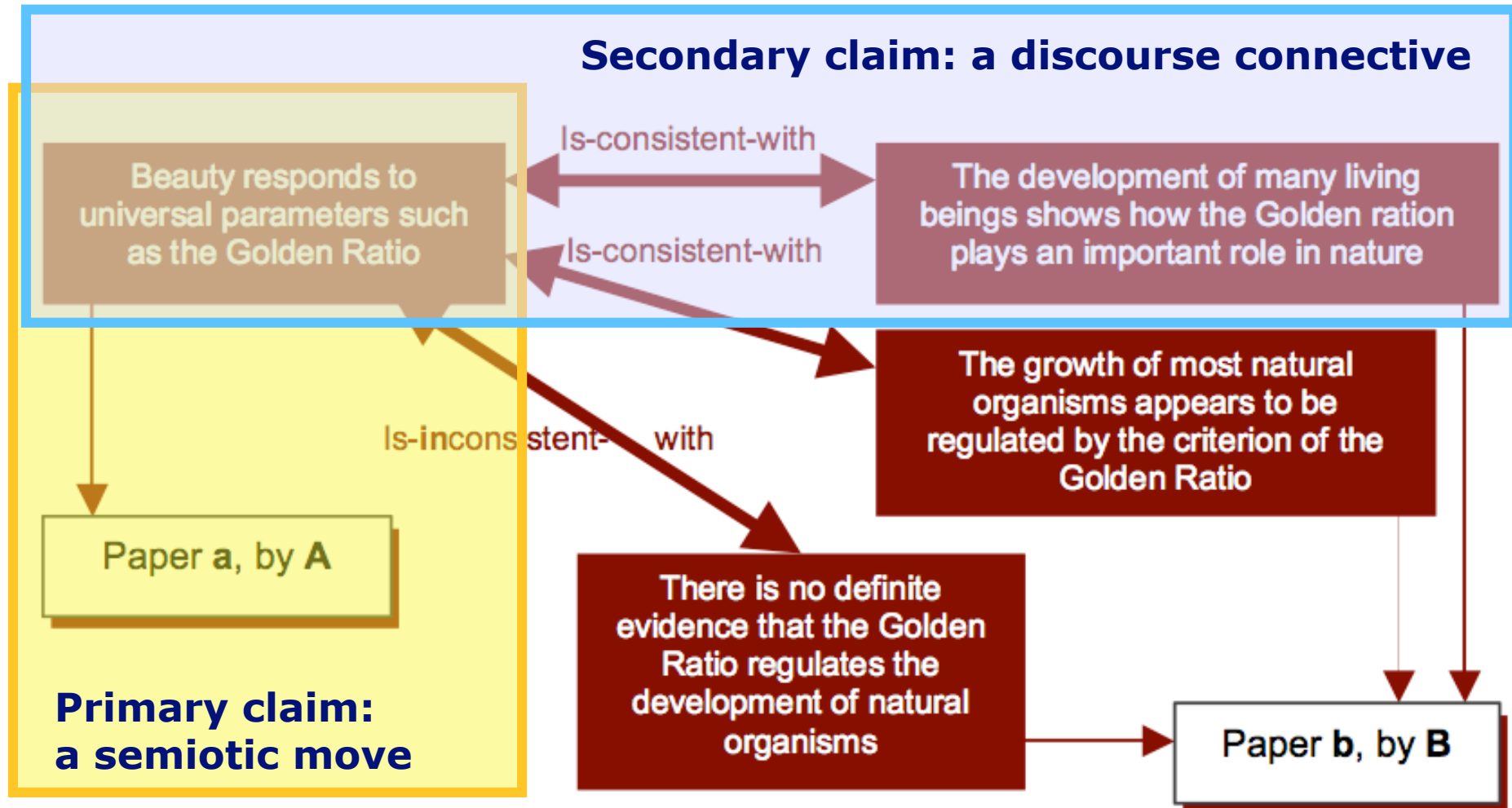
