OpenMath3 without conditions: A Proposal for a MathML3/OM3 Calculus Content Dictionary

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Abstract

We propose a new way of encoding binding operators in OpenMath/MathML that alleviates the need to introduce `condition` elements into OpenMath3. We evaluate these ideas by providing a content dictionary `calculus?` that is more closely alingned with MathML2 representation intuitions as a replacement for the OpenMath standard CD `calculus1`.

1 Introduction

We are currently reworking the OpenMath content dictionaries from the "MathML group" in an attempt to align the OpenMath3 and MathML3 languages. One area of contention is the fact that MathML allows binding constructions where the bound variables are restricted by "qualifier elements", such as `domainofapplication`, `condition`, `uplimit`, `lowlimit`, `degree`, and `momentabout`.

Another bone of contention is that MathML often expresses functionals using binding operators over expressions with bound variables (and qualifiers), whereas OpenMath tends to apply the functionals themselves to functions represented with the help of the λ operator. Probably the synchronized OpenMath3/MathML3 content dictionaries should support both styles, since they appeal to different communities of mathematicians.

2 Acknowledgements

This proposal has been greatly influenced by discussions with Florian Rabe in the context of the developement of the OMDoc 1.6 notation definitions.