

AI Large Practical: Assignment 2

Ewan Klein

School of Informatics

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Assignment 2: Outline

Tasks:

- ▶ extend the system you developed in Assignment 1;
- ▶ try to capture a rudimentary aspect of **dialogue** in argumentation;
- ▶ assume two dialogue roles: a **proponent** and **opponent** exchanging arguments;
- ▶ turn-taking in the dialogue is driven by the notion of **burden of proof**.

Assignment 2: Marking

- ▶ Main credit will go to your **report**.
- ▶ It should include:
 - ▶ context / review of issues and literature;
 - ▶ your work on **both** assignments.

Main Stages

1. Taking [GPW07] (the Gordon et al. Carneades paper) as a starting point, read some of the literature on argumentation systems in dialogue; and in particular try to understand the notion of 'the burden of proof'.
2. Extend your system to support the exchange of arguments driven by the burden of proof.
3. Write a report on the work you've done, placed in context.

Reminder on your responsibility

You should write your own code and report. You are not permitted to

- ▶ copy code which someone else wrote for submission to this assignment;
- ▶ show your own programs or report to other students.

Outside these restrictions, you are encouraged to have discussions with your colleagues about concepts, techniques and tools.

Submission, 1

For this assignment, you are required to submit:

1. program source code;
 - ▶ make your code as readable as possible;
 - ▶ provide appropriate docstrings for classes and methods;
 - ▶ where appropriate, provide additional comments to help the reader understand the intention behind the code;
 - ▶ provide some example scenarios treated by your program.
2. your report, as a PDF document;
reports in formats other than PDF will not be accepted as valid submissions.

Submission, 2

Put your code files and report in a single directory, compress it, and submit it using the following command in DICE:

```
submit ailp 2 <zip-file-of-your-project-directory>
```

The deadline for Assignment 2 submission is **16:00 on Thursday 11th December 2014**.

Burden of Proof, 1

- ▶ **burden of proof**

1. the obligation to prove one's assertion.

- ▶ Wikipedia:

- ▶ The burden of proof . . . is the imperative on a party in a trial to produce the evidence that will shift the conclusion away from the default position to one's own position.
- ▶ The burden of proof is often associated with the Latin maxim . . . : “the necessity of proof always lies with the person who lays charges.”
- ▶ He who does not carry the burden of proof carries the benefit of assumption, meaning he needs no evidence to support his claim. Fulfilling the burden of proof effectively captures the benefit of assumption, passing the burden of proof off to another party.
- ▶ Burden of proof also referred to as burden of production.

Burden of Proof, 2

A: You owe me £5.

B: Prove it!

A: Jack saw me give it to you this morning.

B: But that money was so I could buy you and Jack a coffee.

Modelling Exchange of Arguments

- ▶ In a legal situation, the prosecution and defense each start with a body of evidence they bring to bear, and arguments of the relevance of that evidence.
- ▶ You are being asked to model this process, with the shifting burden of proof.
- ▶ You should explicitly model where the burden of proof lies at each step.
- ▶ Ideally your system should also automatically select, from the set of available arguments, an appropriate argument to introduce.

The Report, 1

- ▶ A report of around six pages should be sufficient.
- ▶ You can have up to, **but no more than**, nine pages in total, including bibliography, figures and appendices.
- ▶ You don't have to use \LaTeX , but it's a Good Thing to know how to use (especially for UG4 dissertation).
- ▶ There's a skeleton document available on the course web page.
 - ▶ This is **not** intended to be prescriptive —
 - ▶ you are free to use it or not.
- ▶ Make sure your report includes section headings and a bibliography.
- ▶ Distinguish clearly between other people's work and your own ideas!
- ▶ Submitted document must be in PDF format.

The Report, 2

Address the following issues:

- Context** Explain the theoretical background to your system. You should demonstrate that you have read at least **three** papers other than [GPW07].
- Design** Describe the functional requirements that your system is intended to meet (covering both Assignment 1 and Assignment 2), and give a high-level specification of the system that you have developed. Explain why you made your design decisions and describe possible alternatives.

The Report, 3

- Implementation** Describe your implementation (both Assignment 1 & Assignment 2). Present your approach at an algorithmic level, rather than providing chunks of code.
- Evaluation** Consider how well your implementation satisfied the requirements presented in the *Design* part of your report. Describe tests that you ran, and whether your system performed as expected. If you decide to provide complete test runs, these will probably be best placed in an appendix.
- Conclusion** Provide a summary of your work, including its strengths and weaknesses and how it might possibly be improved.

Assessment, 1

The second assignment is marked out of 100, and is worth 50% of the overall course mark. (Remember, there is no exam!).

The marks are distributed as follows:

- ▶ **Programming** (20 marks)

Does your code perform in the way it is described in the documentation that you have provided? Does it pass your tests?

- ▶ **Report** (80 marks)

- ▶ to pass, an exposition that gives an accurate characterisation of relevant aspects of argumentation theory, describes work done and gives some results.
- ▶ for A grade, a clear exposition that makes explicit the links between the intended functionality and the choice of tests, and justifies the results.

References

- ▶ You are expected to provide references in your report, to relevant articles and other publications.
- ▶ The template gives examples of one method of inserting references.
- ▶ There is a separate BibTeX system that can help with this; it is integrated with L^AT_EX, and is more scalable and reusable.

Next session

There will be another lecture with more details about the treatment of burden of proof next week:

9:00, Wednesday 5th November

Drop-in sessions at 13:00 on Mondays will continue. Help with \LaTeX will also be available.



T. F. Gordon, H. Prakken, and D. Walton. “The Carneades model of argument and burden of proof.” In: *Artificial Intelligence* (2007). URL: <http://www.sciencedirect.com/science/article/pii/S0004370207000677>.