Pat 4 Draw
Patch for Draw
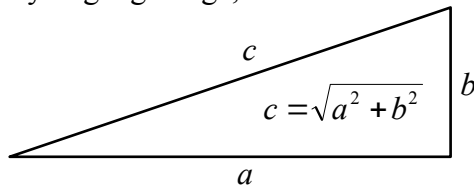
Word's Equation-Editor Enhancer

Patch for Draw, Version 2.0, is here (where, there ? ... HERE !)

> Ever tried to copy an equation from Word's equation editor into a
drawing application like Microsoft Draw or MicrografX Designer ? <

Try using your current version:
- select the formula
- copy it to the clipboard
- have a look at the formula via clipboard viewer
- paste the nice equation into Draw
- if you get garbage, Patch for Draw is for you.

$$c = \sqrt{a^2 + b^2}$$

with sides labeled c, b, and a.

The illustration above was drawn with *Draw* and a pasted formula from *Equation Editor*

> Ever wanted to save a complex formula to disk or load a
formula from disk ? <

> Ever wanted to have a simple macro/block insert function ? <

If you answered one, two or three of the above questions with "YES!", Patch for Draw is for you, if you answered four of the above questions with "YES!", you should learn to count to ten.

Patch for Draw (short: Pat4Draw) is a simple tool which hooks into formula editor and performs three tasks:

1. Makes sure that a metafile picture of your formula can be pasted into drawing applications like Microsoft Draw, MicrografX Designer or similar applications.
2. Adds "File Save" and "File Load" commands to the file menu.
3. Adds a shortcut for "File Load" to load buildings blocks for equations

Metafiles manipulated by Patch for Draw still have one little problem: integral signs are placed too low, not where they should be. Sorry, but you still have some work to do by hand.

*** How Metafile Picture copy works ***
The metafile picture sent to the clipboard when you select "Edit-Copy" is modified so that most drawing applications should be able to paste the formula correctly into a drawing.
This problem is an exception to the rule to blame Microsoft for everything:
The trouble is lurking in the metafile picture parsing routines of the drawing applications, not in the equation editor.
The applications can read the metafile from the clipboard, but they don't handle the text alignment flag TA_UPDATECP correctly so that all characters are placed at coordinates x=0 and y=0. Thus all characters get stacked in the upper left corner of your drawing window. Besides this bug the applications have a second bug: they do not respect the text alignment flag TA_BASELINE and place all characters at slightly wrong y-positions. These Errors render the pasted equations unreadable.

*** How "Load..." and "Save..." work ***
(WARNING: both commands destroy the contents of the clipboard, thats the way they are designed)

"Load..."
       1. loads the formula from disk
       2. copies the formula to the clipboard
       3. pastes the formula at the current cursor position into Equation Editor
       4. moves the cursor behind the inserted equation

"Save..."
       1. marks the whole formula (you <u>cannot</u> save a part of an equation only)
       2. copies the formula to the clipboard
       3. saves the formula to disk

*** How shortcuts work:
Pat4Draw supports a simple way to load equations at the current insertion point by three keystrokes:
       1 Press and hold CTRL
       2 Press and release "M", release CTRL (steps 1.+2. are CTRL-M)
       3 Press and release a single letter key (e.g. "X") or a digit key
       Pat4Draw now looks <u>in the directory where it has been installed</u>
       for a file which has a name of the form "X.eqn", where "X" is
       the letter key you pressed. So you can load nearly 40 different
       equations very fast without going throug the "File Load" menu.
       Filenames are restricted to one letter plus extension *".eqn"* though.
       If you have pressed CTRL-M by accident, you can press ESC to abort

the shortcut sequence (any key for which no matching file will be
found will work as well).

*** How to use:
There are 2 ways to hook Pat4Draw into Word's formula editor:

I)   You can start the formula editor together with
        Pat4Draw by executing a command line like:
            pat4draw.exe c:\apps\formula\eqnedit.exe
        It is necesarry to specify the complete path to start up the formula editor.

II)   If Pat4Draw finds a copy of formula editor already running,
        starting Pat4Draw will modify this instances behavior.
        (Equation editor is one of the few OLE servers which can
        be run without a parent, all others need at least some
        kind of stub client to start them up correctly)

When the equation editor is hooked on pat4draw (you too ?),
its caption should change.

Patch4Draw is not vapourware nor shareware, nor payware but freeware,
you may give it away, but not sell it !
Patch for Draw was developed with MS Quick C 1.0.

If this version of Pat4Draw is not enough for you, I suggest to buy a copy of *"MathType"*,
the big brother of equation editor or to use TEX.

*** Problems with equation spacing in Word for Windows ?
This section is on how to avoid the space which is inserted automatically by Word for
Windows before equation editor formulas.
You have to make a small change to your file WINWORD.EXE, so please make a backup
copy first.
Use a disk editor / Hex editor and look for the sequences shown below. Foreign language
versions of Word may have different strings, but the string sequence *"...MSDraw
MSGraph Equation MathType..."* should be there as well.

File=WINWORD.EXE   (German version 2.0)
Relative sector 0001496

+++ ORIGINAL FILE +++
```
---------------- Hex codes-------------------    --ASCII value---
53 44 72 61 77 07 4D 53 47 72 61 70 68 08 45 71    SDraw MSGraph Eq
                                                                 ^^
75 61 74 69 6F 6E 08 4D 61 74 68 54 79 70 65 0B    uation MathType
                                                   ^^^^^^
57 6F 72 64 4F 62 6A 65 63 74 20 05 67 72 61 70    WordObject  grap
68 07 45 71 6E 44 69 6D 73 0C 50 49 43 45 44 49    h EqnDims PICEDI
```

```
54 43 4C 41 53 53 00 00 00 00 10 20 56 65 72 6B    TCLASS      Verk
6E FC 26 70 66 75 6E 67 2E 2E 2E 0B 20 4F 26 62    n &pfung... O&b
6A 65 6B 74 2E 2E 2E 0B 20 4F 26 62 6A 65 6B 74    jekt... O&bjekt
```

Change *"Equation"* to something else e.g. *"Equatiox"*:

+++ CHANGED FILE +++
```
53 44 72 61 77 07 4D 53 47 72 61 70 68 08 45 71    SDraw MSGraph Eq
                                                                ^^
75 61 74 69 6F 78 08 4D 61 74 68 54 79 70 65 0B    uatiox MathType
                                                    ^^^^^^
57 6F 72 64 4F 62 6A 65 63 74 20 05 67 72 61 70    WordObject  grap
68 07 45 71 6E 44 69 6D 73 0C 50 49 43 45 44 49    h EqnDims PICEDI
54 43 4C 41 53 53 00 00 00 00 10 20 56 65 72 6B    TCLASS      Verk
6E FC 26 70 66 75 6E 67 2E 2E 2E 0B 20 4F 26 62    nn&pfung... O&b
6A 65 6B 74 2E 2E 2E 0B 20 4F 26 62 6A 65 6B 74    jekt... O&bjekt
```

Save the changed file.
Now try to insert a new equation object.
Voila ! No more alignment adjustmants necessary !

Legalese section (of course in small print):

Author: Martin Hepperle
e-mail: ea55@beasun1.ea.bs.dlr.de
          (internet address)