Wigmore, Toulmin & Walton

The Diagramming Trinity and their Application in Legal Practice

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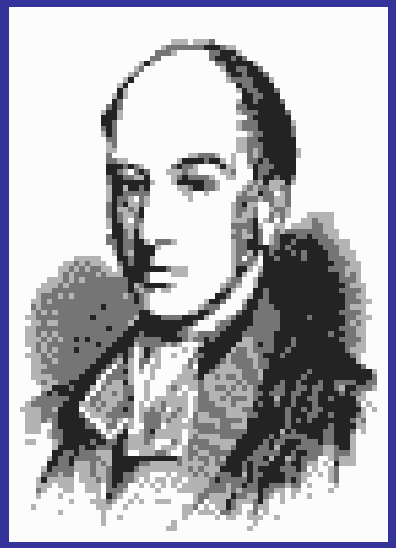
History of Arg Diagramming

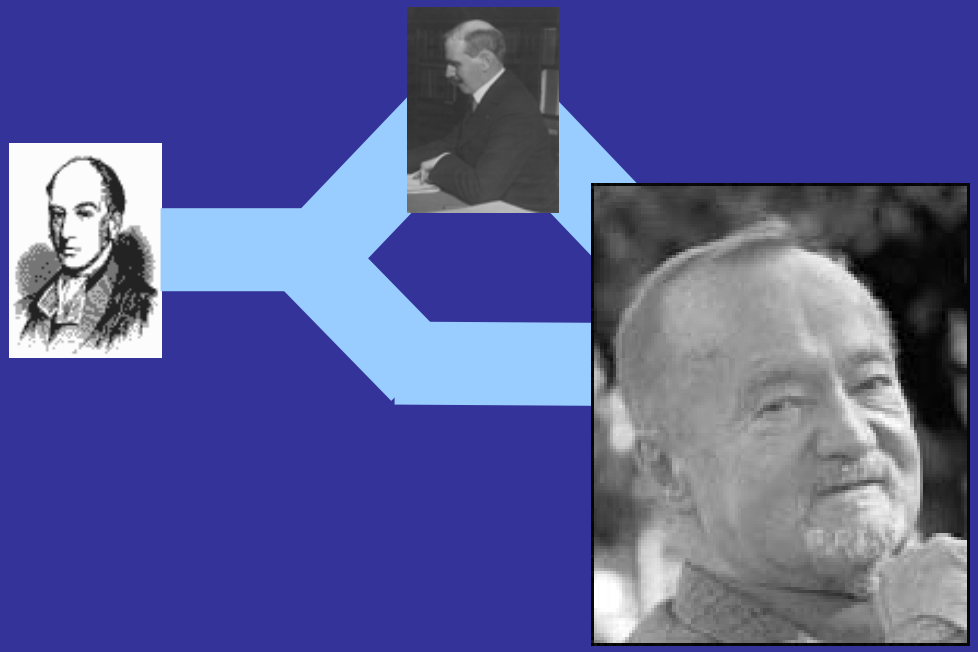


1850s

History of Arg Diagramming

1850s **1910s**

History of Arg Diagramming



1850s **1910s** **1950s**

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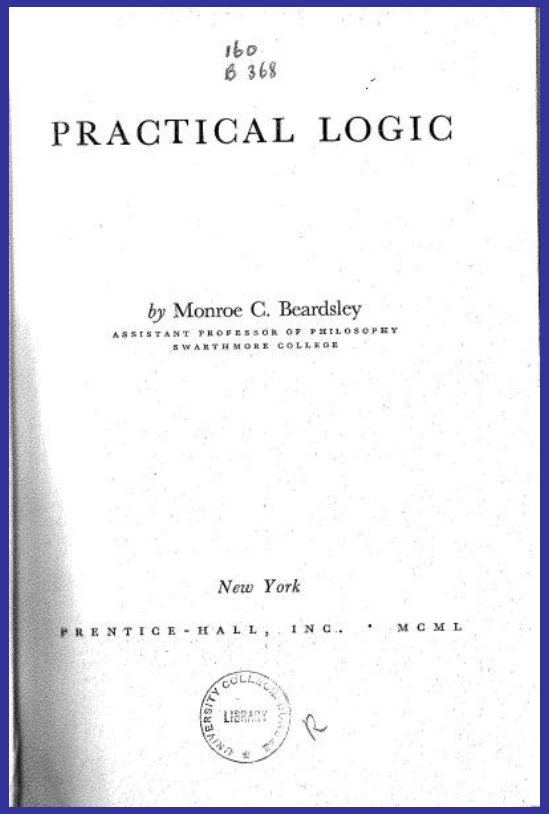
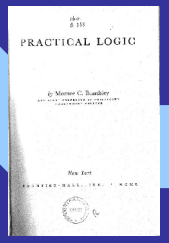
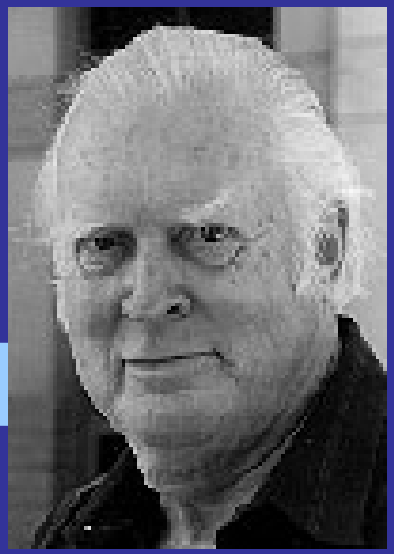


1850s **1910s** **1950s**

History of Argumentation





1850s 1910s 1950s 1970s

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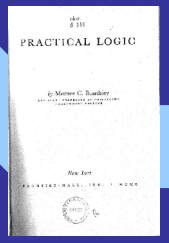

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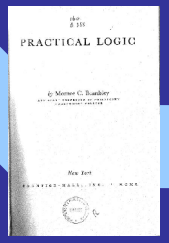

1850s 1910s 1950s 1970s 1980s 1990s

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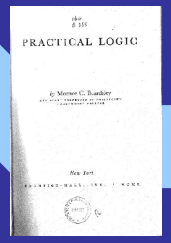

1850s 1910s 1950s 1970s 1980s 1990s

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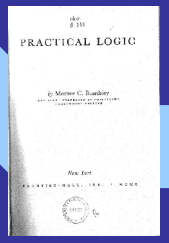
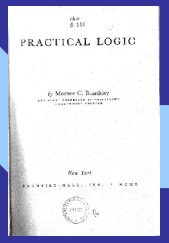


