WormWars

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COLLABORATORS			
	TITLE : WormWars		
ACTION	*NAME*	*DATE*	*SIGNATURE*
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REVISION HISTORY			
NUMBER	DATE	DESCRIPTION	NAME

Contents

Chapter 1

WormWars

1.1   Worm Wars V4.1 for Amiga

```
                        #*=======================*#
          #|   W O R M   W A R S   |#
          #|     for the Amiga     |#
          #|      Version 4.1      |#
          #|   Sunday 6 June 1999  |#
          #|                       |#
          #|   by James R. Jacobs  |#
          #*=======================*#
```

```
          Overview

          New Features

          Usage

          Other Information

          Title Screen

          Field Editor

          How to Play
```

1.2   Overview

Worm Wars is an advanced 'snake' arcade game. It combines the simple
playability of the basic concept with 19 interesting object types,
5 species of creature, and other enhancements, for more diverse
and strategic gameplay.

One to four worms travel around a rectangular maze leaving a
deadly trail behind them, competing and sometimes cooperating with
other creatures, collecting letters to advance to the next level.

The integral field editor allows you to load, edit and save user
fieldsets, for greater lasting attraction. There is support for
playing MED and IFF 8SVX files as music and sound effects respectively.

It is enjoyable either for one player, or for competitive multiplayer
games, and demo mode is available. Amiga control can be specified for
any worm. Two keyboard players and one joystick player are supported.
It is system-friendly, style compliant and multitasking.

It is available for the Amiga and for Windows 95/98/NT, and is portable
to other platforms.

1.3   New Features

Only major changes are listed.

Port to IBM-PC.

Slime
.

Healers
.

Armour and protectors now reflect fragments.
Shooting letters is equivalent to collecting them.
Colliding fragments annihilate one another.
Enhanced About window.

1.4   Usage

System Requirements

Official Archive Contents

Installation and Startup

1.5   System Requirements

Hardware	Required	PAL capability
		about 256K free RAM
		about 2Mb disk space
	Recommended	Colour monitor
		68020+
		Joystick
		Mouse
		about 640K free RAM
		Keyboard with numeric keypad
Firmware	Required	Kickstart R2.04+
		exec.library V36+

```
                                              gadtools.library V37+
                                              intuition.library V37+
Software             Required         Workbench R2.04+
                                      asl.library V37+
                     Recommended      MEDPlayer.library (included)
                                      Workbench R2.04+
                                          MultiView
                                          SetPatch
```

1.6 Official Archive Contents

```
Directory "WormWars" on Monday 09-Nov-92
WormWars.info                1938 ----rw-d Today     12:19:17
wormwars.readme               623 ----rw-d Today     12:07:16
Source                        Dir ----rwed Today     12:26:27
wormwars.guide              ----- ----rwed Today     12:12:45
WormWars                   147628 ----rwed Today     16:10:58
wormwars.guide.info           854 ----rw-d Today     12:19:18
WormWars.MED                91464 ----rwed Today     12:14:10
fx                            Dir ----rwed Today     12:15:22
WormWars.fset               33385 ----rwed Today     11:45:32
MEDPlayer.library           15340 ----rwed Today     11:43:15
8 files - 2 directories - 743 blocks used

Directory "WormWars/Source" on Monday 09-Nov-92
ENGINE.H                     2082 ---arwed Today     12:26:11
diff.h                       4576 ----rwed Today     11:40:50
stdafx.h                       35 ----rwed Today     12:17:25
LIBPROTO.H                   2105 ---arwed Today     11:27:14
SCOPTIONS                     268 ---arwed Today     12:24:16
ww.s                           90 -s--rwed Today     12:24:46
SYSTEM.H                    58240 ----rwed Today     11:28:18
SYSTEM.C                    85010 ----rwed Today     11:30:48
same.h                      13640 ---arwed Today     12:26:29
engine.c                   108581 ---arwed Today     12:26:10
10 files - 553 blocks used

Directory "WormWars/fx" on Monday 09-Nov-92
killerborn.8svx              5924 ----rwed Today     11:31:12
explode.8svx                14896 ----rwed Today     11:46:08
O.8svx                       7482 ----rwed Today     14:26:22
T.8svx                       8854 ----rwed Today     12:08:49
L.8svx                       6590 ----rwed Today     14:30:41
M.8svx                       6224 ----rwed Today     14:27:10
P.8svx                       6676 ----rwed Today     12:06:36
E.8svx                       8266 ----rwed Today     14:31:18
click.8svx                   2070 ----rwed Today     11:40:06
usearmour.8svx               3788 ----rwed Today     11:31:15
getammo.8svx                 3756 ----rwed Today     11:50:00
wormdeath.8svx               7438 ----rwed Today     12:12:56
useteleport.8svx            38258 ----rwed Today     11:37:44
getpowerup.8svx             10260 ----rwed Today     11:52:58
killerfire.8svx              2002 ----rwed Today     11:31:22
getgrower.8svx              17848 ----rwed Today     11:50:54
timebombtick.8svx            3814 ----rwed Today     12:10:14
```

```
killerdeath.8svx              4560 ----rwed Today     12:25:22
usetongue.8svx                1566 ----rwed Today     11:37:16
filesaveas.8svx              23004 ----rwed Today     11:41:27
endoflevel.8svx              33012 ----rwed Today     11:59:59
defeat.8svx                  13040 ----rwed Today     11:41:09
thud.8svx                     2444 ----rwed Today     12:09:21
getobject.8svx                5554 ----rwed Today     11:52:17
fileabout.8svx               14470 ----rwed Today     11:47:06
missileactive.8svx            5692 ----rwed Today     12:04:38
bombblast.8svx               15186 ----rwed Today     11:37:47
filesave.8svx                10214 ----rwed Today     12:01:28
fileopen.8svx                10818 ----rwed Today     11:30:46
fx.8svx                       5568 ----rwed Today     11:49:18
getnitro.8svx                 6640 ----rwed Today     11:51:21
filenew.8svx                 10890 ----rwed Today     11:30:53
orbsplit.8svx                 1720 ----rwed Today     11:30:53
timealert.8svx               24878 ----rwed Today     11:30:55
victory.8svx                 23618 ----rwed Today     11:30:56
titlescreen.8svx             27626 ----rwed Today     12:10:58
shoot.8svx                   30654 ----rwed Today     11:31:01
pain.8svx                      816 ----rwed Today     12:07:23
orbdeath.8svx                 8796 ----rwed Today     11:29:50
orbborn.8svx                  5126 ----rwed Today     12:05:38
highscore.8svx               38720 ----rwed Today     12:02:31
C.8svx                        6068 ----rwed Today     11:39:09
getskull.8svx                 8776 ----rwed Today     11:54:14
jump.8svx                     6922 ----rwed Today     11:29:54
protectorborn.8svx           21906 ----rwed Today     11:30:47
45 files - 1088 blocks used

TOTAL: 63 files - 2 directories - 2384 blocks used
```

1.7 Installation and Startup

Installation and Uninstallation

No Installer script is provided or required for Worm Wars.

No installation is required; simply copy the WormWars/ directory and
its contents to your preferred installation location. It is suggested you move ←
    MEDPlayer.library to LIBS: to enable other programs to use it.

We suggest renaming the appropriate version to WormWars:

WormWars.000   Any Amiga
WormWars.020   68020+ Amigas

To uninstall, simply delete the WormWars/ directory and its contents.

Startup

The current directory should be set to WormWars/ (ie. the directory
containing the executable) before loading the game. This will allow it
to load the files it needs: WormWars.MED, the default fieldset (usually
WormWars.fset), the samples (in the fx/ subdirectory)

and perhaps MEDPlayer.library).

If the joyport cannot be allocated on startup, the blue worm cannot be
selected for human control. If the music cannot be loaded and set up at,
startup, it is unavailable. If the specified default fieldset cannot be
loaded at startup, WormWars.fset is used instead. If it cannot be
loaded, a blank, five-level fieldset is used instead, with a treasury
floored with silver. If the sound effects cannot be loaded and set up, they
are unavailable.

Command Information

                                    WormWars

Path: SYS:Games/WormWars/WormWars

Format: WormWars [?]|[[-p<priority>] [<fieldset>]]

Template: WormWars -P/K,

Purpose: To run the Worm Wars game.

Specification: <priority>: the priority that Worm Wars will
                        be run at. Higher priorities can help the game to
                        run closer to full speed. Lower priorities can help
                        the system multitask, by giving less processor time
                        to Worm Wars.

                        The allowable range is -5 to +5, with the default
                        being 0. A leading '+' for a positive number is
                        optional.

