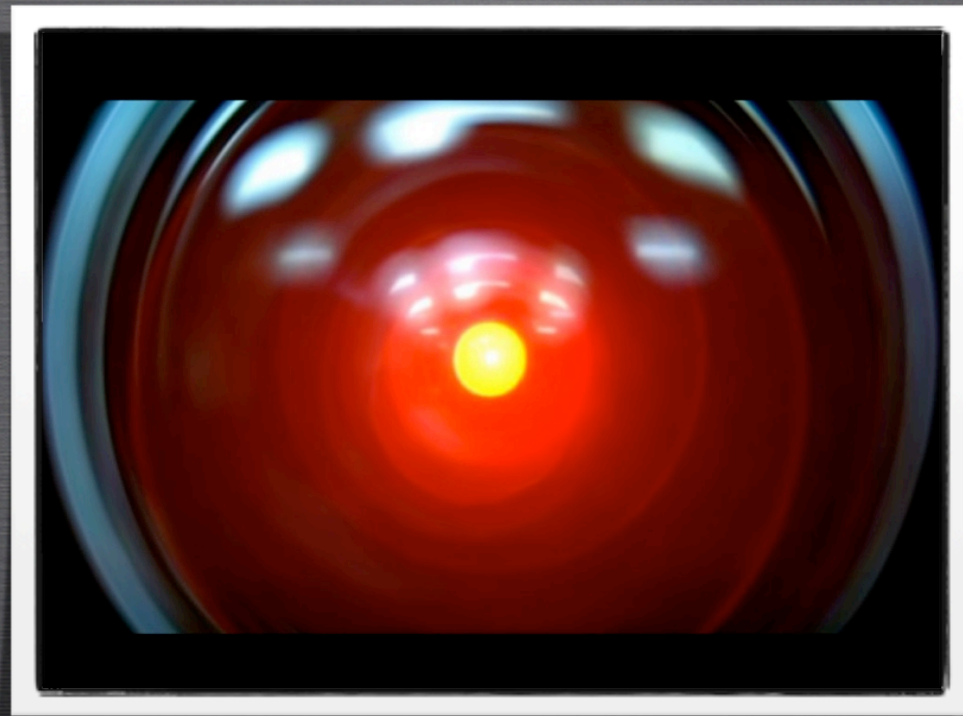
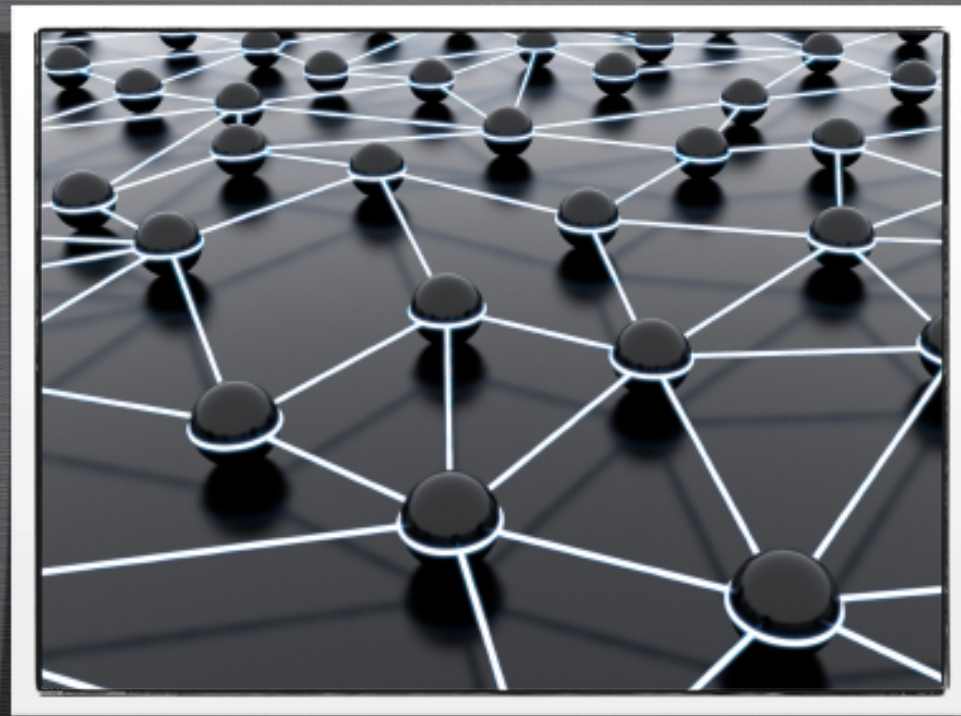


