The 2nd Stratego Computer World Championship

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1. INTRODUCTION

Stratego is a game of imperfect information that was first patented in 1960 by the Milton Badley Company (Collins, 2008). It is a game of war with the objective to capture the opponent's flag. The players choose a custom setup of pieces at the start of the game, without showing the opponent the rank of each piece. Therefore, when one piece tries to capture an opponent's piece, it might get captured itself. Bluffing plays an important role in this game.
The annual Computer Stratego World Championship selects the best Stratego-playing program. Stratego AI is at present a wide open field. Among participants there is not yet agreement on issues as fundamental as the importance of recursion in move selection. And although some programs are clearly superior to others, it is possible to write a reasonably competitive AI in a few months, especially since the Metaforge API eliminates need to write a user interface. The tournament committee encourages new participants for the 2009 tournament, and will be happy to assist on technical issues.

2. TOURNAMENT FORMAT

The tournament consisted of 5 games against each opponent. The games were played online on the Metaforge webserver (Metaforge, 2008). Here the games were able to run unattended and observers were able to join all games. Each programmer was allowed to use his own hardware. It was assumed moving first did not confer an advantage.
The rules applied to the tournament were the ones defined by the International Stratego Federation (2008).

3. PARTICIPANTS

This year 6 programs from 4 countries registered (see Table 1).

Program	Programmer	Country
Probe	Imer Satz	US
Master of the Flag 1	Sven Jug	Germany
Master of the Flag 2	Sven Jug	Germany
Invincible	Vincent de Boer	Netherlands
Reveal Your Rank!	Raimonds Rudmanis	Latvia
Hobbes	Maarten Schadd	Netherlands

Table 1: List of participants

All the programs from last year returned for this year's competition. Hobbes is a new program that is still early in the development stage.

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4. RESULTS

The tournament consisted of 5 rounds of which the results can be found in Table 4.

Program	Wins	Draws	Losses	Probe	MasterFlag2	Invincible	RYR	MasterFlag1	Hobbes
Probe	22	0	3		4-0-1	3-0-2	5-0-0	5-0-0	5-0-0
MasterFlag2	18	3	4	1-0-4		2-3-0	5-0-0	5-0-0	5-0-0
Invincible	11	6	8	2-0-3	0-3-2		3-0-2	3-1-1	3-2-0
RYR	11	0	14	0-0-5	0-0-5	2-0-3		4-0-1	5-0-0
MasterFlag1	7	1	17	0-0-5	0-0-5	1-1-3	1-0-4		5-0-0
Hobbes	0	2	23	0-0-5	0-0-5	0-2-3	0-0-5	0-0-5	

Table 2: Cross Table

Probe successfully defended its title this year, followed by Master of the Flag 2. The results were somewhat closer this year, in part because Probe now plays with a more aggressive style that is better suited for play against human opponents. Also, Master of the Flag 2 now handles endgames better.

More information on the tournament can be found online (Championship Homepage, 2008). Probe, the winner of the tournament can be downloaded and played against (Imer Satz, 2008).

5. THOUGHTS ON COMPUTER STRATEGO

Although it is evident from the tournament results that some Stratego programs play better than others, no existing program will ever be able to consistently defeat a skilled human opponent. Nearly all evaluation of Stratego positions is inferential, and there does not yet exist a programming model able to match a human's abilities in this task. Move selection in Stratego is rarely about finding favorable exchange combinations, and much more often about managing risk. And risk assessment requires consideration of a dauntingly long list of variables. Assuming these challenges can someday be managed, a successful program will also need to demonstrate flexibility, to avoid becoming predictable. So we see that the speed, precision and recall of a computer offer few advantages to the aspiring Stratego programmer, by comparison to how humans play this game.

6. ACKNOWLEDGEMENTS

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7. REFERENCES

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