ProGammon

COLLABORATORS

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ProGammon

1.1   ProGammon Documentation

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                        ProGammon

                       Version 2.6

                      29th May 1998

                         FREEWARE

          The Ultimate Amiga Backgammon Game

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1.2   introduction

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Introduction:
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Have you tried playing computer backgammon before?  Were you a little
disappointed at the poor game play?

An excellent backgammon player by the name of Phillip A. Cochran taught
me a thing or two about how this game should be played.  This version has
been completely rewritten and the timid, unconstructive moves of past
versions have been replaced.  Users should now have their hands full with
a much bolder, aggresive, dynamic game.

This program will keep track of your wins and losses so you can see how
good you or the Amiga really is.  It now also keeps track of gammons and
backgammons.

It's operating system friendly and is very cpu & memory efficient so your
3-D rendering work will barely slow down while you play a game or 3.  :)
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1.3   requirements

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Requirements:
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This program should work on any Amiga with kickstart 2.04 or greater.

With an AGA Amiga, this game will use a 640 x 480 multiscan productivity
screen, if available.

One user also informed me that it works great on his Picasso II+ graphics
board in his A1200T.  Thanks Dirk!
```

1.4   What's New

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What's New:
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Version 2.6:

     -complete rewrite of the AI to encourage more blocking and
      maintaining of key positions.  Thanks Phillip!

     -added a NAME tool type and a CHEAT tool type so you can use
      your own dice if you don't like the computer generated ones.

     -also added a DONE tool type.  See the Tool Type section.

     -click on the dice after you complete a game and the Amiga
      winning percentage will now be displayed.
```

Version 2.5:

     -improved the AI used during the late stages of the game. It
      should be much harder to gammon the Amiga.

     -added some code to encourage the Amiga to maintain a wall of
      6 stones once it has established one.

     -cleaned up various routines for speed and size.

Version 2.4:

     -added an Undo function so you can start your move over again if
      you need to.

     -fixed a bug in v2.3 where occasionally the program would prevent
      you from making a valid move.

     -removed the debug_hunks which significantly reduced the size of
      the program.

 Thanks to Nils Goers for all of the above suggestions and improvements.

     -finally got around to putting the documentation in AmigaGuide
      format.

1.5 The Basics

The Basics:

The game begins with the following board setup:

```
    ******************************************          Direction of
    *  24 23 22 21 20 19     18 17 16 15 14 13  *          Movement:
    *   v  v  v  v  v  v      v  v  v  v  v  v  *
    *   X           O         O           X  *          --->
    *   X           O         O           X  *
    *               O         O           X  *             |
    *               O                     X  *             |
    *               O                     X  *             |
    *                                        *             V
    *                   3 5                   *
    *                                        *             |
    *               X                     O  *             |
    *               X                     O  *             |
    *               X         X           O  *             V
    *   O           X         X           O  *
    *   O           X         X           O  *          <---
    *   ^  ^  ^  ^  ^  ^      ^  ^  ^  ^  ^  ^  *
    *   1  2  3  4  5  6      7  8  9 10 11 12  *
    ******************************************

        ^  ^  ^  ^  ^  ^
```
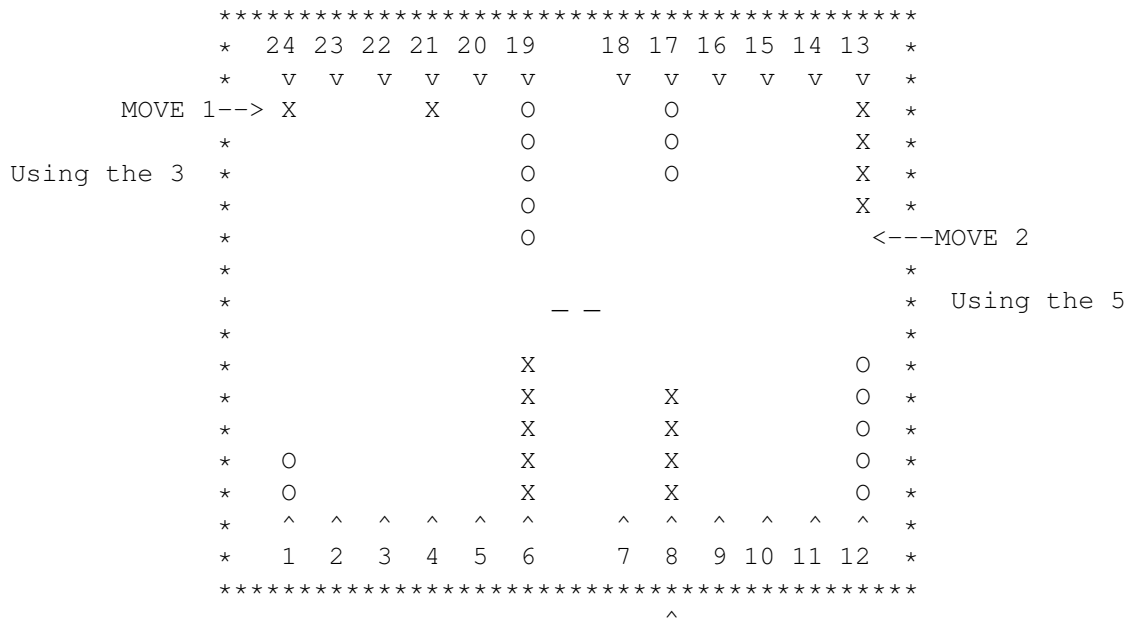
        Your   HOME   area is positions 1 to 6.