1850s 1910s 1950s 1970s 1980s 1990s

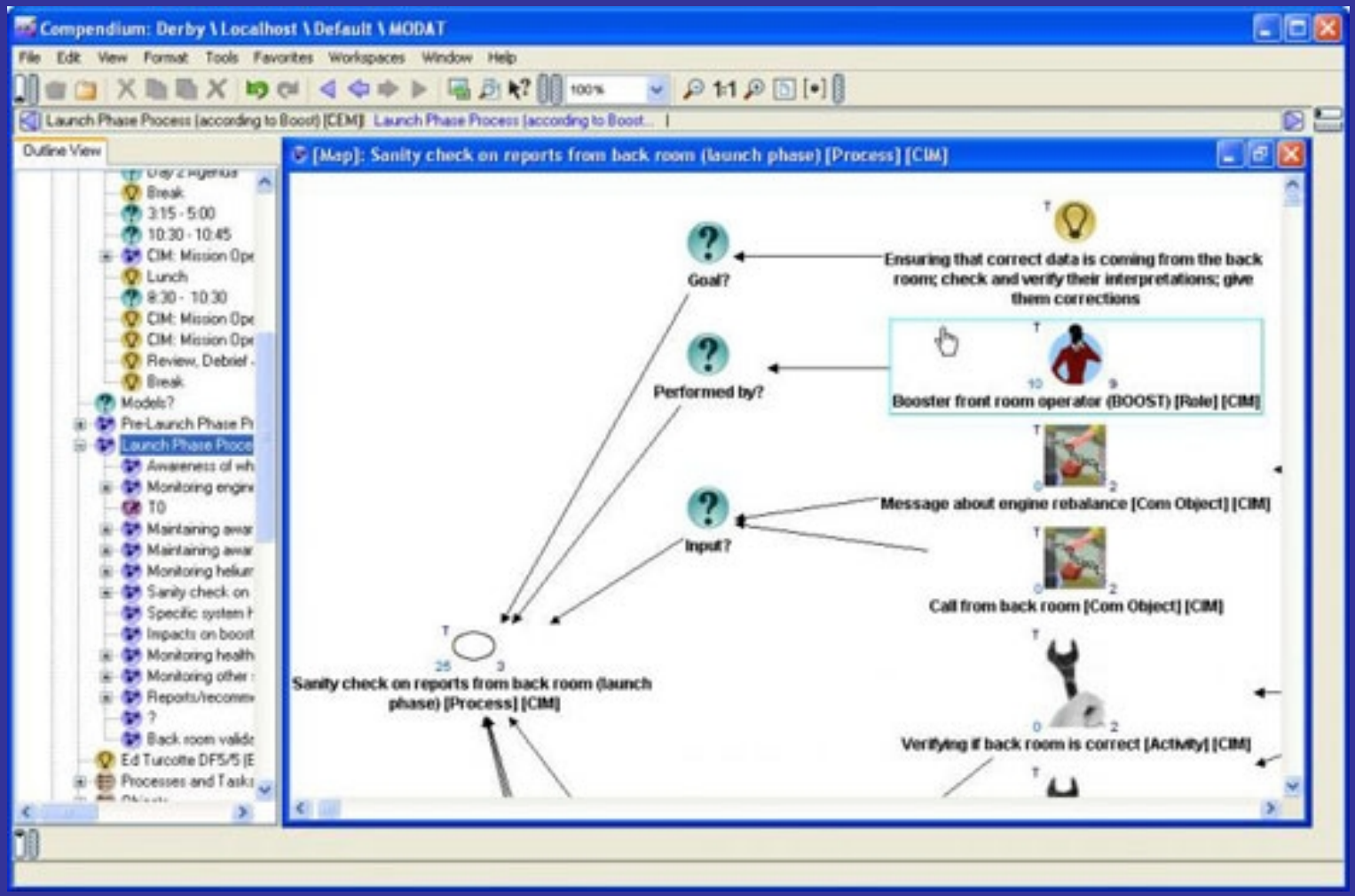
History of Arg Diagramming

Computational Approaches

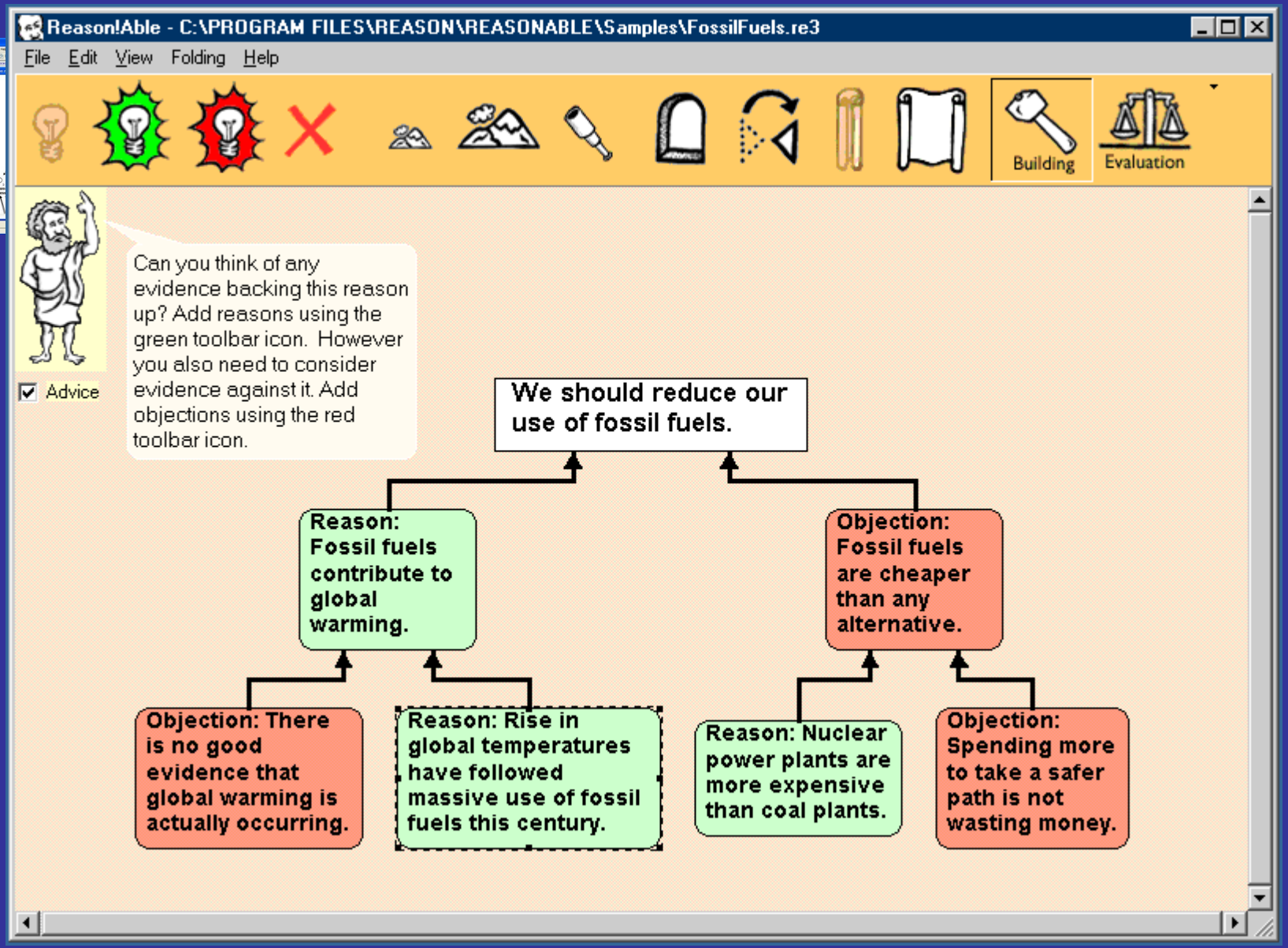


1850s 1910s 1950s 1970s 1980s 1990s

Computational Approaches



Computational Approaches