                <fieldset>: the pathname of your default fieldset. This
                        is taken exactly as entered; an '.fset'
                        extension is not automatically appended. This is
                        loaded relevant from the current directory. If no
                        argument is given, or your default fieldset cannot
                        be loaded, the default is WormWars.fset.

                ?:   Displays the command line argument format, instead
                        of running the game.

                The order of the arguments are interchangeable.

Examples: WormWars /foo.fset   load foo.fset from parent
                                                directory, and run at priority
                                                level 0
                WormWars -p-3 bar.fset   load bar.fset from current
                                                directory, and run at priority
                                                level -3
                WormWars HD1:foo.fset -p4   load foo.fset from root
                                                directory of HD1:, and run at
                                                priority level +4
                WormWars -p+5 /fsets/bar.fset   load bar.fset from fsets/
                                                subdirectory of parent
                                                directory, and run at priority
                                                level +5

```
               WormWars ?                           display command format
```

No Workbench ToolTypes are currently supported.

1.8 Title Screen

```
               Keys

Esc F1 F2 F3 F4 .. .. .. .. .. ..
.... 1 2 3 4 . . . . . . . . <-   ... Hel   . . . .
..... Q . . . . . . . O . . . Ret         . . . .
... .. A S . F . . . . . . . ur      .      4 . . .
Shift . . . . . . N M . . ? Shift    . . .   1 2 3 E
  .. .. -----Spacebar---- Am ..             -.- . n
```

1-4 or F1-F4 cycles the relevant
                worm

                controls
                 through 'None', 'Amiga'
        and 'Human'. If Shift is held as a qualifier, it cycles backwards.
Return or Enter begins the game.
M toggles the music on or off.
F toggles the sound effects on or off.

Menu

```
Project|New         Amiga-N            Creates a blank, untitled
                                       (WormWars.fset) fieldset.
Project|Open...     Amiga-O            A file requester, to open
                                       open a fieldset.
Project|Save        Amiga-S            If unmodified, copies the
                                       current version over the old version.
                                       Otherwise, a file requester to prompt
     the user for a name, then saves the
                                       file.
Project|Save As...  Amiga-A            A file requester to prompt the
     user for a name, then saves the file.
Project|About...    Amiga-?            Credits window.
Project|Quit        Amiga-Q, Esc       Exits to CLI/Workbench.
  Tools|Field Editor Spacebar          Enters the
                field editor
                 .
```

Gadgets

```
        Key   Colour      Human Controls       Letters


             1   Green       Left Keyboard

             C and L

             2   Red         Right Keyboard
```

```
              O and E

               3   Blue         Joystick

              M and T

               4   Yellow       None

             P and E
             Any combinations of human and Amiga control are acceptable, but at ←
                  least
one worm must exist.
```

1.9 Field Editor

```
             The field editor allows you to load, edit and/or save the  ←
                  playfields
which the worms compete on. You can create any pattern you desire, subject
to a few minor rules, and therefore the onus is on the creator to ensure
that the field is well-designed.

V4.1 is incompatible with older fieldsets.

You are allowed to have up to 30 levels in each fieldset, and must have
at least 1. (The 'treasury', that is, level 0, is not considered in the
count of levels.)

If the game has a fatal error during entry to or exit from the field
editor, the game will save the current fieldset under the filename
error.fset before exiting. (This situation should never arise.)


             Hints
             The high score table is loaded and saved as part of the fieldset  ←
                  file:
there is a separate high score table for each fieldset. Making any
modification to the fieldset will instantly clear all the fieldset's
high scores.

If you are have modified your field since you saved it and want to do
something which will lose the changes you will be asked to confirm your
intent.

Treasuries are normally floored with silver; the File|New command will
do this when it clears the fieldset.

Keys

Esc F1 F2 F3 F4 F5 F6 F7 F8 .. ..
.... 1 2 3 4 5 6 7 8 . . . . . .   Del Hel    ( ) . .
..... Q . E . . . . I O . . . Ret              7 8 9 .
Ctr .. A S D F . . . K . . . . ur     U        4 5 6 .
Shift . . . . . . N M . . ? Shift     L D R    1 2 3 E
   Al .. -----Spacebar---- Am Al               -0- . n
```

```
        F1      gold
        F2      silver
        F3      empty
        F4      wood
        F5      stone
        F6      teleport '1'
        F7      teleport '2'
        F8      start
```

M toggles the music on or off.
F toggles the sound effect on or off.

Delete and Help change the current level (lower and higher,
respectively). When shifted, they change to level 1 or the
final level, respectively.

Numeric . stamps the current brush at the current cursor location.

Numeric 0 toggles 'sticky mode'. The
                sticky indicator
                 will light
up or be extinguished, as appropriate. Sticky mode means that the 'brush'
is held down: any single-square keyboard cursor movements will alter
squares that the cursor passes over to the current brush. Toggling
sticky mode 'on' also does a 'stamp' of the current brush at the current
cursor location.

F1-F8, when unshifted, change your brush type to the
appropriate type, as if the gadget had been clicked. When shifted,
the level will be filled (except for start and teleports) with the
requested square type, without change to the current brush.

Alphanumeric 1-8 change the square under the cursor to
the relevant type, without affecting the current brush.

The cursor keys or numeric keypad move the cursor around the field.
The default movement is one square. (If sticky mode is on, copies of the
brush are left behind). Holding Alt moves the cursor in increments of
five squares. Holding Shift or Ctrl moves the cursor to the
relevant edge of the field. (The cursor is shown as a white square.)

Numeric (and) cycle the brush and square under the
cursor through the available
                objects
                , lower and higher, respectively.

Menu

```
Project|New        Amiga-N                        Clears the fieldset.
Project|Open...    Amiga-O, O                     Loads a fieldset.
Project|Save       Amiga-S, S                     Saves current fieldset.
Project|Save As... Amiga-A, A                     Saves with new filename.
Project|Quit       Amiga-Q, Q, Shift-Esc          Exits to CLI/Workbench.
Project|About...   Amiga-?                        Credits window.
  Tools|Title Screen Return/Enter, Spacebar, Esc Returns to
                title screen
                 .
```

```
   Level|Insert        Amiga-I, I                    Inserts blank level here.
   Level|Delete        Amiga-D, D                    Deletes this level.
   Level|Erase         Amiga-E, E                    Clears this level.
   Level|Append        Amiga-K, K                    Adds blank level to end.
```

Remember that the menus, and their Amiga-key shortcuts, are
unavailable whilst the pointer is over the playfield. The other shortcuts
for the menu items will still be available.

Joystick control

A joystick plugged into port '2' can be used in the field editor.
Directional controls move the cursor in single square increments.
Holding the directional controls continue to move the cursor. The
firebutton stamps the current brush at the current location. Holding
down the firebutton whilst moving the stick, to produce lines of
squares, is not yet supported.

You will need to use the keyboard and/or mouse to control other
functions of the field editor, such as file operations, changing the
brush, etc.

Mouse control

The gadgets to the left of the field will change your current 'brush' to
the appropriate type. This brush is assigned to the left mouse button,
and the keyboard and joystick. The pointer imagery will be altered to
reflect your brush type, for some brush types.

The right mouse button, when over the playfield, will function as
'empty' rather than bringing up the menus.

Clicking on the field will change the current cursor location to the
chosen square, and change that square to the current brush (or to 'empty'
if the right mouse button is clicked).

Teleports:

Two teleports, '1' and '2', may be defined in the field
editor. These
                  teleports
                   will teleport to each other
during gameplay. They are completely independent of any teleports that
may be created randomly as the game progresses. It is illegal to have
only one teleport as it would lead to nowhere. Therefore, whenever the
field is saved or you return to the title screen, any lonely teleport
is removed.

Start:

The starting location for all worms. This is invisible during
gameplay. Usually it is best left where it is, in the centre of the
field.

```
                          _
                         / \
                          |
                          |
```

```
                              Blue
              <--- Green START Red --->
                            Yellow
                              |
                              |
                             \_/
```

1.10 Hints

One starting location is specified for all worms. It must be a
considerable distance from all barriers as worms may emerge from it
in any orthagonal direction. Also, try not to make any starting
configuration give an unfair advantage. (The easiest way to ensure this
is through the use of symmetry.) Remember especially to give plenty of
room in the Y-dimension, as the Y-axis is smaller than the X-axis.

Avoid the temptation to make mazes which have their corridors only 1
square wide, unless you realize that it will be very difficult to play.
3-5 squares width is usually more appropriate for less skilled players.

