

Announcements

- Test next Friday
 - Uninformed/informed search, CSPs, games
 - Practice test available EOD today
- Next week:
 - Monday:
 - Fun with CSPs!
 - Intro logic-based agents (*not* on test)
 - Wednesday: Discuss practice exam, review
- Lecture Ratings

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Games – State of the Art

- Checkers -- solved!
- Othello
 - Human champions refuse to play against computers (they're too good)

Games – State of the Art

- Go
 - Human champions refuse to play against computers (they're too bad)
 - Play at advanced amateur level
 - Difficulty: $b \approx 300$, requires advanced pattern matching



Games – State of the Art

- Games of chance
 - Backgammon
 - TD-Gammon plays at world champion level
 - High branching factor => evaluation function is key
- Chance + Partial Observability: Bridge
 - GIB program -- 2000 computer bridge champion
 - Uses Monte Carlo method
 - “Explanation-based generalization”
 - E.g., player1 has A K 5 3, player2 has 7 8
 - $\approx$
player1 has A Q 4 3, player2 has 6 7
 - Solves a deal *exactly* in one second!

Games – State of the Art

- Chance + Partial Observability: Poker
 - Has tended to focus on two-player game
 - 2007 University of Alberta tournament at AAAI conference
 - 500 Duplicate hands vs. top pros
 - Computer player Polaris finished 1-2-1
 - 2008 UofA tournament at World Series of Poker
 - Computer finished 3-2-1 against pros

Games -- Summary

- Working on games is fun
 - But potentially counterproductive
- Lessons for AI:
 - Perfection unattainable, must approximate
 - Good idea to “think about what to think about”
 - Uncertainty constrains assignment of values to states
 - Optimal decisions depend on information state, not actual state
- Games are to AI as...

Games -- Summary

- Generally, computer methods for gameplaying are radically different from human ones
- How much does this matter?
- Turing Test vs. Seagull Test