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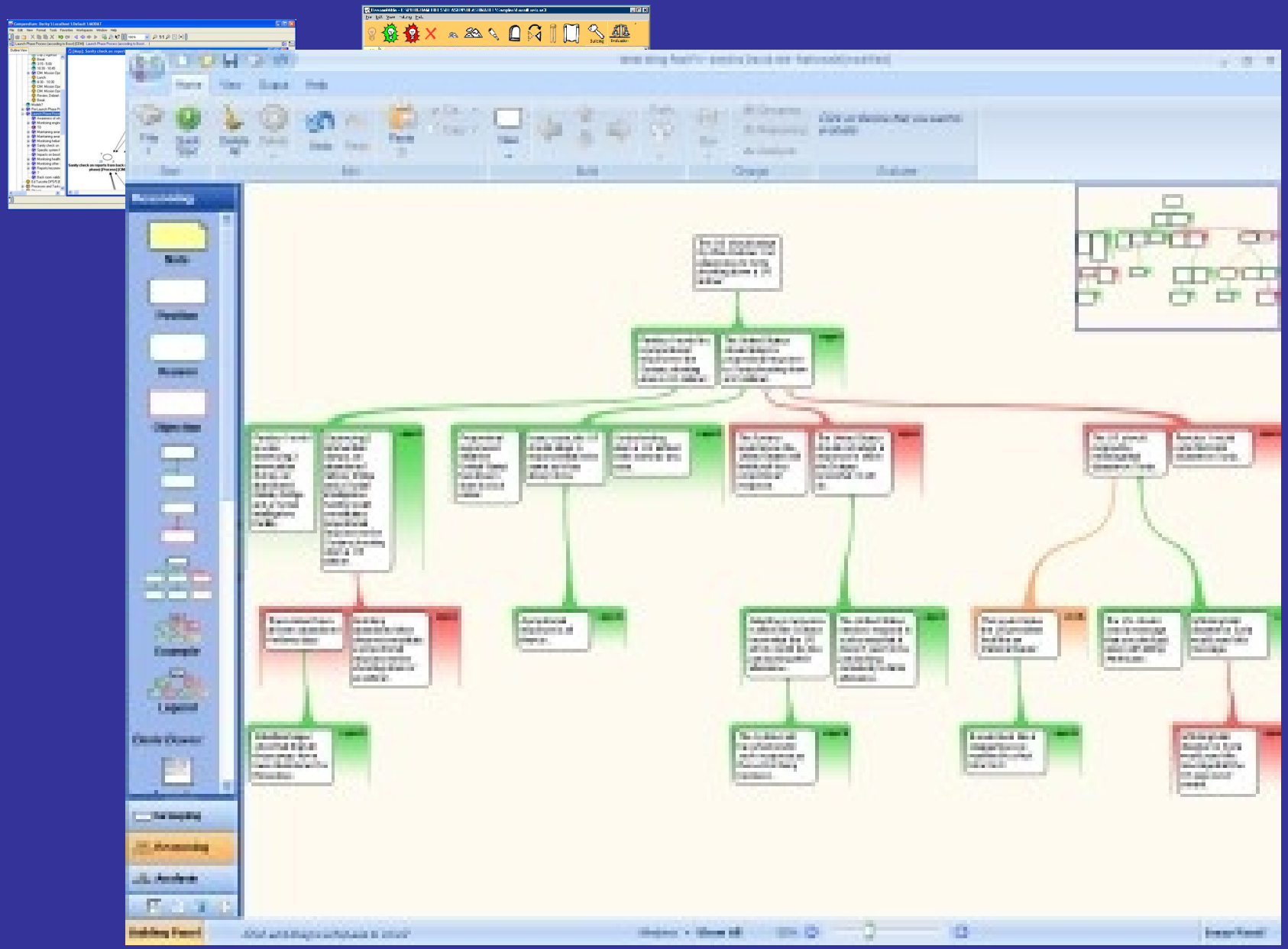

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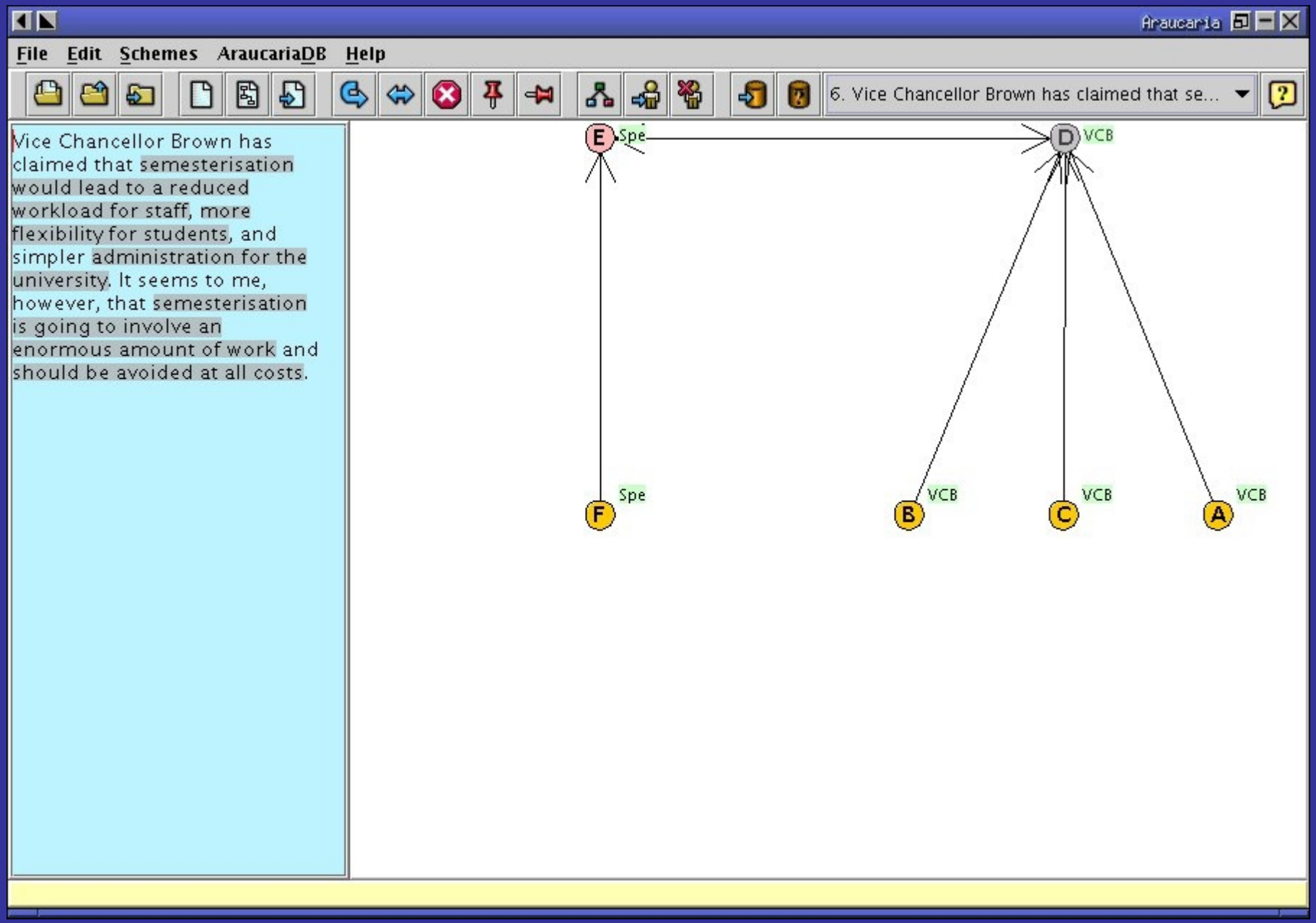

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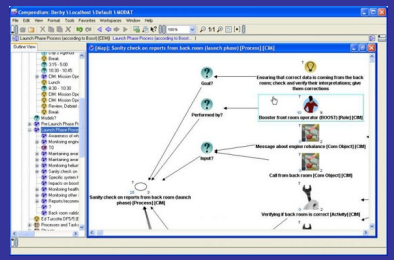