Point-squares (ie. silver and gold) should be used with restraint, and
generally only as a reward for difficult maneouvering. The average field
should give have only about 5% point-square density. Richer fields can be
made for experienced players, but they should be as a reward for skill.

Killers only fire when they are on the edge of the stone or wood, but
they move randomly. Therefore, some stone/wood configurations will be more
deadly than others. For example, thin lines provide maximum contact
between worms and killers, and thick square areas will quickly generate
new killers.

Lightly sprinkle your treasury with objects. Use objects very sparingly
or not at all in other levels.

It is possible to create fieldsets which favour certain worms. This can be
useful if playing against a worse opponent, as it allows you to give them
extra objects, etc. by convenient placing.

1.11 How to Play

          Worm Wars is an arcade game for zero to three human players. Each ←
             player

          controls
           a
          worm
          . The
          worms
           move around a rectangular
          playfield
          ,
leaving their tails behind them. Each

```
                worm
                 aims to amass the most
possible
                points
                , to
                complete
                 the levels and to survive.


                 Screen Layout

                 Worms

                 Controls

                 Orbs

                 Letters

                 Killers

                 Objects

                 Protectors

                 Scoring

                 Slime

                 Collisions
                        Strategy
                 Fragments

                 High Scores

                 Teleports
```

1.12   Screen Layout

```
                The playfield measures 53*39 squares.

The edges of the field are semi-toroidal.
                Worms
                 and
                orbs
                can cross sides.
                Protectors
                ,
                killers
                ,
                bullets
                ,

                missiles
                ,
```

```
                       bombs
                        and
                       fragments
                        respect the field edges.


+-----------------------------------------------------------------+---+
| Worm Wars 4.1                                                   |!!!|
+-----------------------------------------------------------------+---+
|                            Text area                                |
|  Green        ########################################      Red     |
|  worm         ########################################      worm    |
|
|                  status
|                  #########################################
|                   status
|                   |
|
|                  area
|                  #########################################
|                    area
|                    |
|              #########################################              |
|              #########################################              |
|              #########################################              |
|    COMP       #########################################      COMP   |
|    LETE   *   #########################################  *   LETE   |
|              ############### Playfield ############### Mu  Cl  Sy |
|    COMP   *   #########################################  *   COMP   |
|    LETE       #########################################      LETE   |
|              #########################################              |
|              #########################################              |
|              #########################################              |
|  Blue         #########################################      Yellow |
|  worm         #########################################       worm   |
|
|                  status
|                  #########################################
|                   status
|                   |
|
|                  area
|                  #########################################
|                    area
|                    |
+-----------------------------------------------------------------+
```

```
        !!!: screen depth-arrangement gadget.
          *: 'cause of damage' indicator for relevant worm.
   COMPLETE:
              letters
              indicator for relevant worm.
  Text area: normally displays elapsed time for current game.
      Mu-Sy: music (and effects)/clock/
             sticky
              indicators.
```

1.13   Status Area

                   Score
                     Highlighted if you possess any
                   multipliers
                   .

                   Lives
                     Highlighted if >100. Must be <= 200.

                   Bias
                     Highlighted if >0. Must be <= 100.
Speed   Highlighted if a
                   nitro
                    is possessed.

                   Ammo
                     Highlighted if >0. Must be <= 100.

                   Power
                     Highlighted if >`Single'.
            `Quint.'/`Sept.': quintuple (*5)/septuple (*7) power.

                   Armour
                     Highlighted if current mode. Must be <= 100.

                   Tongue
                     Highlighted if current mode. Must be <= 100.

1.14   Controls

                   In-game keyboard controls

Esc .. ..
....
..... Q W E . . . . P . . . ..   7 8 9 .
... .. A S D F . . . .   U   4 5 6 .
Shift . Z X C . . . M . . . Shift   L D R   1 2 3 E
   .. .. ----Spacebar---- .. ..   -0- . n

     Green worm   Either   Red worm

Esc exits to the title screen.
Shift-Esc exits to CLI/Workbench.
P pauses until P is pressed again.
M toggles the music on and off.
F toggles the sound effects on and off.

Worm control principles

Worm control is an acquired skill and is the single most important factor
in playing successfully and enjoyably.

A worm has direction and speed. It is unable to ever stop completely,
unless frozen by
                    ice
                    , but its speed is adjustable between
three (or five
but cannot (and would not usually want to) turn 180\textdegree{} in a single ←
    move.
Normally, it can only move orthagonally (north, south, east, west), but a

                    nitro
                     will enable diagonal movement.

The worm can pass through most types of square, though some cause damage.
Wood and tail slow the worm down, halving its speed for every square
traversed, (to a minimum of 'slow' or 'very slow'). Stone, killers and
blocked
                    teleports
                    , however, will block the worm's motion and
slow it.

Control of the worms is by keypresses; that is, press and release in a
normal keystroke motion. There is no reason to hold down any key. Only
fresh keystrokes are ever looked at by the program. Also, holding down
a key may lock out your input (see below).

For joystick control, it is best to nudge the joystick briefly in the
direction you want, and let it return to the central upright position.

Each move, a worm is able to do any one of five things:

    change speed (one speed in either direction);
    fire (in the current direction);
    change direction;
    jump; or
    nothing.

The worm will move one square regardless. This means you can:

fire in your current direction and move in your current direction,
change direction   and move in the new direction,
change speed   and move in your current direction.
jump   leaping 2-4 (
                    1-5
) squares and then
                                    landing, in your current direction.
nothing   and move in your current direction.

Speed changes are accomplished using the same keys as for turning.
Pressing the direction you are already travelling increases your
speed; pressing against that direction (ie. trying to turn 180\textdegree{}
backwards) decreases your speed.

Keyboard [green and red]

If only one human is selected for the keyboard, all three sets of
keyboard controls are available for that player, whether it is the

green or red worm. When only one human is selected for the keyboard,
we suggest using the cursor keypad, as it has the best rollover
properties (ie. you can press a key whilst another is already held
down). However, the cursor keypad obviously does not support diagonal
movement.

Two players may use the keyboard, playing at each end. If there are
two humans selected for the keyboard, the cursor keypad cannot be
used, due to keyboard hardware limitations. The green worm must use
the leftmost controls (QWEASDZXC, spacebar) and the red worm
must use the rightmost controls (the numeric keypad).

Note that the leftmost and rightmost controls do not rollover properly,
due to keyboard hardware limitations. This means that you must release
all keys before pressing another one, or the new keystroke is ignored
and so is all further input from that player until all keys are released.
The other player's keystrokes are completely unaffected by what you do;
you can only cause this problem for yourself.

X and C are both down-right for the green worm.
Spacebar is the firebutton for the green worm.

5 and 2 are both down for the red worm.
0 on the numeric keypad is the firebutton for the red worm.

Joystick [blue]

The blue worm can use a joystick plugged into port '2'. If the joystick
could not be set up during initialization then human control will be
unavailable.

1.15 Letters

                The main objective of the game is to complete all the levels.
The level will be completed and the next loaded as soon as a worm has all
eight letters, which together spell the word COMPLETE. All worms will then
lose all their letters. The worm which completed the level receives
these points:

  100 x old level
   10 x seconds remaining
    1 x tail squares onscreen

Only worms and their
                protectors
                 go on to the next level;
other creatures perish.

Only 2:00 (two minutes) are allocated for each level. After that time
has elapsed, all newly created orbs, killers and fragments will be
double their usual speed, and the frequencies of orbs and killers will
also be doubled, until the level is completed. Orbs, killers and
fragments which are already in existence at the time are unaffected.

There will always be one, neither more nor less, letter onscreen at

any given time. When a worm collects it, another, which that worm
needs, will appear. In some cases, when the field is very crowded, there
may temporarily not be a letter onscreen. This is a rare and temporary
situation, as several times per second the game will try to find
somewhere to put the new letter.

Collecting a letter is normally worth 100 points, but if it is also your
own
                colour
                 you will instead receive 200 points.
                Orbs
                 receive 100
points for collecting a letter.

Collecting a
                bonus
                 will give you a random letter, unless you
have
                bias
                , in which case it will be one you need.

Each level:

        is slightly faster than the previous one
        is more fiendishly designed, although also containing
                greater treasures (usually more gold/silver, etc.)

                orbs
                 and
                killers
                 are more frequent

                orbs
                ,
                killers
                 and {"fragments" link Frag} are faster

All worms still alive at the completion of the final level receive an
additional 1,000 points.

