

INTRODUCTION

Context

- Automated negotiation;
- Complex negotiation domains;
- Example application: factoring
- Buy/Sell invoices;
- Contribution: an agent able to negotiate:
- with nonlinear preferences ,
- without relying on a deadline,
- on both categorical, numerical



- BIDDING STRATEGY MODELLING
 - Gaussian Process regression;
 - Based on a kernel:
 - Radial Basis Function,
 - Rational Quadratic Function,



Results

EXPERIMENTAL PROTOCOL

- Use of a genius interface (reference framework);
- Negotiation domain: ANAC:
 - Large domain (10 issues, 10 values/issue)
 - Numerical issues
- 3 min/round (suitable for the application context);

OPPONENTS

RandomWalker

- Makes random proposals,
- Accepts a proposal if better than the generated one.

Tit-For-Tat







- Only 3 opponents in this context: Random Walker, Titfor-Tat and Nice Tit-for-Tat;
- Neverending sessions for MoCaNA vs. Nice Tit-for-Tat: indirect comparison (through RandomWalker);
- 20 negotiation sessions per setting with each profile;
- Representation of both average score and standard deviation.

- Returns moves (concession = concession of the opponent),
- Accepts a proposal if better than the generated one.

NIce Tit-for-Tat

- Identical to Tit-for-Tat but:
- Computation made on a Nash Point, computed through utility modelling (bayesian learning).



(c) Nice Tit-for-tat vs Random Walker

- At least as good as any agent in this context;
- Possibility improve to (RAVE/AMAF);
- Many things to test (other opponent modeling, other AI for games as CFR minimization...)
- Possibility to expand to multilateral negotiation.

Our agent Random Walker I Tit-for-tat I Nice Tit-for-tat