**“SEARCHING FOR
THE PRINCIPLES
OF
COMPUTATIONAL
INTELLIGENCE”**

SIMON WELLS



ARTIFICIAL INTELLIGENCE



MULTIAGENT SYSTEMS



ARGUMENTATION



DIALOGUE SYSTEMS

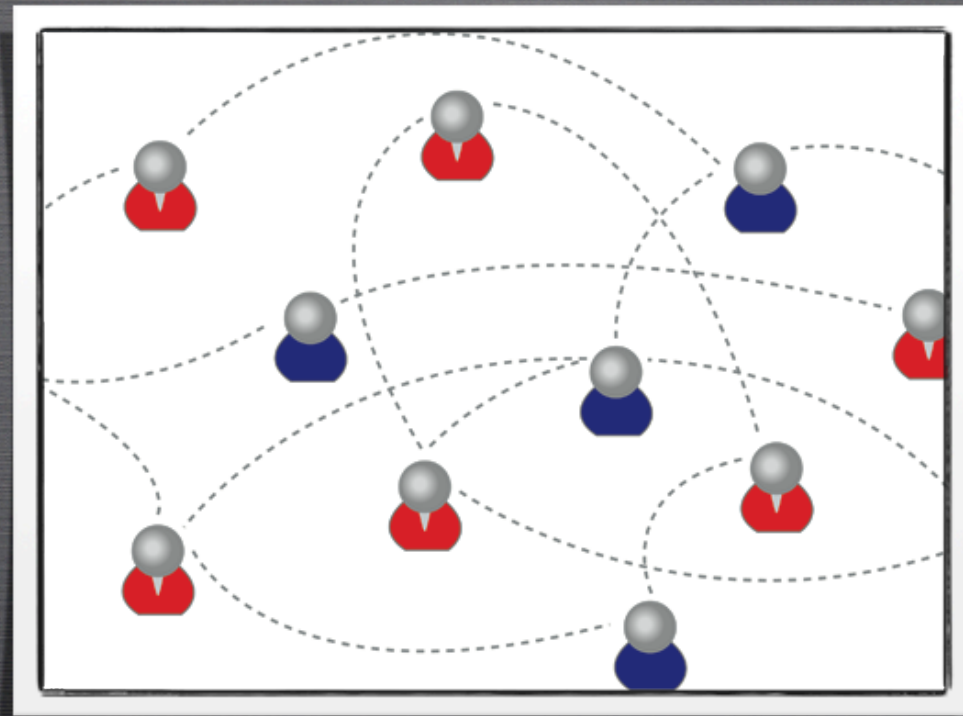
RESEARCH OVERVIEW

- System Characteristics:

- Large-Scale
- Secure
- Robust
- Distributed
- Complex
- Intelligent

- Applied To/Exploited within:

- Education & Critical Literacy
- Entertainment
- Security
- Democratic Representation
- Industrial Automation
- Commercial Trading
- Law



WEB-SCALE ARGUMENTATION, PERSUASIVE & SCAFFOLDING TECHNOLOGIES



Ask Martin a question...

John W
Director

Martin
Labour M

Why is this the case?

Do you have a different reason?

you agree with this?

Can you tell me more?

...ill undermine civil liberties

...e real target is the people whom the home office has lost

...k the current point is true John?

...it will be black people and those from ethnic minorities who will find that they need to show their card most often

Martin:
No, I don't agree. If you are saying the police might discriminate against black people (even though it is illegal), that is a serious problem that needs to be tackled. But should not stop us having ID cards

Current point »