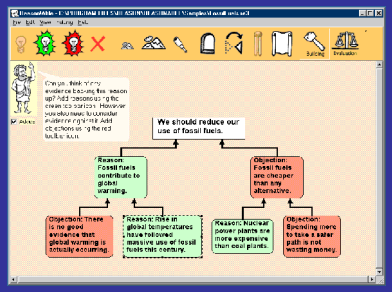

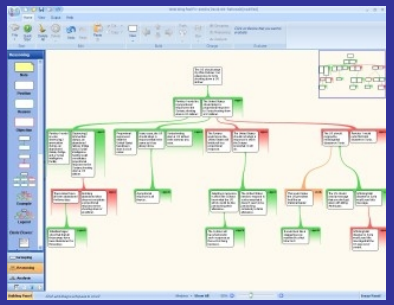

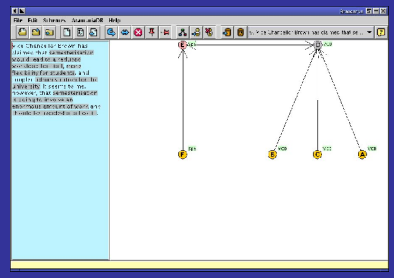

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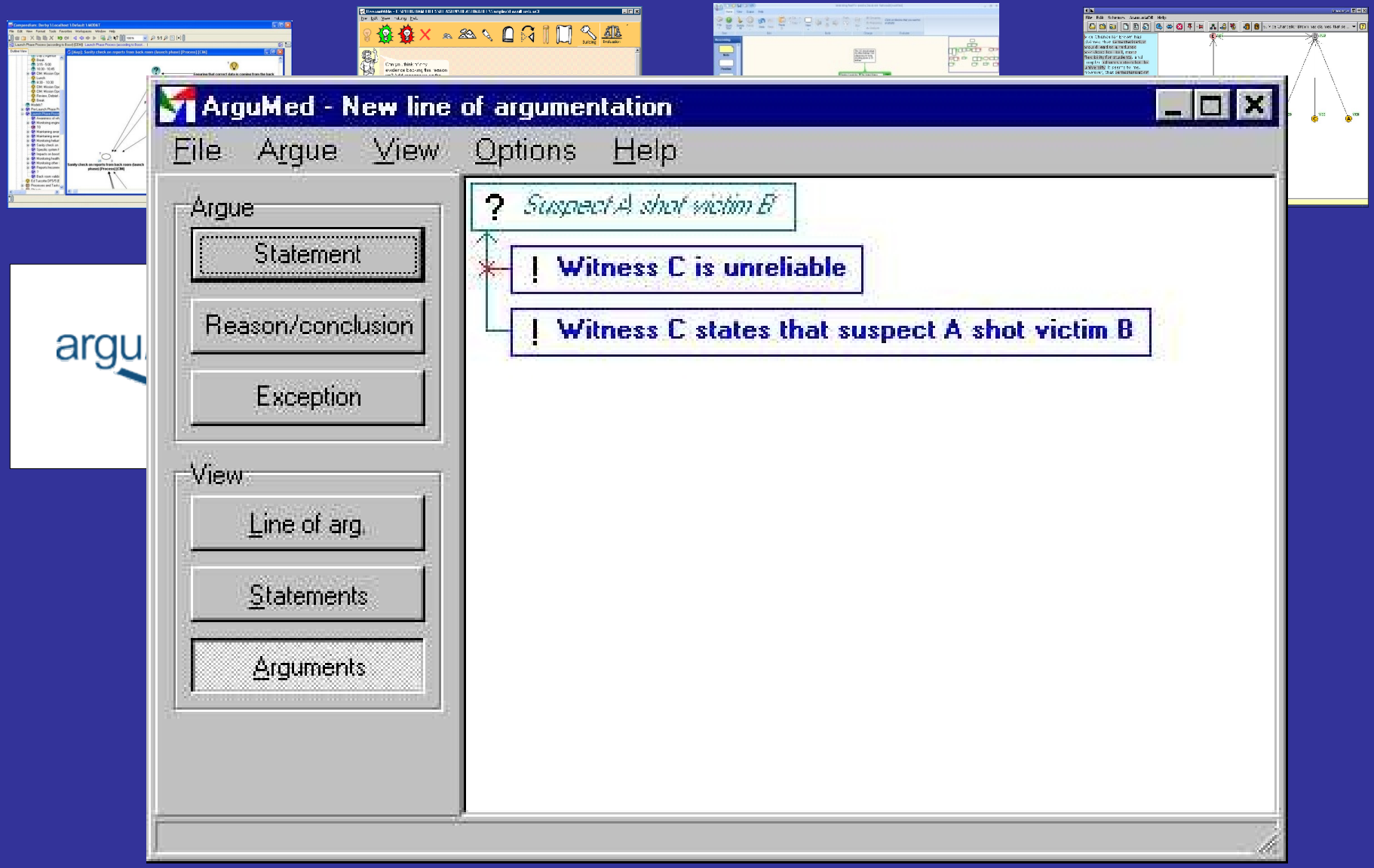
Computational Approaches



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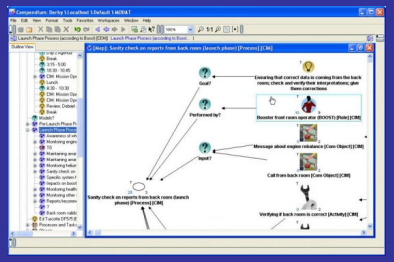

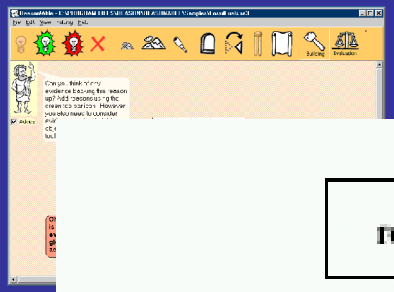

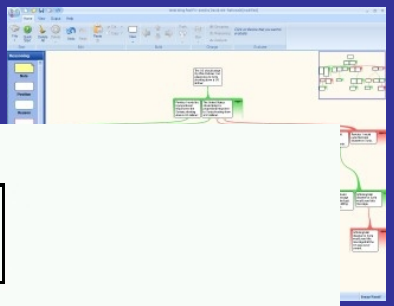

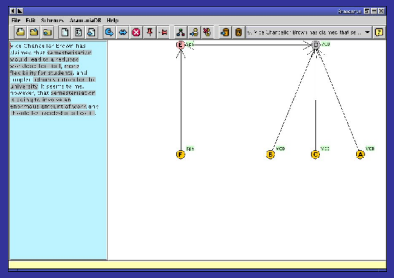

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Computational Approaches

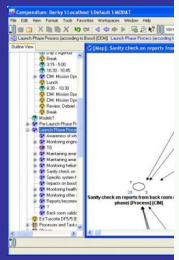
PARMENIDES Discussion Forum

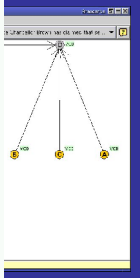
Welcome to the PARMENIDES discussion forum. The topic of this forum is:

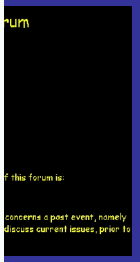
"Is Invasion of Iraq Justified?".

This particular discussion forum is for illustrative purposes only as the topic concerns a past event, namely the invasion of Iraq. However, the intention of this forum is for public use to discuss current issues, prior to an event taking place.