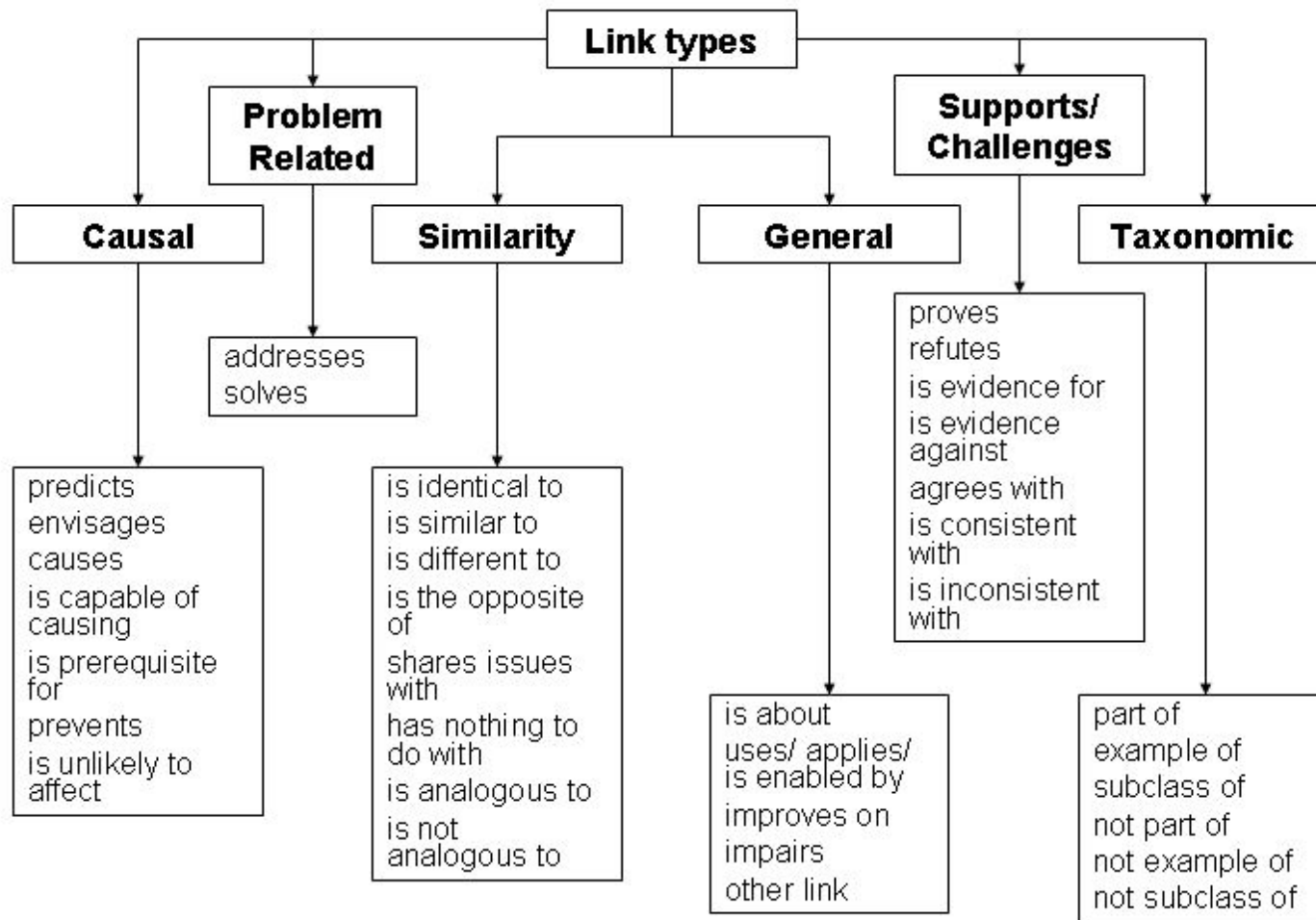
