What is BlindMath

BlindMath is a software that permit access to mathematical documents from visually impaired peoples.

It can be useful also for disability inclusion purposes, because it shows all text and formulas in traditional mathematics symbols, for sighted users. In this way it promote the collaboration between sighted and visually impaired users in the usual work environments like school, college, laboratories, etc.

Prerequisites

To work properly BlindMath needs:

- The JAWS© screen reader, by "Freedom Scientific" installed and good working
- Techexplorer plugin for Internet Explorer, by © Integre Technical Publishing Co. to be installed (this plugin can be downloaded at the following link: http://www.integretechpub.com/download/techexplorer/).

Installation

An installation tool is provided with BlindMath. Depending on your system specifications you need to download the right version of the installer. Download whether BlindmathSetup32.exe for 32 bit systems or BlindmathSetup64.exe for 64 bit systems. BlindMath works properly on: Windows XP, Windows Vista e Windows Seven.

Launch BlindmathSetup32.exe (BlindmathSetup64.exe), then follow the instructions, the proper braille font will be installed along with the software.

Once the installation is complete you have to import JAWS dictionary. Dictionary files are located in the "dic" folder inside the installation folder (usually "C:\Program Files\Blindmath" or "C:\Program Files(x86)\Blindmath")

Use

BlindMath is designed for reading or writing documents and mathematic formulas.

Reading documents

Once you have launched the software and opened the .tex file (file/open), BlindMath will show the entire document in a dedicated window. JAWS will recognise and read the document. Furthermore the text, written in traditional mathematic symbols, will be showed in dedicated window. Thus the text can be read by sighted users.

To make the text easier to read for a visual impaired user you can access the menu Tools/Browse Document.

Hence, the module for the analysis of the document is active. The document will be divided in text blocks and formulas blocks allowing the users to move over between these blocks. To make the shift between the blocks easier you can use the shortcuts: SHIFT+left and SHIFT+right.

For formulas blocks, the software analyses the structure and creates the tree. Using shortcuts (SHIFT+up, SHIFT+down, SHIFT+left, SHIFT+right) the user can browse the formulas, getting to the parts of the formula from time to time.

The following example shows a document made up of three blocks (two text blocks and one formula block):
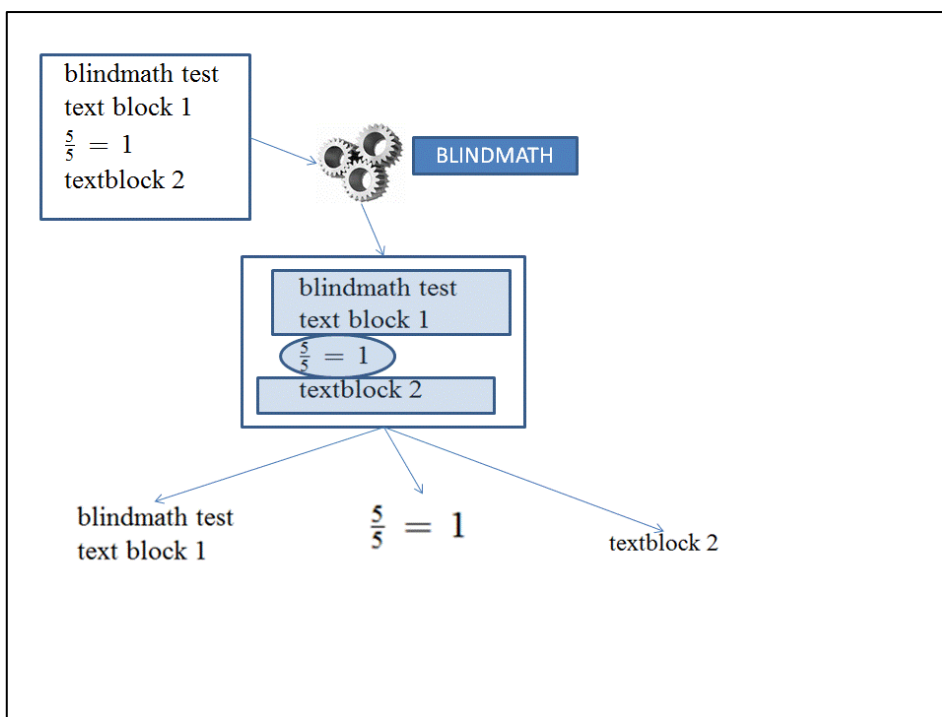

Fig 1. Example of document analysis and division in blocks

In text blocks the user can freely browse as in any other word-processor. In formula blocks the user can decide whether to read the entire formula or browse the formula, reading one part at a time (it can be useful for complex formulas). Thus, using the shortcuts listed above, you can browse the formula:
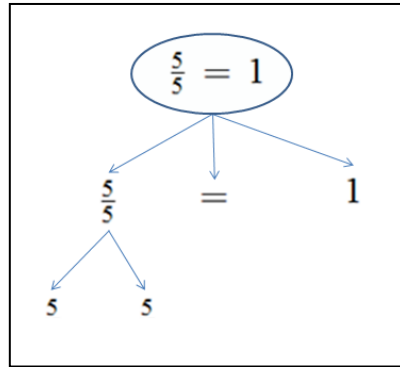
Fig 2. Example of a tree of formulas

Writing documents

You can use BlindMath to create documents. Once the software is launched you can write text as in any other word-processor. You can use the commands in the menu to insert formulas. To reach the insert new formula interface open the menu Formula/Insert Formula or press the shortcut CTRL+F. There's a large number of formulas and symbols you can use. A visual impaired user is guided through the usage by simple commands.

This assistance, helpful at first but annoying for an expert user, can be modified using the tools menu, as showed below:

1. select Formula/Insert Formula
2. access the menu bar
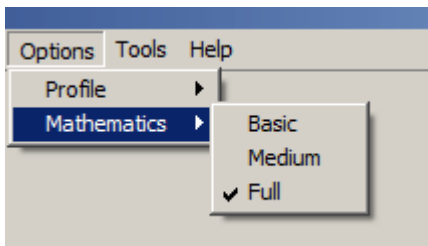3. select Options/Profile/Beginner
4. select Options/Mathematics/Full

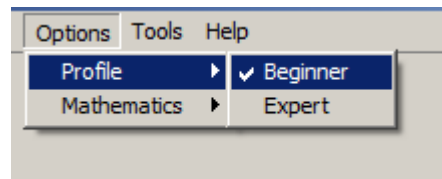**Fig 3. Software difficulty levels**

Fig 4. User's profile (Beginner, Expert)

Thereby you'll be provided with full assistance and all the formulas available will be shown.