

MathType 6.0's \TeX input for MS Word and Wikipedia

Paul Topping

Design Science, Inc.

140 Pine Ave.

Long Beach, CA

USA

pault (at) dessci dot com

http://www.dessci.com

Abstract

MathType is well-known for its point-and-click user interface for editing math. However, some users feel more comfortable typing math using \TeX , so in MathType 6.0 we have added a \TeX input mode. This provides the user with the best of both worlds: \TeX for initial entry, point-and-click and drag and drop for easy editing and manipulation. Since MathType can save equations in several graphics formats and objects, it provides a direct path from \TeX to Microsoft Word, PowerPoint, and virtually any document or application. Since many blogs and wikis accept a variant of \TeX math syntax and expose it in their web pages, we are now able to support both authoring and reuse of equations in these environments. In particular, MathType users can now copy equations out of the thousands of Wikipedia pages containing equations for use in educational and research authoring. In addition, MathType users can create equations and paste them directly into new Wikipedia content.

1 Introduction

Throughout MathType's 20-year history, it has been firmly in the point-and-click camp of equation editing. Because a trimmed-down version has shipped with Microsoft Office since 1991, it has been used to type a lot of math. Of course, \TeX remains popular and is heavily used in some scientific communities. Once a person's hands "know" \TeX , it is hard for them to imagine typing math any other way. And, because \TeX is free and easy to integrate into web servers as an equation image generator, many blog and wiki applications support it. Unfortunately, many people who don't know \TeX struggle with authoring math in these environments. With MathType 6.0, we tried to bridge both of these gaps, bringing \TeX input to MathType and allowing people who don't know \TeX to more easily work with wikis and blogs. Since Wikipedia is so popular and contains many equations authored in \TeX , we have made working with its equations especially easy.

2 Typing \TeX in a MathType window

Typing equations using \TeX and \LaTeX math syntax in MathType is very easy. At any point in building up an equation, if the user enters a run of text starting with one of the characters $\$ \^ _ \backslash$, that run will be treated as \TeX input to be converted into math

notation (see Figure 1). The resulting \TeX text will appear in dark grey as opposed to the normal black of converted math. Hit Enter and the \TeX input is converted into normal MathType equation content (see Figure 2). Any errors appear in red. Corrections can be made using MathType's normal point-and-click editing facilities, or the conversion can be undone to allow corrections to be made in the original \TeX . \TeX can also be pasted into MathType via the clipboard.

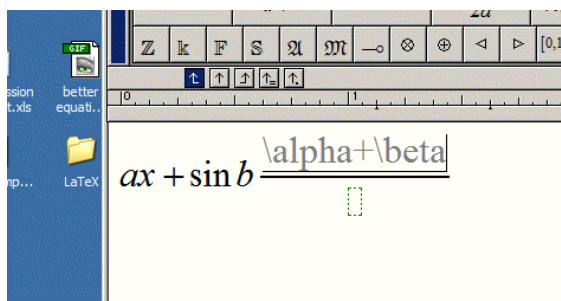


Figure 1: User types some \TeX .

3 Copying equations out of Wikipedia

Wikipedia, the popular online encyclopedia, contains thousands of pages with equations represented

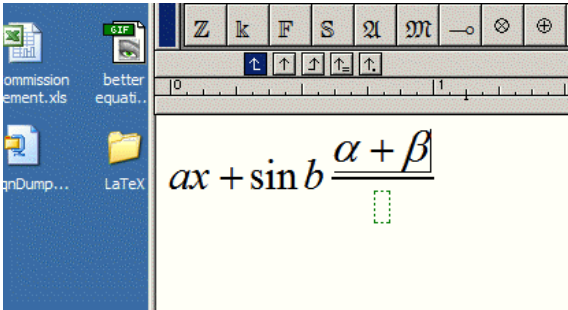


Figure 2: After typing ENTER.

in both HTML and as images. The math is authored using the Texvc subset of T_EX markup with some extensions for L^AT_EX and AMS-L^AT_EX. If it is simple enough, T_EX input is converted to HTML markup.

Otherwise, an image is generated with the T_EX input stored in the image's ALT attribute. When an equation is copied from the web page onto the Windows clipboard, the math notation is made available to MathType where it is converted to MathType's own equation representation. This works with Internet Explorer, Firefox, and any browser that supports Microsoft's HTML clipboard format (see Figures 3 and 4). A stack of HTML and/or T_EX equations can be copied in a single operation.

We have also added a Texvc output translator allowing equations to be created in MathType, or copied from equations in Microsoft Word documents, and pasted into Wikipedia pages.

4 Implementation

MathType's translation process involves two separate translators working together, one for HTML math and one for T_EX. The translators are written in a home-grown, rule-based language named Sevilla after the Spanish restaurant on the lower floors of Design Science's Long Beach, California, offices. Since the translation is defined using rules in text files, the existing translators can be customized and entire new translators may be created.

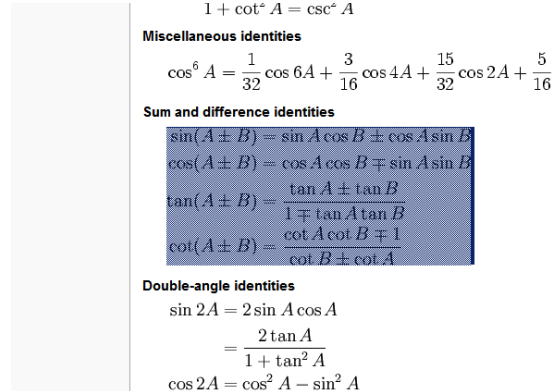


Figure 3: User copies from Wikipedia's Trigonometry page, <http://en.wikipedia.org/wiki/Trigonometry>.

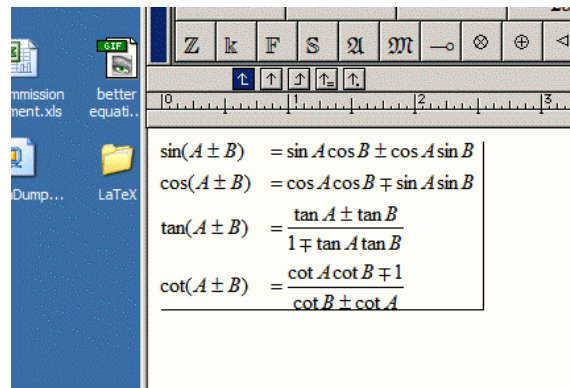


Figure 4: After pasting into MathType.

5 Current status

MathType 6.0 for Windows was released in July 2007. The same technology will also be brought into a future Macintosh version. In the future, we expect to be looking at creating smooth interfaces between MathType and other web-based math environments.