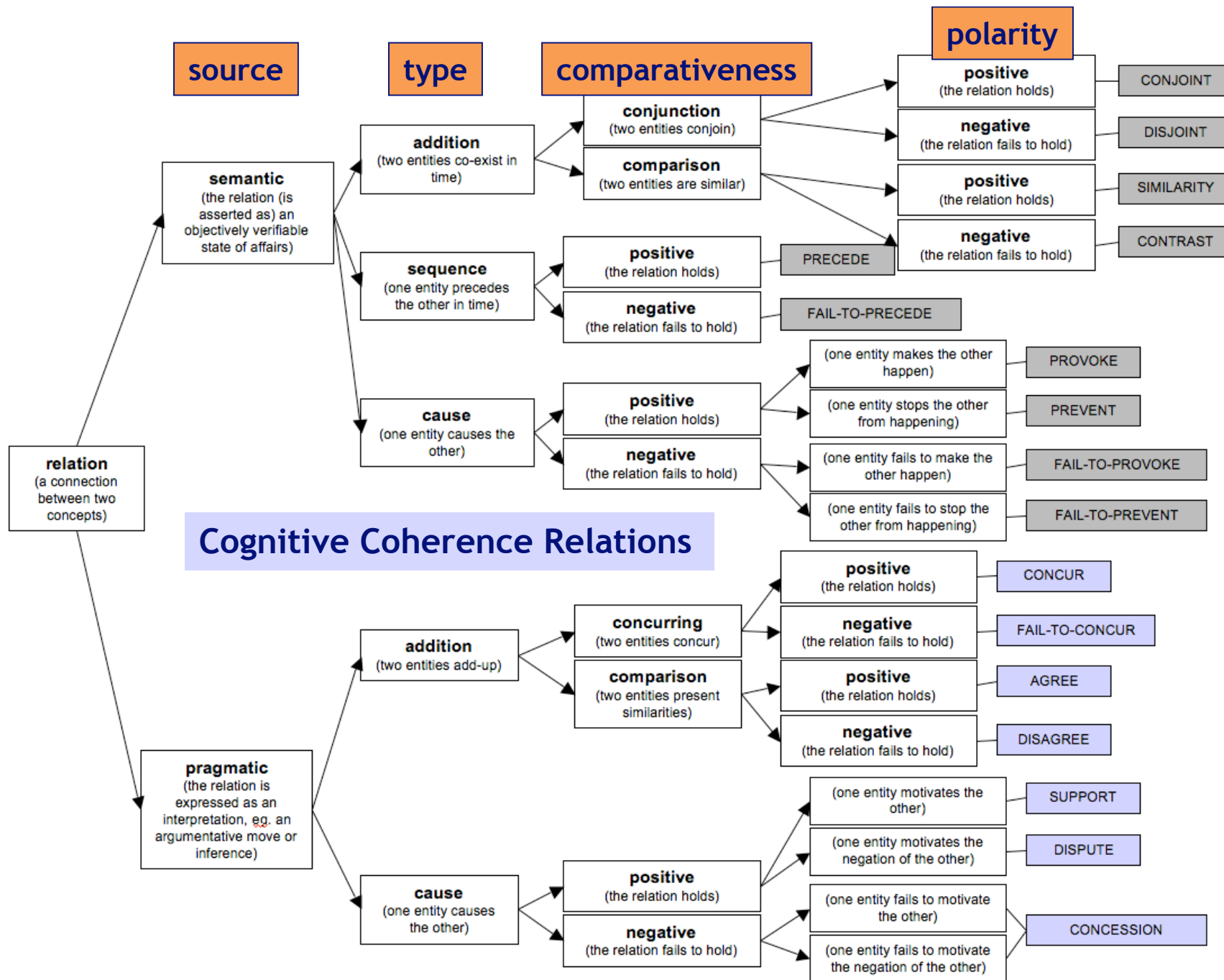