Computational Approaches







ArgDF is a Semantic Web-Based Argumentation System

Developed as part of a disseration project
At the British University in Dubai Jointly with the University of Edinburgh,
Informatics Department,
Knowledge and Data Management Stream,

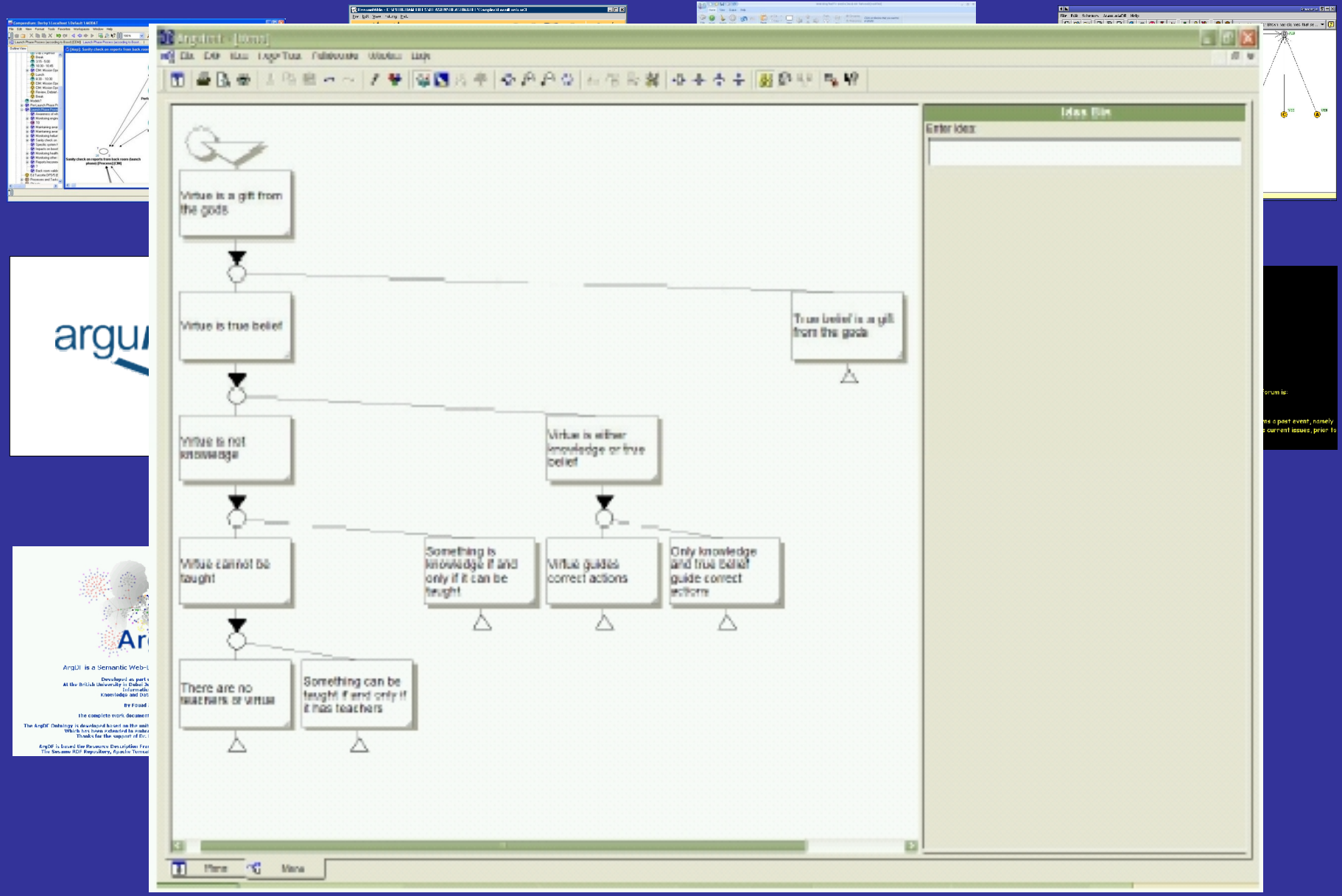
By Fouad Zablith, 2006

The complete work document will be available online shortly.

The ArgDF Ontology is developed based on the unifed Argumentation Interchange Format (AIF) concepts,
Which has been extended to embrace Walton's Argumentation Schemes,
Thanks for the support of Dr. Iyad Rahwan and Dr. Chris Reed.

ArgDF is based the Resource Description Framework (RDF) Semantic language and requires:
The Sesame RDF Repository, Apache Tomcat Server, Apache HTTP Server, PHP and MySQL

Computational Approaches



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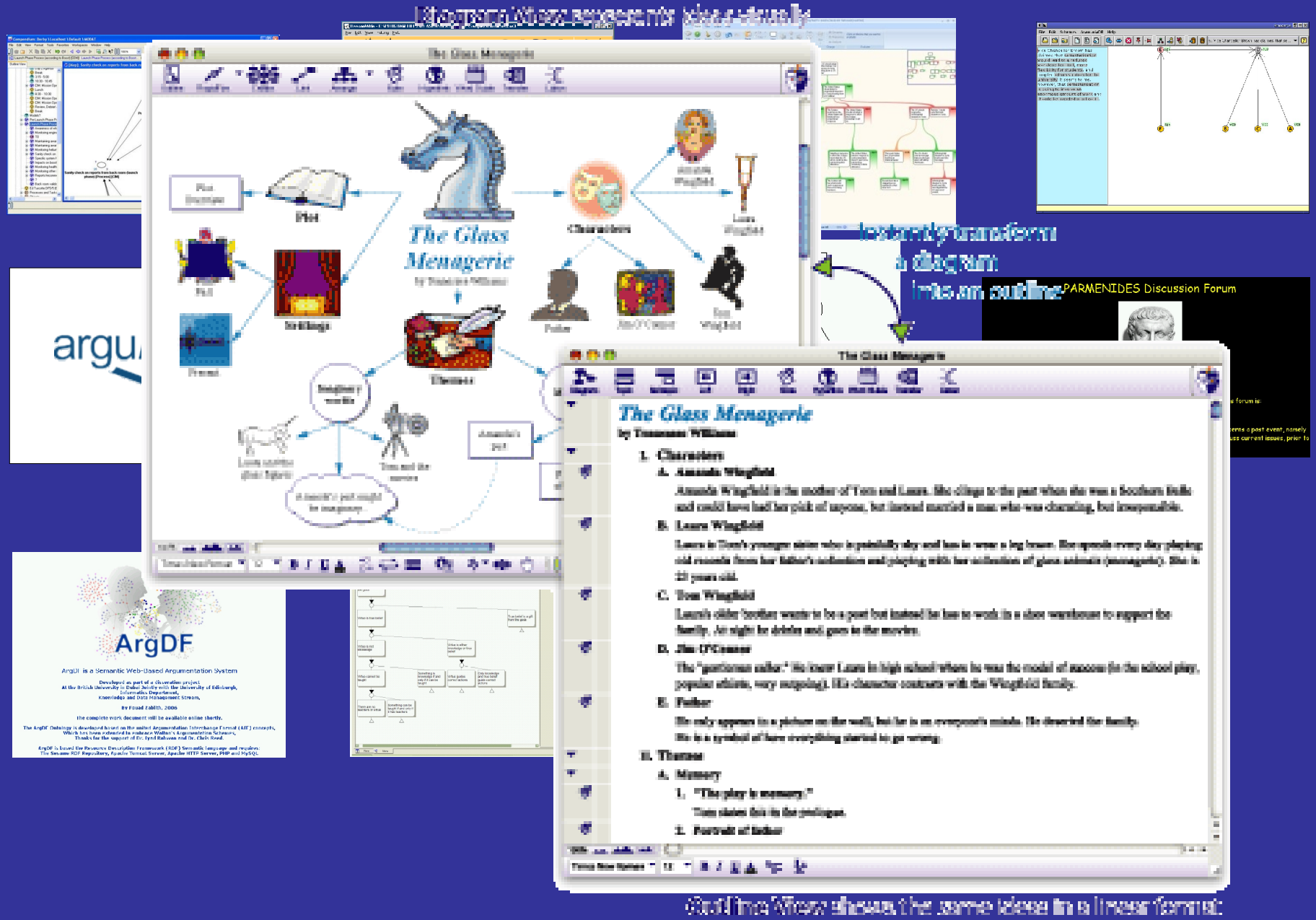