1.16 Objects

Type	Points	Frequency
Affixer	60	Very rare
Ammo	20	Common
Armour	20	Common
Bias		

```
                   50        Uncommon


            Bomb
                   30        Common


            Bonus
                   10        Common


            Grower
                   50        Uncommon


            Healer
                   90        Very rare


            Ice
                   60        Very rare


            Life
                   50        Uncommon


            Missile
                   40        Uncommon


            Multiplier
                   50        Rare


            Nitro
                   10        Uncommon


            Powerup
                   30        Uncommon


            Protector
                   50        Rare
        Slayer            40        Rare


            Switcher
                   70        Rare


            Tongue
                   20        Uncommon


            Treasure
                   100       Very rare
```

Order of frequencies: Common, uncommon, rare, very rare.

1.17 Affixer


```
                Worms
```

This causes your
                protectors
                 to stop rotating and
zigzagging. They are 'fixed' into position at whatever position they

were in at the time. This makes them more useful, as you can more easily
predict where they will be at any given time in advance.

Orbs

This will remove any affixer from any
                worms
                .

1.18 Ammo

                Worms

This will provide 1-6 bullets.

Bullets are fired by pressing your appropriate fire
                control
                .
If a bullet is available, you will fire. This bullet is virtually
instantaneous. If you have no bullets, you may
                jump
                .

The width of your bullet depends on
                powerups
                . Normally,
it is 1 square wide, but it can be up to 7 squares wide. In reality,
up to 7 independent bullets are fired.

A bullet which hits a
                teleport
                 will be teleported and continue on its way.
You will get the teleport
                skill bonus
                , too. That segment of
the bullet will thereafter leave a trail of silver behind it.
If you have
                bias
                , the trail will be of gold.

A bullet which goes through the same teleport twice will be destroyed.
This occurs when both teleports are lined up from each other in the
direction of firing.

In the absence of obstructions, a bullet continues going until it reaches
the edge of the field.

is bounded by	field edges
destroys	tails
destroys	empty/silver/gold
destroys	objects
is absorbed by	skulls
if biased, destroys, else is absorbed by	wood
is absorbed by	stone
is teleported by	unblocked teleport

is absorbed by	blocked teleport
harms and is absorbed by	unarmoured worm heads
is absorbed by	armoured worm heads
explodes and is absorbed by	unarmoured orbs
is absorbed by	armoured orbs
passes through	friendly protectors
is absorbed by	enemy protectors
passes through	friendly missiles
destroys	enemy missiles
bonusizes and is absorbed by	killers
destroys and is absorbed by	fragments
is absorbed by and sets off	timebombs

When a bullet sets off a timebomb the effect is as if the timebomb had
elapsed its countdown and detonated normally (ie. you do not receive
points for the blast, and can be harmed by it). So beware.

Orbs

The orb will
            explode
            , unless it is
            armoured
            .

1.19 Armour

            Worms

Armour will protect worms from being hurt by many different causes.
For a list of them,
            click
            .

Armour is only temporary. Its power counts down at a constant rate, and
can be extended by the acquisition of more armour. It is a
            mode
            .

While you are in armour
            mode
             your head-image will be different.
When your armour is nearly gone your head will flash.

Orbs

Armour will protect orbs from being killed by many different causes.
For a list of them,
            click
            .

Armour is only temporary. Its power counts down at a constant rate, and
can be extended by the acquisition of more armour. It is a
            mode
            .

```
While it is in armour
                mode
                 the orb will be red.
```

1.20 Bias

```
                {b}Worms
```

```
Provides these benefits:
```

```
                missiles
                 will not chase you.

                tongued

                orbs
                 leave gold in your tail instead of silver.
        when you get
                bonuses
                , the
                letter
                 will be one you need.
        you can
                shoot
                 through wood.
        whenever you
                shoot
                 you will also launch a
                missile
                ,
                unless you already have an active
                missile
                .
        whenever one of your
                bullets
                 goes through a
                teleport
                 it will
                thereafter leave a trail of gold instead of silver.
        vampirism: whenever you cause a
                worm
                 to take damage,
                you gain as many lives as they lost. Whenever you kill
                an
                orb
                 or
                killer
                , you gain
                a life.
```

```
Bias counts down at a constant rate. It can be extended by the
acquisition of more bias. You can use bias in conjunction with one of
the `
```

```
                    modes
                    '.
```

Orbs

This will remove all bias from all worms.

1.21 Bomb

```
                As soon as you go over one of these the bomb will go off, clearing ←
                    the
area around you. The blast radius is random, but is always constrained
by the field edges.
```

is bounded by	field edges
does not affect	empty/silver/gold
destroys	objects
does not affect	skulls
does not affect	wood
does not affect	stone
does not affect	teleports
harms	unarmoured worm heads
does not affect	armoured worm heads
bonusizes	unarmoured orbs
does not affect	armoured orbs
does not affect	friendly protectors
does not affect	enemy protectors
does not affect	friendly missiles
destroys	enemy missiles
bonusizes	killers
destroys	fragments
destroys	timebombs

```
A bomb may at any time randomly change to a timebomb, which ticks from
9 down to 0 before detonating. During ticking, it can be pushed around
by worm heads. If pushed into a teleport or off the field edges, 100
points are given and the timebomb is destroyed without detonation. If
pushed against things, or shot, or hit by a fragment, or an orb,
it will detonate immediately. If this was from pushing against things,
or the timebomb was shot by a
                worm bullet
                , the worm responsible
gets the points from the blast. If an orb set the timebomb off, it gets
the points. In any other case, no points are given from the blast. There
can be up to four timebombs onscreen simultaneously.
```

```
If a timebomb is pushed over a
                skull
                , the skull is
destroyed and points are given to the pusher, but none of dead worm's
attributes are acquired.
```

1.22   Bonus

                    Worms

You will be given a random
                    letter
                    . It may be one you already have,
unless you have
                    bias
                    . You do not receive
                    skill points
                    for
                    letter
                     collection, only your points for collecting
this
                    object
                    .

Orbs

Just points.

1.23   Grower

Worms

This will cause all gold and silver onscreen to 'grow', expanding into
their neighbouring squares if those neighbouring squares are empty. Note
that gold can and will grow over adjacent silver.

Orbs

All wood onscreen will 'grow', expanding into their neighbouring squares
if those neighbouring squares are empty.

1.24   Ice

                    Worms

Ice will freeze all
                    orbs
                    ,
                    killers
                     and
enemy
                    worms
                     for a short period of time. There is no defence against
ice. Additional ice will be added onto your amount remaining.

                    Bias
                     and
                    modes

                    of frozen worms and orbs do not
count down.

Orbs and killers are not created, and do not move or fire, during ice.

            Timebombs
             are not created, and do not count down, during ice.

            Objects
             are still generated as normal. Time still countinues to
tick down as normal.

Orbs

The orb will split, as if it had collected a
            life
                .

1.25 Life

Worms

1-6 extra lives.

Orbs

The orb will split into up to four orbs, depending on the number of orbs
already in play.
  Each orb will be an exact clone of the original in all attributes,
except starting direction but including score. Once born, they are
completely separate, of course.

1.26 Healer

            Worms

If you have less than your starting lives (100), boosts you back to 100.
If you have 100 or more, boosts you to 200.

Orbs

The orb will split, as if it had collected a
            life
                .

1.27 Missile

            Worms

Missiles are automatically guided. They hunt the following things:

```
        worms                preferred
        enemy missiles       preferred
        orbs
        killers
```

The missile hunts whatever is nearest, and recalculates its target
every move. An orb or killers must be twice as close as the nearest 'preferred' ↩
    target (worm or enemy missiles) for the missile to hunt it.

Missiles will not cross field edges. They move at 'fast' speed.

Although they will hunt
            armoured

            worms
             and
            armoured
             orbs,
they cannot harm them and will be themselves destroyed on impact.

Although friendly missiles never chase you, you will destroy them by
getting in their way, and will be yourself harmed if
            unarmoured
            ,
so beware. Only one missile can be active for each worm at any given time.

```
destroys                                tail
destroys                                silver and gold
is absorbed by                          skulls
destroys                                objects
destroys                                wood
is absorbed by                          stone
is teleported by                        unblocked teleports
is absorbed by                          blocked teleports
harms and is absorbed by                unarmoured worm heads
is absorbed by                          armoured worm heads
destroys and is absorbed by             unarmoured orbs
is absorbed by                          armoured orbs
passes through                          friendly protectors
is absorbed by                          enemy protectors
bonusizes and is absorbed by            (enemy) missiles
bonusizes and is absorbed by            killers
destroys and is absorbed by             fragments
is absorbed by and sets off             timebombs
```

If you collect a missile:

        while you already have an active missile; or
        there are no other worms, missiles, orbs or killers alive

then you will receive only points; no missile will be generated.