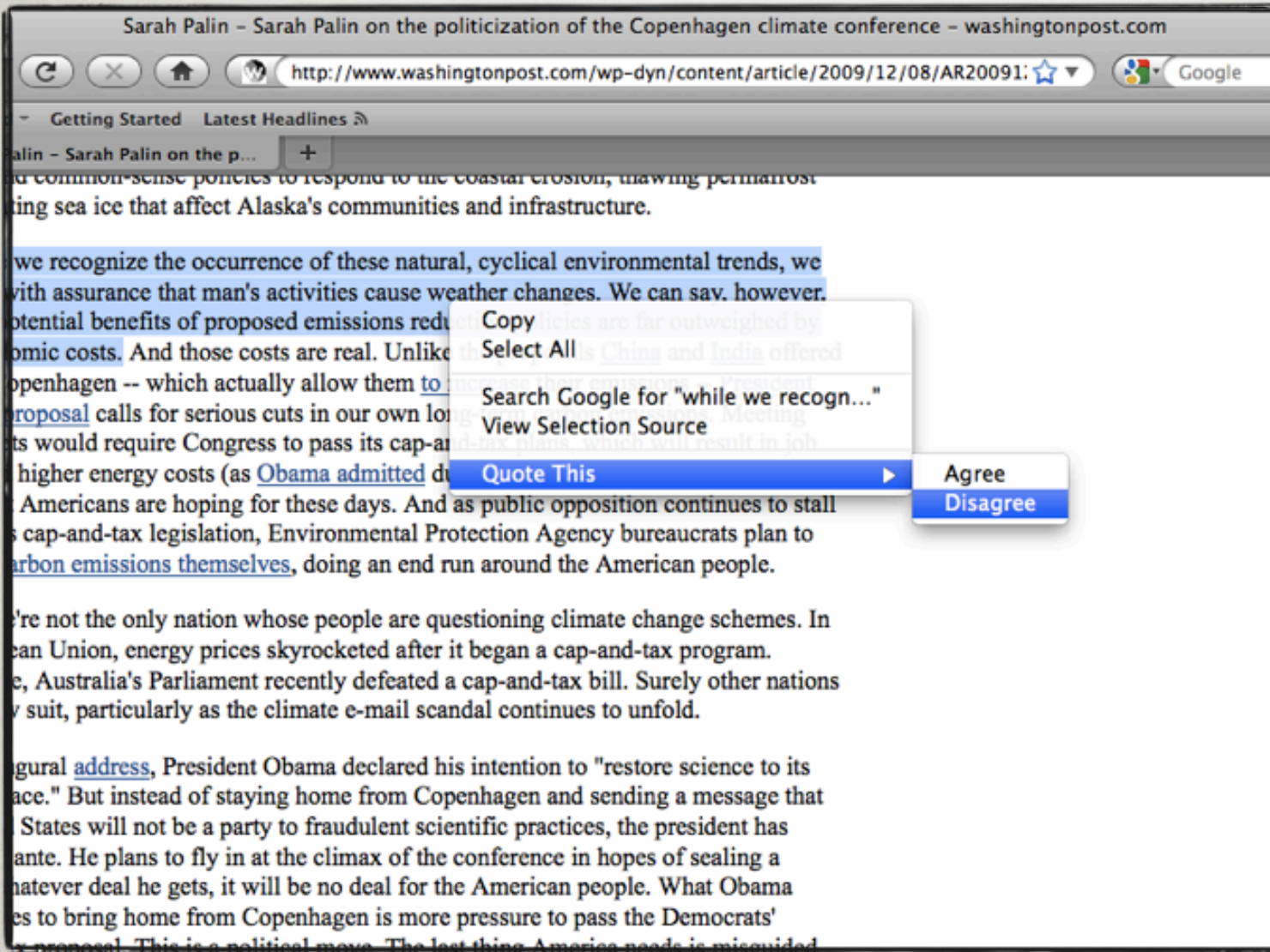
If you are saying the police might discriminate against black people (even though it is illegal), that is a serious problem that needs to be tackled. But should not stop us having ID cards

I Agree With This I Don't Agree With This

Who agrees with this?