There are 24 positions on the board and each player begins with 15 stones.
'X' represents your stones and the 'O' represents the Amiga's stones. In
the diagram above you have 2 stones on position 24, 3 stones on position
8 and 5 stones each on positions 6 and 13. The 3 and the 5 in the center
of the board represent the dice.

Each player takes turns rolling the dice and moving their stones an amount
equal to whatever was rolled.

The object of the game is to move your stones in a clockwise direction
into your home area. When all 15 stones are home you can remove them from
the board depending on what you roll. The first player who removes all of
their stones from the board wins the game.

The game starts with each player rolling one die to determine which player
gets to go first. For example, if the Amiga rolled a 3 and you rolled a
5 then you would start by using this combination for your first move.
Here is one possibility:


```
                   *********************************************
                   *  24 23 22 21 20 19    18 17 16 15 14 13  *
                   *   v  v  v  v  v  v     v  v  v  v  v  v   *
           MOVE 1--> X           X     O          O           X  *
                   *                    O          O           X  *
      Using the 3  *                    O          O           X  *
                   *                    O                      X  *
                   *                    O                    <---MOVE 2
                   *                                          *
                   *                       _ _                *  Using the 5
                   *                                          *
                   *                    X                 O   *
                   *                    X        X        O   *
                   *                    X        X        O   *
                   *    O               X        X        O   *
                   *    O               X        X        O   *
                   *    ^  ^  ^  ^  ^  ^     ^  ^  ^  ^  ^  ^  *
                   *    1  2  3  4  5  6     7  8  9 10 11 12  *
                   *********************************************
                                        ^
```


With the 3 I moved one stone from position 24 to position 21. For the
second move I moved a stone from position 13 to position 8. After the
opening move each player alternates rolling the dice.

Either player can move to any position as long as it is not blocked by 2
or more of the opposing players stones. In the above example I would not
have been allowed to use the 5 to move a stone from position 24 to
position 19 because the Amiga has position 19 blocked.

It is possible to move to a position that has only 1 Amiga stone on it.

When this happens, your stone will take possesion of that point and the
Amiga stone will be knocked off onto the center bar. Any stone on the
bar has to enter the board in the opposing players home area. You must
get back on the board, on a point that is not blocked, before any further
moves are allowed. If you cannot make a move just click once on the dice
to give up your turn and resume play.

When all of your stones are home, you can start removing them from the
board. This is called bearing off. If, for example, you rolled a 6 and
a 2, you could remove one stone from position 6 and another one from
position 2. If you rolled a 6 but didn't have any stones on position 6
to remove then you are allowed to take one stone off the next highest
position. It is also legal to move stones within your home area rather
than bearing them off. It might be an advantage to do this if the Amiga
still has some stones in your home area and is trying to knock you off
onto the bar.

The only other rule is that both players must use as much of what they
rolled as possible. If you rolled a 5 and a 3 and it is possible to use
both the 5 and the 3 then you must make both moves. If you can only use
the 5 or the 3 but not both then you are required to use the higher
amount(5). The Amiga plays by these rules and now, since version 2.3,
you are forced to play by these rules also.

1.6   Game Play

Game Play:

To move a stone just click once on the stone and then once on the spot
where you want it to go. If you did it right then the stone should move
to the new location or else a message will appear to help you out.

If you roll doubles (i.e. two 3's) then instead of getting two moves
of 3 you get four moves of 3.

Anytime during a move you can get an update to how many moves you have
left by clicking anywhere outside the main board area. In the message
area will be displayed the dice values that have not yet been used.

You can also make multiple moves. If, for example, you roll a 3 and
a 4 then you are allowed to make one move of 7 as long as both points
between your present location and your destination are not blocked.

If you are unable to make a move then just click once on the dice to
continue with the game. If you select a stone by mistake then just click
on that same stone to start your move over again.