Orbs

All missiles currently active will be destroyed.

1.28   Multiplier

Each time you get a multiplier, your scoring will be doubled. If you
get more than one, it is doubled again each time. You can collect up
to three (3) multipliers.

Your object points for actually getting the multiplier are
affected by the new multiplier itself.

Multipliers	Scoring
0	*1
1	*2
2	*4
3	*8

Worms

Multipliers last until the worm takes damage from a non-tail cause. Each
time the worm takes damage from such a cause, one level of multiplier is
lost (ie. scoring is halved).

Orbs

Orbs never lose their multipliers.

1.29   Nitro

                Worms

A nitro will enable you to obtain five (5)
                speeds
                 instead of the usual three.
The new speeds are 'very slow' and 'very fast', at quarter and quadruple
normal speeds respectively. These are used in the same manner as normal
speed changes.
  Also, you will be able to move diagonally.
  Once obtained, a nitro is kept until the end of the game, and its
mere possession is enough to grant the abilities.

Orbs

Doubles the orb's speed, to a maximum of 'very fast'.

1.30   Powerup

                Worms

This is power for your
                bullets
                . Each bullet you fire becomes wider,
requiring less aiming accuracy and causing more general devastation.

```
    Symbol          Meaning

    <number>        bullet number
    :               worm head, facing up (north)
    :               worm head, facing up-right (northeast)
    #               worm tail

    1               213             42135           6421357
    1               213             42135           6421357
    1               213             42135           6421357
    1               213             42135           6421357
    :                :               :               :
    #                #               #               #
    #                #               #               #

       Single          Triple        Quintuple       Septuple
   (no powerups)    (one powerup)  (two powerups)  (three or more)

         1                312             53124           7531246
        1                312             53124           7531246
       1                 312             53124           7531246
      1                  312             3124            31246
     :                  :2              :24             :246
    #                   #               #               #  6
   #                    #               #               #
```

Orbs

Doubles the orb's speed, to a maximum of 'very fast'.

1.31 Protector

                Worms

Acquisition of this item will give you a companion who stays near you,
collecting
                objects
                 for you exactly as if you had moved
over them yourself, and defending you from some forms of damage.

You can have up to three protectors. The first two orbit around
your head. The third will be a 'nose', suspended three squares in
front of your head, which zigzags. The rate of orbiting/zigzagging is
the same as the
                worm's
                 speed; that is, they move when
the head moves.

An
                affixer
                 will stop the protectors from rotating and
zigzagging.

is bounded by   field edges

```
is invisible over                      friendly tail
is invisible over                      enemy tail if protector-worm
                                           is tongued
destroys                               enemy tail if protector-worm
                                           is untongued
destroys and earns points for          empty, silver and gold
destroys, earns points for             skulls
    and earns attributes for
is invisible over                      wood
is invisible over                      stone
is invisible over                      teleports
harms                                  unarmoured worm heads
is invisible over                      armoured worm heads
destroys                               orbs
destroys and is absorbed by            enemy protectors
passes freely through                  friendly missiles
destroys                               enemy missiles
bonusizes                              killers
reflects                               fragments
is invisible over                      timebombs
```

Orbs

This will slay all protectors.

1.32 Slayer

```
                Worms
```

Slayers are used instantly. They will destroy all
```
                killers
                 and
```
```
                slime
                , and cause damage to all
                unarmoured
                 enemy worms.
```
All
```
                orbs
                 will
                explode
                 simultaneously; use it with care.
```

Orbs

The orb will
```
                explode
                , if
                unarmoured
                .
```

1.33 Switcher

Worms

All tail onscreen is instantly changed to your own colour. The main
benefit of this is that you take much less damage over your tail
than over an enemy tail, and also that you will receive more points
at the end of the level.

Orbs

All tail onscreen is instantly changed to wood.

1.34 Tongue

                   Worms

Tongue allows you to go through wood and
                   worms
                    (heads or tails) without
taking damage.

You can kill other
                   worms
                    by 'crossing heads' (ie.
both heads are in the same square). If the other worm lacks tongue,
it will take damage and you will receive 100 (hurting worm) + 100
(crossing heads) = 200 points. If the other worm does have tongue,
neither will take damage and each will receive 100 points (crossing heads).

Tongue functions differently in one-worm and in multi-worm games. In
both, tongue will allow you to survive collisions with worms and wood.
In one-worm games, you will leave behind tail, as normal. In multi-worm
games, you will turn any tail you pass over into silver or gold, and
receive points for it, as shown below.

In a multi-worm game, whenever the worm goes over a tail square it
receives:

        5 points   if it eats friendly tail. Tail turns to silver.
       10 points   if it eats enemy tail. Tail turns to gold.

Your
                   protectors
                    will not eat any tails while you are in
tongue mode, to help you maximise your score.

Tongue is only temporary. Its power counts down at a constant rate, but
can be extended by the acquisition of more tongue. It is a
                   mode
                    .

While you are in tongue
                   mode
                    your head-image show your tongue
poking out. When your tongue is nearly gone your head will flash.

Orbs

This will allow the orb to pass through and change wood and tails
instead of bouncing off them.

Whenever the worm goes over a tail square it receives:

          5 points   if it eats
                  unbiased
                   tail. Tail turns to silver.
       10 points   if it eats
                  biased
                   tail. Tail turns to gold.

Note that the
                  biased

                  worm
                   in question must still be
alive at the time, or the tail is regarded as
                  unbiased
                  .

Tongue is only temporary. Its power counts down at a constant rate, but
can be extended by the acquisition of more tongue. It is a
                  mode
                  .

While it is in tongue
                  mode
                   the orb will be blue.

1.35 Treasure

                  Worms

The worms will enter the treasury for a limited amount of time.
At the conclusion, the next level is reached. The full time bonus
(2:00, which is 1200 points) is given at the end of the treasury.

Orbs

The orb will split, as though it had collected a
                  life
                  .

1.36 Worms

                  Worms can be controlled by humans or the Amiga. For information on
how to control them,
                  click

.

Amiga-controlled worms increase in skill with every level.

A worm consists of a head, one square in size, and a tail, which is
formed in the wake of the head's passing. As the worm moves, the tail
stretches out behind its head.

                    Armour
                     and
                    tongue
                     are mutually exclusive 'modes'.
You can only have one in use (and therefore counting down in strength) at
a time, and it will be whatever was most recently collected.

The head's appearance indicates whether it is in a 'mode', and also
the direction it is currently travelling. It will flash when the
current mode is at low strength. When the strength reaches zero, the
other mode is automatically engaged, if above zero.

Worms begin with 100 lives. Lives are lost every time the worm
takes damage, which can be by various calamities.
                    Life
                     will
increase your lives by 1-6, and
                    healer
                     will boost them up to
100 or 200. Whenever you are taking damage your head will change to a
skull temporarily. This is a visual change only. When 0 lives is
reached, the worm is dead and the skull is permanent. Every 1,000 points
you will be awarded an extra life.

Any
                    orb
                    , worm or
                    protector
                     which hits the skull of a
dead worm will receive 100 points. If a worm or
                    protector
                     hits it, you
will also get everything the worm had at the time of death (
                    multiplier
                    ,

                    bias
                    ,
                    power
                    ,
                    ammo
                    ,
                    armour
                    ,
                    tongue
                    ,
                    nitro
                     and

                    affixer
                    ), in
addition to what you yourself already had.

The skull will absorb any
                    bullets
                    ,
                    missiles
                     or
                    fragments
                    which collide with it. It is immune to
                    bombblasts
                    .

Collision with any part of a worm by the head results in damage, unless
a
                    tongue
                     is in use. In that case, points are received and
silver or gold is created.

Worms can move in the four cardinal orthagonal directions and at three
speeds; getting a
                    nitro
                     adds diagonal movement and
two more speeds.

Each time an enemy worm takes damage, the causer of it gets 100 points,
whether worm or orb.

If you are the last worm remaining (in a multiworm game) you will get a
survival bonus of 500 points. The other worms, of course, will be
reincarnated at the start of the next level, which means this bonus
can be earned several times (up to once per level).

A worm with no
                    ammo
                     can jump instead. If the destination
is stone, a
                    killer
                     or a blocked
                    teleport
                     you will not jump. The distance
varies according to your speed, and is shown below.

