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IMPORTANT NOTE

If you wish to exit and save learning between game play sessions:

you must click the  icon on the tool bar

or

*you must select **Exit** item in the Game drop down window*

If you exit via the Window frame Close button under Win95 learning will not be saved between game play sessions.

The defining feature

At the advanced level of play, Trickle Down learns from both its losses and wins. The learning is generalized to many types of game board piece configurations. You can see the learning in action by following this simple procedure:

- ▶ *Beat Trickle Down at the **Advanced** level of play*
- ▶ *Select the **Replay** option; replay your moves by following the loud **red** dot.*

When made, the **learned** move will be clearly identified by the appearance of a message box; in addition the piece placed by the learned move will be denoted with a small white dot at its center.

The game board

Trickle Down is played on a board composed of an 8 x 8 matrix. The tradition four-in-a-row genre game is played on a 6 x 7 matrix. It is widely thought that when playing on the 6 x 7 matrix the first player will always win when play is perfect. It is not clear to the authors of this game that there is any decisive advantage to moving first on the 8 x 8 game board.

Starting a new game

You begin a game by selecting the **New** item under the **Game** menu option. In addition you can begin a new game with a **single click** of the **right mouse button**. This option can be disabled by selecting the **Right button.....** item in the **Options** menu option.

Playing the game









You make a move by maneuvering the mouse pointer over a game board

location which contains a small dot and clicking once with the left mouse button. Baxter, the computers persona, will quickly follow with his/her selection.

Winning the game

The first player who arranges four pieces in a vertical, horizontal or diagonal row wins.

The tool bar

-  **Start** *a new game*
-  **Undo** *the last two moves in the current game*
-  **Replay** *a game you have just won to see learning (only Advanced level)*
-  *Open an existing game record file (not enabled in this version)*
-  *Save a record of the current game (not enabled in this version)*
-  *Print a games list of moves (not enabled in this version)*
-  **Info** *about the game designers and programmers*
-  **Help** *Trickle Downs help options*

About Trickle Down

The learning algorithms which propel Baxters ability to display learning were developed using the Objective Artificial Intelligence paradigm. The authors developed the learning algorithms in the spirit of adventure and fun. The games designers are always interested in hearing comments from players. You can reach us at:

ldorfman@li.net

If you wish to learn more about Trickle Downs learning algorithms, you can find a description of the Objective Artificial Intelligence paradigm and the learning algorithms in a book titled:

Developing Games That Learn by Len Dorfman and Narendra Ghosh. It is published by Manning / Prentice-Hall.

The platform-independent source code to the move generation engine

includes a detailed description of three learning algorithms is presented in the book. We have done our best to explain the paradigm and learning algorithms with the hope that programmers will be able to use them in a wide variety of game applications.

The OWL source used to create the Win16 and Win32 versions of Trickle Down is presented in a book titled:

Borland C++ 5.0: Migrating From C to C++ by Len Dorfman.

It will be published by Manning / Prentice-Hall and should be available in the summer/fall of 1996.

About The Programmers
Developing Games That Learn

About The Programmers

Len Dorfman, Ph.D.

Len is a teacher, writer, programmer and author of many computer science titles. He spends considerable time watching his breath.

Narendra Ghosh

Narendra is currently a student at Harvard University majoring in Computer Science.

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