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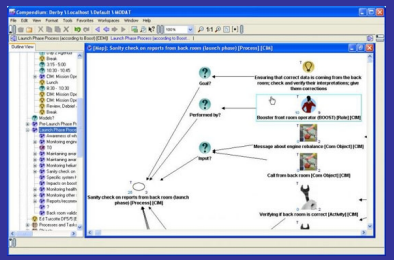

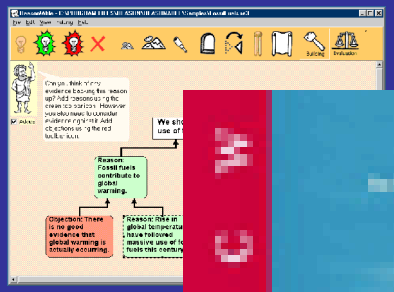

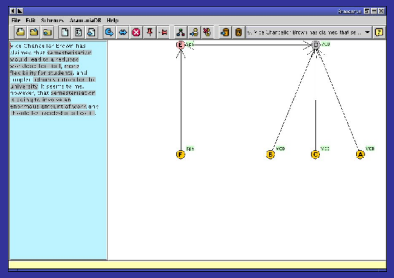

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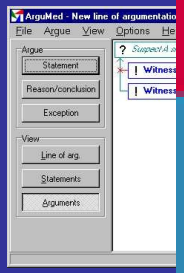

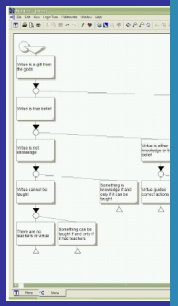

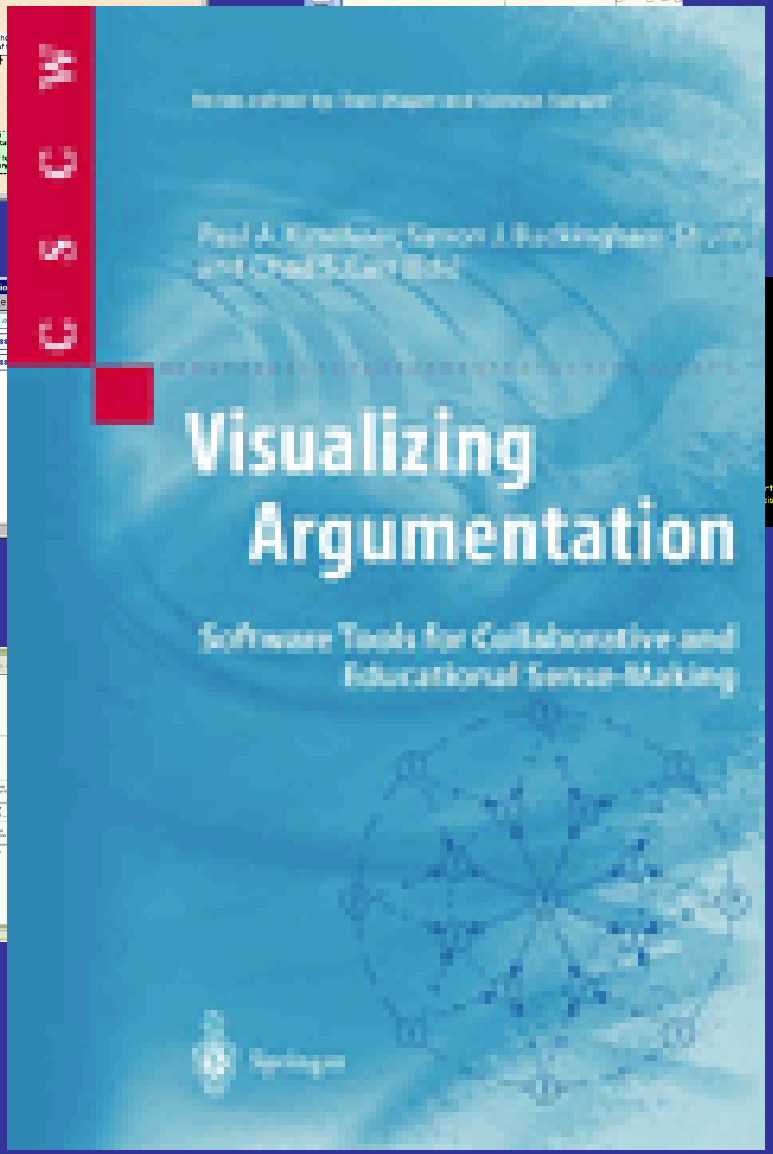

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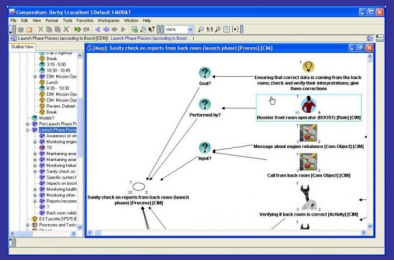
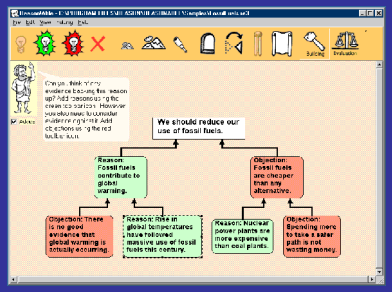
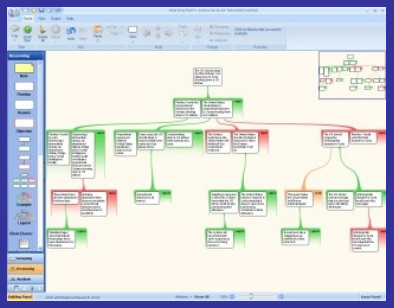
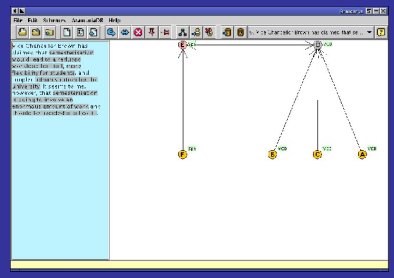
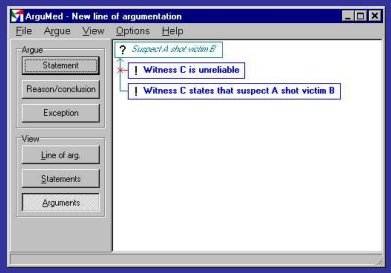
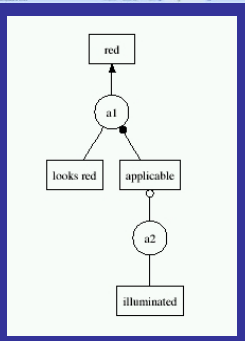