        Name   Speed   Jump distance

      * Very Slow   quarter speed   1
      . Slow   half speed   2
      . Normal   normal   3
      . Fast   double speed   4
      * Very Fast   quadruple speed   5

* The speeds 'very slow' and 'very fast' are only available to worms
with
                    nitros
                    .

If you press a direction you are already going in, you will double your
speed. You can also slow down by pressing against your direction.

At the start of each level, each worm's speed is set to 'slow'.

All worms can be hurt by the following methods:

```
        Method              Damage       Notes

        blocked teleport    5 lives      worm motion is stopped
        killer              2            worm motion is stopped
        stone               1            worm motion is stopped
```

(For the above causes, every move in which the worm takes damage from
that cause, its speed is halved (to a minimum of 'slow' or 'very slow',
as appropriate). The worm is unable to actually enter the square.)

                Unarmoured
                 worms can also die by the following methods:

```
        worm bullet         5
        enemy missile       5
        enemy protector     5
        orb                 5
        fragment            3            if armoured, fragment is reflected
        bombblast           3
        enemy slayer        2
        slime               2
```

                Untongued
                 worms can also die by the following methods:

```
        worm head           5
        worm tail           1            worm is slowed
        wood                1            worm is slowed
```

1.37 Orbs

                Orbs are controlled by the Amiga. They bounce whenever they hit a
tail, stone, wood or
                killer
                , so their motion can be predicted
by the skilled player.

There can be up to seven (7) orbs at a time. Normally, they are yellow,
although their colour can change according to their 'mode'.

They can make use of some
                objects
                 similarly to a
                worm
                . Other objects
are different when used by an orb.

```
                    Armour
                     and
                    tongue
                     are mutually exclusive 'modes'.
An orb can only have one in use (and therefore counting down in strength)
At a time, and it will be whatever was most recently collected.
```

The orb's colour indicates the 'mode' the orb is in:

```
        Colour          Mode

        Yellow          None
        Blue            Tongue
        Red             Armour
```

When the strength reaches zero, the other mode is automatically engaged,
if above zero.

Orbs have their own scores. They rack up
                points
                 similarly to how a
worm would. Their points are yielded to those that kill them (which is
the reason they have their own scores).

Note that although normally the orb will bounce off tail, in some
situations they will attempt to enter the tail square. In such cases (only
when
                untongued
                , of course) they are killed, with points going to the worm whose ←
                    tail it is, and they turn into
                bonuses
                .

An orb with tongue passes through and destroys
                slime
                .
An orb with armour bounces off slime. An orb with neither dies.

All orbs can be slain in these ways:

        Notes   Cause

        *   Any worm gets a slayer. All orbs
                explode
                .
        #   Becoming trapped (unable to move).
        #   Collision with an
                armoured
                 orb. (Both orbs
                explode
                .
        #   Collision with
                worm tail
                .
        .   Collision with an
```

```
                 armoured
                  worm.
      .          Collision with a
                 protector
                 .


                 Unarmoured
                  orbs can also be slain in these ways:

   *
                 Worm bullets
                 .
   *
                 Fragments
                 .
   *             The orb collects
                 ammo
                  or slayer.
   #
                 Bombblasts
                 .
   #
                 Missiles
                 .
   #             Collision with an
                 unarmoured
                  orb.
   .             Collision with an
                 unarmoured
                  worm.
   .             Collision with
                 slime
                  when unarmoured and
                        untongued.

Symbol  Explanation

*:      The orb
        explodes
        .
#:      A
        bonus
         is left at the site of death.
```

1.38 Fragments

```
        Fragments are generated by:


        orb
         explosions. Eight (8) fragments will be
        generated by each explosion, one for each direction.

        killers
```

firing. One (1) fragment will be generated
per shot.

Fragments travel at a uniform speed until they are absorbed or reach
the field edges, by which they are bounded.

is bounded by   field edges
destroys   tails
destroys   silver and gold
destroys   objects
is absorbed by   wood
is absorbed by   stone
is absorbed by   blocked teleports
is teleported by   unblocked teleports
harms and is absorbed by   unarmoured worm heads
is reflected by   armoured worm heads
explodes and is absorbed by   unarmoured orbs
is absorbed by   armoured orbs
is reflected by   protectors
destroys and is absorbed by   missiles
bonusizes   killers
destroys and is absorbed by   fragments
sets off and is absorbed by   timebombs

1.39 Killers

Killers walk along the top of stone, wood, tails and slime, firing

fragments
randomly when they are at an edge. An 'edge' is for
our purposes defined as where the killer is next to somewhere it can't go
(ie. non-stone/wood/tail/slime). Killers prefer to be at an edge and tend
to move towards and stay at one. When not at an edge, they cannot fire.
  Up to eight (8) killers can exist simultaneously. Each killer can only
Have one fragment onscreen at a time.

Killers can be slain in these ways:

Worm bullet

Fragment
        Slayer

Orb
 bouncing off it

Bombblast

Missile
Dead killers always turn into
bonuses
. This is the only way to
destroy stone.

1.40 Slime

Slime may be randomly created at during play. This slime can 'grow' into
some adjacent squares over time. It never moves, only grows.

Normal orbs	are destroyed by it
Armoured orbs	bounce off it
Tongued orbs	pass through and destroy it
Normal worms	are harmed by it
Armoured worms	pass through and destroy it
Tongued worms	are harmed by it
Killers	can traverse it
Protectors	destroy it
Fragments	destroy it
Worm bullets	destroy it
Slayers	destroy it
Bombblasts	do not affect it

1.41 Teleport

These always come in pairs. Going through one will teleport you to ←
the
other, and bestow points also.

The following are teleported:

worms

orbs

worm bullets

fragments

missiles
If a teleport is blocked (there is stone or a
killer
next to
its partner on the side where you would emerge) then the teleport cannot
be used and is dangerous. You will slow down from hitting it much as you
would from hitting stone or a
killer
. It is obviously
possible for a teleport to be blocked to some approaches and unblocked
to others.

Protectors
are invisible over teleports, but you will
still get points for them being there, as if they had teleported.

Two teleports may be defined in the
field editor

```
              ; another
two may appear randomly during play. These two sets are completely
independent of one another.
```

1.42 Scoring

```
            Object points
            Square points


        +1   Empty
       +10   Silver
       +40   Teleport
       +50   Gold
      +100   Skull

Skill points

    Worms and orbs

          +5   For each square you turn to silver.
         +10   For each square you turn to gold.

    All

         +50   Kill a killer.
        +100   Hurt an enemy worm, without hurting yourself.
  +<orb's score>  Kill an orb.

    Orbs{ub}

        +100   Collect a letter.

    Worms{ub}

          +1   For each square of your colour onscreen when you
               complete a level.
         +10   For each second remaining when you complete a level.
         +50   You hurt a worm's head, orb or killer by shooting.
        +100
          Cross heads
          .
        +100   Push a timebomb off field edges or into teleport.
        +500   You are the last surviving worm.
+100 * <old level>  You complete a level.
      +1,000   Still alive at end of final level.

    Worms and protectors

        +100   Collect a letter of the worm's own colour.
      +200   Collect a letter of another colour.

You can be awarded several skill bonuses in conjunction for a single
action. For example, shooting an unarmoured worm gives 100 (hurt an
enemy worm) + 50 (hurt a worm's head by shooting) = 150 points; and
completing the final level is worth 100 x <old level> (complete a level)
```

+ 1,000 (still alive at end of final level).

1.43 Strategy

Killers prefer to be near free space (empty, gold or silver), so that
they can shoot.

Faster speeds are useful for:

    racing another creature for a letter or object;
    hunting another creature when you have tongue or armour;
    evading missiles and fragments;
    laying tails to trap other creatures;
    creating gold/silver with tongue;
    amassing more square-points by moving;
    amassing more square-points at level completion;
    making large jumps;
    causing protectors to rotate faster.

Slower speeds are useful for:

    making small jumps;
    waiting in a certain region of the screen;
    not filling the playfield;
    easier control.

You will get more points by shooting something than killing it by other
methods, and more from collecting real letters than getting bonuses.

Remember that bullets, bombs, missiles and fragments will not wrap around
playfield edges. If you do, they cannot follow.

Certain objects work well together. Eg.:

    bullets, powerups and bias;
    multipliers and armour;
    tongue and grower;
    treasure and ice;
    protectors and affixer.

To avoid a missile, get a worm, orb, enemy missile or killer, or a solid barrier ←
    such as stone, between you and it.

Going quickly between teleports yields many points. It is less damaging when done ←
    using tongue.

'Crossing heads' while you have tongue is a good cooperative maneuver for multi- ←
    human games. If both are at the same speed and direction the points will rack ←
    up constantly, until someone's tongue runs out.

The only way to destroy stone is to kill a killer which is on it, but in many ←
    cases you can simply jump over such obstacles.

When you shoot an orb, it will explode, so it is better to be some distance away ←
    when doing so.

Shooting an orb (which will explode) or timebomb (which will detonate) can be a ↩
    useful way of harming, or putting pressure on, an enemy creature which is at ↩
    the opposite end of the field. However, note that you can be harmed by this. If ↩
     you have at leas
 triple shot, you can safely shoot an orb if you are not directly lined up with it ↩
     (and you do not move into the path of the fragments). For shooting timebombs, ↩
     it is best to be as far away from it as possible.

The best way to handle slime is to encapsulate it with your tail, so it
cannot spread.

1.44 High Scores

Each fieldset can have up to five (5) high scores. If you quit out of a
game, no worms will be able to put up a new high score, as the game was
aaborted The high scores are not always truly comparable, as it is easier
to play if you are the only worm than it is if you are playing against
three others.

High scores are part of the .fset file. To save them, save the fieldset.
Any changes to the fieldset will automatically clear the
high scores.

Note that if your worm has been resurrected, its old score is forgotten
and cannot get on the high score table. The newest score is eligible.

The Amiga worms have names which honour the four original Amiga
designers. Even on the IBM-PC version. :-D

1.45 Collisions