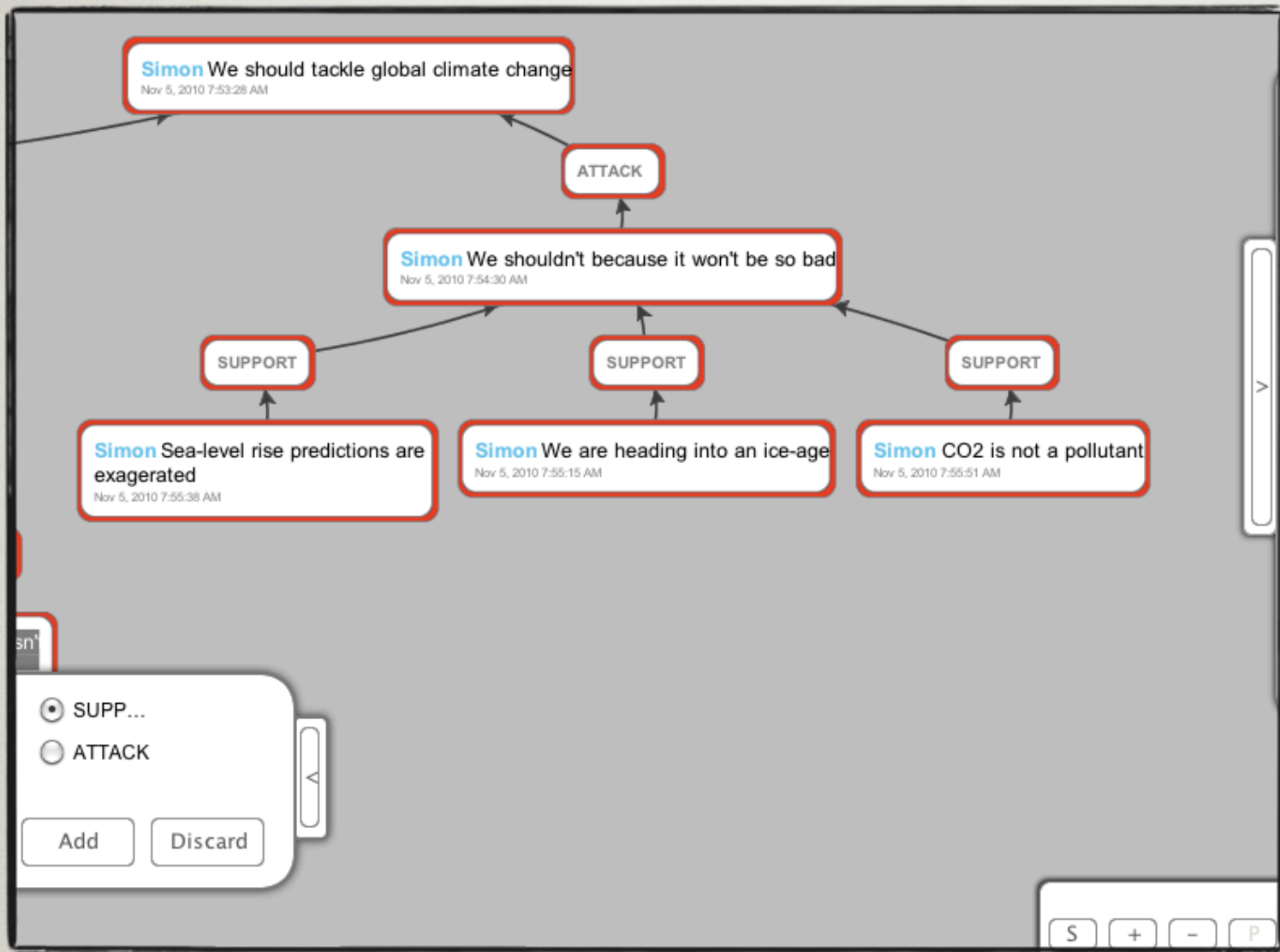
WEB-SCALE ARGUMENTATION

MultiAgent Argument Logic & Opinion (MAGtALO) software to support large-scale online interaction within specific complex domains & debates



