Search cutoff

Note Title

Boardgames are available in majors' room: Othello & Clue!

Our previous algorithms (minimax and α-β) had:

if (terminal state) return utility

We now replace this with:

if (should cutoff) return evaluation

- Example of cutoff test: ← ask for input on this

if (depth ≥ MAX_DEPTH or evaluation < BAD_SCORE)
return true;

- Example of evaluation: See qu 5.9 in the textbook, where

$$Eval(s) = (3X_2(s) + X_1(s)) - (3O_2(s) - O_1(s))$$

for tic-tac-toe.

do 5.9(b)-(e) in class or as exercise

- How about for Othello?
  Could try

$$Eval(s) = score + c_1 \times NumCorners + c_2 \times NumEdges + ???$$

- Check out the Russell slides, p21-24.
  - Note that exact value of utility & eval fn don't affect strategy (invariant to monotonic transformations).

- Note the summary of state-of-the-art programs for common deterministic games (checkers, chess, othello, go).

- See p174 of the textbook for discussions about quiescence and the horizon effect

- (Optional)
  See also the very cool 1997 paper, "Checkers is Solved", by Schaeffer et al.