```
                go
        un      ld
        ar ar   si
        fi mo mo lv           te
        el ur ur er ob        le
        de ed ed em je    st po sk sl
        dg ta ta pt ct wo on rt ul im
        es il il y  s  od e  s  ls e   NW AW TW NO AO TO FP EP FM EM KI FR TB

worm bllt Ab De De De De 1. Ab Te Ab De !! Ab !! 2. Ab 2. Pa Ab Pa De 3. !! 7.
bombblast Ab De De .. De .. .. .. .. .. De .. De 4. .. 4. .. .. .. De .. 4. De
Norm Worm .. !! !! ++ ++ !! Bl Te ++ !! !! !! Ab !! Ab !! -- Ab !! !! Bl !! Pu
Armd Worm .. !! !! ++ ++ !! Bl Te ++ De !! !! Ab De De De -- .. De De Bl De Pu
Tngd Worm .. 9. 9. ++ ++ De Bl Te ++ !! De De .. !! Ab !! -- Ab !! !! Bl !! Pu
Norm Orb  .. Bl Bl ++ ++ Bl Bl Te ++ Ab !! Ab !! 3. Ab 3. -- Ab -- 3. 5. 2. Ba
Armd Orb  .. Bl Bl ++ ++ Bl Bl Te ++ Bo De Ab De De !! De -- Ab -- De 5. De Ba
Tngd Orb  .. 6. 6. ++ ++ De Bl Te ++ De !! Ab !! 3. Ab 3. -- Ab -- 3. 5. 2. Ba
Frnd Prot In In In ++ ++ In In In ++ De -- -- -- -- -- -- -- !! Pa De 4. De In
Enmy Prot In 8. 8. ++ ++ In In In ++ De De In De De De De !! -- De Pa -- -- In
Frnd Msle -- De De De De De Ab Te Ab Ab !! Ab !! 3. Ab 3. Pa Ab -- 3. !! !! 7.
```

```
Enmy Msle -- De De De De De Ab Te Ab Ab !! Ab !! 3. Ab 3. Ab Pa 3. -- !! !! 7.
KIller    -- .. .. -- -- .. .. -- -- .. -- -- -- -- -- -- -- -- -- 3. 3. --
FRagment  Ab De De De De Ab Ab Te Ab De !! Ab !! 2. Ab 2. Ab -- !! !! 3. !! 7.
TimeBomb  Ab Ba Ba ++ ++ Ba Ba Ab ++ .. Ba Ba Ba Ba Ba Ba Ba Ba Ba Ba Ba Ba ++
```

```
-- should never happen to
.. is not harmed by
++ destroys and earns points from
!! destroys/harms and is absorbed/harmed by
Ab is absorbed/harmed by
Ba timebomb detonates.
Bl is blocked & slowed by or bounces off from
De destroys/harms
In is invisible over
Pa passes through
Pu pushes
Te if (unblocked) is teleported by else Bl.
```

```
1. if (worm[firer].bias > 0) De else Ab.
2. !!. And explodes.
3. !!. And turns to bonus.
4. De. Creature turns to bonus.
5. Killer turns to bonus. Orb Bl.
6. if (worm[tail-owner].lives > 0 && worm[tail-owner].bias > 0)
        turn to gold else turn to silver.
7. Ab. Timebomb detonates.
8. if (worm[enemy-protector].mode == TONGUE) In else De.
9. if (multi-worm game)
        if (worm-head != tail-owner)
            turn to gold
   else
        turn to silver.
   else ..
```

To use this table: <row or 'collider'> <event> <column or 'collidee'>.
For example, to check what happens when a tongued orb collides with
(moves onto) a fragment, read the 'Tongued Orb' row and the 'FR'
(FRagment) column. You will see '2.', which means '!!. And explodes'.
That is to say, 'destroys and is absorbed by, and explodes'. Therefore,
'The tongued orb destroys and is absorbed by the fragment, and explodes'.

1.46 Other Information

                    Contact Details
                        Platforms

                 Development System

                 Source Code

                 History

                 Future

```
                    Other Products
```

1.47 Contact Details

```
                    Registration
```

You are strongly encouraged to register your copy of Worm Wars for
$AUS20 or $US20. This will enable continuing development of the software,
and provide you with free online technical support, additional developer
support documentation, regular previews and updates, extra fieldsets and
sound effects, special enhanced versions and special offers on other
Amigan/Enable Software products. Cheques and money orders should be made
payable to James Jacobs. You may also register through the Enable Software
website.

This Amiga version of Worm Wars is freeware. There are no limits on
usage, distribution or modification, except that you are not allowed to
modify and/or distribute it for commercial purposes without consent. You
are allowed to create and distribute other 'distributions' of Worm Wars,
for example, with other fieldsets and music, for non-commercial purposes.

Registering on the Amiga version entitles you to all the benefits of
IBM-PC registration, and vice versa.

Bugs

V4.1 for Amiga has been tested only on the
                Amiga development system
                and under emulation on the IBM-PC development system. V4.1 for IBM ←
                  -PC has
been tested on the IBM-PC compatible development system and other IBM-PC
compatibles.

Official Commodore development and style guidelines have been adhered to,
using the official Amiga Technical Reference Series as authoritive
reference.

It is very unlikely that there are any bugs in the sofware. Please contact
us immediately if any are found.

Submissions

Fieldsets (V4.1 format), music (ST/MED format), samples (IFF 8SVX/WAV) or
even modified versions of the game can be submitted and may be distributed
with a future release, with acknowledgements to the contributor(s).

Sound effects

The game uses IFF 8SVX files for its sound effects. Full IFF 8SVX support
is not required for the purposes of the game, and therefore the following
rules are imposed on the samples:

Must be an IFF 8SVX FORM (ie. not CAT or LIST).
No compression schemes are allowed.
Maximum sample size is 128K.
```

Must be 'one shot' style rather than 'musical note' style sample.
Only the first (highest, longest) octave is used.
Must be a single channel (ie. monaural) sample.
8SVX.VHDR and 8SVX.BODY chunks are required.
All other chunks (eg. generic IFF chunk PROP; standard IFF chunks
  NAME, (C), ANNO, AUTH; proposed IFF chunk END; standard IFF.8SVX
  chunks ATAK, RLSE; extended IFF.8SVX chunks CHAN, PAN, SEQN, FADE)
  are ignored.
Sample rate is taken from the 8SVX.VHDR chunk.
The repetition flag of the sample (ie. play once or loop), and the volume
  of the sample, are set in the game header files.

IFF 8SVX or WAV files submitted to Amigan Software as contributions can, if
necessary, be converted by us to fit these restrictions, but, of course,
the rules must be adhered to if you are changing the sound effects for
your own purposes.

Feedback

Most improvements thus far have been the initiative of Amigan Software.
Users are invited to contribute suggestions for the
                future
                 of the game.

Contact details

Mail   James Jacobs
                            Enable Software
                            PO Box 4630
                            Kingston ACT 2604
                            Australia

Voice   (H) Australia (02) 6287 4917
                            (M) Australia 0412 514 915

Fax   call on voice first

EMail   james_jacobs@altavista.net

URL   http://www.enablesoftware.com

1.48 Platforms

Worm Wars 4.1 is available for the Commodore/Escom/Gateway Amiga and now
Also for Microfilth Windows 95/98/NT. Henceforth the plan is for parallel
development of both versions, if we are given sufficient registrations.