Figure 5. An example of different and even contradictory claims anchored in the same sources (referents).

Combining formal relations with the expressive freedom of 'folksonomies'

Relational classes and dialects (KMi Scholarly Ontologies project)





Using CCR-based Coherence Patterns to detect candidate “schools of thought”

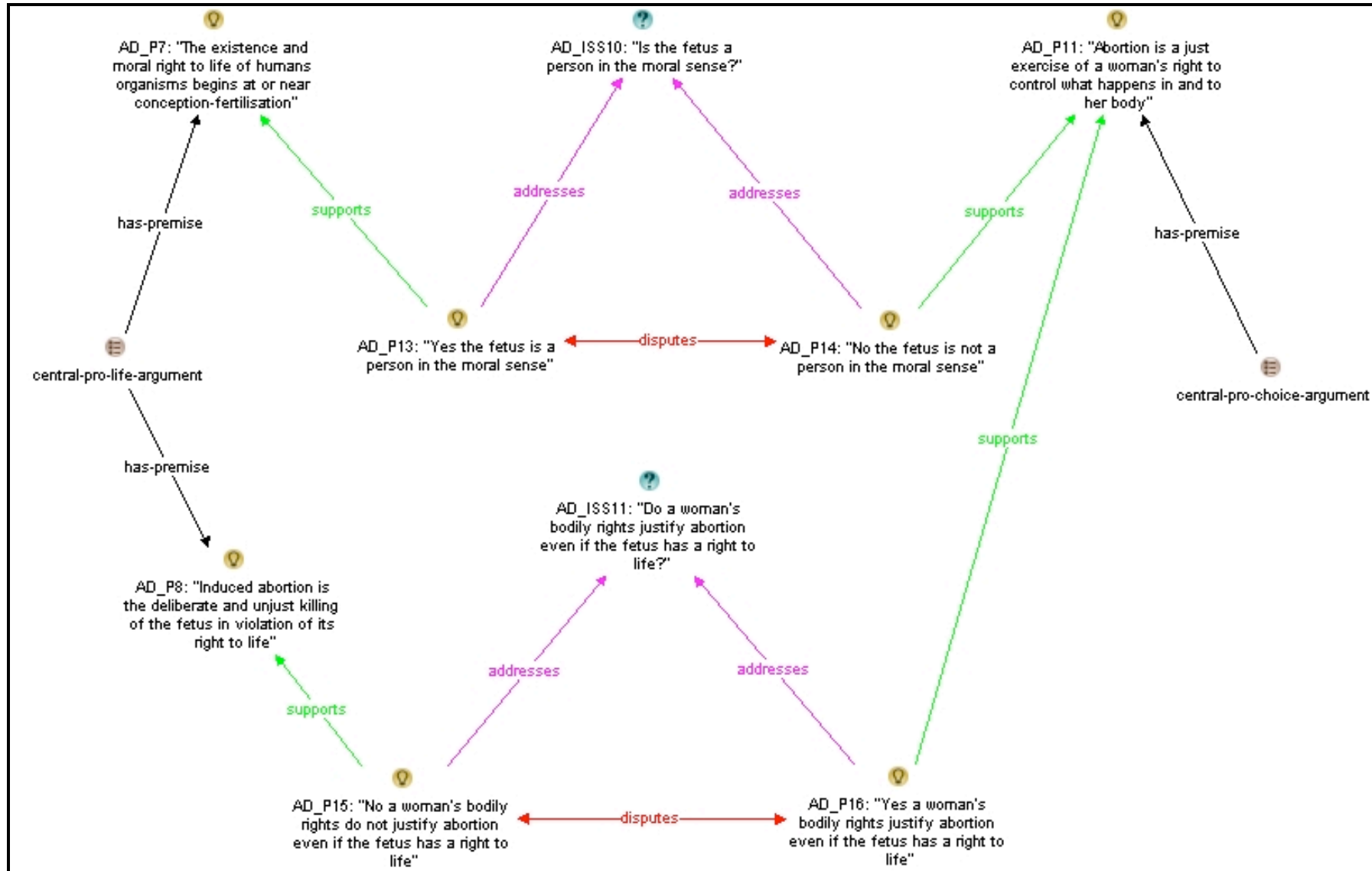
Doctoral work by Neil Benn, KMi

Contemporary philosophical literature contains two kinds of arguments concerning the morality of abortion. One family of arguments (see the following three sections) relates to the moral status of the fetus—the question of whether the fetus has a right to life, is the sort of being it would be seriously wrong to kill, or in other words is a 'person' in the moral sense. An affirmative answer would support claim (1) in the central pro-life argument, while a negative answer would support claim (2) in the central pro-choice argument.

Another family of arguments (see the section on Thomson, below) relates to bodily rights—the question of whether the woman's bodily rights justify abortion even if the fetus has a right to life. A negative answer would support claim (2) in the central pro-life argument, while an affirmative answer would support claim (2) in the central pro-choice argument.

Using CCR-based Coherence Patterns to detect candidate "schools of thought"

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```
(def-instance AD_ISS10 Issue
  ((display-text "Is the fetus a person in the moral sense?"))

(def-instance AD_P13 Proposition
  ((display-text "Yes the fetus is a person in the moral sense")))

(def-instance AD_P14 Proposition
  ((display-text "No the fetus is not a person in the moral sense")))
.....

(def-relation-instances
  (addresses AD_P13 AD_ISS10)
  (addresses AD_P14 AD_ISS10)
  (disputes AD_P13 AD_P14)
  (disputes AD_P14 AD_P13)
  (supports AD_P13 AD_P7)
  (supports AD_P14 AD_P11))

(def-instance AD_ISS11 Issue
  ((display-text "Do a woman's bodily rights justify abortion even if
the fetus has a right to life?"))