Once all your stones are in your home area, you can remove them from the
board by double clicking on them.

A gammon will be declared if one player is able to get all his stones off
before the other player has removed one. This is equivalent to winning 2
games.

A backgammon occurs when one player gammons the other player plus he traps
at least one of the opposing players stones in his home area. This is
worth 3 wins.

1.7 menus

Menus:

BAR

 With this option all 15 stones will start off on the center bar. You
 will have to get all the stones back on the board before you can start
 to move them. Just select BAR in the menus and then select New Game
 to play this version.

Undo Move

 You can restart your move from the beginning by selecting this from the
 menus. You could also accomplish the same thing by clicking on the
 stone and putting it back wherever it came from.

Colors

 Selecting this will allow you to adjust both the board colors as well
 as the speed of the game.

 If you select SAVE in the color adjustment window then your game
 preferences will be saved to a 266 byte file called gammon.prefs in
 the current directory. The program keeps track of the AMIGA's winning
 percentage in this file as well as statistics on the dice. If you want
 this feature then remember to click on SAVE before the end of the
 first game.

Stats

 This menu item will display a table of what you have rolled so far as
 well as what your average roll has been. A long term average roll of
 8.167 is ideal.

 Statistics on wins/gammons/backgammons are now also displayed within
 this window.

 Clicking on the left side of the stats window will show the statistics
 for the present series of games and clicking on the right side will show
 the overall statistics for all games that have been played, including
 previous games stored in the gammon.prefs file.

1.8 Tool Types

Tool Types:

```
        MAINFONT=topaz
        FONTSIZE=8
```

These 2 tool types allow you to use any reasonably sized font for your
menus, message display and window title in VGA mode. If the program is
unable to find this font or if your size choice is too large then it will
use topaz 8 as the default.

        REVERSE

I prefer setting up the board so that you move your stones from the
upper left part of the screen to the lower left in a clockwise direction.
If you would prefer that the board was set up so that your stones move
from the upper right part of the board to the lower right in a counter-
clockwise direction then use this tool type.

    NTSC

This tool will force the program to use a 640x200 NTSC screen or dblNTSC
screen if available.

        NAME=Kevin

Replace Kevin with your name and then you won't have to be called Human
anymore.

        CHEAT

This tooltype simply lets you use your own dice. Click on the dice in
one of 6 quadrants and you will see what I mean.

If you would like to be able to create an external dice file and then have
this program read in dice values from there then let me know.

        DONE

With this tool type you will have to click on the dice after each move to
signal to the Amiga that you are done. Some users like to be able to see
how a move looks before having to commit themselves to it. No more
accidental moves.

1.9 Testing the Dice

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Testing the Dice:
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The dice used in this program have been rolled millions of times in order
to test them for randomness and fairness. They are produced using the
SAS/C random number generating function called drand48(). In testing, I

have found the numbers returned by this function to be 100% random.

Here are some answers to the usual questions that I have received:

There is only one subroutine that controls the rolling of the dice. The
RollDice() routine has no idea whether it is being called to roll the
dice for you or for the Amiga. It does not check to see who is on the bar
or what points are blocked or whether it's the start of the game or the
end. All it does is just roll the dice.

The Amiga is not cheating just because it rolls a 6 to start the game or
rolls doubles to end the game. It has gotten lucky and if you play enough
games I'm sure that you will get lucky too.

Every roll of the dice will be saved in the gammon.prefs file after you
select Quit in the menus or close the game screen. During the game you
can select Stats in the menus to see the averages for the games that you
are presently playing. By clicking on the right portion of the statistics
screen you can also examine the stats saved in the gammon.prefs file.

After you play about 250+ games, you should be convinced that the dice are
100% legal.

If you still think that this game is cheating then you can use the CHEAT
tooltype which will allow you to enter your own dice values. Play a few
games with a real set of dice and you will probably find that this program
still plays a pretty good game of backgammon.

If you would like to use your own random number generating routines with
this program then let me know and I'll see what I can do.

1.10 Acknowledgments

Acknowledgments:

Thanks very much to the 10+ people that took the time to register.

Special thanks to Nils Goers who showed me the correct way to compile a
program.

Many, many thanks to Phillip A. Cochran who taught me how backgammon is
supposed to be played. Hopefully this version will be a little more
challenging!

I'd also like to thank Glenski Shannon for nagging me to death! It's
good to know that someone appreciates a good game of backgammon.

Without the encouragement of the registered users, this program would not
have reached it's current level.

1.11 author

Freeware:

You will be hard pressed to find a significantly better playing computer
backgammon game on any platform at any price. This time, I mean it!

Questions, comments and bug reports are most welcome.

Long live the AMIGA!

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