It is directly in your interests to register this software.
Amigan Software has and always will continue to provide quality Amiga
software. The Amiga community which has fallen on hard times needs to
support its users and developers. As a mark of respect for the Amiga
we have not released a crippleware version on it: the freely
distributable Aminet version contains all features, including field
editor and source code, unlike the IBM-PC versions, in which registration
policy is enforced more harshly, because I loathe IBM-PC users! :-)

Nevertheless I regret to say that the lack of Amiga community feedback
and support has been the reason I have done an IBM-PC version.

The-IBM PC version is equivalent to the Amiga version except:

```
    Amiga                         IBM-PC{uu}

    AmigaGuide documentation      Microfilth Word documentation
    Is a screen                   Is windows
    All features as standard      Unregistered and registered versions
    Amiga-style version strings   Microfilth- and Amiga-style version
                                      strings
    No toolbar/status bar         Toolbar and status bar
    Animated title logo           Animated object descriptions
    640*256, rectangular aspect   640*400, square aspect
    No saving of configuration    Use of registry
    Music and sound effects       Sound effects only (in unregistered
                                      version)
    Overhead viewpoint only       Overhead and isometric 3D viewpoints
    IFF 8SVX samples              WAV samples
```

Both versions accepts the same 4.1 fieldset format.

1.49 Amiga Development System

```
Hardware               Commodore Amiga 1200HD/40
                       40Mb 2.5" IDE hard disk
                       2Mb chip RAM
                       14,400 baud modem
                       Akai 51cm CT-2119 colour television
            Quickshot QS-131 joystick
            Commodore mouse
Firmware               Kickstart 3.0
Software               Workbench/CLI 3.0
                       SAS/C 6.3 and SAS/C Editor
                       Deluxe Paint 4
                       IFF 2 Source 1.0
                       OctaMED 5 and MEDPlayer Programmer's Sources
                       MultiView 39.16
                       CodeWatcher 1.4
                       LhA 1.51
                       SoundBox 2.2
```

Thanks to all those whose software was used to create Worm Wars.

1.50 Source Code

            The Amiga version is written in C (SAS/C 6.3), whilst the IBM-PC ↩
                 version
is written in hybrid C/C++ (Microfilth Visual C++ 5.0), using Microfilth
Foundation Classes.

Both platforms use the identical game engine, written in C, with API
calls for the relevant OS in other modules.

SAS/C 6.3 source code is provided, with which you may do as you wish
for non-commercial purposes. Developer documentation, graphics files,
Audodoc-style function descriptions, background information and source
code for either or both platforms is available free to

                   registered users
                   . You may do as you wish wish these for
any non-commercial purpose.

system.c   Amiga-specific code, including all AmigaOS calls.
engine.c Code common to the Amiga and IBM-PC versions.
diff.h   Header file used by both modules. Amiga-specific.
same.h   Header file common to both modules and both platforms.
stdafx.h Blank header file, for compatibility with IBM-PC.
ww.s   AmigaDOS script to link modules into executable.
SCOPTIONS   SAS/C options we prefer to compile the release version with
                   (under emulation through WinUAE).
libproto.h MEDPlayer.library C header.

The source code for the IBM-PC version is included with the registered IBM-PC
version. It uses several additional files.

Porting

Developers are welcome to port Worm Wars to other platforms. There are no
plans by Amigan Software to ourselves concurrently develop more than the
two existing platforms, but registered users will be given assistance in
porting to any desired platform. After all, now that there is a Windows
95/98/NT version, no platform is more filthy than that! :-)

Developers can rewrite system.c(pp) for their target platform, and use the ←
   existing generic engine.c(pp), which will of course continue
to be updated for them by Amigan Software.

1.51 History

                   4.1 [Amiga 2.04+][Windows 95/98/NT]. Sun 6 Jun 1999.
                   4.0 [Amiga 2.04+]. Sun 1 Nov 1998.
   . New graphics, with squarer aspect ratios.
   . Sound effects.
   . High scores.
   . CLI arguments for the default fieldset, and for changing the
        program's priority level.
   . Switchers.
   . Time limits/bonuses.
   . Display of bonus points at the end of each level.
   . About... menu item.
   . Amiga-controlled worms are increasingly skilled at later levels.
   . Automatic slowing.

3.3 [Amiga 2.04+]. Wed 29 Jul 1998.
   . 40% larger playfield (70*39 instead of 50*39).

```
. Tools and Level menus.
. File menu accessible from title screen.
. Verification of data loss.
. Timebombs.
. 'Nose' protectors.
. Affixer.
. Support for keyboard and joystick control in field editor.
. Fieldsets stored as a single file with any number of levels,
    rather than fixed series of 0-10.
. Multiple fieldsets supported using ASL requesters for filenames.
. Clock indicator.
. Increases in frequency, speed, etc. of creatures at later levels.
. All dead worms resurrected at start of each level.
. Eater amalgamated with tongue.
. Killer bullets implemented as fragments.
. Improved diagonal worm firing.
. Text area supports colours.
. Worms slow down when hitting stone, killers or blocked teleports.
. Vampirism.
. Orbs kill killers they bounce off.
. Underlining of selected gadget in field editor.
. Missiles chasing missiles.
. Blocked teleports.
. Classic mode.

3.2 [Amiga 2.04+]. Tue 3 Dec 1996.
  . New killer control philosophy.
  . Points for covering screen with tail.
  . Checkmarks for menus.
  . Diagonal functions merged into nitro.
  . Pain levels.
  . Treasure.

3.1 [Amiga 2.04+]. Tue 16 Apr 1996.
  . Growers.
  . Diagonals.
  . Letters.
  . Levels.
  . Custom pointers in Field Editor.
  . Field editor supports right mouse button.

3.0  [Amiga 2.04+]: Thu 18 Jan 1996.
2.2 beta [Amiga 1.0+]: Sun 5 Feb 1995.
2.1  [Amiga 1.0+]: Tue 27 Dec 1994.
2.0  [Amiga 1.0+]: Sat  3 Dec 1994.
1.7  [Amiga 1.0+]: Wed 26 Oct 1994.
1.6  [Amiga 1.0+]: Sun  9 Oct 1994.
1.5a [Amiga 1.0+]: Thu 25 Aug 1994.
1.5  [Amiga 1.0+]: Sun 10 Jul 1994.
1.4 [MS-DOS]: Wed  9 Mar 1994.
1.3 [MS-DOS]: Fri 11 Feb 1994.
1.2 [MS-DOS]: Thu  4 Nov 1993.
1.1 [MS-DOS]: 1993.
1.0 [MS-DOS]: 1993.
```

1.52   Future

Worm Wars 4.2 is the next release planned, on one or both formats. ↩
Major
improvements are envisaged, including:

    . mouse control of yellow worm.
    . enhanced field editing.
    . even more objects and creatures
    . bonus stages

The future of this software is dependant on the
                 support
                  it
receives from its users. Your contribution will support further Amiga
software development and enhancement, at the expense of the IBM-PC version.

1.53   Other Products

Worm Wars 4.1 for Windows 95/98/NT

The Amiga version of Worm Wars has long proved its worth in the Amiga
community, acknowledged as the premier snake game for many years. Now at
last it is available to the masses of benighted Windows users. This
version is equivalent to the very latest incarnation of the Amiga game,
and even has features lacking from the Amiga version, such as dockable
toolbars, a status bar, isometric 3D and automatic saving/reloading of
configuration information.
  Worm Wars 4.1 for Windows 95/98/NT is now available from Amigan
Software or Enable Software. The earlier versions, for inferior machines
(Jaemol Tron), are still available (V2.2 beta for Kickstart 1.0-2.0 and
V1.4 for MS-DOS).

CodeWar

A game for programmers: in any language, you write a program to control a
robot vehicle ('X-Craft'), which fights other similar programs in an
attempt to determine the superior programmer. X-Craft programs interface
with the CodeWar library, and are compiled by the programmer's preferred
compiler, in any language. Then the CodeWar server runs all competing
programs against one another in the combat environment. Program source
code can be kept secret from other programmers. Also, combat over a
network is built in as standard. It is available now for Linux X-Windows,
and also for Amiga if enough interest is expressed by the Amiga
community. (This means you!)

X-Tron

A snake game for two players, human or Linux-controlled, replete with
some of the features of Worm Wars. Available now for Linux X-Windows.