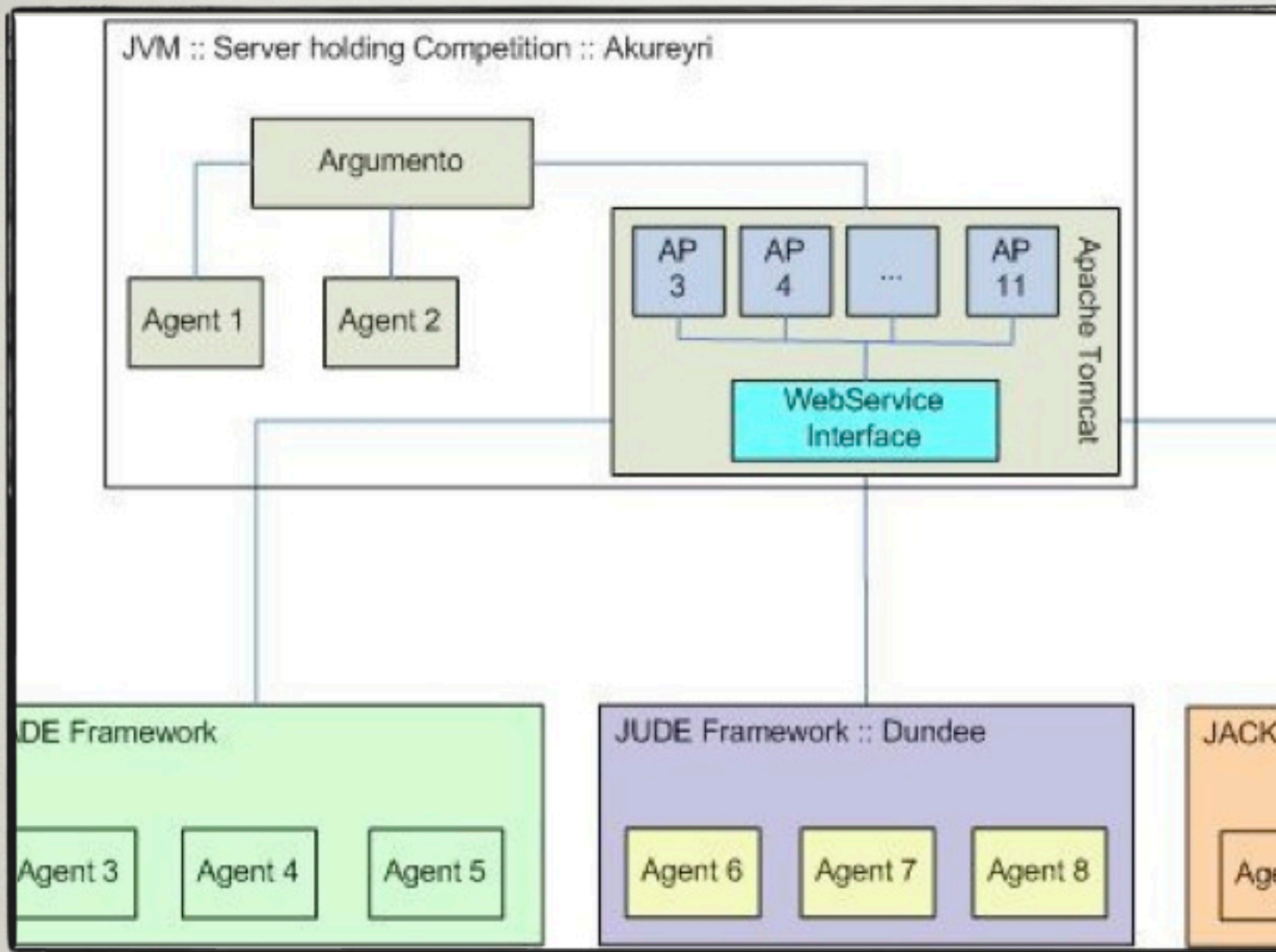
WEB-SCALE ARGUMENTATION

ArguBlogging + FireBack software to support argumentation distributed across the web, integrating and *argument web* within the existing WWW to facilitate greater critical online interaction.



