Patent Search

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Abstract:

Calculations may be lengthy and complicated, resulting in LATEX math strings that are similarly lengthy and complex to communicate the results of the calculations. Visual editing of the typeset LATEX formulae is accomplished via operations. Operations are triggered by control points in the formula, which is defined as a mechanism to indicate an operation associated with a point's position relative to a symbol in the formula. Control points are used to express operations related to a point's location relative to a symbol in the formula. When formulae reach the control points, they may be expanded in various ways: LATEX can be entered locally by typing, an existing formula can be inserted, or a portion of the formula itself can be shifted to that point for example. The subtree for a selection may be changed, erased, relocated to another position in the formula, or lifted out of the formula and put in a floating chip above the canvas by clicking on a symbol or dragging a rectangle over a region in the formula. Formula chips, which may be used as parameters to operations, can be found in a symbol palette and include a collection of pre-existing formulae. A control point operation may be accomplished by selecting, picking an argument, and then specifying the argument, or dragging an argument to a control point in the formula. To determine if visual editing procedures can be utilized to minimize the time and actions required to make adjustments to formulae, we conduct an online experiment in which we analyze the effectiveness of various visual editing operations.

Complete Specification

Description:

The current invention pertains to a computer-assisted mathematical formula editing approach, and more specifically, to a system based mathematical formula editing system and a method of implementing the system.

BACKGROUND OF THE INVENTION:

There have been numerous tools developed to assist with the resolution of the challenges associated with utilizing math online, including template-based editors, LATEX's math mode strings, and formula recognition algorithms for handwriting and photos. Although MathML was developed as an XML format for clearly expressing either the presentation (visual appearance) or the semantics (meaning) of mathematics, even if you were familiar with the tag names, it would be extremely time-consuming to manually type an expression in MathML due to the format's excessive verbosity. In contrast, LATEX's math mode strings are substantially shorter and would be far simpler to write out after you become comfortable with LATEX's syntax and layout.

The appearance of math search engines, many of which accept searches including math content given as LATEX-strings or typed using a template editor, has sparked an interest.

Math equations written in handwriting may be recognized by many commercial tools, including the MyScript1 and Microsoft Equation Editor systems, which are both available for purchase. In a search context, we discovered a wealth of useful material for creating a LATEX formula editing interface from various sources.

Zhong demonstrates how auto-completion capabilities, rather than simply text-based recommendations, might help formulate mathematical queries if it uses the

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