(def-instance AD_P15 Proposition
  ((display-text "No, a woman's bodily rights do not justify abortion
even if the fetus has a right to life")))

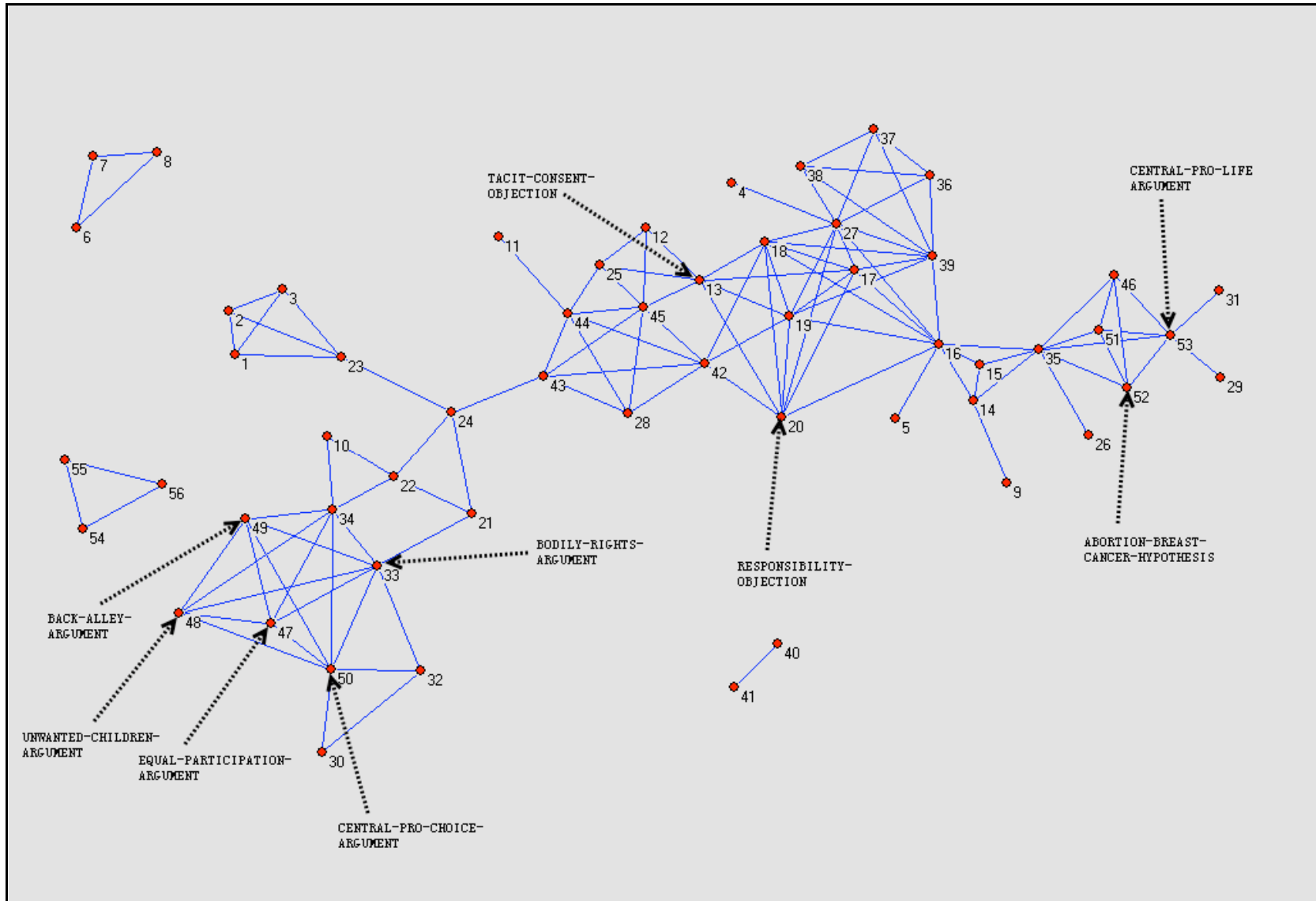
(def-instance AD_P16 Proposition
  ((display-text "Yes, a woman's bodily rights justify abortion even if
the fetus has a right to life")))

(def-relation-instances
  (addresses AD_P15 AD_ISS11)
  (addresses AD_P16 AD_ISS11)
  (disputes AD_P15 AD_P16)
  (disputes AD_P16 AD_P15)
  (supports AD_P15 AD_P8)
  (supports AD_P16 AD_P11))
```

Code Listing 6-4 - This code listing shows the representation of the expanded argumentation in the debate

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KNOWLEDGE MEDIA

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Hypermedia Discourse Project:
<http://kmi.open.ac.uk/projects/hyperdiscourse>