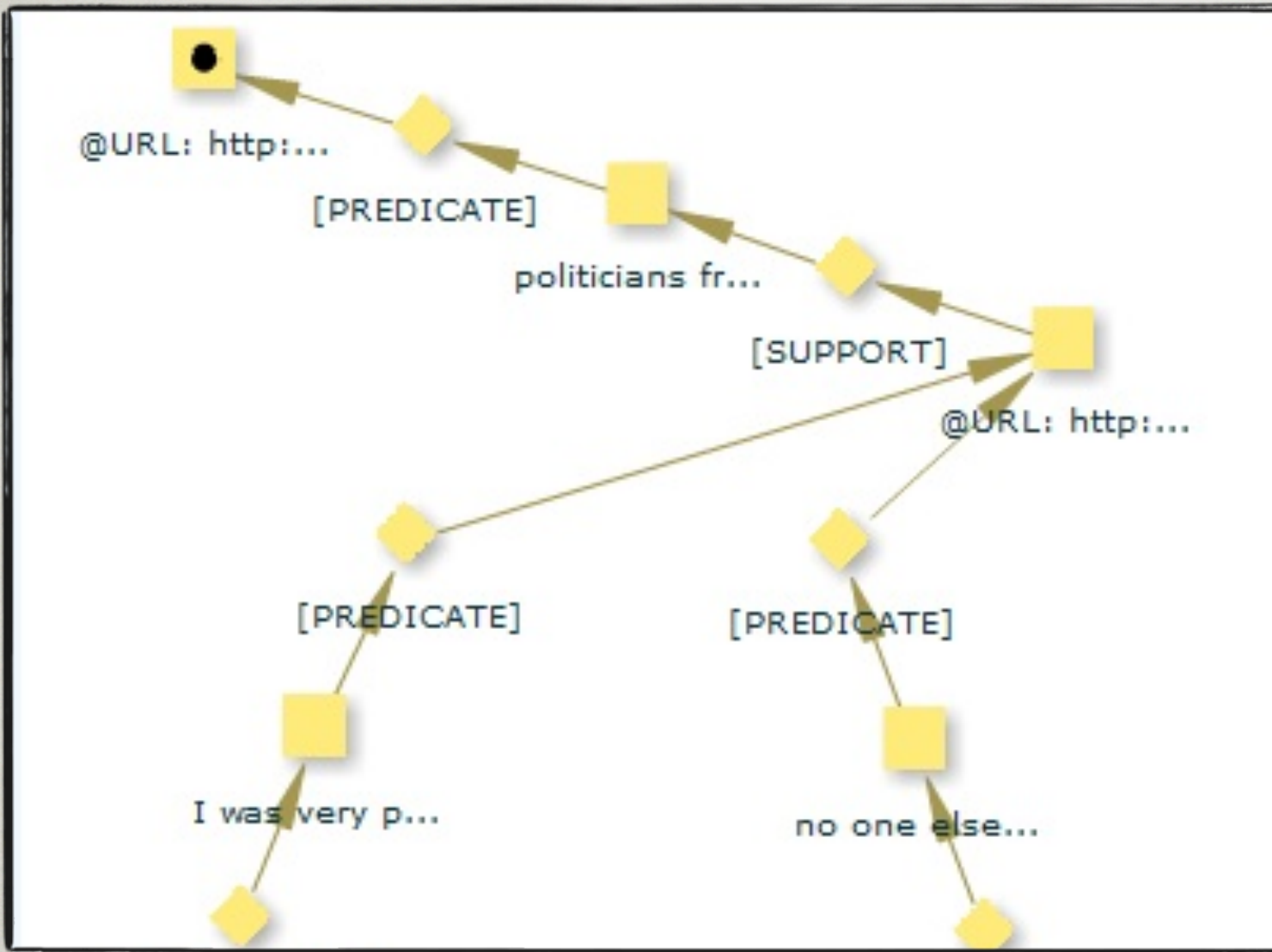
PERSUASIVE TECH

Parley Software to support small-group tutorial work in complex domains



THE ARGUING AGENT COMPETITION

A competitively oriented testbed for benchmarking the performance of automated argumentation systems modelled on the TAC & CAT competitions- Joint work with Akureyri, Toulouse, Vietnam, Warsaw & Dundee



SUPPORTING INFRASTRUCTURE

- DGDL for describing dialogue game rulesets
- AIF - Part of the working group on dialogical extensions
- Online Visualisation of Argument (OVA) flash widget to render visualisations of arguments (& dialogues)
- AIF-DB to store arguments online

CURRENT RESULTS

- Foundational Argumentation Technologies:
 - AIF2 [*co-author on submission to Argument & Computation*]
 - OVA & AIFDB [*ongoing projects @ Dundee - now part of DAM Project*]
 - DGDL [*Journal of Applied Logic - in press*]
- Web-Scale Argumentation
 - MAgtALO [*IEEE Intelligent Systems*]
 - ArguBlogging [*to be submitted to Journal of Web Semantics*]
- Persuasive Technologies
 - Parley [*to be submitted to British Journal of Educational Tech.*]
- Strategic Argumentation (*current/immediate future research*)
 - Combinatorial Dialogue [*to be submitted to AI + Proposal*]

UPCOMING RESULTS

- DGDL Semantics (JLC)
- Survey of strategic argumentation (KER)
- Healthcare Dataset Governance (Science / Nature Methods???)

FUNDING PLANS

“How can I win this argument?”

- EPSRC First Grant Scheme

“Argument Mining: Building a better search mechanism in the age of BIG DATA”

“The Argument Web: Support for massive distributed online argument”

*EPSRC Research Base Funding/Fellowships (& others),
EU/FP7, JISC, Leverhulme, Carnegie, Royal Soc,
RSE, ...*

Collaboration:

Scottish Argumentation Network | CUNY | FP7

IMPACT

- Science Communication
- Web & Community Networks
- Indicator:
 - “CouchDB from SRC How-To” – 46452
 - “Fundamental Concepts in Computer Science” - 38262
- Radically Open Research
- Get Software Out There

UNDERGRADUATE MODULES

1. Critical Thinking & Constructive Argumentation
 2. Applied Artificial Intelligence using Intelligent Agents & Multiagent Systems
 3. Computational Argumentation
 4. Open Source Development: The tools & mindset of the information economy
- MS/PGDip Critical Thinking Skills for Business

THANK YOU FOR YOUR
ATTENTION