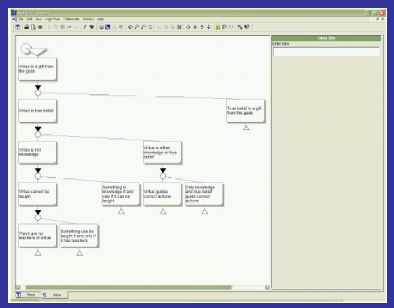


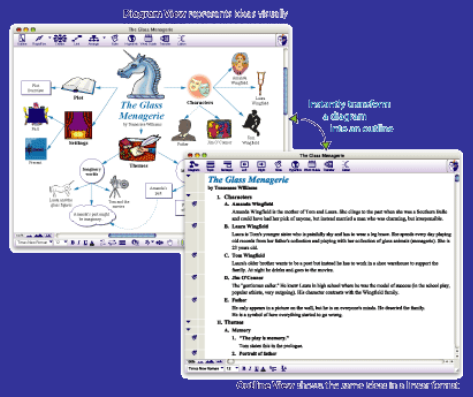


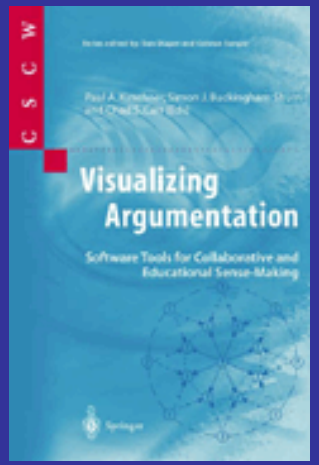












Crossing theories

Wigmore

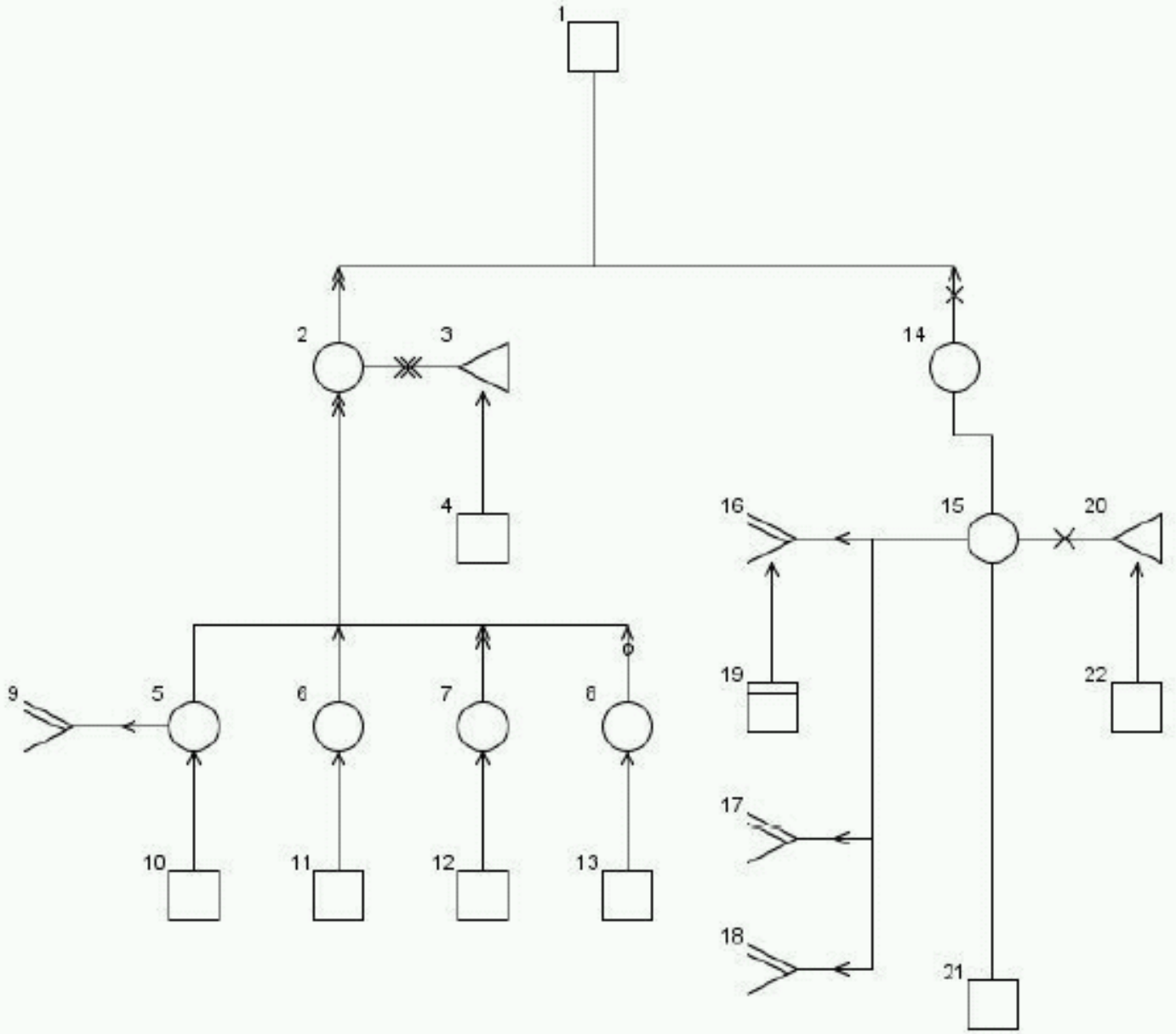
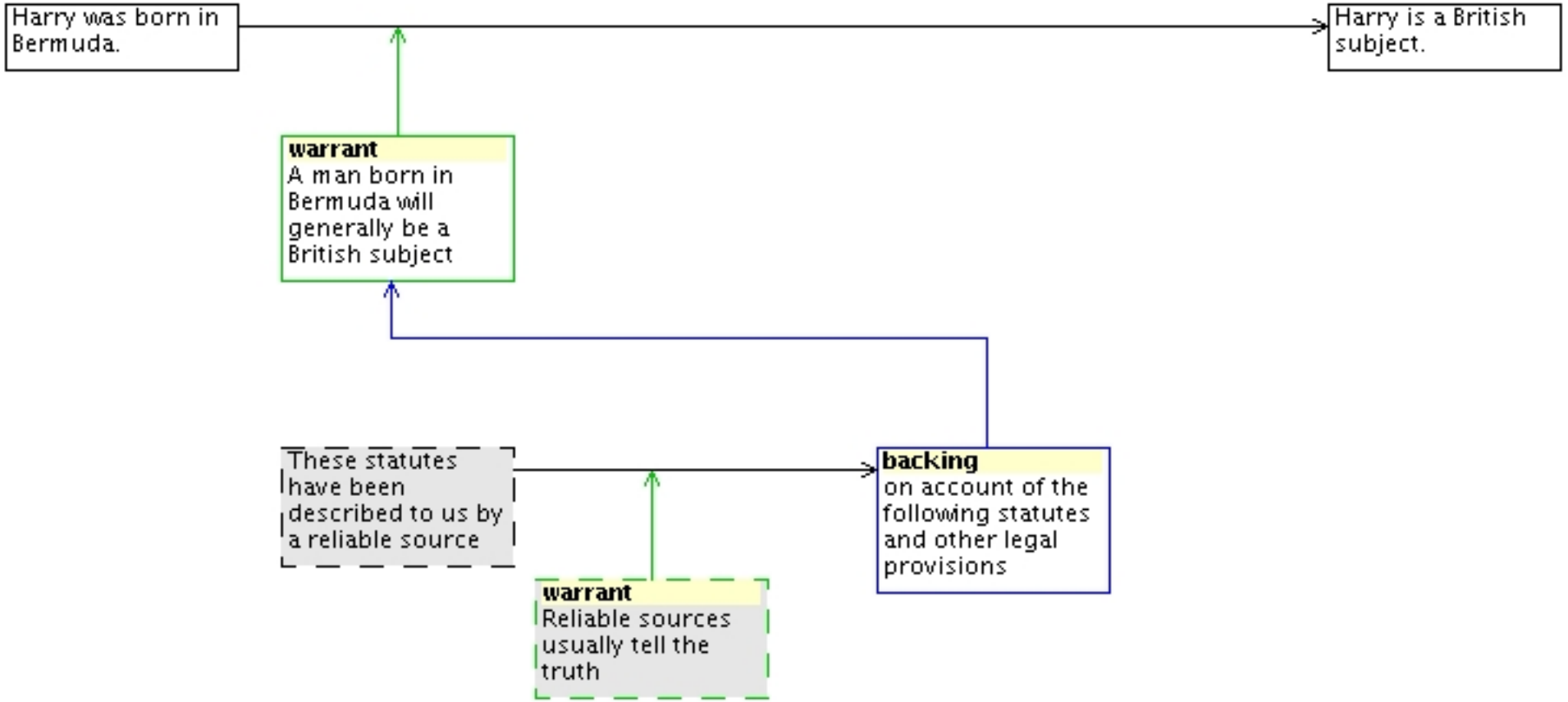
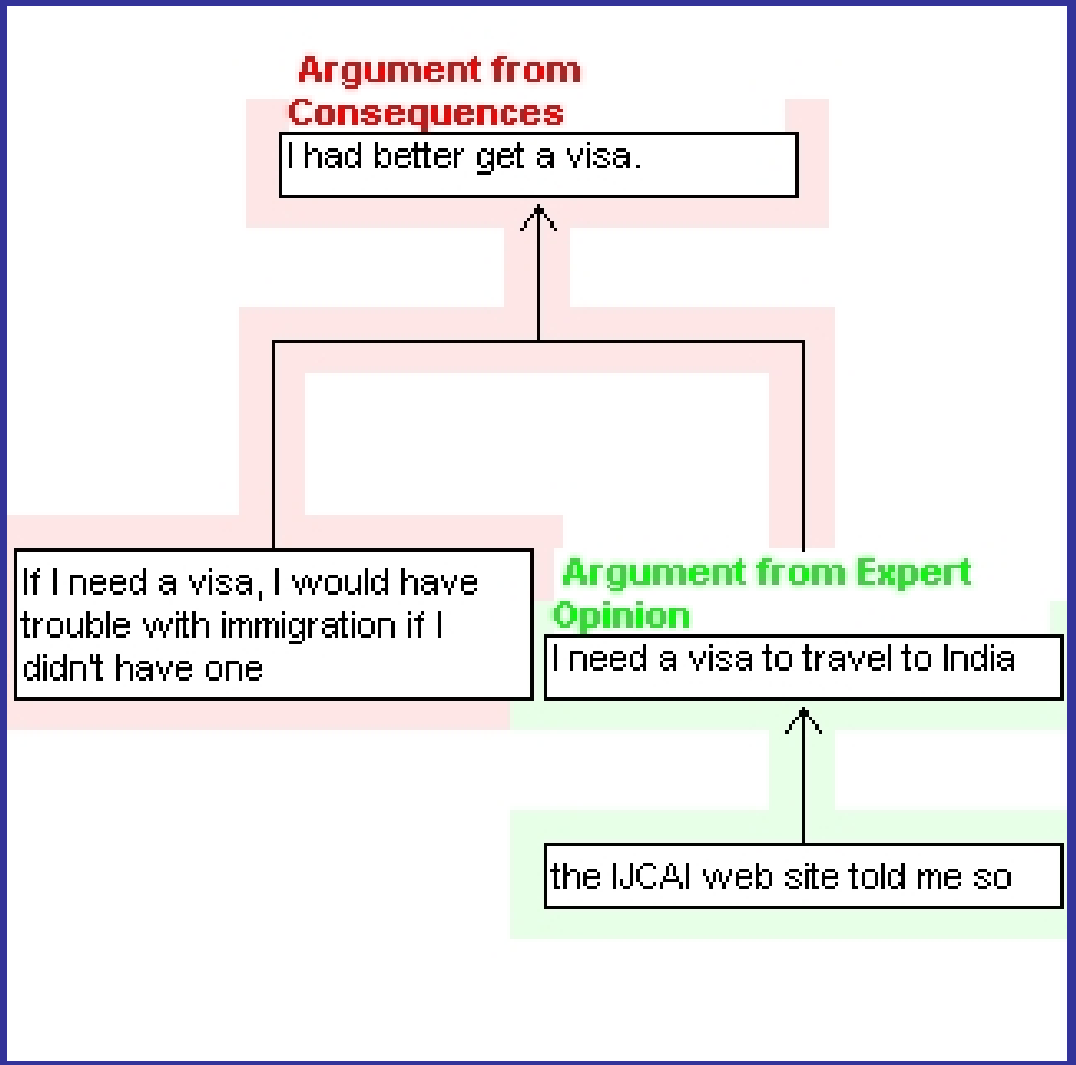


