#### University of Amsterdam

#### Masters Thesis

# Modelling Meta-Agreement through an Agent Based Model

Examiner:

Dr. Fernando P. Santos

Supervisor:

Prof. Dr. Ulle Endriss

Assessor:

Dr. Davide Grossi

A thesis submitted in partial fulfilment of the requirements for the degree of Master of Science in Computational Science

Author:

Amir Sahrani

in the

Computational Science Lab Informatics Institute

January 2025

Declaration of Authorship

I, Amir Sahrani, declare that this thesis, entitled 'Modelling Meta-Agreement through

an Agent Based Model' and the work presented in it are my own. I confirm that:

□ This work was done wholly or mainly while in candidature for a research degree

at the University of Amsterdam.

□ Where any part of this thesis has previously been submitted for a degree or any

other qualification at this University or any other institution, this has been clearly

stated.

□ Where I have consulted the published work of others, this is always clearly at-

tributed.

□ Where I have quoted from the work of others, the source is always given. With

the exception of such quotations, this thesis is entirely my own work.

 $\Box$  I have acknowledged all main sources of help.

□ Where the thesis is based on work done by myself jointly with others, I have made

clear exactly what was done by others and what I have contributed myself.

Signed:

Your signature

Date: January 2025

i

"He clearly felt very passionately about it"

Douglas Adams

#### Abstract

Include your abstract here Abstracts must include sufficient information for reviewers to judge the nature and significance of the topic, the adequacy of the investigative strategy, the nature of the results, and the conclusions. The abstract should summarize the substantive results of the work and not merely list topics to be discussed.

Length 200-400 words.

### Acknowledgements

Thank the people that have helped, supervisors family etc.

#### Contents

# List of Figures

#### List of Tables

# List of Algorithms

#### Abbreviations

 $\mathbf{CSL} \quad \mathbf{Computational} \ \mathbf{Sceince} \ \mathbf{Lab}$ 

 $\mathbf{U}\mathbf{v}\mathbf{A}$  Universitiet  $\mathbf{v}$ an  $\mathbf{A}$ msterdam

### Symbols

- N The set of all voters
- X The set of all alternatives

#### Introduction

```
▮ Theorem 1.1. This theorem must look nice!
```

```
Theorem 1.2. If a > b, then a^2 > b^2.
```

Corollary 1.3. If a > b > 0, then  $a^3 > b^3$ .

**Proposition 1.4.** *If* a > b > 0, then  $a^3 > b^3$ .

**Definition 1.5.** A function that...

#### Example 1.1. sdfasdf

```
let agent = 1 in
let text = "Testing" in
(* This is a comment *)
print_int agent
```

#### Literature review

### Methods

## Experiments and results

#### Discussion

#### Conclusion and future work

#### Ethics and Data Management

A new requirement for the thesis is that there must be a short section in which you reflect on the ethical aspects of your project. This requirement is related to one of the final objectives that a graduated student of the Master of Computational Science must meet: "The graduate of the program has insight into the social significance of Computational Science and the responsibilities of experts in this field within science and in society". You don't need to devote an entire chapter to this; a short section or paragraph is sufficient.

I acknowledge that the thesis adheres to the ethical code (https://student.uva.nl/en/topics/ethics-in-research) and research data management policies (https://rdm.uva.nl/en) of UvA and IvI.

The following table lists the data used in this thesis (including source codes). I confirm that the list is complete and the listed data are sufficient to reproduce the results of the thesis. If a prohibitive non-disclosure agreement is in effect at the time of submission "NDA" is written under "Availability" and "License" for the concerned data items.

Short description	Availability	License
(max. 10 words)	(e.g., URL, DOI)	(e.g., MIT, GPL, Creative Commons)
Example dataset 1	<pre><github url="">or Figshare</github></pre>	GPL
Example source code	DOI (from Zenodo)	MIT
Example sensitive data	NDA	NDA