Re: Chess boards & connections.

Source: http://sci.tech−archive.net/Archive/sci.math/2006−04/msg03928.html

- *From*: "Toshi ikutsu?" <nospam@xxxxxxxxxx>
- *Date*: Thu, 20 Apr 2006 18:30:53 −0500

<dynamics@xxxxxxxxxxxx> wrote in message
news:1145569228.272184.92380@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

> Michael Stemper wrote:
>
> > In article
> > <1145555339.841442.203250@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>,
> > dynamics writes:
> >
> > > Trying to calculate if I can write a Chess AI.
> > >
> > > I need to define all possible boards.
> > >
> > > I have a total of 64 different pieces, 16 for Black
> > > and 16 for White to start, and since each pawn
> > > can be promoted, to either a Queen or Knight, a
> >
> > They can't be promoted to a bishop or a rook?
>
> LOL, then you'll totally fuck my math, actually
> I have a patch, but you're right ;−) .

what about "in passing" for pawns?
and castling?

> > > further 16 for B&W's 8 pawns for another 32.
> > >
> > > There are 65 locations on the board, 8*8 + 1 for
> > > non−existance called the side bar.
> > >
> > > So I dimension an Array, (64,65) where the 64

> > provides the *serial number* for all possible
> > pieces and each of those can be in 65 locations,
> > providing 64*65=4160 boards.
>
> Nope.
>
> Place the first of the 64 pieces. How many choices for a square do
> you have? 65. Now, for each of those possibilities, you have 64 choices
> for placing the second piece. So, two pieces already uses up your 4160
> boards. If you place a third piece, you'll have 63 available squares
> for each of those 4160 possibilities, or 65*64*63 = 262080. To place
> 64 pieces on 65 squares −− even with disallowing two pieces on the same
> square from the start −− you're going to have 65! possible boards.
>
> I'd say that, since each player can only have 16 pieces at any time,
> you number the pieces 1−16 (or 0−15 if you prefer), and keep track of
> what type of piece (Q, K, Kt, p, etc.) each one is. This way, you only
> have 32 pieces to deal with. Then, you probably should get rid of your
> "sidebar" and just not necessarily have all of the pieces included in
> the board at any time.

You are too complicated. All I needed was the 2D Array
I defined by matrix (64,65) defining all boards.

too limited. try checkers instead.

> This strategy will reduce the number of configurations to (64!)/(32!)
> time some multiplier based upon how many duplicate pieces a player
> has.
>
> > (I'll skip using exclusion right now, like two pieces
> > can't occupy the same square, but all that means
> > is there are < 4160 possible boards).
>
> Nope. Like I pointed out above, even if you build in "exclusion" from
> the start, you'll need to add a lot of zeros to the right of "4160"

Well then provide the needed Array, I'll repeat
I get a (64,65) for ALL configurations, including
many that are impossible.

if your math skills indicate your programming skills, you are a starting hack−er.

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