Figure 1. A sample Wigmore diagram, generated by Araucaria

Toulmin


Harry was born in Bermuda.
Harry is a British subject.
warrant
A man born in Bermuda will generally be a British subject
These statutes have been described to us by a reliable source
backing
on account of the following statutes and other legal provisions
warrant
Reliable sources usually tell the truth

Walton


Argument from Consequences
I had better get a visa.
If I need a visa, I would have trouble with immigration if I didn't have one
Argument from Expert Opinion
I need a visa to travel to India
the IJCAI web site told me so

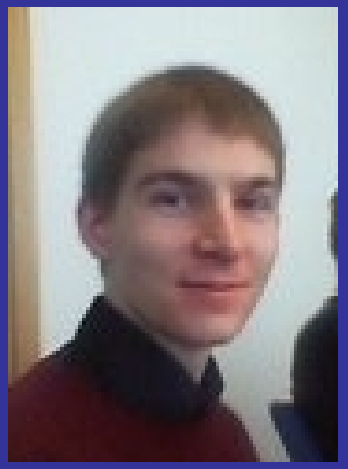
Araucaria

- Glenn Rowe
- System to analyse NL arguments
- Mark up text, draw pic
- Handle refutations, enthymemes, edge labelling, vertex labelling
- Stores in open XML format, AML
- Handle argumentation schemes
- Translates between theoretical frameworks (“Standard”, Toulmin, Wigmore)

Araucaria

Reaching Agreement

- Devereux,
  Gibson &
  Wells



- Agreement in MAS
- Conditions for homogeneity
- Character of retraction
- Identification and use of (formal) fallacy

Supporting Discussion

- Lawrence and Deak

- Involving humans
- E-democracy
- Design discussions

Arguments & Semantic Web

- Rahwan (Dubai)

- Online creation and extension of arguments
- Rich ontological mark-up

Burden of Proof

- Walton (Winnipeg) and Prakken (Utrecht)

- Schemes
- Critical Questions
- Burden of Proof

Araucaria for Teaching

- Winnipeg – trialled on Arg course
- Groningen – rolled out on law course
- Dundee – rolled out on CT course, Blackboard integration in progress
- CUNY – to be used in e-learning delivery

Araucaria for Practice

- > 2000 downloads to > 40 countries
- Schools, colleges, universities, researchers, students
- Professionals
  - Lawyers in the US
  - Engineers in the UK
  - Magistrates in Canada

Araucaria for Magistrates

- Large-scale and small-scale cases
- Role of Araucaria
- Schemes and Critical Questions
- Future

(Some) current work

- Collaboration with Leuven on automatic recognition of types of legal argument
- Collaboration with Utrecht on software for crime investigation
- Corpus construction & study
- Argument interchange
- The challenge of dialogue

To find out more

- At Dundee,
  - arg.computing.dundee.ac.uk
  - araucaria.computing.dundee.ac.uk
- Symposium on Argument and Computation *Argumentation Machines*
- Computational Models of Natural Argument Workshops (IJCAI 2001, 2003, 2005; ECAI 2002, 2004, 2006)
- Argumentation in Multi-Agent Systems Workshops (AAMAS 2004, 2005, 2006)

To find out more

- Special issue of *Intl J Int Sys*
- 7th Workshop on Computational Models of Natural Argument at IJCAI'07
- 4th Workshop on Argument in Multi-Agent Systems at AAMAS'07
- 1st International Conference on Computational Models of Argument (COMMA 2006)

Conclusion

- The theories of Wigmore, Toulmin and Walton all have features that may be of interest for evidence visualisation
- Building mechanisms for translating between these theories can offer the best of all worlds.